



Application

19833 - 2024 Transit Modernization
20308 - BTS Mobility Hub
Regional Solicitation - Transit and TDM Projects

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Primary Contact

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What Grant Programs are you most interested in? Regional Solicitation - Transit and TDM Projects

Organization Information

Name: MN VALLEY TRANSIT AUTH
Jurisdictional Agency (if different):
Organization Type:
Organization Website:
Address: 100 E HWY 13

* BURNSVILLE City Minnesota State/Province 55337 Postal Code/Zip
County: Dakota
Phone: * 612-882-7500 Phone Ext.
Fax:
PeopleSoft Vendor Number 0000003737A1

Project Information

Project Name BTS Mobility Hub
Primary County where the Project is Located Dakota
Cities or Townships where the Project is Located: Burnsville
Jurisdictional Agency (If Different than the Applicant):

Brief Project Description (Include location, road name/functional class, type of improvement, etc.) MTA's Burnsville Transit Station (BTS) is located on the intersection of Highway 13 and Nicollet Ave. The BTS Mobility Hub project involves building a new state-of-the-art customer transit training center, reconfiguration of site accessibility and circulation, designated community event space, upgrades to technology, safety, and customer service amenities and heightened safety and security measures. The total cost of this project is \$25M; MTA is requesting \$5.6M in federal funding toward this project and continues to seek additional funds to implement the full scope of the project as outlined.

The training center will provide community members hands-on and virtual experiences to learn about and test on-bus and route amenities, such as securement devices and ticket machines. Reconfiguration of the site will provide better connectivity from Highway 13, designated connection areas for different modes of travel, enhanced traffic and pedestrian safety, and allocated space for Transit Oriented Development initiatives.

(Limit 2,800 characters; approximately 400 words)

TRANSPORTATION IMPROVEMENT PROGRAM (TIP) DESCRIPTION - will be used in TIP if the project is selected for funding. See MnDOT's TIP description guidance. Burnsville Transit Station Mobility Hub, site accessibility, reconfiguration of busway, customer amenities

Include both the CSAH/MSAS/TH references and their corresponding street names in the TIP Description (see Resources link on Regional Solicitation webpage for examples).

Project Length (Miles) 0.18

to the nearest one-tenth of a mile

Project Funding

Are you applying for competitive funds from another source(s) to implement this project? Yes

If yes, please identify the source(s) USDOT RAISE Program

Federal Amount \$5,600,000.00

Match Amount \$1,400,000.00

Minimum of 20% of project total

Project Total \$7,000,000.00

For transit projects, the total cost for the application is total cost minus fare revenues.

Match Percentage 20.0%

Minimum of 20%

Compute the match percentage by dividing the match amount by the project total

Source of Match Funds The Metropolitan Council

A minimum of 20% of the total project cost must come from non-federal sources; additional match funds over the 20% minimum can come from other federal sources

Preferred Program Year

Select one: 2028, 2029

Select 2026 or 2027 for TDM and Unique projects only. For all other applications, select 2028 or 2029.

Additional Program Years: 2027

Select all years that are feasible if funding in an earlier year becomes available.

For All Projects

Identify the Transit Market Areas that the project serves: Market Area 3

See the "Transit Connections" map generated at the beginning of the application process.

For Park-and-Ride and Transit Station Projects Only

County, City, or Lead Agency Minnesota Valley Transit Authority

Zip Code where Majority of Work is Being Performed 55337

(Approximate) Begin Construction Date 05/01/2029

(Approximate) End Construction Date 09/03/2029

Name of Park and Ride or Transit Station: Burnsville Transit Station

e.g., MAPLE GROVE TRANSIT STATION

TERMINI: (Termini listed must be within 0.3 miles of any work)

From:
(Intersection or Address)

To:
(Intersection or Address)

DO NOT INCLUDE LEGAL DESCRIPTION

Or At:
(Intersection or Address)

100 Highway 13 E Burnsville, MN 55337

Primary Types of Work

Examples: GRADE, AGG BASE, BIT BASE, BIT SURF, SIDEWALK, CURB AND GUTTER, STORM SEWER, SIGNALS, LIGHTING, GUARDRAIL, BIKE PATH, PED RAMPS, PARK AND RIDE, ETC.

Requirements - All Projects

All Projects

1. The project must be consistent with the goals and policies in these adopted regional plans: Thrive MSP 2040 (2014), the 2040 Transportation Policy Plan (2018), the 2040 Regional Parks Policy Plan (2018), and the 2040 Water Resources Policy Plan (2015).

Check the box to indicate that the project meets this requirement.

Yes

2. The project must be consistent with the 2040 Transportation Policy Plan. Reference the 2040 Transportation Plan goals, objectives, and strategies that relate to the project.

Briefly list the goals, objectives, strategies, and associated pages:

The BTS Mobility Hub project aligns with the following 2040 Transportation Policy Plan goals, objectives, and strategies:

A. Transportation System Stewardship, page 58

Objectives: Efficiently preserve and maintain the regional transportation system in a state of good repair; and operate the regional transportation system to efficiently and cost-effectively connect people and freight to destinations.

Strategies: A1; Place the highest priority for transportation investments on strategically preserving, maintaining, and operating the transportation system

A2; Regularly review planned preservation and maintenance projects to identify cost-effective opportunities to incorporate improvements for safety, lower-cost congestion management and mitigation, transit, bicycle, and pedestrian facilities.

B. Safety and Security, page 60

Objectives: Reduce crashes and improve safety and security for all modes of passenger travel and freight transport; and reduce the transportation system's vulnerability to natural and man-made incidents and threats.

Strategies: B1; Incorporate safety and security considerations for all modes and users throughout the processes of planning, funding, construction, operation.

B3; Monitor and routinely analyze safety and security data by mode and severity to identify.

B4; Support the state's vision of moving toward zero traffic fatalities and serious injuries, which includes supporting educational and enforcement programs to increase awareness of regional safety issues, shared responsibility, and safe behavior.

C. Access to Destinations, page 62

Objectives: Increase travel time reliability and predictability for travel on highway and transit systems; increase transit ridership and the share of trips taken using transit, bicycling, and walking; and improve multimodal travel options for people of all ages and abilities to connect to jobs and other opportunities, particularly for historically underrepresented populations.

Strategies: C1; Continue to work together to plan and implement transportation systems that are multimodal and provide connections between modes

C4; Promote multimodal travel options and alternatives to single-occupant vehicle travel and highway congestion through a variety of travel demand management initiatives, with a focus on major job, activity, and industrial and manufacturing concentrations on congested highway corridors and corridors served by regional transit service.

C11; Expand and modernize transit service, facilities, systems, and technology, to meet growing demand, improve the customer experience, improve access to destinations, and maximize the efficiency of investments.

Limit 2,800 characters; approximately 400 words

3. The project or the transportation problem/need that the project addresses must be in a local planning or programming document. Reference the name of the appropriate comprehensive plan, regional/statewide plan, capital improvement program, corridor study document [studies on trunk highway must be approved by the Minnesota Department of Transportation and the Metropolitan Council], or other official plan or program of the applicant agency [includes Safe Routes to School Plans] that the project is included in and/or a transportation problem/need that the project addresses.

List the applicable documents and pages: Unique projects are exempt from this qualifying requirement because of their innovative nature. The BTS Mobility Hub project adheres to the following City of Burnsville 2040 Comprehensive Plan transportation goals:

- Goal 1. Play a major role in determining solutions to regional transportation problems.
- Goal 2. Community roadway system is maintained at a reasonable cost.
- Goal 3. Develop and advocate for a transportation system that efficiently and safely moves people and goods.
- Goal 4. Develop and advocate for an environmentally sensitive and sustainable transportation system.
- Goal 5. Work to integrate multiple methods of transportation into the existing and future transportation system that are safe and convenient.
- Goal 6. Mitigate traffic congestion and improve traffic flow in all areas of the community.
- Goal 7. Protect City interests regarding airport, rail and highway noise pollution and minimize noise in Burnsville.
- Goal 8. Continue to support transit.
- Goal 10. Account and plan for the assimilation of new transportation technologies.
- Goal 11. Work to coordinate the development of the transportation needs of the MRQ development.

Limit 2,800 characters, approximately 400 words

4. The project must exclude costs for studies, preliminary engineering, design, or construction engineering. Right-of-way costs are only eligible as part of transit stations/stops, transit terminals, park-and-ride facilities, or pool-and-ride lots. Noise barriers, drainage projects, fences, landscaping, etc., are not eligible for funding as a standalone project, but can be included as part of the larger submitted project, which is otherwise eligible. Unique project costs are limited to those that are federally eligible.

Check the box to indicate that the project meets this requirement. Yes

5. Applicant is a public agency (e.g., county, city, tribal government, transit provider, etc.) or non-profit organization (TDM and Unique Projects applicants only). Applicants that are not State Aid cities or counties in the seven-county metro area with populations over 5,000 must contact the MnDOT Metro State Aid Office prior to submitting their application to determine if a public agency sponsor is required.

Check the box to indicate that the project meets this requirement. Yes

6. Applicants must not submit an application for the same project elements in more than one funding application category.

Check the box to indicate that the project meets this requirement. Yes

7. The requested funding amount must be more than or equal to the minimum award and less than or equal to the maximum award. The cost of preparing a project for funding authorization can be substantial. For that reason, minimum federal amounts apply. Other federal funds may be combined with the requested funds for projects exceeding the maximum award, but the source(s) must be identified in the application. Funding amounts by application category are listed below in Table 1. For unique projects, the minimum award is \$500,000 and the maximum award is the total amount available each funding cycle (approximately \$4,000,000 for the 2024 funding cycle).

Transit Expansion: \$500,000 to \$7,000,000
Transit Modernization: \$500,000 to \$7,000,000
Travel Demand Management (TDM): \$100,000 to \$500,000

Check the box to indicate that the project meets this requirement. Yes

8. The project must comply with the Americans with Disabilities Act (ADA).

Check the box to indicate that the project meets this requirement. Yes

9. In order for a selected project to be included in the Transportation Improvement Program (TIP) and approved by USDOT, the public agency sponsor must either have a current Americans with Disabilities Act (ADA) self-evaluation or transition plan that covers the public right of way/transportation, as required under Title II of the ADA. The plan must be completed by the local agency before the Regional Solicitation application deadline. For future Regional Solicitation funding cycles, this requirement may include that the plan has undergone a recent update, e.g., within five years prior to application.

The applicant is a public agency that employs 50 or more people and has a completed ADA transition plan that covers the public right of way/transportation.

Date plan completed:

Link to plan:

The applicant is a public agency that employs fewer than 50 people and has a completed ADA self-evaluation that covers the public right of way/transportation: Yes

Date self-evaluation completed: 04/29/2020

Link to plan:

Upload plan or self-evaluation if there is no link. 1702403053962_MVTA_ADA Policy.pdf

(TDM and Unique Project Applicants Only) The applicant is not a public agency subject to the self-evaluation requirements in Title II of the ADA.

10. The project must be accessible and open to the general public.

Check the box to indicate that the project meets this requirement. Yes

11. The owner/operator of the facility must operate and maintain the project year-round for the useful life of the improvement. This includes assurance of year-round use of bicycle, pedestrian, and transit facilities, per FHWA direction established 8/27/2008 and updated 4/15/2019. Unique projects are exempt from this qualifying requirement.

Check the box to indicate that the project meets this requirement. Yes

12. The project must represent a permanent improvement with independent utility. The term "independent utility" means the project provides benefits described in the application by itself and does not depend on any construction elements of the project being funded from other sources outside the regional solicitation, excluding the required non-federal match.

Projects that include traffic management or transit operating funds as part of a construction project are exempt from this policy.

Check the box to indicate that the project meets this requirement. Yes

13. The project must not be a temporary construction project. A temporary construction project is defined as work that must be replaced within five years and is ineligible for funding. The project must also not be staged construction where the project will be replaced as part of future stages. Staged construction is eligible for funding as long as future stages build on, rather than replace, previous work.

Check the box to indicate that the project meets this requirement. Yes

14. The project applicant must send written notification regarding the proposed project to all affected state and local units of government prior to submitting the application.

Check the box to indicate that the project meets this requirement. Yes

Requirements - Transit and TDM Projects

For Transit Expansion Projects Only

1. The project must provide a new or expanded transit facility or service. Applications cannot include the reinstatement of service to routes that were reduced or suspended as a result of the COVID-19 pandemic. Transit Expansion projects must be proposing expanded service beyond what existed prior to March 2020 service changes.

Check the box to indicate that the project meets this requirement.

2. The applicant must have the capital and operating funds necessary to implement the entire project and commit to continuing to fund the service or facility project beyond the initial three-year funding period for transit operating funds if the applicant continues the project.

Check the box to indicate that the project meets this requirement.

Transit Expansion and Transit Modernization projects only:

3. The project is not eligible for either capital or operating funds if the corresponding capital or operating costs have been funded in a previous solicitation. However, Transit Modernization projects are eligible to apply in multiple solicitations if new project elements are being added with each application. Each transit application must show independent utility and the points awarded in the application should only account for the improvements listed in the application.

Check the box to indicate that the project meets this requirement. Yes

4. The applicant must affirm that they are able to implement a Federal Transit Administration (FTA) funded project in accordance with the grant application, Master Agreement, and all applicable laws and regulations, using sound management practices. Furthermore, the applicant must certify that they have the technical capacity to carry out the proposed project and manage FTA grants in accordance with the grant agreement, sub recipient grant agreement (if applicable), and with all applicable laws. The applicant must certify that they have adequate staffing levels, staff training and experience, documented procedures, ability to submit required reports correctly and on time, ability to maintain project equipment, and ability to comply with FTA and grantee requirements.

Check the box to indicate that the project meets this requirement. Yes

Travel Demand Management projects only:

The applicant must be properly categorized as a subrecipient in accordance with 2CFR200.330.

Check the box to indicate that the project meets this requirement.

The applicant must adhere to Subpart E Cost Principles of 2CFR200 under the proposed subaward.

Check the box to indicate that the project meets this requirement.

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES

	Cost
Mobilization (approx. 5% of total cost)	\$0.00
Removals (approx. 5% of total cost)	\$0.00
Roadway (grading, borrow, etc.)	\$0.00
Roadway (aggregates and paving)	\$0.00
Subgrade Correction (muck)	\$0.00
Storm Sewer	\$0.00
Ponds	\$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	\$0.00
Traffic Control	\$0.00
Striping	\$0.00
Signing	\$0.00
Lighting	\$0.00
Turf - Erosion & Landscaping	\$0.00
Bridge	\$0.00
Retaining Walls	\$0.00
Noise Wall (not calculated in cost effectiveness measure)	\$0.00
Traffic Signals	\$0.00

Wetland Mitigation	\$0.00
Other Natural and Cultural Resource Protection	\$0.00
RR Crossing	\$0.00
Roadway Contingencies	\$0.00
Other Roadway Elements	\$0.00
Totals	\$0.00

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	\$0.00
Sidewalk Construction	\$0.00
On-Street Bicycle Facility Construction	\$0.00
Right-of-Way	\$0.00
Pedestrian Curb Ramps (ADA)	\$0.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	\$0.00
Pedestrian-scale Lighting	\$0.00
Streetscaping	\$0.00
Wayfinding	\$0.00
Bicycle and Pedestrian Contingencies	\$0.00
Other Bicycle and Pedestrian Elements	\$0.00
Totals	\$0.00

Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Fixed Guideway Elements	\$0.00
Stations, Stops, and Terminals	\$6,300,000.00
Support Facilities	\$0.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	\$0.00
Vehicles	\$0.00
Contingencies	\$700,000.00
Right-of-Way	\$0.00
Other Transit and TDM Elements	\$0.00
Totals	\$7,000,000.00

Transit Operating Costs

Number of Platform hours	0
Cost Per Platform hour (full loaded Cost)	\$0.00
Subtotal	\$0.00
Other Costs - Administration, Overhead, etc.	\$0.00

PROTECT Funds Eligibility

One of the new federal funding sources is Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT). Please describe which specific elements of your project and associated costs out of the Total TAB-Eligible Costs are eligible to receive PROTECT funds. Examples of potential eligible items may include: storm sewer, ponding, erosion control/landscaping, retaining walls, new bridges over floodplains, and road realignments out of floodplains.

INFORMATION: [Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation \(PROTECT\) Formula Program Implementation Guidance \(dot.gov\)](https://www.fhwa.dot.gov/transportation/protection/protect_formula_program_implementation_guidance.cfm).

Response:

Totals

Total Cost	\$7,000,000.00
Construction Cost Total	\$7,000,000.00
Transit Operating Cost Total	\$0.00

Measure A: Project Location Relative to Jobs, Manufacturing, and Education

Existing Employment within 1/4 (bus stop) or 1/2 mile (transitway station) buffer	9711
Post-Secondary Enrollment within 1/4 (bus stop) or 1/2 mile (transitway station) buffer	0

Existing employment outside of the 1/4 or 1/2 mile buffer to be served by shuttle service (Letter of Commitment required)

Upload the "Letter of Commitment"

Please upload attachment in PDF form

Existing Post-Secondary Enrollment outside of the 1/4 or 1/2 mile buffer to be served by shuttle service (Letter of Commitment required)

Upload the "Letter of Commitment"

Please upload attachment in PDF form

Explanation of last-mile service, if necessary:

BTS is MTA's primary transit station, and MTA Connect (microtransit service) provides first-last mile service to the surrounding communities and commercial spaces.

(Limit 1,400 characters; approximately 200 words)

Upload Map

1702483352405_BTS_Mobility_Hub_Population_Employment_Map.pdf

Please upload attachment in PDF form

Measure B: Transit Ridership

Existing transit routes directly connected to the project

425, 444, 460, 465, 480, 495

Select all routes that apply.

Planned Transitways directly connected to the project (mode and alignment determined and identified in the Current Revenue Scenario of the 2040 TPP)

Select all transitways that apply.

Upload Map

1702483531697_BTS_Mobility_Hub_Transit_Connections_Map.pdf

Please upload attachment in PDF form

Response

Met Council Staff Data Entry Only

Average number of weekday trips

0

Measure: Usage

Existing Transit Routes on the Project

425, 444, 460, 465, 480, 495

Measure A: Engagement

i. Describe any Black, Indigenous, and People of Color populations, low-income populations, disabled populations, youth, or older adults within a 1/2 mile of the proposed project. Describe how these populations relate to regional context. Location of affordable housing will be addressed in Measure C.

ii. Describe how Black, Indigenous, and People of Color populations, low-income populations, persons with disabilities, youth, older adults, and residents in affordable housing were engaged, whether through community planning efforts, project needs identification, or during the project development process.

iii. Describe the progression of engagement activities in this project. A full response should answer these questions:

1. What engagement methods and tools were used?
2. How did you engage specific communities and populations likely to be directly impacted by the project?
3. What techniques did you use to reach populations traditionally not involved in community engagement related to transportation projects?
4. How were the project's purpose and need identified?
5. How was the community engaged as the project was developed and designed?
6. How did you provide multiple opportunities for of Black, Indigenous, and People of Color populations, low-income populations, persons with disabilities, youth, older adults, and residents in affordable housing to engage at different points of project development?
7. How did engagement influence the project plans or recommendations? How did you share back findings with community and re-engage to assess responsiveness of these changes?
8. If applicable, how will NEPA or Title VI regulations will guide engagement activities?

Response:

As the second largest transportation agency by ridership in Minnesota, the Minnesota Valley Transit Authority (MVTA) has great ability to contribute to transitioning the region to a low-carbon transportation system and improving safety, reducing inequities, and supporting economic development. To achieve such, the Sustainable Transportation Advisory Council (STAC) made recommendations to the MnDOT Commissioner, consisting of strategies to help reduce carbon pollution from transportation.

MVTA is requesting \$20 million in RAISE funds for Phase I of a multi-phase project to transform the Burnsville Transit Station into a transit mobility hub.

Public engagement and outreach by our marketing and customer service teams identified multiple amenities and upgrades desired by the communities we serve, including EV charging infrastructure, traffic mitigation components, and safety and surveillance in and around our facility. These opinions were acquired through engagement at community events, social media, and surveys sent to current riders and community members.

(Limit 2,800 characters; approximately 400 words):

Measure B: Disadvantaged Communities Benefits and Impacts

Describe the project's benefits to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. Benefits could relate to:

- ? pedestrian and bicycle safety improvements;*
- ? public health benefits;*
- ? direct access improvements for residents or improved access to destinations such as jobs, school, health care, or other;*
- ? travel time improvements;*
- ? gap closures;*
- ? new transportation services or modal options;*
- ? leveraging of other beneficial projects and investments;*
- ? and/or community connection and cohesion improvements.*

This is not an exhaustive list. A full response will support the benefits claimed, identify benefits specific to Disadvantaged communities residing or engaged in activities near the project area, identify benefits addressing a transportation issue affecting Disadvantaged communities specifically identified through engagement, and substantiate benefits with data.

Acknowledge and describe any negative project impacts to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. Describe measures to mitigate these impacts. Unidentified or unmitigated negative impacts may result in a reduction in points.

Below is a list of potential negative impacts. This is not an exhaustive list.

- ? Decreased pedestrian access through sidewalk removal / narrowing, placement of barriers along the walking path, increase in auto-oriented curb cuts, etc.*
- ? Increased speed and/or cut-through traffic.*
- ? Removed or diminished safe bicycle access.*
- ? Inclusion of some other barrier to access to jobs and other destinations.*

Response:

The US Census Tract 607.11 directly abutting the project site is a population recognized by the DOT as a historically disadvantaged and transportation disadvantaged community. The Metropolitan Council also designates this tract as an area of concentrated poverty.

This project was designed specifically with these communities in mind, and the proposed transit training facility in particular will better prepare riders for safe and comfortable utilization of not just BTS, but all transit facilities. This aspect significantly aims to mitigate transportation disparity in our service area.

MVTA also recognizes that disadvantaged communities are disproportionately affected by climate and environmental issues. The BTS Mobility Hub is heavily led by our sustainability initiatives, with plans to reduce carbon emissions through the addition of EV infrastructure for both MVTA operations and the public.

The safety of these populations is also a major consideration in this project, especially with the congestion that is present during peak traffic hours at the intersection of Highway 13 and Nicollet Avenue in Burnsville. Accessibility goes hand in hand with safety, and with updates to internal intersections and roadways, pedestrian and biking infrastructure, and ADA accessible spaces in the parking lots/ramps, we hope to make transit safer and easier to access for everyone.

(Limit 2,800 characters; approximately 400 words):

Measure C: Affordable Housing Access

Describe any affordable housing developments?existing, under construction, or planned?within ½ mile of the proposed project. The applicant should note the number of existing subsidized units, which will be provided on the Socio-Economic Conditions map. Applicants can also describe other types of affordable housing (e.g., naturally-occurring affordable housing, manufactured housing) and under construction or planned affordable housing that is within a half mile of the project. If applicable, the applicant can provide self-generated PDF maps to support these additions. Applicants are encouraged to provide a self-generated PDF map describing how a project connects affordable housing residents to destinations (e.g., childcare, grocery stores, schools, places of worship).

Describe the project?s benefits to current and future affordable housing residents within ½ mile of the project. Benefits must relate to affordable housing residents. Examples may include:

- ? specific direct access improvements for residents*
- ? improved access to destinations such as jobs, school, health care or other;*
- ? new transportation services or modal options;*
- ? and/or community connection and cohesion improvements.*

This is not an exhaustive list. Since residents of affordable housing are more likely not to own a private vehicle, higher points will be provided to roadway projects that include other multimodal access improvements. A full response will support the benefits claimed, identify benefits specific to residents of affordable housing, identify benefits addressing a transportation issue affecting residents of affordable housing specifically identified through engagement, and substantiate benefits with data.

Response:

Within a half mile of the project site, there are 344 publicly subsidized rental housing units. Along with the direct access to these housing units, MTA bridges the gap to those further away from transportation facilities through MTA Connect, a microtransit service that is zone-based rather than fixed route. Riders can use this service as a connection to BTS in the Heart of the City, where they then have direct access to grocery stores, healthcare facilities, and other local businesses. The following are within a half mile of BTS, with many others within a mile:

- Cub Foods
- Minnesota Health Insurance Network
- Holiday Gas Station
- New Horizon Academy
- Great Clips
- FedEx

(Limit 2,800 characters; approximately 400 words):

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:

Project's census tracts are above the regional average for population in poverty or population of color (Regional Environmental Justice Area): Yes

Project located in a census tract that is below the regional average for population in poverty or populations of color (Regional Environmental Justice Area):

Upload the "Socio-Economic Conditions" map used for this measure.

1702483817311_BTS_Mobility_Hub_Socio_Econ_Map.pdf

Measure A: Description of emissions reduced

Response:

A comprehensive approach, including increasing public access to electric charging stations, encouraging electric maintenance and transit fleets, and reducing vehicle miles traveled by improving alternative transportation options such as transit are included in MnDOT Sustainable Transportation Advisory Council (STAC) published 2022 Recommendations to reduce transportation-related air pollution and greenhouse gas emissions, particularly in underserved communities. The proposed project will do all of this and more.

The proposed project builds off City of Burnsville investments and is in alignment with

the 2020 TOD zoning district and zoning code. The TOD district supports mixed use, high density multi-family and employment opportunities with a focus on compact, complete, and connected development. The addition of transit oriented

development on the site will encourage non-motorized trips, such as walking or biking

to Burnsville Transit Station, where residents

and patrons can connect to regional routes.

The project also includes EV charging infrastructure for public use and a design that supports the use of electric buses as MMTA continues forward with its Zero-Emission bus transition plan.

(Limit 2,800 characters; approximately 400 words)

Applicants are recommended to provide any data to support their argument.

Upload any data

Please upload attachment in PDF form

1702672729240_MMTA ZEB Transition Plan_Phase I.pdf

Measure C: Improvements and Amenities

Response

The BTS Mobility Hub project includes the following improvements and amenities:

- Public and microtransit EV charging stations
- 6 public bike racks
- 6 new benches
- New wayfinding technology
- New security/surveillance system
- 4 real-time signage
- Raised decorative crosswalk
- Handicap ramps
- Pedestrian bridge for foot traffic safety
- Training facility open to public to learn more about public transit and how to use it

(Limit 5,600 characters; approximately 800 words)

Measure A: Roadway, Bicycle, and Pedestrian Improvements

Response

The BTS Mobility Hub truly is meant to be a location suited for multimodal transportation options and lends itself to multiple different types of commuters outside of those simply riding MMTA buses. This is achieved through the addition of the following components:

- Handicap ramps (10)
- Raised decorative crosswalk (2)
- Bus entry gate (1); this will allow greater space between buses and other cars/bikes/commuters and will optimize ride schedules as well as improve safety
- Outdoor waiting area heaters
- EV charging stations (7); public use
- Benches (7)
- Bike Racks (7)
- Parking Garage elevator (1)
- Pedestrian bridge (1); protects those travelling on foot from cars, buses, and bikes traveling through the area

MMTA also plans to improve the safety of the environment at BTS through expanded camera reach and the addition of emergency phones.

(Limit 2,800 characters; approximately 400 words)

Transit Projects Not Requiring Construction

If the applicant is completing a transit application that is operations only, check the box and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.

Park-and-Ride and other transit construction projects require completion of the Risk Assessment below.

[Check Here if Your Transit Project Does Not Require Construction](#)

Measure A: Risk Assessment - Construction Projects

1. Public Involvement (20 Percent of Points)

Projects that have been through a public process with residents and other interested public entities are more likely than others to be successful. The project applicant must indicate that events and/or targeted outreach (e.g., surveys and other web-based input) were held to help identify the transportation problem, how the potential solution was selected instead of other options, and the public involvement completed to date on the project. The focus of this section is on the opportunity for public input as opposed to the quality of input. NOTE: A written response is required and failure to respond will result in zero points.

Multiple types of targeted outreach efforts (such as meetings or online/mail outreach) specific to this project with the general public and partner agencies have been used to help identify the project need. Yes

100%

At least one meeting specific to this project with the general public has been used to help identify the project need.

50%

At least online/mail outreach effort specific to this project with the general public has been used to help identify the project need.

50%

No meeting or outreach specific to this project was conducted, but the project was identified through meetings and/or outreach related to a larger planning effort.

25%

No outreach has led to the selection of this project.

0%

Describe the type(s) of outreach selected for this project (i.e., online or in-person meetings, surveys, demonstration projects), the method(s) used to announce outreach opportunities, and how many people participated. Include any public website links to outreach opportunities.

Response:

The site concept design was guided by public feedback from various sources including customer feedback collected from MVRTA's Customer Service Department, many of which were requests for new services or technology assistance and safety and security related. Proposed site improvement elements are also supported by community feedback collected during development of MVRTA's Sustainability Plan of which there was strong desire for personal electric vehicle charging stations, mixed-use TOD, and improved transit services and efficiencies. The proposed project also aligns with community goals identified during drafting of the City of Burnsville Multimodal Plan, the City's adopted complete streets policy in 2021 and their ADA transition plan in 2020. Feedback on feasibility during the master planning process was gathered from technical experts, planning, and site maintenance staff from the design consultant and MVRTA.

(Limit 2,800 characters; approximately 400 words)

2. Layout (25 Percent of Points)

Layout includes proposed geometrics and existing and proposed right-of-way boundaries. A basic layout should include a base map (north arrow; scale; legend;* city and/or county limits; existing ROW, labeled; existing signals;* and bridge numbers*) and design data (proposed alignments; bike and/or roadway lane widths; shoulder width;* proposed signals;* and proposed ROW). An aerial photograph with a line showing the project's termini does not suffice and will be awarded zero points. *If applicable

Layout approved by the applicant and all impacted jurisdictions (i.e., cities/counties/MnDOT. If a MnDOT trunk highway is impacted, approval by MnDOT must have occurred to receive full points. A PDF of the layout must be attached along with letters from each jurisdiction to receive points.

100%

A layout does not apply (signal replacement/signal timing, stand-alone streetscaping, minor intersection improvements). Applicants that are not certain whether a layout is required should contact Colleen Brown at MnDOT Metro State Aid ? colleen.brown@state.mn.us. Yes

100%

For projects where MnDOT trunk highways are impacted and a MnDOT Staff Approved layout is required. Layout approved by the applicant and all impacted local jurisdictions (i.e., cities/counties), and layout review and approval by MnDOT is pending. A PDF of the layout must be attached along with letters from each jurisdiction to receive points.

75%

Layout completed but not approved by all jurisdictions. A PDF of the layout must be attached to receive points.

50%

Layout has been started but is not complete. A PDF of the layout must be attached to receive points.

25%

Layout has not been started

0%

Attach Layout

Please upload attachment in PDF form

Additional Attachments

Please upload attachment in PDF form

3. Review of Section 106 Historic Resources (15 Percent of Points)

No known historic properties eligible for or listed in the National Register of Historic Places are located in the project area, and project is not located on an identified historic bridge Yes

100%

There are historical/archeological properties present but determination of ?no historic properties affected? is anticipated.

100%

Historic/archeological property impacted; determination of ?no adverse effect? anticipated

80%

Historic/archeological property impacted; determination of ?adverse effect? anticipated

40%

Unsure if there are any historic/archaeological properties in the project area.

0%

Project is located on an identified historic bridge

4. Right-of-Way (25 Percent of Points)

Right-of-way, permanent or temporary easements, and MnDOT agreement/limited-use permit either not required or all have been acquired Yes

100%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - plat, legal descriptions, or official map complete

50%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels identified

25%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels not all identified

0%

5. Railroad Involvement (15 Percent of Points)

No railroad involvement on project or railroad Right-of-Way agreement is executed (include signature page, if applicable) Yes

100%

Signature Page

Please upload attachment in PDF form

Railroad Right-of-Way Agreement required; negotiations have begun

50%

Railroad Right-of-Way Agreement required; negotiations have not begun.

0%

Measure: Cost Effectiveness

Total Annual Operating Cost: \$0.00

Total Annual Capital Cost of Project \$100,000.00

Total Annual Project Cost \$100,000.00

Assumption Used: Total capital cost of \$7,000,000 for BTS divided by 70 years of useful life for a transit station.

(Limit 1400 Characters; approximately 200 words)

Points Awarded in Previous Criteria

Cost Effectiveness \$0.00

Other Attachments

File Name	Description	File Size
06_BTS Mobility Hub Letter of Commitment.pdf	MVTA Letter of Commitment, Funding.	79 KB
06_MVTA 2024 Regional Solicitation Local Match Letters BTS Mobility Hub - signed.pdf	Local Match Commitment Letter.	126 KB
BTS Aerial Roadside View - Current.pdf	Image shows the current state and layout of BTS	94 KB
BTS Mobility Hub Summary.pdf	One-page BTS Mobility Hub Summary	305 KB
_LOS_BTS Mobility Hub.pdf	Community letters of support.	1.0 MB



Minnesota Valley Transit Authority

ADA Policy

I. ABOUT THE POLICY

Minnesota Valley Transit Authority (MVTA) Policy on Accessibility and Compliance with the Americans with Disabilities Act of 1990 and related State of Minnesota Statutes as Amended, December 10, 2014.

It is the policy of the MVTA to implement the legal requirements of the Federal and State governments in a manner so as to meet the following goals:

1. To encourage individual and dignified use of the transit system with minimal assistance from transit system employees, contractors, and other users.
2. To expedite the safe and efficient boarding, transporting, and alighting of all passengers, regardless of mobility status.
3. To adapt to a wide range of mobility aids within the physical limitations of current vehicles and available commercial standard equipment.
4. To minimize any potential damage to mobility aids from the onboard securement system.

To accomplish this policy, the following specific actions have been adopted the 28th day of June, 2006, revised the 24th day of January, 2007, revised the 31st day of October, 2012, revised the 10th day of December 2014 and revised on the 29th day of April 2020.

II. APPLICATION OF POLICY

This policy applies to MVTA services, facilities, and vehicles. This includes all contracted services operated by other private and public operators. This policy is not intended to suggest or require compliance by other operating entities, including Metro Transit, other Metropolitan Council general public service providers, or Metro Mobility and its contracted agencies and operators.

III. FACILITY AND VEHICLE DESIGN REQUIREMENTS

All MVTA facilities and vehicles shall meet or exceed the minimum requirements for accessibility, including but not limited to 49 CFR Parts 27, 37, and 38, MN Stat. Ch. 299A, and MN Rules Ch. 7450. MVTA shall exceed the minimum requirements in the following way(s): All transit vehicles shall be equipped with two forward-facing securement positions, including those vehicles 22 feet long and under. Transit vehicles may be equipped with one or more combination positions which shall provide a compliant forward-facing position and a rear-facing position which need not include a compliant occupant-restraint system when used in the rear-facing manner. All vehicles shall be equipped with a kneeling feature if that feature is offered by the manufacturer.

IV. VEHICLES DESIGN RECORDS

Records will be maintained describing the lift and securement equipment on each MVTA transit vehicle. This information will include the design capacity of the devices to allow determination of what vehicles may be able accommodate passengers in various types of non-conforming mobility aids.

V. VEHICLE ASSIGNMENT

The assignment of particular vehicle types will be made on the basis of total ridership demand. Recognizing that certain vehicle types may be available to only one MVTA contractor, buses cannot and will not be assigned on the basis of their accessibility features. Given the sensitivity of certain passengers using mobility

aids to particular vehicle designs, however, staff will work with those passengers to alert them to changes in the vehicle assignments as they affect accessibility features when quarterly and special service changes are made.

VI. MOBILITY AID

Mobility aids belong to any class of two-, three- or more-wheeled devices, usable indoors, designed or modified for and used by individuals with mobility impairments, whether operated manually or powered.

VII. BOARDING

Passengers who use mobility aids requiring the deployment of the lift or ramp will board prior to other passengers, unless the passenger requests otherwise. Operators are required to kneel the bus if requested and so equipped, or to deploy the lift or ramp if requested, even if the passenger is not using a mobility aid. Operators are required to directly assist passengers upon request by briefly pushing the mobility aid (including up a steeply sloped vehicle ramp), and by properly operating the vehicle lift/ramp and securement systems. At locations where there is no curb or sidewalk, operators may require passengers to move their mobility aid a short distance to allow for proper and safe deployment of the lift or ramp.

A personal care attendant is permitted to accompany the passenger on the vehicle lift/ramp if requested, provided the combined weight of the passenger, mobility aid, and attendant does not exceed 600 pounds. The attendant is not permitted to operate the lift or ramp.

VIII. FARES

Fares for users with limited mobility are set by the Metropolitan Council. Riders must display a qualifying identification card, as determined by the Council, upon request of the operator. Operators must assist with fare payment upon request. It is the responsibility of passengers requiring fare payment assistance to have their fare ready and in a convenient location. A personal care attendant accompanying a qualified passenger rides for free.

IX. PRIORITY SEATING/SECUREMENT AREA

A priority seating area shall be designated at the front of each vehicle for passengers with limited mobility not using a secured mobility device. Operators are required to ask passengers occupying these seats to vacate them upon request of boarding passengers. Operators are not required to enforce the priority seating designation beyond making such a request.

An area shall be designated close to the lift or ramp entrance for the securement of mobility aids. If this area is occupied by ambulatory passengers and a passenger in a mobility aid boards the vehicle, operators will request those passengers to relocate, and passengers are required to relocate upon the operators request, unless the bus is already so full that those ambulatory passengers would be unable to safely stand.

X. SECUREMENT AND RESTRAINT

It is MVTA policy that mobility aids be secured by the operator while onboard MVTA vehicles. The standard for securement is that operators must make their best effort to secure the chair, not securement to the satisfaction of the operator. Operators will receive training in the proper securement of mobility aids both in

the hiring process and in regular in-service retraining. A personal care attendant may assist in the securement procedure but the operator must always examine the securements before proceeding.

A conforming lap and shoulder belt shall be provided in the forward-facing securement areas. It shall be recommended to all passengers riding in a secured mobility aid that they be restrained using the lap and shoulder belt, however, it will not be required.

Mobility aids placed in an approved rear-facing position shall be secured by the design of the position which may be entirely passive or include a securement strap to restrict lateral movement. In the latter case, deployment of the securement strap either by the operator, the passenger, or an attendant is required, and operator inspection of the strap deployment is required if it is deployed by the passenger or an attendant.

A conforming lap and shoulder belt need not be provided for the rear-facing use of a combination position and even if such a lap and shoulder belt is provided, it is not required to be used except on request of the passenger. Passengers requesting use of the lap and shoulder belt must be carried in a forward-facing position if a conforming lap and shoulder belt is not available for a rear-facing position.

XI. TRANSFER TO FIXED SEATING

Operators shall recommend that users of scooter type conforming mobility aids transfer to fixed seating and allow only the mobility aid to be secured to the bus; furthermore, operators may recommend that users of other particular mobility aids transfer if they believe it to be in the passenger's safety interest due to the design of the mobility aid. Under no circumstance may operators require a transfer, even if the mobility aid is not able to be secured to the operator's satisfaction. Operators are required to use their best effort to secure all mobility aids whether occupied or not.

XII. WHEELCHAIR SECUREMENT TRAINING PROGRAM

Staff shall implement a program for users of mobility aids to improve operators' ability to correctly secure mobility aids. This program may include but not be limited to marking of preferred attachment points for securement devices, attachment of tether straps where appropriate attachment points are not available, and passenger training on identifying preferred securement methods to operators on vehicles with different securement systems.

XIII. SERVICE ANIMALS

Persons with a disability requiring the use of a service animal shall be permitted to board with such animal. Operators are permitted to request that persons traveling with a service animal identify that the animal is performing a service function either by verbal or visual means, including but not limited to identifying equipment or markings attached to the animal.

XIV. ANNOUNCING OF STOPS

Operators are required to announce inside the bus all upcoming time points, transfer points that are not time points, and stops at signalized intersections, as well as any other stops requested by riders.

Operators are required to announce both the stop location and any transfer routes. MVRTA staff will develop a program to identify to operators those stops that must always be announced.

Operators are required to announce to persons outside the bus at stops the route number, plus the direction and destination where necessary to clearly identify the trip to waiting passengers.

Operators are required to use provided public address systems to make these announcements, except on 25-foot and smaller buses where announcements may be made without the use of the public address system provided the announcements can be clearly heard throughout the bus.

XV. ALIGHTING

Passengers who use mobility aid devices will ordinarily alight after other passengers at the same stop. Operators are required to kneel the bus if requested and so equipped, or to deploy the lift or ramp if requested, even if the passenger is not using a mobility aid. Operators are required to assist passengers upon request. At locations where there is no curb or sidewalk, operators may suggest an alternate stop to allow for easier deployment of the lift or ramp; however, operators are required to allow passengers to alight at their requested stop unless doing so is likely to damage the lift/ramp or prevent it from operating properly.

XVI. USE OF ACCESSIBILITY DEVICES BY RIDERS NOT USING A MOBILITY AID

Operators shall operate the vehicle lift/ramp and/or kneeling feature upon request for all passengers. This includes use of the lift/ramp for strollers. The mobility aid securement system may only be used to secure a mobility aid. The lap-and-shoulder belt may only be used to restrain a passenger riding in a secured mobility aid.

XVII. REPLACEMENT VEHICLES

If there is a failure of the lift/ramp or securement devices, a replacement vehicle must be dispatched if the next trip to the destination of any passenger using a mobility device is scheduled in more than 30 minutes. If the next trip to the destination of any passenger using a mobility device is scheduled in 30 minutes or less, a replacement vehicle may be dispatched if available.

Population/Employment Summary

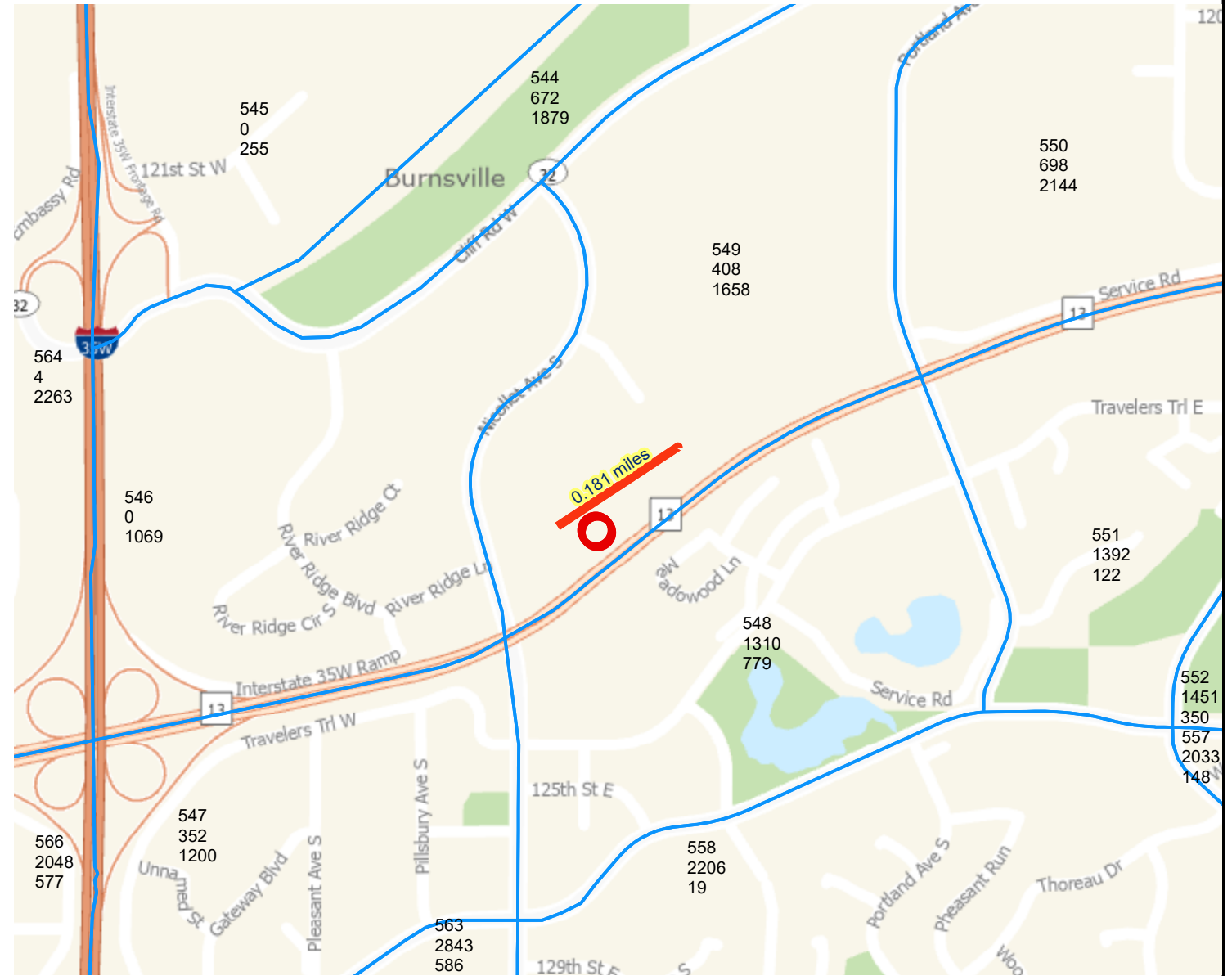
Results

Within QTR Mile of project:
 Total Population: 2070
 Total Employment: 4706
 Postsecondary Students: 0

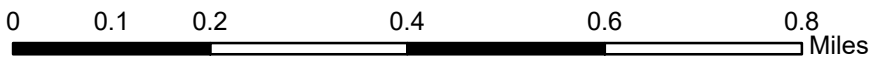
Within HALF Mile of project:
 Total Population: 9881
 Total Employment: 9711
 Postsecondary Students: 0

Within ONE Mile of project:
 Total Population: 18107
 Total Employment: 13873

Transit Modernization Project: Burnsville Transit Station Mobility Hub | Map ID: 1702441613596



-  Project Points
-  Project
-  Project Area
-  2016 TAZ



Created: 12/12/2023
 LandscapeRSA4



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Transit Connections

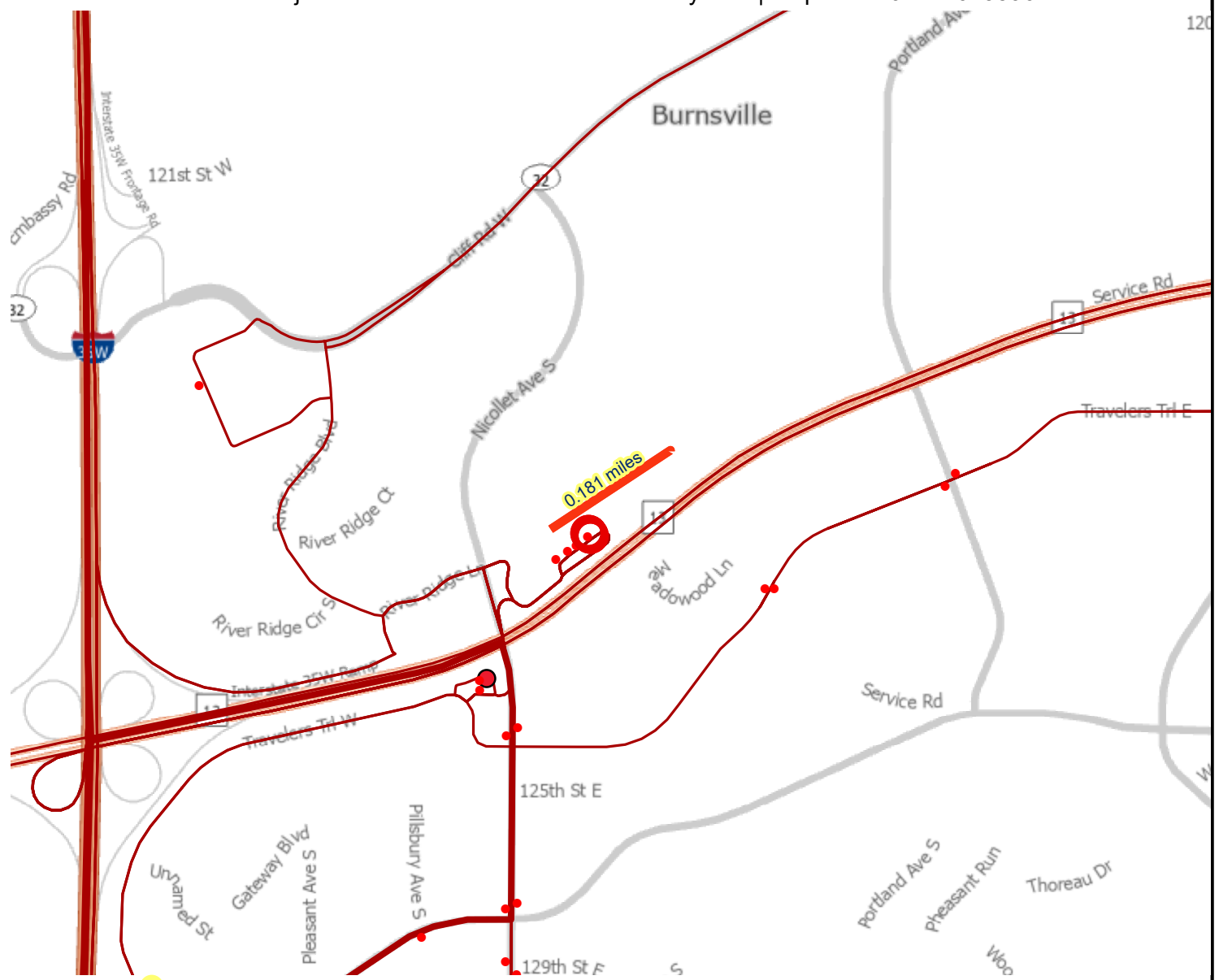
Transit Modernization Project: Burnsville Transit Station Mobility Hub | Map ID: 1702441613596

Results

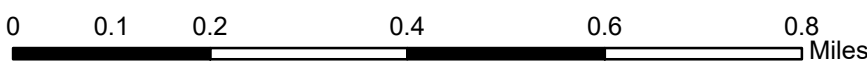
Transit with a Direct Connection to project:
425 444 460 465 480 495

*indicates Planned Alignments

Transit Market areas: 3



- | | | | | | |
|----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|------------------|
| Project Points | Commuter Rail | Commuter Rail | Arterial Bus Rapid Transit | Undetermined | Light Rail |
| Project | Dedicated Bus Rapid Transit | Dedicated Bus Rapid Transit | Dedicated Bus Rapid Transit | Arterial Bus Rapid Transit | Modern Streetcar |
| Project Area | Highway Bus Rapid Transit | Highway Bus Rapid Transit | Highway Bus Rapid Transit | Commuter Rail | Undetermined |
| Active Stop | Light Rail | Light Rail | Light Rail | Dedicated Bus Rapid Transit | |
| Arterial Bus Rapid Transit | Arterial Bus Rapid Transit | Transit Routes | Modern Streetcar | Highway Bus Rapid Transit | |



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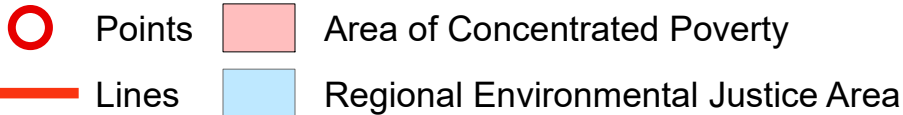
Socio-Economic Conditions

Transit Modernization Project: Burnsville Transit Station Mobility Hub | Map ID: 1702441613596

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 344

Project located in census tract(s) that are ABOVE the regional average for population in poverty or population of color.



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LandscapeRSA2



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Phase 1 Zero-Emission Bus Transition Plan

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Prepared by MVTA in collaboration with AECOM.

1 Executive Summary

MVTA's Zero-Emission Bus (ZEB) Transit Plan describes the analysis that will be used to guide and inform our transition toward ZEBs in alignment with our pledge to "...effectively and continuously move toward more sustainable operations." This Plan introduces the importance of and trend towards zero-emission buses, key technology differences between conventional internal combustion engine buses and battery electric buses (BEBs), and addresses the availability of current and future resources necessary for transitioning towards a zero-emission fleet. In addition, our Transition Plan also assesses the suitability of MVTA's bus fleet, service, and facilities to support a transition towards ZEBs. This Plan is a living document that will be regularly revisited, refined, and updated as ZEB technology improves.

Zero Emission Bus Technology Overview

The transportation sector is a major greenhouse gas (GHG) emitter both in Minnesota and nationwide. To mitigate the impacts of climate change, and to move toward more sustainable operations in alignment with local and regional sustainability policies, MVTA is pursuing the integration of and transition towards ZEBs. Three ZEB technologies are currently commercially available including: electric trolleybuses, hydrogen fuel cell electric buses (FCEBs), and battery electric buses (BEBs). While electric trolleybuses have been in use for nearly a century, only five transit agencies across the country currently operate this type of ZEB as a part of their regular service offerings.¹ Out of the more than 3,500 full-size transit ZEBs either on the road or on order in the United States as of September 2021, more than 95% are BEBs while only two states, California and Ohio, have adopted a total of more than 10 FCEBs. Due to the high cost of FCEBs, current lack of hydrogen fueling stations in Minnesota, and expanded industry resources and experience with BEBs compared with the other two ZEB technologies, MVTA has selected BEBs as our short-term ZEB technology for implementation and deployment.

Fixed Route Service Suitability for BEB Deployment and Operation

BEB technology is a rapidly advancing field. For example, battery capacities, and thus BEB range, is anticipated to increase by more than eightfold between 2014² to 2023.³ In recognition of the rapid pace of BEB innovation, the suitability of our fixed route bus service to support BEB deployment and operation was modeled against three future BEB technology scenarios: current technology, moderate improvement, and significant improvement. Modeling results showed that a majority of our bus service could be provided by directly replacing current diesel buses with BEBs in each of the three scenarios. In the *Current Technology* scenario, based on a BEB's worst-case (Minnesota winter) range on a single garage-charge, approximately 56% of our bus blocks, representing over a third of our annual revenue hours and miles, could be served with a direct 1:1 BEB replacement of existing diesel buses. In the *Significant Technology Improvement* scenario these shares increased to nearly 90% of bus blocks representing approximately 80% of revenue miles and hours. To operate BEBs on the remaining portion of our service that was not technically viable under any of the

¹ Source: [The National Transit Database \(NTD\)](#)

² Source: [Foothill Transit Battery Electric Bus Demonstration Results](#), NREL, 2016

³ Source: [Proterra Introduces ZX5 Electric Bus With 738 Kilowatt Hours of Energy](#), Proterra, April 14, 2022

three technology scenarios would require more pronounced technology improvements, replacing diesel buses at a greater than 1:1 ratio, or other service alterations.

Opportunities and Needs for Facility Electrification

MVTA's fleet of more than 170 buses is stored in two garages: the Eagan Bus Garage (EBG) and Burnsville Bus Garage (BBG). To support BEB operation, both facilities would require the construction and installation of charger and other supporting infrastructure as well as other electrical modifications and upgrades. Based on an assessment of the existing operational and spatial constraints at each garage, EBG has been selected as the initial garage to receive electrical upgrades and house BEBs. Currently BBG is undergoing a three-phase expansion and modernization project. As part of this project, a variety of energy efficiency and sustainability improvements are planned including electrification initiatives designed to lay the foundation for BEB operations in the medium- to long-term future at this facility.

In addition to our two garages, MVTA also owns six Park and Ride/Transit Center facilities of the land on which these facilities are located. Although MVTA does not plan to pursue on-route opportunity charging in the short-term, a preliminary assessment of these facilities indicated that none of the six facilities were critically flawed as all have sufficient space to install overhead charging infrastructure in the future.

Enhanced and Expanded Workforce Development and Training

Operating and maintaining a BEB differs in many ways from traditional procedures associated with conventional internal combustion engine buses. To ensure the safe and efficient operation and maintenance of BEBs, MVTA plans to build upon and expand the skills of its existing workforce. ZEB training and workforce development strategies include utilizing hands-on BEB training and technical expertise from BEB and supporting infrastructure on-site vendor technicians, purchasing and training staff on the proper usage of high voltage personal protective equipment (PPE), and providing training to local first responders to help mitigate potential safety risks. MVTA will communicate with and empower frontline workers, through its contractor Schmittty and Sons, to learn what additional training is needed as experience with ZEB equipment is developed.

Funding Availability to Support a Transition Toward ZEBs

BEBs and their associated infrastructure require additional funding beyond that which is usually available for transit vehicle acquisition due to the additional costs associated with the technology, and the facility changes. To remain fiscally sustainable while transitioning towards ZEBs, it is anticipated that MVTA will need to pursue additional funding streams in addition to capitalizing upon existing funding sources that may be expanded in the near future due to recent federal legislation. One such opportunity for potential capital funding includes the Federal Transit Administration's (FTA) Low or No Emission (Low-No) discretionary Grant. As a result of the federal Infrastructure Investment and Jobs Act (IIJA) being signed into law, \$1.1 billion will be annually appropriated to the Low-No program in federal fiscal years 2022-2026. Presently, MVTA is working to develop a Low-No Grant application for five 588 kWh long-range 40-foot Gillig BEBs, along with the supporting infrastructure for one lane at EBG to support these five vehicles. Should this grant be awarded, MVTA will be taking an important step towards its zero-emission future. As MVTA gains experience with emerging zero-emission

technologies and the operation of BEBs, we will continue to collaborate with our partners including Xcel Energy to continue to assess and identify strategies to mitigate ongoing BEB operation and maintenance costs.

Collectively, the context, results, and future considerations presented in this ZEB Transition Plan establish a framework from which MVTA plans to transition towards more sustainable operations. As ZEB technology improves, this living document will be regularly refined and updated to align with industry best practices as well as local and regional sustainability policies and initiatives all while continuing to "...connect customers to desired destinations."

2 Transition Plan Context and Purpose

This section outlines the purpose and motivation for the Minnesota Valley Transit Authority's (MVTA) Zero-Emission Bus Transition Plan and places the Transition Plan in a broader political and environmental context. Specifically, this section highlights the impact the transportation sector has on the environment in Minnesota, the nationwide trend towards zero-emission buses, and existing policies and initiatives with zero-emissions implications.

2.1 MVTA Bus System and Facilities

The Minnesota Valley Transit Authority (MVTA) is the second largest public transit agency in Minnesota based on ridership, providing transportation throughout seven suburbs south of Minneapolis and Saint Paul in some of the largest and fastest-growing communities in the state. MVTA operates within Dakota and Scott counties and extends substantial service beyond these borders into adjacent regions. MVTA provides flexible transit service through a variety of programs including flex routes as well as local, commute, and reverse commute, and on-demand service. In 2019, prior to the COVID-19 pandemic, MVTA provided over 2.5 million rides with an average weekday ridership of more than 9,200.⁴ As the major transit provider for Minnesota's southern metro area, MVTA is committed to serving our communities well while pledging to effectively and continuously move toward more sustainable operations.

MVTA's bus fleet is composed of 172 buses operated and maintained by Schmitt and Sons. Most of MVTA's buses are either 40-feet in length (54% of total fleet) or are 45-foot coach buses (31%). In addition to these two primary bus types, MVTA also deploys six 35-foot buses as well as 20 cutaway vehicles 26-feet in length or less. MVTA bus service is provided and maintained by Schmitt and Sons. Together, these buses currently operate on a total of 25 routes distributed across a nearly 140 square mile service area (Figure 1).^{4,5} Prior to the COVID-19 pandemic, MVTA operated service on 32 routes. MVTA buses are housed and operated from two garages: Eagan Bus Garage (EBG) located at 3600 Blackhawk Road, Eagan MN, 55122 and the Burnsville Bus Garage (BBG) 11550 Rupp Drive, Burnsville, MN 55337. In addition, MVTA has either land or facility ownership of six Park and Ride or Transit Center facilities across the region (Table 1, Figure 1).

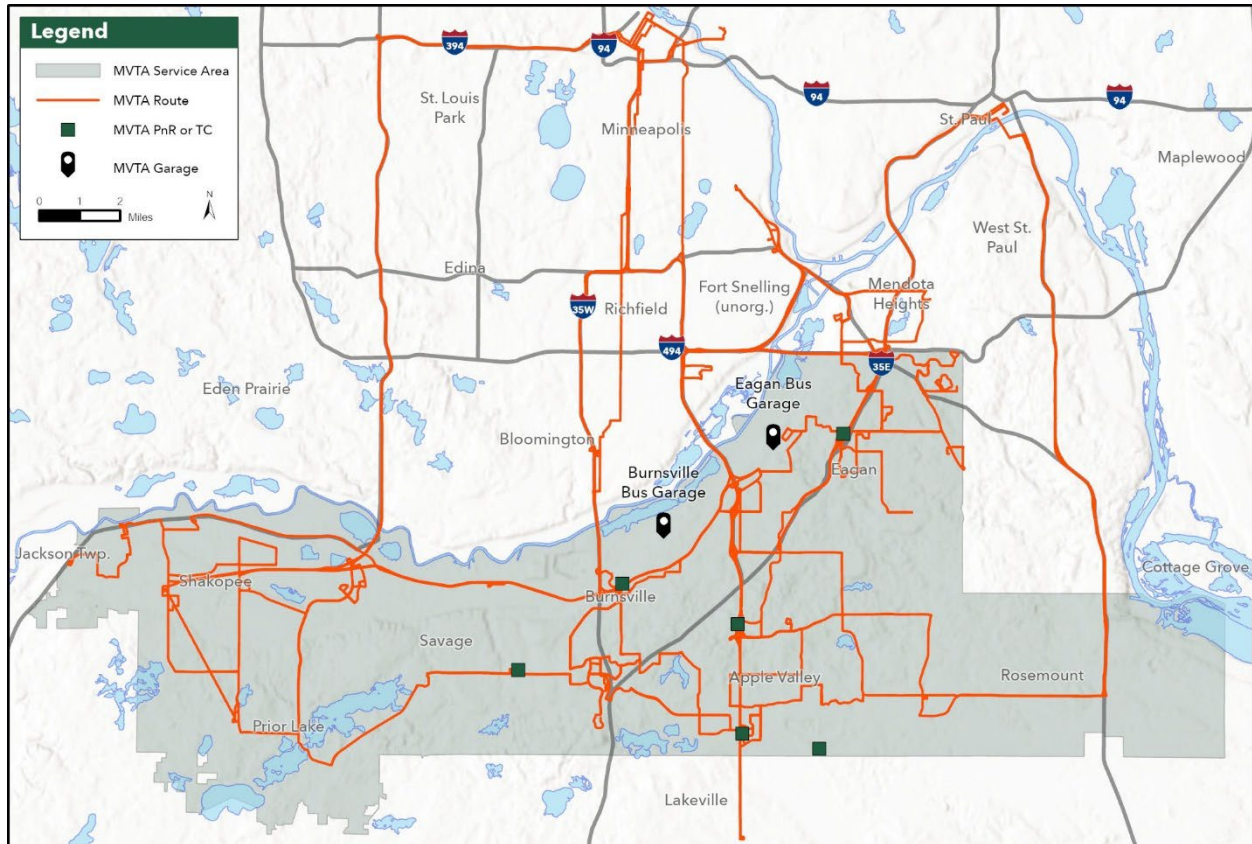
⁴ Source: [Minnesota Valley Transit Authority 2019 Annual Agency Profile](#), National Transit Database

⁵ Source: [2018-2022 Minnesota Valley Transit Authority Strategic Plan](#), MVTA, March 2018.

Table 1: Park and Ride and Transit Center Facilities With Associated MVTA Ownership⁶

Facility	Location	Land Owner	Facility Owner
Apple Valley Transit Station	15450 Cedar Avenue S Apple Valley MN, 55124	Apple Valley Development Authority	MVTA
Burnsville Transit Station	100 Highway 13 East, Burnsville MN, 55337	MVTA	MVTA
Eagan Transit Station	3470 Pilot Knob Rd Eagan MN, 55123	MVTA	MVTA
Palomino Hills Park & Ride	12760 Pennock Ave Apple Valley MN, 55124	MVTA	
Savage Park & Ride	14121 Huntington Avenue Savage MN, 55378	MVTA	
157th Street Station	15865 Pilot Knob Rd Apple Valley MN, 55124	MVTA	MVTA

Figure 1: MVTA Service Area and Bus System



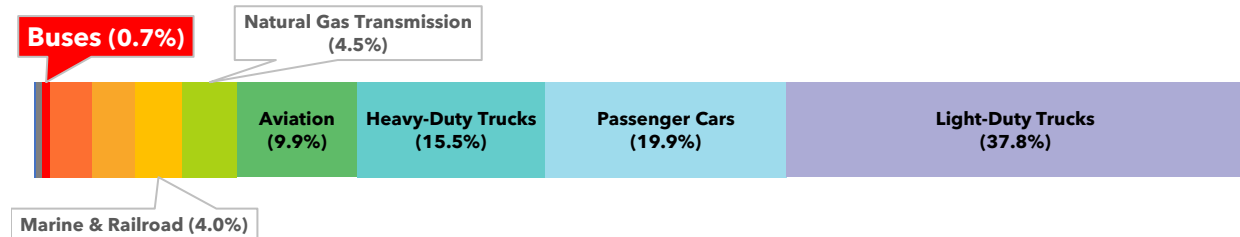
2.2 Transportation and the Environment

The transportation sector is a major greenhouse gas (GHG) emitter in Minnesota. According to 2018 data from the Minnesota Pollution Control Agency (MPCA), the transportation sector is

⁶ Source: *Park & Rides and Transit Centers*, Metropolitan Council, 2022.

the largest source of greenhouse gases in Minnesota accounting for about one quarter of all statewide GHG emissions.⁷ The majority (73 percent) of transportation-related GHG emissions in Minnesota come from light-duty trucks and SUVs, passenger vehicles, and heavy-duty trucks while approximately 0.7 percent of these statewide emissions are emitted by buses.

Figure 2: Minnesota Transportation Sector GHG Emissions by Source



Although bus emissions represent a proportionately small share of the total transportation GHG emissions across the state, MVTA is committed to exploring opportunities for zero-emissions replacement and expansion vehicles and charging systems to “provide services within our region that use more sustainable energy sources that benefit our environment.”^{5,8}

2.3 Trend Towards Zero-Emission Buses

Over the past decade, transit agencies across the country have begun to integrate zero-emission buses (ZEBs) into their fleets. ZEB adoption and the pace at which transit agencies transition towards ZEB fleets is anticipated to grow in the coming years due in part to increased funding sources to support ZEB investments. For example, as of September 2021 in the United States, the count of full-size ZEBs on the road or on order has grown to more than 3,533 buses, a 27% growth since 2020.⁹ Although nearly half (49%) of these ZEBs are located in California, every state, with the exception of New Hampshire, North and South Dakota, and West Virginia, has at least one ZEB on the road or on order as of September 2021.⁹

2.4 Existing Policies, Initiatives, & Studies

This section provides a review of policy and legislation with zero-emission implications. These policies include an overview of MVTA Sustainability Initiatives, the federal Infrastructure Investment and Jobs Act (IIJA), and local county and municipal sustainability initiatives.

2.4.1 MVTA Sustainability Initiatives

As a major transit provider for Minnesota’s southern metro area, MVTA is “committed to serving our communities well while pledging to effectively and continuously move toward more sustainable operations.” In alignment with this vision and the framework of the American Public Transportation Association (APTA) Sustainability Commitment, in April 2021, MVTA adopted sustainability as a “formalized policy objective.”¹⁰ As a signatory of APTA’s Sustainability

⁷ Source: [Climate change in Minnesota: Greenhouse gas emissions data](#), Minnesota Pollution Control Agency, 2018

⁸ Source: [First Electric School Bus in State to Serve Local Students](#), MVTA News Archives, July 10, 2017.

⁹ Source: [Zeroing in on ZEBs](#), CALSTART, December 2021.

¹⁰ Source: [2021 Board Meeting Packets](#), MVTA, April 28, 2021

Commitment, MVTA has designated our intent to fulfill the core principles of the Sustainability Commitment including:

- Making sustainability part of MVTA’s strategic objectives;
- Identifying a sustainability champion within MVTA coupled with the proper human and/or financial resources and mandates;
- Establishing an outreach program (awareness-raising and education) on sustainability for all MVTA staff; and
- Establishing a base-line measurement for MVTA of eight indicators including criteria air pollutants, GHG emissions (and savings), and energy use.¹¹

In addition to recently becoming a signatory of APTA’s Sustainability Commitment, MVTA has also signed on to the Federal Transit Administration’s (FTA) Sustainable Transit for a Healthy Planet Challenge.¹²

2.4.2 Infrastructure Investment and Jobs Act (IIJA)

Signed into law by President Biden on November 15, 2021, the Infrastructure Investment and Jobs Act (IIJA), also known as the “Bipartisan Infrastructure Law,” invests “\$89.9 billion in guaranteed funding for public transit over the next five years—the largest Federal investment in public transit history.”¹³ As part of these transit investments, the IIJA includes provisions to support and increase investment in zero-emission vehicles through grant programs, studies, fleet funding, and other measures.¹⁴ In particular, the IIJA includes provisions to continue the grants for the Buses and Bus Facilities program with increased funding levels compared to that of previous authorizations. The IIJA also includes funding appropriation for the Low Emissions or No Emission Vehicle Program (Low-No) at around 1.1 billion dollars annually from 2022 through 2026, which is a program within the Federal Transit Authority’s (FTA’s) Buses and Bus Facilities program. This discretionary grant program requires agencies to have a zero-emission fleet transition plan. It also requires that five percent of Low-No Grants related to zero-emission vehicles and related infrastructure must be used for workforce development activities, unless the applicant certifies that less is needed to carry out their zero-emission fleet transition plan. It should be noted, however, that federal transit funding focuses on capital needs, not addressing the costs associated with operation and maintenance of ZEBs or other transit services.^{15,16}

2.4.3 State/Local Policy and Legislation

In addition to conforming to federal legislation such as the IIJA, MVTA’s ZEB Transition Plan aligns with and advances several statewide and local sustainability policies and initiatives

¹¹ Source: [APTA Sustainability Commitment](#), APTA 2022

¹² Source: [Sustainable Transit for A Healthy Climate Challenge Participants](#), FTA, April 12, 2022

¹³ Source: [Fact Sheet: The Bipartisan Infrastructure Deal](#), The White House, November 6, 2021

¹⁴ Source: [Bipartisan Infrastructure Law \(Infrastructure Investment and Jobs Act of 2021\)](#), Alternative Fuels Data Center, 2021

¹⁵ Source: [Fact Sheet: Buses and Bus Facilities Program](#), Federal Transit Administration, December 9, 2021

¹⁶ Note: COVID-19 Relief laws Coronavirus Aid, Relief, and Economic Security (CARES) Act, Coronavirus Response and Relief Supplemental Appropriations Act (CRRSAA), and American Rescue Plan allowed federal funds to be used for operating and maintenance costs. However, funds provided for transit to large urban areas outside of COVID relief bills have been restricted to capital projects.

including the State of Minnesota Climate Action Framework, regional long-range plans, clean energy goals, and other county and municipal initiatives. Beyond these policies, this Transition Plan encompasses our first steps towards achieving state requirements to develop and maintain a zero-emission and electric transit vehicle transition plan. Moving forward, MVTA will continue to refine and build upon this Transition Plan in collaboration with the Metropolitan Council.

2.4.3.1 State of Minnesota Climate Action Framework

In December 2019, Governor Walz established a Climate Change Subcabinet and a Climate Change Advisory Council. To guide the work of the Climate Change Subcabinet, the State of Minnesota developed a Climate Action Framework in collaboration with staff from 15 agencies including the Metropolitan Council and the Department of Transportation.¹⁷ In Spring 2022 a draft of this Framework was published with the final Framework expected for publication in Summer 2022.

Intended to spur action at state agencies and beyond, the Framework outlines a vision for how the state will “address and prepare for climate change” through six goals and a series of immediate near-term actions. The first of these goals is Clean Transportation which establishes a vision of Minnesota’s transportation system as a system that is “sustainable and resilient to a changing climate and supports transportation options for all Minnesotans as well as technology to reduce pollution.” To achieve this goal, the Framework outlines six priority actions including increasing transit service and incentivizing increased investment in a broad portfolio of cleaner fuels, electricity, and charging infrastructure with the aim of reducing greenhouse gases (GHG) in the transportation sector 30% by 2025 and 80% by 2050.¹⁷

2.4.3.2 MnDOT 2020 Sustainable Transportation Advisory Council (STAC)

Recommendations

The goal of the STAC is to “help Minnesota transition to a low-carbon transportation system in a way that is consistent with statutory goals for energy and emissions reductions and maximizes benefits to Minnesota, while recognizing the importance of continued work towards improving safety, reducing inequities, and supporting economic development.” In alignment with this goal, the STAC has developed several recommendations with the purpose of promoting and increasing the use of low-emission vehicles, increasing use of transit as a percentage of all statewide trips, and reducing the transportation sector’s greenhouse gas emissions.¹⁸

2.4.3.3 Thrive MSP 2040

Adopted by the Metropolitan Council in May 2014, Thrive MSP 2040 is the region’s comprehensive long-range plan. Thrive MSP 2040 sets the policy foundations for systems and policy plans, including the 2040 Transportation Policy Plan (TPP). The 2040 TPP describes how the transportation system will be developed and operated in a way that is consistent with the regional vision and goals described in Thrive MSP 2040. Thrive MSP 2040 lists five outcomes, including sustainability, that define its shared regional vision, aiming to provide leadership to support climate change mitigation, adaptation, and resilience. These outcomes include:

¹⁷ Source: [Minnesota’s Climate Action Framework Draft](#), State of Minnesota, 2022

¹⁸ Source: [Sustainable Transportation Advisory Council Charter](#), MnDOT, June 22, 2020

- Stewardship;
- Prosperity;
- Equity;
- Livability; and
- Sustainability.

2.4.3.4 Xcel Energy Clean Energy Transition

Xcel Energy, the primary electrical utility provider for both MVTA garages, was the first major US utility to signal it would move to 100 percent carbon-free electricity by 2050 when it announced its vision in December 2018.¹⁹ Approved in February 2022, Xcel Energy's Upper Midwest Energy Plan will make significant strides towards this goal by reducing carbon emissions by 85% by 2030 compared to 2005 levels.^{20,21}

2.4.3.5 County Sustainability Policies

In addition to statewide policies, both counties within MVTA's service area (Scott County and Dakota County) have developed policies and plans to increase sustainability and mitigate environmental impacts.

Dakota County

The majority of MVTA bus routes and both garages serve or are in Dakota County. As such, it is important to align this Transition Plan with County sustainability goals and policies. Guided by the Dakota County Board's Strategic goals and Public Engagement conducted throughout 2020, the County's 2040 Transportation Plan establishes twelve overarching principles including *Sustainability* and *Transportation Technology* that guide the Plan's policies and strategies. Based on public engagement, the 2040 Transportation Plan reflects community priority's such as investing in the creation of "viable, environmentally sustainable transportation options in Dakota County."²² In support of the *Sustainability* goal, the Transportation Plan recommends implementing "Dakota County energy transportation strategies that address greenhouse gas emissions [to] support [a] transition to alternative or renewable energy" in addition to other environmentally sound practices.²²

Scott County

Informed by public input from community engagement and visioning workshops, Scott County recently developed its 2040 Comprehensive Plan describing the "long-range, big picture description of [the county's] desired future."²³ The County Board's Guiding Principles for the plan included the mission to "advance safe, healthy, and livable communities through citizen-focused services" reflecting the values of "stewardship, partnership, leadership, commitment, customer service, and innovation."²³ Based on these principles and public feedback, the Plan's

¹⁹ Source: [Xcel Energy Commits to 100% Clean Energy by 2050](#), State of Minnesota

²⁰ Source: [Clean Energy Transition Highlights](#), Xcel Energy, 2022

²¹ Source: [Upper Midwest Energy Plan](#), Xcel Energy, 2022

²² Source: [Dakota County 2040 Transportation Plan](#), Dakota County, July 2021

²³ Source: [Scott County 2040 Comprehensive Plan Story Map](#), Scott County, 2019

Vision for 2040 is that the County will have “respected and managed [its] natural...and environmental resources.”²⁴

2.4.3.6 Municipal Plans, Programs, and Initiatives

More locally, at the municipal-level, several of the suburbs within MVTA’s service area have policies and/or legislation with sustainability and zero-emission implications.

Minnesota GreenStep Cities Program

Six of the seven suburbs within MVTA’s service area participate in Minnesota’s GreenStep Cities program a “voluntary challenge, assistance, and recognition program to help cities achieve their sustainability and quality-of-life goals” led by the Minnesota Pollution Control Agency (MPCA).²⁵ Among other features, this program establishes and supports participating cities’ efforts to achieve “cost-effective sustainable development best practices in five categories including: Buildings and Lighting, Transportation, Land Use, Environmental Management, and Economic and Community Development.”²⁶ As of Spring 2022, three of suburbs within MVTA’s service Area (Apple Valley, Burnsville, and Eagan) have achieved Step 5 recognition, currently the highest level of the program while Rosemount, Savage, and Shakopee have all achieved Step 2.²⁵

Figure 3: MN GreenStep Cities



2.4.3.7 Other Municipal Plans & Initiatives

In addition to participating in Minnesota’s GreenStep Cities Program, several of the largest suburbs served by MVTA have taken steps to implement additional sustainability policies and legislation with ZEB implications. Select sustainability policies are summarized below for cities in which an MVTA bus garage is located.

City of Burnsville

Burnsville’s Sustainability Guide Plan, updated in September 2020, “lays out the foundation for the City’s continuing sustainability efforts over the coming decade.”²⁷ The City’s vision includes a commitment to “long-term sustainability through multiple projects” to “reduce community-wide GHG emissions 40% below 2005 levels by 2030 and 80% below 2005 levels by 2050.”²⁷ To achieve this vision, the Plan outlines nearly three dozen goals including increasing public transit ridership and increasing “electric vehicle adoption to 10% of the citywide vehicle share by 2030.”²⁷ One of the many strategies and actions to achieve these goals include establishing and promoting a “Burnsville’s Greenest Fleets” award/promotional program recognizing the City’s greenest commercial fleets.²⁷ Supplementing the Sustainability Guide Plan, the City of Burnsville is also engaging in a Climate Adaptation Plan to “improve the community’s resilience and readiness for changing climate impacts.”²⁸ MVTA’s ZEB Transition Plan and continued

²⁴ Source: [Scott County 2040 Vision, Scott County](#), June 18, 2019

²⁵ Source: [Minnesota GreenStep Cities](#), Minnesota Pollution Control Agency

²⁶ Source: [Resolution of Support for the City of Eagan’s Participation in the Minnesota GreenStep Cities Program](#), City of Eagan, August 17, 2010

²⁷ Source: [City of Burnsville Sustainability Plan](#), City of Burnsville, September 2020

²⁸ Source: [Sustainability Guide Plan Update–Community Survey](#), City of Burnsville, September 2, 2019

commitment to provide services within our region that use more sustainable energy sources will support these efforts of reducing GHG emissions and improving the climate change resilience and readiness within our service area communities.

City of Eagan

Eagan is committed to preserving, protecting, and investing in the natural environment.²⁹ In alignment with this commitment, the City’s 2040 Comprehensive Plan and Transportation Plan establish a goal to ensure that the “Eagan transportation system is resilient, sustainable, and able to evolve with societal advancements and changes, safeguarding investments for many years to come.”^{30,31} To meet this goal, the City of Eagan identified two dozen strategies including mitigating “impacts to the natural environment and cultural resources when planning, constructing, and operating transportation systems” and “minimizing the effect of air quality impacts on the natural environments with proposed transportation improvements.”^{30,31}

3 Electric Bus Technology Overview

Currently, three zero-emission bus technologies are commercially available: electric trolleybuses, fuel cell electric buses (FCEBs), and battery electric buses (BEBs).

While electric trolleybuses have been in use for nearly a century, only five transit agencies across the country currently operate this type of ZEB as a part of their regular service offerings.³² Power to these buses is provided via two trolley poles connecting the top rear of the bus to overhead catenary wires. Due to trolleybuses limitations including limited flexibility for off-wire operation, extensive costs associated with building and maintain a network of overhead wires, and the significant visual impacts of these wires, MVTA does not intend to pursue the implementation of electric trolleybuses.

Figure 4: Trolleybus in Operation



Source: *Flying Flyers—Muni Trolley Buses Then and Now*, SFMTA, May 3, 2018

Conversely, FCEBs—buses that use an on-board electrochemical hydrogen fuel cell for propulsion—are growing in prevalence across the United States with adoption of these buses nearly doubling between 2020 and 2021.⁹ Despite this significant increase, the deployment of FCEBs remains limited to only 10 states and only California and Ohio have adopted more than 10 FCEBs in total as of September 2021.⁹ Due to the significant upstream carbon emissions associated with creating and trucking hydrogen, the high cost of FCEBs, and the current lack of hydrogen fueling stations in Minnesota, MVTA does not currently plan to implement FCEBs in the short-term.

BEBs use onboard battery packs for bus propulsion and power rather than using conventional fuels such as diesel or compressed natural gas (CNG). BEBs are charged either at garages, or

²⁹ Source: *Green Eagan*, City of Eagan, 2019

³⁰ Source: *2040 Comprehensive Plan—Chapter Z*, City of Eagan,

³¹ Source: *2040 Transportation Plan Update*, City of Eagan, 2018

³² Source: *The National Transit Database (NTD)*

utilize “opportunity charging” during operation on-route or at key layover, park and ride, or transit center locations. Transit agencies located in colder climates typically include an auxiliary diesel heater on their BEBs for supplemental heat to increase bus range. As of September 2021, approximately 95% of the full-size (30+ feet in length) transit ZEBs on the road or on order in the United States are BEBs. Due to the several challenges associated with FCEBs outlined above as well as comparatively lower capital costs and increased industry experience associated with BEBs, MVTA plans to focus on a zero-emission transition towards BEBs. As such, the following sections of this transition plan focus on an analysis and evaluation of BEB technologies.

3.1 BEB Vehicle Considerations

The batteries onboard a BEB are used to provide both the energy required to drive the bus as well as the energy necessary to operate all vehicle auxiliary functions including heating and cooling the passenger cabin. The amount of energy provided by the battery is described by its energy capacity measured in kilowatt-hours (kWh). Analogous to a fuel tank on a diesel bus, larger battery capacities translate to increased energy (fuel) storage, and thus, increased range. Unlike conventional diesel buses which typically have 100+ gallon fuel tanks that allow a bus to travel more than 300 miles before refueling, BEBs typically have a reliable range in transit service of 150 miles or less on a single charge.³³ A BEBs range is a function of two primary characteristics: (1) battery capacity, and (2) energy usage.

Larger **battery capacity** translates to increased energy (fuel) storage, and thus, increased range. As of Spring 2022, BEB manufacturers offer on-board BEB batteries with capacities typically ranging from approximately 215 kWh to 686 kWh.^{34,35} Expanding on these capacities, Proterra has announced that starting in 2023, they will offer a 40-foot BEB that can be equipped with up to 738 kWh of onboard energy.³⁶ These advertised capacities, also referred to as nameplate or nominal battery capacities, indicate the capacity of a new battery pack. Unfortunately, however, not all the nominal battery capacity can be used for BEB operation. Instead, batteries wear down and become less efficient over time as they are constantly charged and discharged. Furthermore, charging a BEB to full capacity or charging it from a zero state of charge (SOC) increases the rate at which the batteries degrade as this process puts additional strain on the physical and chemical components of the battery, and so many manufacturers carve out an unusable portion of the battery to preserve the longevity of the hardware. An additional consideration for the unusable region is that at low enough states of charge, the battery will not be able to produce enough power to move the vehicle. Additionally, just as operators avoid driving a conventional bus until the fuel tank is empty, a portion of a BEB’s battery capacity is typically preserved for operational flexibility. By preserving this capacity, transit agencies are able to ensure that BEBs will have sufficient range to return to the garage in the event of an unforeseen delay or other unexpected event requiring

³³ Source: [Guidebook for Deploying Zero-Emission Transit Buses](#), The National Academies Press, 2021

³⁴ Source: [Electrifying Transit: A Guidebook for Implementing Battery Electric Buses](#), National Renewable Energy Laboratory, April 2021

³⁵ Source: [GILLIG's next-generation battery to provide 32 percent increase in onboard energy](#), Gillig, November 2021

³⁶ Source: [Proterra Introduces ZX5 Electric Bus With 738 Kilowatt Hours of Energy](#), Proterra, April 14, 2022

a BEB to remain in service longer than originally planned. These factors translate to usable battery capacities between approximately 145 kWh and 465 kWh.

The amount of **energy usage** by the bus (kWh/mile) also impacts BEB range. When the energy used to heat and cool the bus cabin is the same energy that would be used for the propulsion of the bus, bus range can be substantially reduced in cold weather as increased energy must be devoted to maintaining a comfortable temperature in the passenger cabin. The speed at which a BEB operates also influences energy usage and therefore BEB range. Typically, slower speeds are a result of either busy or congested environments. In busy environments, buses often see greater energy usage, owing to bus doors being open more often and for longer periods of time. When the doors are open, heating and cooling the bus cabin is more difficult as extra energy needs to be drawn from the battery. Additionally, when buses are stuck in congested environments, they spend an increased time idling and accelerating from rest, thereby also requiring greater energy usage. Efficient operation of the vehicle through gentle accelerations and decelerations can reduce energy usage by not only requiring less energy to accelerate from rest, but also to maximize the bus’s ability to regenerate energy. When the bus is rolling forward, BEBs are capable of recapturing some of that energy and improving overall energy usage. From this combination of factors, energy usage on the same bus can vary widely within a single transit agency’s operation, and therefore lead to different functional ranges.

3.2 Charging Infrastructure

In the North American BEB industry there are currently three primary types of BEB chargers: (1) plug-in chargers, (2) overhead conductive chargers with inverted overhead pantograph dispensers, and (3) in-ground wireless inductive chargers (Figure 5). Plug-in chargers are typically used at garages and in bus service / maintenance bays, whereas overhead and inductive chargers can be used for either garage or opportunity charging. BEB charging infrastructure typically includes transformers, switchgear, chargers (charger “bases / cabinets” where the majority of charging equipment is housed including AC - DC rectifiers, charge controls and communication) and dispensers (e.g., pantographs or plugs).

Figure 5: BEB Charging Infrastructure



Source: [The Herald](#), Kevin Clark, Oct. 2021

Source: [TriMet](#), March 2021

Source: [Link Transit & eVehicle Technology](#)

Plug-in chargers can be either an 'All-in-one' unit with dispensing plug-in cord attached directly to the charger cabinet or a charging cabinet connected to remote plug-in dispensers.

Figure 6: Plug-In Charger Detail

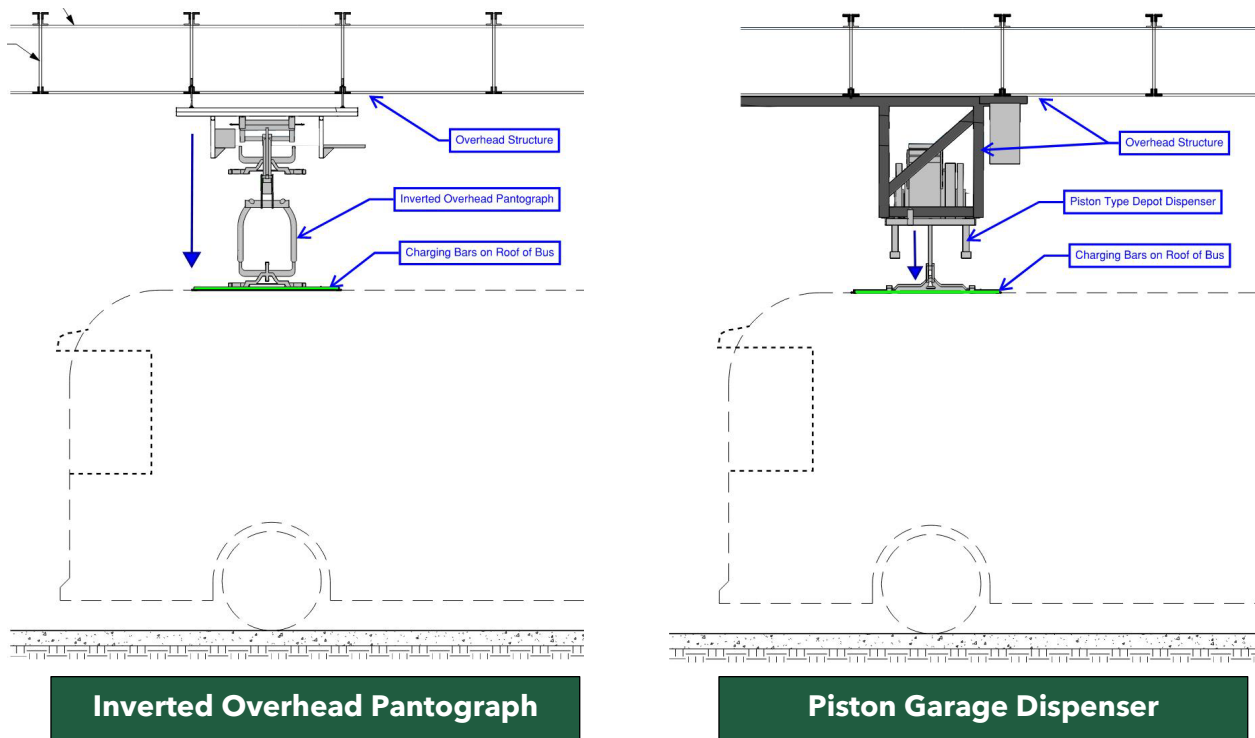


Typically, a plug-in all-in-one unit has one or two cords and a remote dispenser cabinet that can energize between one and four+ dispensers allowing for scheduled charging of multiple buses. Charge power for plug-in chargers ranges from 50 to 180 kW. Due to this relatively low power, plug-in chargers typically take several hours to fully charge a bus and are therefore often used for overnight charging. A factor to be considered with shared charging (one charging cabinet energizing multiple dispensers) is that depending on the charger manufacturer and model, the name plate rating of the charger (180kW for example) might only output a maximum of 60kW if the one charger cabinet is energizing three dispensers (expressed as a 1:3 charging ratio). There is no industry standard yet for shared charging configuration so any shared plug-in charging assumed performance operations, such as 'ability to provide 180kW to any dispenser at a time...' is recommended to balance the planned incoming charging equipment with the anticipated charging operational time. BEBs by default have charging ports located in similar locations to conventional internal combustion engine fuel ports - curb side, rear quarter of bus. Buses can be specified to have plug-in ports on both sides of the vehicle or only one at the center rear to the bus to increase flexibility in parking positions especially at ground mounted charger islands and curbs. Per-unit capital costs for plug-in chargers are lower than for other types of charging infrastructure. The J1772 standard, published by the Society of Automotive Engineers, allows for interoperability of plug-in chargers with different types of buses from multiple manufacturers, analogous to the standardized pump size for gasoline vehicles across manufactures which allows you to fill your gas tank at any gas station. Note that retrofitting ground mounted charger cabinets (2ft to 3ft 6 inch) in depth adjacent to parked buses in existing dense bus parking arrangements can lead to blocking of staff circulation at or create a bus to charger impact danger. On large retrofit deployments at existing dense close parked bus lanes, 12ft wide or less, it is not uncommon to have to eliminate some bus parking spaces to allow for ground mounted chargers. Overhead suspended dispenser plug-in cords mounted over parked buses energized by charging cabinets located remotely away from bus parking can be used where ground mounted plug-

in cord equipment is impractical or not desired. Overhead plug-in cords over buses, if not left always dangling protected by bollard or other structure, do require some means to retract and extend down cord. Currently the charging equipment OEMs do not offer a remote overhead reel or retraction system and rely on third party vendors or site-specific custom solution from the simple, suspended rope tagline connected to a manual pull charging cord, to powered retraction systems using reels or winches.

Overhead conductive dispenser typically use an extending arm pantograph dispenser or piston mounted charging bars dispenser that lowers down from where the dispenser are mounted to structure above to connect to the roof mounted charge rails on the bus. A remote charging cabinet is required to convert AC to DC current and send the DC power and communications / data from the cabinet to the overhead dispenser.

Figure 7: Example Schematics of Overhead Conductive Dispensers



There are also pantographs mounted to the bus that extend up to connect to an energized charge point mounted to overhead facility structure but this type of pantograph is rarely used in the US market due to the added weight of the pantograph to the bus, a single source proprietary overhead connector, and not being Buy America compliant. Charge power for overhead conductive chargers ranges from 150 to 600kW.³³ The lower capacity units are typically used at garage bus parking similar to where plug-in dispensers would be used but with the benefit of not requiring ground space. Higher capacity units, 300+ kW, are used at shared charging positions at garages or at on-route charging locations. Overhead conductive chargers, due to their ability to distribute more power than a plug-in cord, can be flexibly used to “top-up” a bus’s charge for 5 to 20+ minutes at higher power or for longer durations at lower power. Overhead conductive chargers historically rely on a smaller ratio of chargers to buses

due to their higher power output that reduces the footprint for the charging equipment. However, it also means that a malfunction of a charging station may have a larger impact on service if the charger is not available. A number of charging OEMs now offer charger cabinets that can energize multiple overhead conductor chargers and even support a mix of connected dispensers (i.e. plug-in cords and overhead conductors connected to the same cabinet). Overhead conductive charging can be operationally challenging as proper alignment between a bus and pantograph is critical in achieving proper charging. Similar to the standard established for plug-in chargers, the J3105 standard for overhead conductive chargers allows transit agencies to operate different models of buses from multiple vehicle manufacturers with the same overhead conductive charger. Compared to plug-in chargers, overhead conductive chargers have higher capital and construction costs.

Inductive chargers utilize a wireless power pad as the charging dispenser embedded in the floor of a garage or roadway surface in addition to a power receiver installed under the bus. An above ground charging cabinet similar to a plug-in or overhead conductor cabinet is still needed to convert AC to DC power and energize the charging pad dispenser. Like plug-in and overhead conductor chargers, the charging cabinet is available in ranges from 50-350+ kW. Some inductive chargers are capable of energizing multiple wireless charging pad dispenser in 1:2 and 1:3+ ratios. Inductive chargers eliminate concerns for overhead clearances, as they are built into the floor of a garage or roadway. However, there may be significant costs and operational disruptions to install, repair, or replace the charger and wireless pad since it would be embedded in the floor of the garage or roadway. Retrofitting multiple induction pads and their above ground chargers in existing garages will require significant trenching and cutting of the floor slabs. Inductive charging can be operationally challenging as proper alignment between a bus and inductive charger is critical in achieving proper charging. Inductive charging is still considered to be in its infancy as only a small number of North American agencies have implemented inductive chargers either as charge in parking place at a garage or as an offsite opportunity charger. Currently, there is no national standard for inductive charging. As a result, each bus manufacturer could approach this charging strategy differently meaning that different charging equipment may not work for different types of buses or even different bus models from the same manufacturer. These complexities are analogous to how some smartphone charging ports are not compatible with smartphones from different manufacturers or how smartphone companies can change the charging port between phone versions.

3.2.1 Short-Term Charging Strategy

In the short-term, MVRTA has elected to pursue a garage-based charging strategy using either plug-in or overhead conductive chargers. MVRTA has dismissed the use of inductive chargers due to the lack of a national standard for inductive charging, higher capital and construction costs, and relative infancy of the technology compared to overhead conductive and plug-in charging solutions. Opportunity charging strategies have also been dismissed in the short-term, due to outdoor maintenance challenges particularly during Minnesota winters, higher operational costs due to daytime electricity premiums, and lower maintenance cost effectiveness compared to garage charging where assets are consolidated in one or two

locations rather than across the region. As charging technology evolves, MVTA will continually reassess the feasibility of these various charging strategies.

4 Electrification Analysis & Evaluation

4.1 Service/Fleet Analysis

This section analyzes MVTA's bus fleet and service to identify the share of existing bus blocks, platform hours and miles and revenue hours and miles that are technically viable for a one-to-one transition to BEBs with only garage charging. This analysis looks at three scenarios including: Current Technology BEBs, Moderate Technology Improvement, and Significant Technology Improvement.

4.1.1 Current Fleet Composition

As introduced in Section 2.1, MVTA's bus fleet is composed of buses of varying lengths operating from two home garages to provide a range of service types. As of Spring 2022 MVTA does not operate any ZEBs. Instead, MVTA's fleet includes a total of 172 vehicles comprised of:

- (1) 17-foot gasoline van;
- (4) 23-foot gasoline cutaway vehicles;
- (8) 25-foot gasoline cutaway vehicles;
- (4) 25-foot diesel cutaway vehicles;
- (3) 26-foot gasoline cutaway vehicles;
- (6) 35-foot diesel buses;
- (93) 40-foot diesel buses; and
- (53) 45-foot diesel coach buses.

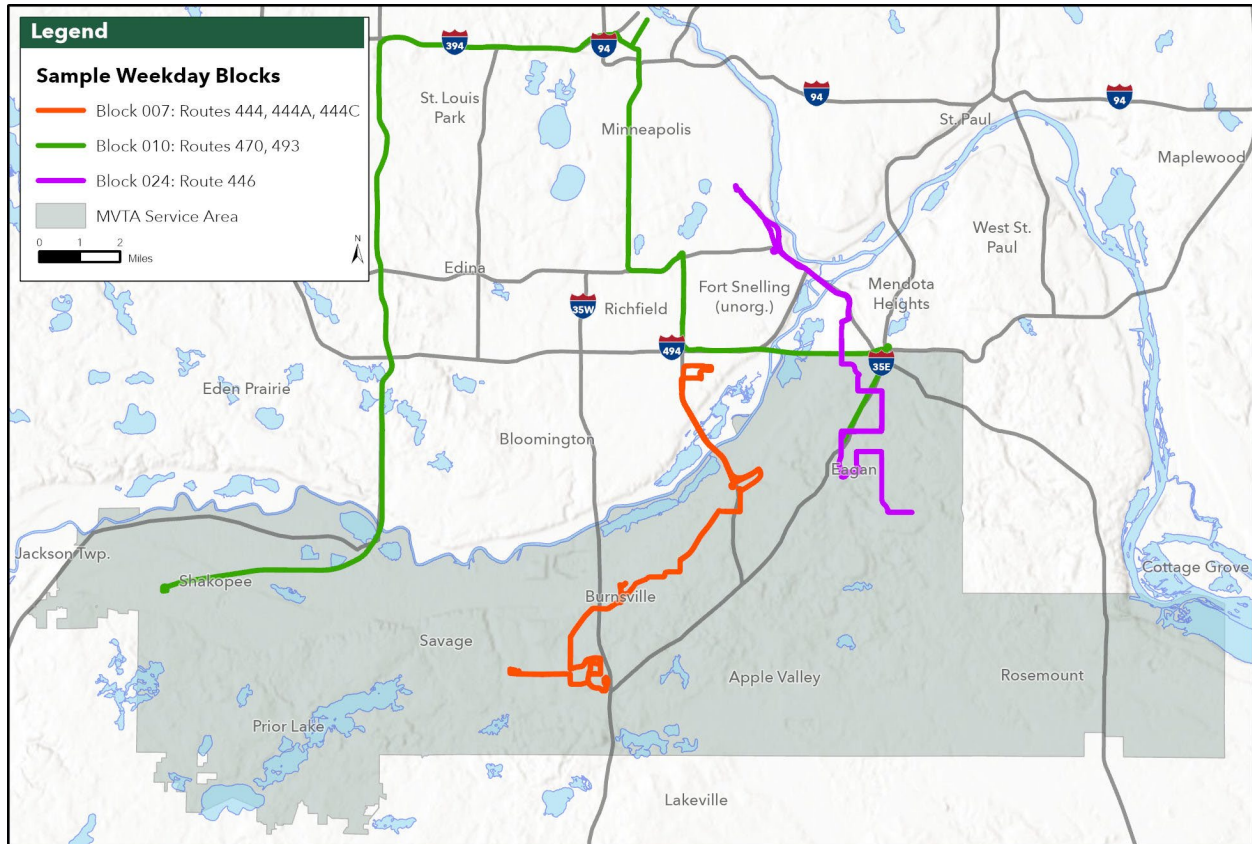
Historically, about 44% of MVTA's vehicles operate out of the Burnsville Bus Garage while the remainder operate out of the Eagan Bus Garage. Currently, however, all bus service is operated out of the Eagan Bus Garage while the Burnsville Bus Garage is being renovated. MVTA is actively pursuing funding opportunities to pursue adding BEBs to its bus fleet in alignment with our pledge to "...effectively and continuously move toward more sustainable operations."

4.1.2 MVTA Scheduling Practices

To maximize scheduling and operational efficiency, MVTA divides its many routes into blocks—a series of transit trips that are linked together and assigned to a single bus for operation. To illustrate this blocking concept Figure 8 depicts three example weekday blocks. As shown, blocks can either contain one route (i.e., Block 024), one route with multiple branches (i.e., Block 007), or multiple routes/branches (i.e., Block 010). Service blocks are reconfigured every quarter to maximize efficiency and tailor service to ridership and the available workforce even when service levels are relatively stable. To analyze the short-term viability to transition towards BEBs, this analysis uses service blocks rather than bus routes as service blocks represent the total work performed between the time a bus pulls out of a garage and the time it pulls back

into the garage. Therefore, service blocks establish a minimum duration between BEB charging opportunities at a garage.

Figure 8: Overview Map of Three Example Service Blocks



4.1.3 Fixed Route ZEB Transition

As introduced in Section 3.1, based on the current state of BEB technology, a BEBs range on a full charge is significantly less than the range a traditional diesel or gasoline vehicle can travel on a single tank of fuel. As a result, for longer service blocks, BEBs cannot typically be used as a one-to-one replacement for existing diesel/gasoline powered vehicles. Instead, for particularly long blocks, multiple BEBs will likely be needed to deliver the same level of service provided by MVTA’s current diesel buses. For example, Foothill Transit, a Greater Los Angeles transit provider, estimates that switching to BEBs would require the agency “to buy more buses to meet the service that we provider to our customers.” Foothill Transit’s Director of Maintenance and Vehicle Technology estimates that for their service profile, a replacement ratio of “about 1.5-to-1 between BEBs and CNG buses” would be needed to fully deliver their existing levels of bus service.³⁷

Although longer blocks likely require either multiple BEBs to deliver the same service or significant BEB technology advancements, some service blocks may be technically viable for a one-to-one BEB replacement using current BEB technology. To determine whether a bus block

³⁷ Source: [Q&A: Foothill Transit Team Discusses Sustainability Leadership, Federal Transportation Policy Opportunities](#), EESI, January 14, 2021

is technically viable for BEB service, block length is compared against the BEB's worst-case range. For any given block, if the BEB's worst-case range is greater than the block's total length, then the block is technically viable for a 1:1 replacement with BEB service. The following analysis estimates the percentage of MVTA's fixed route bus blocks that are feasible for a one-to-one BEB replacement in the short term given conservative range assumptions.

4.1.3.1 Service Analysis Assumptions

As introduced in Section 3.1, battery/energy capacity and energy usage are the primary drivers influencing BEB range, and consequently the viability for existing bus service to be served by BEBs. The following section defines the assumptions for each factor used in assessing BEB service viability. Battery capacity and energy usage assumptions are then summarized in Table 2.

Battery/Energy Capacity Impacts on BEB Range

To calculate and model a battery's energy capacity, three factors must be considered: (1) battery degradation, (2) battery life, and (3) operational flexibility.

Battery Degradation

Batteries become less efficient and wear down over time as they are constantly charged and discharged. For example, as smartphone and laptop users are aware, as these devices grow older, they require more frequent charging as a "full charge" no longer provides power for as long as when the device was new. Based on manufacturer warranties, it is estimated that a BEB's battery capacity degrades by as much as 2.4 percent per year.³⁸ This is equal to a capacity loss of up to approximately 14 percent after six years (bus mid-life), and up to about 25 percent after 12 years (bus end-life).

Battery Life Capacity Reservations

Beyond general battery degradation, charging a BEB to full capacity or charging it from a zero state of charge (SOC) increases battery degradation rates as additional strain is placed on the battery's physical and chemical components. All battery manufacturers recommend reserving a portion of the battery's capacity to preserve battery life to prevent a more rapid degradation of battery capacity than the annual 2.4 percent described above. The portion of a battery's capacity that is protected and unavailable for use varies by manufacturer and can range from between 5 percent to approximately 35 percent of the battery's capacity.³⁴

Operational Flexibility Capacity Reservations

Just as operators avoid driving a conventional vehicle until the fuel tank is empty, a portion of a BEB's battery capacity is typically preserved for operational flexibility.³⁹ By preserving this capacity, transit agencies can increase the likelihood that BEBs will have sufficient range to return to the garage in the event of unseen delays or other unexpected events that would require a BEB to remain in service longer than originally planned.

³⁸ Source: [Battery Electric Bus and Facilities Analysis Final Report](#), Milwaukee County Transit System, January 2020

³⁹ Source: [Electrifying Transit: A Guidebook for Implementing Battery Electric Buses](#), National Renewable Energy Laboratory, April 2021

Usable Battery Capacity Calculation Summary

Overall, MVTA's BEB service planning is based upon a battery's usable, rather than nominal, capacity at bus mid-life to account for battery degradation and capacity reservations. Based on an approximately 2.4 percent annual battery capacity degradation as well as the reservation of 10 percent battery capacity for battery life and 10 percent for operational flexibility, the usable battery capacity at bus mid-life (6 years) is calculated as 70 percent of the nominal (advertised) battery capacity.

Energy Usage Impacts on BEB Range

Along with battery capacity, the amount of energy consumed by the bus (kWh/mile) also impacts BEB range. When the energy used to heat/cool a bus's passenger cabin is the same energy that would be used for the propulsion of the bus, bus range can be substantially reduced in cold weather as increased energy must be devoted to maintaining a comfortable passenger cabin temperature. Based on 30-year average temperatures, the Twin Cities has the coldest winters, on average, of any major U.S. metropolitan area with an average temperature of 18.7 degrees Fahrenheit between December and February.⁴⁰ Additionally, the region experiences sub-freezing air temperatures on an average of 151 days per year with 24-25 days of sub-zero air temperatures.⁴⁰ Therefore, while many transit agencies across the county can largely plan BEB service assuming relatively warm average ambient temperatures, MVTA must plan BEB service around worst-case range estimates based on winter temperatures to ensure reliable service can be maintained throughout all seasons. Drawing upon Metro Transit's experience operating BEBs in Minnesota winters, our Transition plan utilizes the same worst-case energy efficiency of 3.5 kWh/mi outlined in Metro Transit's ZEB Transition Plan.

In addition to ambient temperature impacts, a BEB's operational speed also influences energy usage and therefore BEB range. Typically, slower speeds are a result of either busy or congested environments. In busy environments, buses often see greater energy use, owing to bus doors being open more often and for longer periods of time. When the doors are open, bus cabin heating and cooling is more difficult as extra energy needs to be drawn from the battery. Additionally, when buses are stuck in congested environments, they spend an increased time idling and accelerating from rest, thereby also requiring greater energy usage. Due to these considerations, blocks with an average speed of 8 miles per hour or less are assumed to have too significant of an impact on energy consumption to be considered for short-term BEB service.

Summary of BEB Service Analysis Assumptions

Table 2 summarizes the battery capacity and energy usage assumptions and criteria outlined above and used in assessing the suitability of MVTA's service blocks for BEB operation. In recognition of the speed at which BEB technology is advancing, battery capacities have increased by more than eightfold from 2014⁴¹ to 2023,³⁶ three service analysis scenarios have been considered based on differing BEB technology assumptions as quantified by the buses' nominal battery capacity. The three scenarios include: Current Technology (588 kWh), Moderate Technology Improvement (675 kWh), and Significant Technology Improvement (880

⁴⁰ Source: [America's 20 Coldest Major Cities](#), NOAA, 2014

⁴¹ Source: [Foothill Transit Battery Electric Bus Demonstration Results](#), NREL, 2016

kWh). The current technology capacity was selected to align with the battery capacities identified as part of MVTA’s Spring 2022 FTA Low-No Grant application, while moderate technology and significant technology improvements were selected to align with comparable nominal capacities included in other Midwest transit agencies’ ZEB Transition plans including the Chicago Transit Authority (CTA)⁴² and Metro Transit.⁴³

Table 2: Assumptions for Fixed Route BEB Service Analysis

Item	Current Technology	Moderate Technology Improvement	Significant Technology Improvement
Battery size <i>Nominal capacity</i>	588 kWh	675 kWh	880 kWh
Battery size <i>Useable Capacity *</i>	412 kWh	473 kWh	616 kWh
Average kWh per mile**	2.2	2.2	2.2
Average range in miles	187	215	280
Worst-case kWh per mile**	3.5	3.5	3.5
Worst-case (winter in Minnesota) range in miles	118	135	176
Minimum Average Speed	8 mph	8 mph	8 mph

Note: All analyses assume 40-foot garage-charged BEBs using auxiliary diesel heater

*Usable battery capacity defined as the bus mid-life battery capacity calculated as 70% of nominal battery capacity. This assumes a 2.4 percent annual battery capacity degradation and a total of 20% capacity reserved for a combination of battery health and operational flexibility.

**Energy efficiencies sourced from Metro Transit’s ZEB Transition Plan

4.1.3.2 Fixed Route BEB Service Analysis Results

Using the criteria presented in Table 2, each of MVTA’s bus blocks can be analyzed to assess BEB suitability. For each of the three technology scenarios, a block is determined to be technically viable if:

- The total block distance was less than the BEBs worst-case range; and
- The bus’s average speed along the block was at least eight miles per hour.

Based on this analysis, the technical viability of the given service schedule for BEB service is summarized in three ways:

- Count (and percent) of total blocks that are technically viable;
- Percent of total annual bus platform and revenue hours that are technically viable;⁴⁴
- Percent of total annual bus platform and revenue miles that are technically viable.⁴⁵

⁴² Source: [Charging Forward—CTA Bus Electrification Planning Report](#), CTA, February 2022

⁴³ Source: [Metro Transit Zero-Emission Bus Transition Plan](#), Metro Transit, February 2022

⁴⁴ Note: Bus hours defined as the time between when a bus pulls out of a garage to when it pulls back into the garage

⁴⁵ Note: To calculate the portion of technically viable annual bus hours or miles for a given service schedule, the number of service days of each schedule type (Weekday or Weekend/Holiday) were multiplied by their respective share of technically viable bus hours or miles compared to all bus hours and miles in the schedule and then added together. Note that each quarterly service schedule change may have a unique number of Weekday and Weekend

As the length of buses operated on any given block is subject to change in the future, this service analysis is applied to all blocks regardless of the bus length currently operating on the block. BEB service viability analysis results are likely to fluctuate as MVTA’s block characteristics may be modified up to four times a year due to service changes. To establish a baseline and to illustrate how this methodology can be used to inform BEB transition policies and prioritize BEB deployment, the analysis results of MVTA’s May 2022 service schedule are summarized below (Table 3).

Table 3: Technically Viable Fixed Route Block Summary for 40-Foot BEBs for May 2022 schedule

	Current Technology (588 kWh)	Moderate Technology Improvement (675 kWh)	Significant Technology Improvement (880 kWh)
Number of Technically Viable Blocks	99	114	153
% of Total Blocks	56%	65%	87%
% of Total Annual Platform Hours	36%	46%	80%
% of Total Annual Platform Miles	38%	47%	77%
% of Total Annual Revenue Hours	33%	43%	79%
% of Total Annual Revenue Miles	32%	42%	75%

**Note: Bus Hours defined as the time between when a bus pulls out of a garage to when it pulls back into the garage and all analyses assume 40-foot garage-charged BEBs using auxiliary diesel heater*

This analysis indicates that over half (56%) of MVTA’s May 2022 fixed route bus blocks representing approximately a third of both revenue and platform hours and miles can be served by the current technology 588 kWh 40-foot BEBs MVTA is currently pursuing funding for without altering existing block structures or using opportunity charging. If nominal battery capacities were to reach 880 kWh in the future, nearly 90% of these bus blocks representing approximately 80% of revenue and platform miles and hours would be technically viable. These results are specific to MVTA’s May 2022 service schedule and are subject to change up to four times a year due to changes in block length and composition as a result of MVTA’s service changes.

As shown in Table 3, it is anticipated that an increasing number of blocks will become technically viable in the coming years as BEB technology continues to improve. Given that such a significant percentage of MVTA’s existing (May 2022) bus network is technically viable for BEB service, the primary limiting factors to large scale BEB deployment are lengthy timeframes necessary to electrify the bus garages, the need for expanded workforce development, the limited production capacity of BEBs, batteries, and chargers, and the amount of available funding for bus operation and maintenance.

service days for that year. For the May 2022 schedule change, for example, it was assumed that there were 256 days of Weekday service and 109 days of Weekend/Holiday service across the entire year including New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

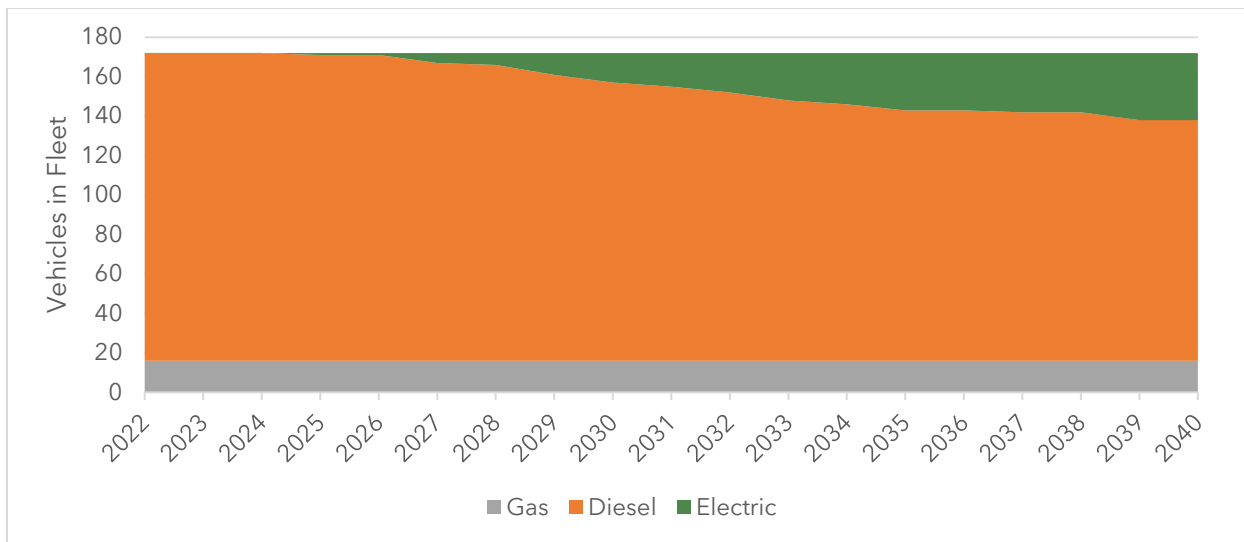
4.1.3.3 Fleet Transition Projection

To evaluate potential fleet transition, the percentage of block achievability with moderate technology improvement is applied to anticipated bus purchases. The same assumptions identified previously are applied to this evaluation, along with the moderate technology improvement scenario. Based on the block achievability associated with these assumptions, we can project that 65% of the fleet can be replaced with depot-charged BEBs at most given a moderate amount of technology improvement.

For the sake of preliminary analysis, future bus purchases will be projected to consist of 20% BEB to evaluate the speed of long-term fleet transition. This pace will be further refined during the Phase 2 transition plan evaluation, when a more thorough evaluation of block performance, infrastructure upgrades and requirements, and funding availability is performed. However, a 20% replacement timeline is a reasonable baseline to expect given these assumptions.

Figure 9 below shows the fleet fuel type composition year-over-year given the baseline assumption of 20% BEB replacement assumption on all future bus purchases. The 13 gas vehicles are constant throughout the period due to these being cutaway vehicles. There are several options for further consideration to increase this percentage further, such as on-route charging and block splitting.

Figure 9: MVTA Fleet Composition Projection



4.2 Facility Analysis

This section analyzes the suitability of MVTA’s facilities to support a transition toward BEBs. This MVTA’s two operating and maintenance garages (Eagan Bus Garage and Burnsville Bus Garage) were reviewed for existing configuration, current operational on-site vehicle flow, bus parking configuration and electrical service entrance, and size. MVTA’s goal for both short- and longer-term electrification will be to incrementally add in BEBs as replacements to outgoing internal combustion engine buses. In preparation for this transition, existing operational bus site flow and bus parking configurations must be identified and documented to allow for the addition of new BEB charging infrastructure in a way that is compatible with a facility and site’s

existing physical arrangement. As introduced in the Chapter 3 BEB Technology Overview, there are multiple equipment options to charge a BEB. To plan for and identify BEB charging infrastructure that is most compatible with existing operations and mitigates potential operational impacts during BEB charger construction, the unique physical limitations and challenges of each bus garage were assessed as summarized in this section. Although opportunity charging is not a short-term charging strategy for MVTA, BEB infrastructure suitability was also assessed at the six Park and Ride and Transit Center facilities with associated MVTA ownership.

4.2.1 Eagan Bus Garage (EBG)

Eagan Bus Garage (EBG) is a purpose-built transit bus operations and maintenance garage with the capacity to park ninety-eight 40-ft bus equivalents in the enclosed bus parking storage area (Figure 10). EBG has a complete block frontage between Blackhawk Road to the north, Minnesota State Highway 13 to the east and Shawnee Road to the south. The western edge of the property is stepped with the northwestern portion extending up to Kennebec Drive and the shallower southwest portion terminating and abutting an adjacent commercial business park. The northwestern portion of the site contains a photovoltaic solar array system constructed over an existing ash land fill. The solar array does not provide power to the Eagan Bus Garage and the land under the array would not be usable for expansion of the garage due to the previous land fill use without significant remediation.

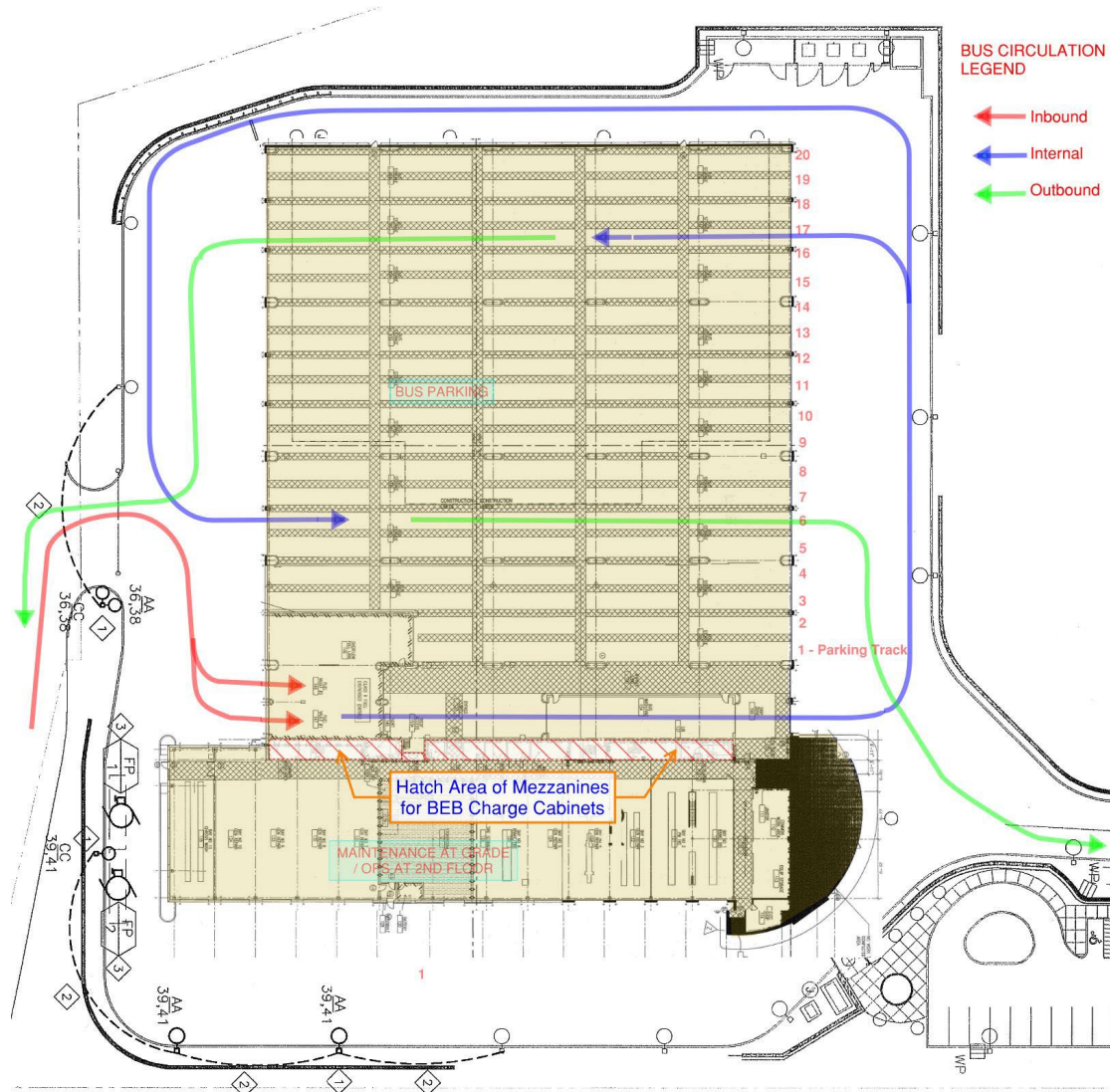
Figure 10: Eagan Bus Garage Overview



4.2.1.1 Existing Bus Circulation

At the end of the daily shift for PM pull-in, buses enter EBG from Shawnee Road, entering into one of the two fueling positions (Figure 11). Operators leave the buses at the fueling lanes, check out with dispatch and exit the site in their personal vehicles on Blackhawk Road. Nighttime service staff hostlers then fuel buses, collect the fares from bus vaults while waiting for fueling to complete, perform interior cleaning of bus, check tire pressure, and collect operator bus defect cards. After fueling is complete, the hostlers take the buses through the automatic drive-through bus wash. Buses exit the bus wash and drive out of the building to the north exterior bus circulation apron and, depending on the bus parking track the buses are assigned to park, either turn 180 degrees and enter the bus parking garage facing south or circulate around the garage on an exterior bypass lane and turn into the bus parking garage facing north. There are twenty assigned bus parking tracks, two per exterior overhead door that corresponds to a single structural bay of the garage. Pedestrian circulation aisles are located alongside, behind, and in front of the parked buses.

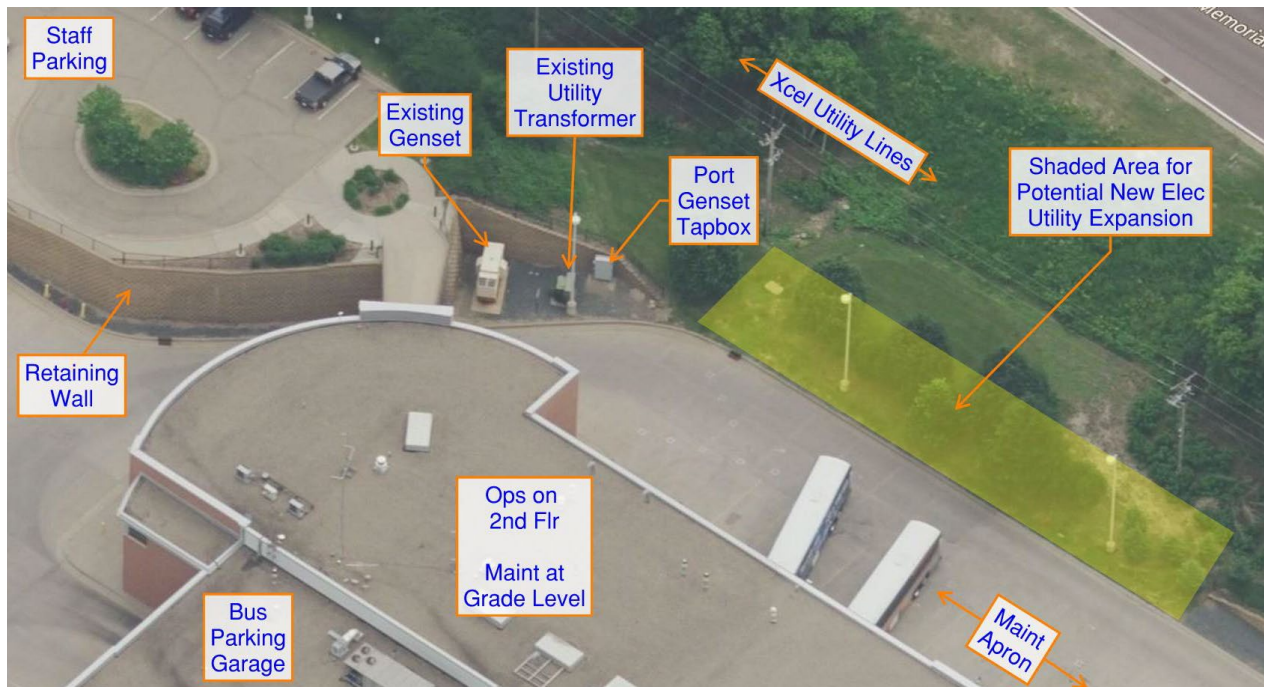
Figure 11: Egan Bus Garage Bus Circulation



4.2.1.2 Short-Term Charger Opportunities

Six ground mounted remote plug-in dispensers are planned to be located between parking track four and five as part of MVTA’s 2022 Low or No (Low-No) Emission Grant. The charging cabinets energizing those six dispensers are planned to be located on the storage mezzanine that runs the entirety of the bus parking garage from north to south. The DC charging power and charging control communications and data wiring from the charging cabinet would be suspended from the overhead existing parking garage roof structure and drop down to feed the remote plug-in dispensers. The original Eagan Bus Garage was expanded in 2013 significantly increasing the maintenance bays and covered bus parking. During the 2013 expansion, the electrical service was maintained with a 750kVA transformer from the local electrical utility provider Xcel Energy. After the facility expansion was energized, four 200 amp spare switches remain in the existing electrical main switchboard in addition to four spare spaces to accept future switches.

Figure 12: Eagan Bus Garage Existing Electrical Transformer–Aerial View



Between the existing installed spare switches and the space to install new switches, enough power would exist to power three to four BEB nominal 180kW chargers which in turn energize the six planned plug-in cord dispensers in the bus parking area and one plug-in dispenser in a maintenance bay. Specific maintenance bays or parking spaces in parking tracks 4 and 5 have not yet been identified to house the dispensers. This decision will be made during future detailed design during the development of the charger/dispenser installation project.

4.2.1.3 Long-Term Changes to Support ZEB Transition

EBG’s existing configuration can support multiple BEB dispensers without significant modifications. The existing overhead roof structure can support the suspended distribution of the power/data from the mezzanine mounted chargers to the dispensers at the

parking/charging positions. The existing circulation aisle can support ground mounted remote plug-in cord dispensers as well as overhead suspended plug-in cord dispensers. The clear height of the garage allows for either type of overhead conductive dispenser.

New electrical service will be needed to support any additional BEB deployments beyond the planned short-term BEB project identified in MVTA's 2022 Low-No application as this project will use all existing surplus power. The existing transformer is located between the existing backup generator and a portable exterior cabinet type generator tap box. The existing electrical service entrance is located at a lower grade adjacent and at the base of a retaining wall supporting the staff parking and circulation bridge above. Adjacent flat land nearby the existing transformer may be suitable for a new electrical service feed(s) from Xcel Energy. The available land area is large enough to house enough utility gear to support a full 100+ fleet conversion to BEBs. Additionally, the likely utility poles to supply any new service are adjacent to the potential expanded utility yard. EBG is a good candidate for full electrification of the 100 bus fleet because:

- There is available capacity in the surrounding utility power circuits based on preliminary discussions with Xcel
- There existing circuits consist of two separate feeders, one overhead and one underground, providing resiliency and redundancy to future charging service based on preliminary discussions with Xcel
- There is available land near the utility lines to add new utility transformers
- The existing mezzanine potentially has the space to house the new charging cabinets and distribution electrical gear needed for a full fleet
- The current parking configuration at EBG allows for either ground mounted dispensers next to the buses, overhead drop down cord at the buses, or overhead conductive charger at each of the 100 bus parking positions without loss to parking capacity

4.2.1.4 Long-Term Barriers to ZEB Transition

MVTA has held preliminary discussions with Xcel Energy about planning a transition towards an electric bus fleet. To support a widespread transition to BEBs, Xcel Energy would require offsite improvements and expansion to their grid capability. The existing roof structure over the parking deck and the structure of the mezzanines which will house future BEB chargers will need to be evaluated for ability to support additional weight. A typical 150-180 standalone charging cabinet weighs approximately 2,000 pounds, equivalent to the weight of a small car. Depending on the shared charger to dispenser ratio, the mezzanine would need to support 25-50 charging cabinets (1:4 - 1:2 charger to dispenser ratios) equivalent to an additional 25-50 tons of charger cabinets plus new distribution panels. Suspended plug-in cord dispensers and overhead conductor dispensers range from 150-700 pounds each and a fully electrified fleet would require up to 100 dispensers suspended from roof. If all dispensers were suspended, approximately 70,000 pounds/35 tons of load would be added to the facility based on the worst-case weight of full size inverted overhead pantograph. Beyond this load, the additional weight of the required power and data conductors and wires for all dispenser types including ground mounted plug-in dispensers would also need to be considered in any future detail designs.

As described in Section 4.2.1.3, space exists for an expanded new electrical service entrance. For resiliency, there is also land space that could be graded flat to support BEB backup generator(s) but a full backup would likely require multiple 2MW generators. In the future as the MVTA grows it's fleet of BEBs it will work with Xcel to explore redundant feeds, ideally from separate circuits from separate substations.

4.2.2 Burnsville Bus Garage (BBG)

The Burnsville Bus Garage, shown in Figure 13, was constructed in 1977 as a manufacturing facility in an industrial park and repurposed as a transit bus garage in 1996.⁴⁶ It is currently undergoing renovations and expansions including adding additional interior parking capacity, adding new bus washing facilities and upgrading the electrical service to support short-term and long-term BEB implementation. Taking up an entire block between 116th Street East to the south and 115th Street East to the north and Rupp Drive to the east, the fourth and western edge of the site abuts adjacent commercial property.

Figure 13: Burnsville Bus Garage Context Site Plan



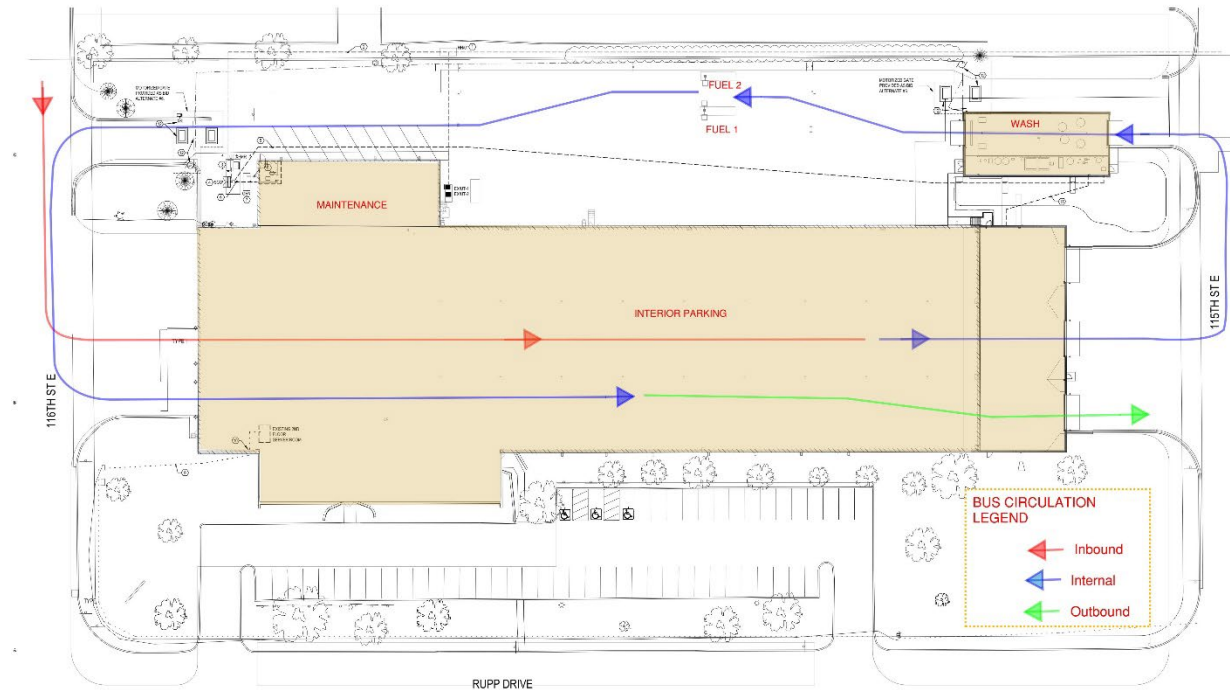
4.2.2.1 Existing Bus Circulation

Bus flow at BBG is generally from 116th Street East entering the covered parking garage from the south entry drive off of 116th Street East (Figure 14). Incoming buses from PM pull-in are parked and staged in designated staging parking track(s). Operators check out with Dispatch and exit the site in their personal vehicles on Rupp Drive. Post-modernization, the flow will consist of nighttime service staff hostlers move buses from the staged parking position out from the garage exiting to 115th Street East and then turning back onsite through the drivethrough automatic bus wash for exterior cleaning. After exterior cleaning, the buses then

⁴⁶ Source: [Board Meeting](#), MVTA, June 23, 2021

will pass through one of the fueling positions. During the dwell time at the fueling position, the vaults will be pulled and fares collected, the interior of the buses cleaned, tire pressure checked, and the bus defect cards from the operators collected. After fueling, the hostler then parks each bus in its assigned track based on the next day's morning pull-out dispatch schedule. The process is repeated for every bus until all ready line buses used that day have been serviced and are ready to be dispatched for the next day's morning pull-out.

Figure 14: Burnsville Bus Garage Bus Circulation



4.2.2.2 Near-Term Changes

The Burnsville Garage is currently not being used for daily transit service as the facility undergoes construction and modernization. Improvements and expansion at BBG are being implemented in three phases. Phase 1 is under construction now while Phase 2 and 3 will be completed at a later date. As part of the Phase 1 expansion, a new electrical service will be installed at BBG in addition to a 1,000 kVA transformer along with a corresponding distribution panel and backup diesel generator. The new 1,000 kVA transformer included in Phase 1 will power the new bus wash equipment being installed concurrently. To support a long-term transition towards BEBs, provisions are being made in Phase 1 electrical plans including spare power capacity and underground conduits to the bus garage. Phase 3 of the project is planned to build upon the provisions made in Phases 1 and 2 through a variety of electrification initiatives designed to lay the foundation for electric vehicles.

4.2.2.3 Long-Term Changes to Support ZEB Transition

With the addition of the new Phase 1 transformer, approximately 800 amps of spare capacity are available for future BEB charging use. The quantity of BEBs supported by the spare capacity will depend on the battery configuration of the future BEBs and charging infrastructure. A

nominal 150-180kW charger requires 180-210 amps per charger so 3 to 4 charge cabinets could be supported by the spare capacity of the Phase 1 transformer. If 1:3 or 1:4+ charge ratios are used this equates to the potential to add 9 to 12 dispenser charging locations before addition new electrical service is needed. There is additional ground space adjacent to the Phase 1 Improvement transformer for further electrical service and capacity to be added in the future if needed. Currently, space exists within BBG to house BEB charging support infrastructure and equipment along the inside perimeter of the bus storage garage as well as between the roof support column parallel with the bus parking tracks.

4.2.2.4 Long-Term Barriers to ZEB Transition

The nominal clear height of the BBG is 13 ft 10 inches from the top of parking slab to the underside of roof trusses above. This clear height does not support conductive overhead charging utilizing overhead inverted pantographs. The clear height, however, does support the piston garage type dispenser usage if the taller non-moving portions of the piston garage dispenser are not directly located under a roof truss. BBG's clear height also supports suspended overhead dropdown cords with remote plug-in dispensers nested between existing roof trusses energized by charging cabinets located at ground-level on the inside perimeter of the garage and between building columns. When planning for future BEB storage, sufficient space must be reserved for pedestrian circulation between obstructions including support beams and/or other buses when BEB charging port doors are open and charging cords are plugged-in. Prior to commencing construction modifications, approximately 67 buses were operated out of BBG utilizing interior and exterior parking spaces. At this or a similar quantity of buses on-site parked in a non-crushed configuration, buses could be parked two tracks per building structural bay instead of three tracks. While this would limit the number of BEBs that could be parked inside, this configuration would allow for more ground-mounted chargers and dispensers to be adjacent to the BEBs if all-in-one plug-in chargers are utilized. Two bus tracks per building structural bay would also allow room to open charging port doors and have plug-in charge connectors extending from the bus and still have adequate pedestrian circulation space alongside the parked buses parallel to the bus parking tracks.

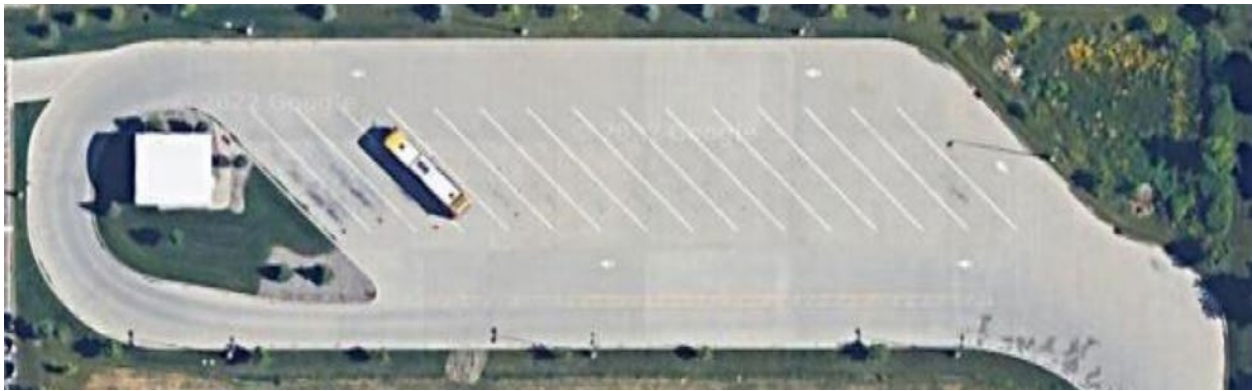
4.2.3 Other MVRTA Facilities

Although MVRTA is not currently considering "opportunity" charging in the short-term, a preliminary electrification suitability analysis was performed for the six park and ride and transit center facilities with associated MVRTA ownership outlined in Table 1, a high-level summary of which is included below. This opportunity charging suitability/feasibility analysis is focused on overhead inverted pantograph (pantograph) dispensers from a pole mast or structure located at passenger drop off/pickup berths. Opportunity charging is assumed to require a higher capacity unit (250kW+). Each transit station / park and ride site was reviewed to find a portion of open site that had the ground area to fit new BEB charging infrastructure (transformer, meter, distribution panel) as well as a charge system (charging cabinet(s), pantograph support mast and pantograph dispenser). Ideally this site area will be close to the bus berths to limit distance between charger and dispenser but also reduce construction complexity and cost.

4.2.3.1 Apple Valley Transit Station

At Apple Valley Transit Station (AVTS), passenger drop-off/pickup berths are situated in two street cutoff of Cedar Avenue. The two sides of Cedar Avenue are connected by a pedestrian/passenger bridge to allow safe access across Cedar Avenue. The vertical circulation buildings on either side of the passenger bridge contain stair, elevator and interior waiting areas and public restrooms. There are overhang canopies on both vertical circulation buildings that overhand portions of the bus berths. The Apple Valley Transit Center also includes a large park-and-ride facility. To west of the park-and-ride facility is a bus layover facility. The layout of the site provides several potential locations to provide opportunity charging, either on the landscaped island or the west edge of the site. The layover facility is not public accessible and as such could use plug-in dispensers at this location.

Figure 15: Aerial View of Apple Valley Transit Station - Layover Facility



4.2.3.2 Burnsville Transit Station

Burnsville Transit Station has 12 angled berths and long stretches of curb that can be used as passenger pickup/drop-off areas or as layover spaces for a bus to dwell for ten or more minutes without being at a hard transit signed/defined passenger loading berth. Four of the 12 angled berths are canopy covered with lower canopies that do not extend over probable pantograph mast locations. There are four higher canopies that do extend over the probable pantograph mast locations but the heights would allow for a ground mounted mast or pantograph mounting directly from the high canopy structure if there is enough structural capacity identified during detail design. The remaining majority of berths and layout spots are canopy free and are adjacent to open landscaping areas suitable to support future BEB charging infrastructure and charge systems.

Figure 17: Aerial View of Burnsville Transit Station

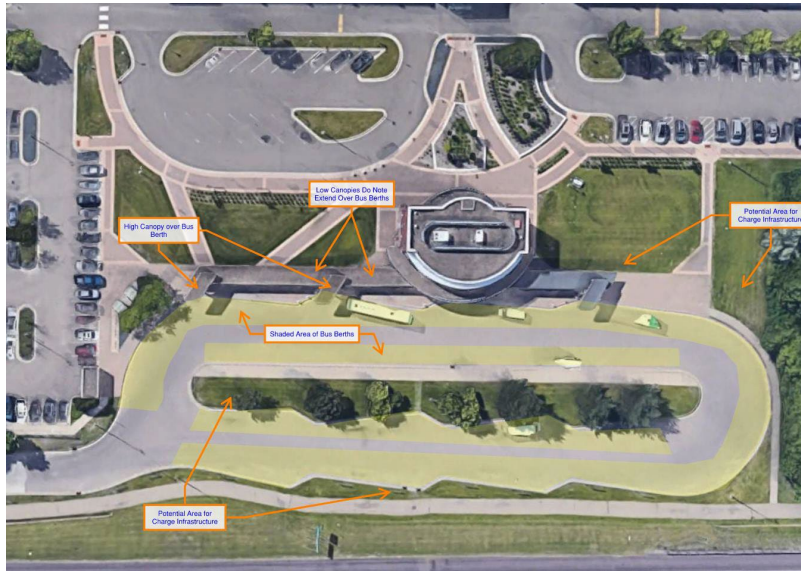


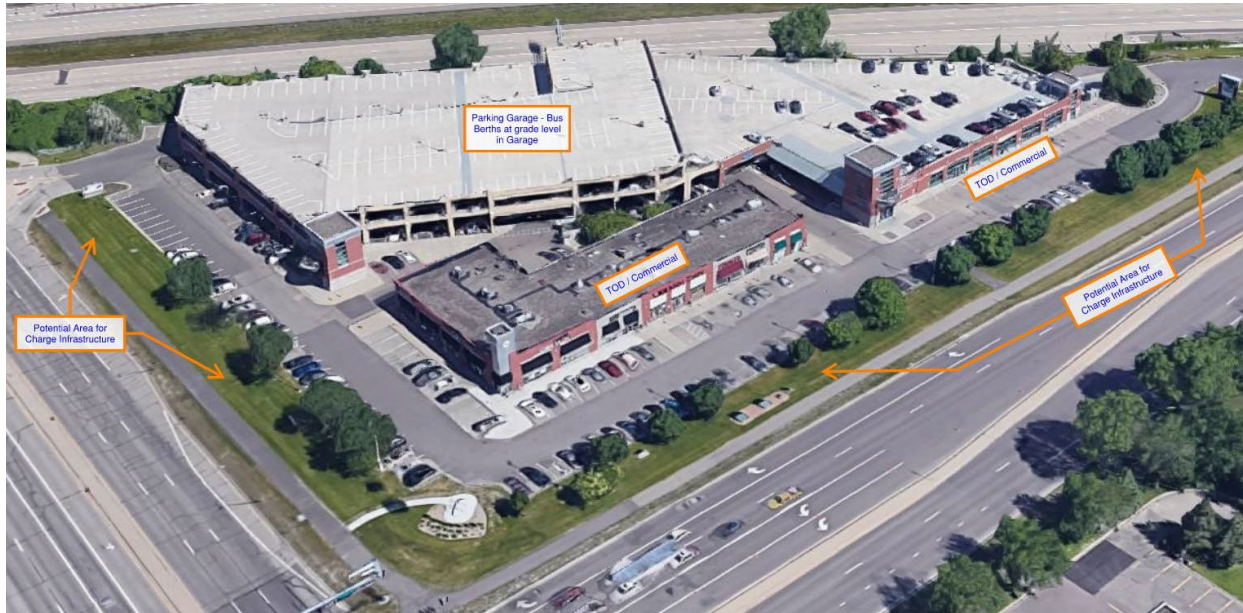
Figure 17: High/Low Canopies at Burnsville Transit Station Bus Berths



4.2.3.3 Eagan Transit Station

Eagan Transit Station passenger loading and unloading occurs at the ground level in a concrete three-story parking garage. Any new pantograph dispensers would need to be mounted to either a new mast or suspended from the overhead concrete structure. The clear height of the first-floor parking garage may limit the construction of the mast's typical drilled pier foundation and require a nominal nine-foot by nine-foot mat footing which may interfere with garage foundations. The transit station is part of a commercial transit-oriented development (TOD) commercial shopping center. There is open available space along Pilot Knob Rd and Yankee Doodle Rd for charging infrastructure installation, but such installation would require trenching across TOD drives. The existing parking garage structure could be utilized to support and distribute charge system wiring once charging power entered into the garage.

Figure 18: Aerial View of Eagan Transit Station



4.2.3.4 Palomino Hills Park & Ride

Palomino Hills Park & Ride has two passenger pick-up/drop-off berths. One berth is uncovered and the other is partially covered by a tall canopy. The tall canopy is high enough to allow a new pantograph mast to be installed. The canopy stops at the approximate center of the bus in the berth. The canopy could be used to support a pantograph but modifications would be required to allow the pantograph to reach the far/street side of roof-mounted charging bars on a BEB. Available land areas exist adjacent to the bus berths to house charging infrastructure and charging system cabinets.

Figure 19: Aerial View of the Palomino Park & Ride Passenger Berths

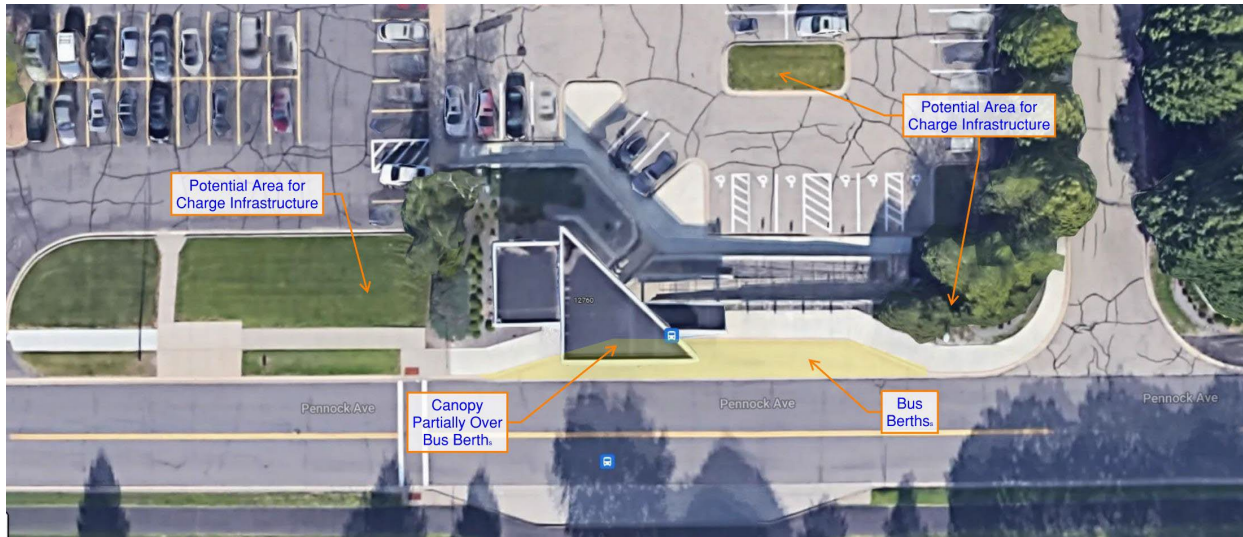


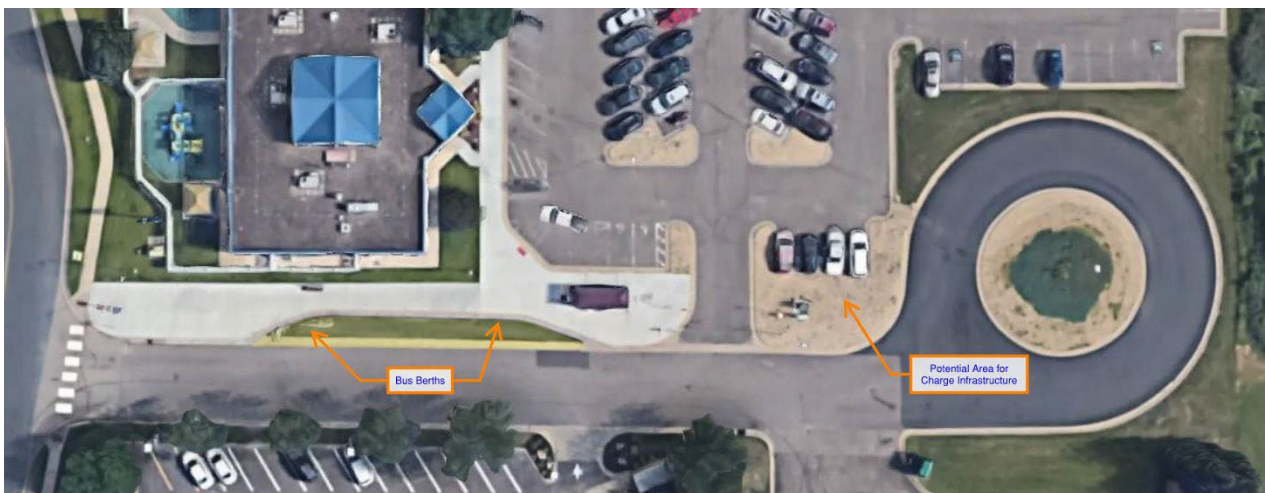
Figure 20: Street View of the Palomino Park & Ride Canopy Partially Covering the Front of a Bus



4.2.3.5 Savage Park & Ride

Savage Park & Ride has two uncovered passenger pick-up berths. Sufficient space and clearance currently exist at the site as well as available land close to the bus berths to support the installation of charging infrastructure and charging cabinet(s). Pavement is newer concrete and sections trenched or replaced during charger construction and installation would blend in to disguise new mast construction. A nearby raised curb with gravel currently houses electrical equipment for the park and ride lighting has space to add new electrical service and charging equipment to support the opportunity chargers.

Figure 21: Aerial View of the Savage Park & Ride Passenger Berths



4.2.3.6 157th Street Station

157th Street Station has both uncovered and canopy-covered passenger loading berths. The canopy-covered berth is overhung by a taller canopy that nearly covers the street side of the bus. The height of the canopy would allow for the installation of a new charging pantograph and mast or, with some modification at its edge, the potential to support the pantograph. There is adjacent available land suitable to house charging infrastructure and charge system components. Pavement around the station is newer concrete and trenched sections or replaced sections would blend in to disguise new mast construction. Additionally, the available land for charge systems extends alongside half of the bus berths. This close adjacency to the backside of the passenger waiting platform could be conducive to boring under existing pavement to install wiring to new mast location.

Figure 22: Aerial View of the 157th Street Station Passenger Berths



5 Resource Availability

In addition to the anticipated goals, opportunities, and challenges identified for MVTA’s fleet transition, other important elements for consideration include resource-related factors—namely, utility coordination, funding availability, and workforce development and training. While facility and operational considerations are necessary to identify opportunities for early deployments, long-term coordination with these items will help to ensure full fleet transition success.

5.1 Utility Coordination

MVTA is collaborating with Xcel Energy, the utility service provider for our garages, to ensure long-term planning for the BEB transition can help to curb future delays. While the power needs of short-term deployments can be met with minimal electrical upgrades, a full fleet transition could require significant upgrades to both the grid and onsite electric infrastructure. Based on preliminary analysis and conversations with Xcel Energy, no major barriers were identified associated with electrifying the Eagan Bus Garage (EBG). In collaboration with Xcel

Energy, two existing electrical service feeders (one overhead line and one underground) were identified as running next to EBG. These preliminary conversations indicated that 7.5 MW of capacity exists on these feeders which could substantially support full electrification at EBG.

Any near-term upgrades, such as placing a new transformer, are anticipated to require Xcel Energy approximately two years to complete. As MVTA continues electrification efforts, MVTA will continue to work with Xcel Energy to explore adding additional metered service to utilize electric vehicle rates, to ensure that a long-term zero-emission transition will be viable at both the EBG as well as the Burnsville Bus Garage, and to determine rough order of magnitude of cost to be borne by MVTA as well as the timeframe it will take for Xcel to make these improvements.

5.2 Funding Availability

BEBs and associated infrastructure require additional funding beyond that which is usually available for transit vehicle acquisition due to the additional costs associated with the technology, and the facility changes. However, one of the primary opportunities for closing this gap includes competitive grant opportunities such as the Low or No (Low-No) Emissions Grant Program.

5.2.1 2022 Low-No Grant

Presently, MVTA is working on a Low-No Grant application for five 588 kWh long-range 40-foot Gillig BEBs, along with the supporting infrastructure for one lane at EBG to support these five vehicles. Should this grant be awarded, MVTA will be taking an important step towards its zero-emission future.

5.3 Workforce Development & Training

This section evaluates how workforce development and training will transition from supporting a fleet of vehicles with internal combustion engines to vehicles with electric drive propulsion and battery-electric power. MVTA will focus on building upon the skills of its workforce to ensure they are able to continue to operate this new fleet as effectively as possible.

5.3.1 Current Training Plan

MVTA's service operation and vehicle maintenance is performed by its contractor, Schmitt and Sons. The contractor has a thorough training program that empowers its workforce to safely and efficiently operate its gasoline and diesel-powered vehicle fleet. The maintenance department utilizes current training standards to ensure its workforce keeps the equipment in a state of good repair. The organization will be able to build off this foundation as it transitions to a zero-emission bus fleet.

5.3.2 Strategies to Integrate ZEB Training

MVTA will utilize future BEB OEMs to train bus operators on the differences between a diesel/gas powered vehicles and BEBs including any driving changes needed to ensure the battery is utilized as efficiently as well as safety considerations needed to operate BEBs. These changes will be folded into the organization's training program to ensure all new operators are sufficiently educated in the future.

The diesel technicians in the maintenance department already have an existing base level of understanding of electrical components from their experience in fixing diesel power buses. MVTA will assist technicians in expanding upon this knowledge with hands-on OEM training to diagnose and resolve BEBs issues, including working with high voltage equipment. Hostlers will also be trained on how to safely operate the charging equipment when parking a vehicle. Much like bus operators, this training will become part of the standard training protocol for future hires.

Safety is of paramount importance. To support the safe operation and maintenance of BEBs, MVTA plans to purchase the proper PPE, tools, and equipment mechanics will need based on OEM's recommendation. MVTA will also provide training to local first responders to help mitigate risks in case of a safety event in the future.

While the training upon the receipt of a new technology is a vital component of long-term success, it is crucial that the workforce is supported in the first few months of operation and beyond. OEMs are planned to provide on-site trained technician support to help maintain the equipment and the maintenance department will directly shadow these OEM technicians to learn best practices on how to keep the equipment running efficiently. MVTA will communicate with frontline workers, through its contractor, to learn what additional training is needed as they grow their experience with the equipment. By empowering its current workforce to maintain this new equipment, there will be no expectation of displacing any employee as the agency transitions towards ZEBs.

6 Conclusion

With both operational and facility opportunities to support near-term fleet transitions, MVTA is well-positioned to begin a fleet transition to ZEBs. While there are some near-term barriers to a full-fleet transition preliminary modeling results indicate that over half of MVTA's existing fixed route bus blocks, encompassing more than a third of revenue hours and miles, are currently technically viable.

6.1 Next Steps

Next steps identified to move MVTA's fleet transition forward in the short-term are as follows:

- Evaluate mitigation strategies such as opportunity charging and block splitting for blocks unsuitable for one-to-one garage-charged BEB transition;
- Deploy BEBs acquired via awarded grant funding in order to begin building experience with the technology; and
- Work with Xcel Energy to determine long-term strategies for site preparation and off site grid improvements needed to support electrification.

6.1.1 Strategies to Overcome BEB Barriers and Risks

While the physical short-term facility space and power requirements for electrification are in place, the funding, design, and selection of the charging technologies and BEB vehicles to support electrification need to be addressed. Funding is the initial step needed as MVTA will be limited in procurement of BEBs and design/construction detail design projects without a

clear funding source and amount. Once funding is established, it will set the timeframe within which electrification projects can be completed. The goal is to have any facility modifications in place and commissioned 3-6 months ahead of first prototype BEB of an incoming BEB order. The goal of Xcel as utility provider will be to complete all off-site grid improvements before completion of any MVTA facility improvements. All these goals are achievable with continued coordination with Xcel, as well as local authorities with jurisdiction including fire marshals. MVTA's next step is to establish the ultimate full BEB master plan agency-wide to include all anticipated facilities, bus operation and maintenance systems as well as transit centers and park and rides. This high-level master plan will establish assumed BEB vehicle configuration and charging infrastructure and act as a basis of design to implement in smaller incremental designs / deployments but in such a way as the incremental design is phase of the master plan.

6.1.2 Updates to the Transition Plan

Moving forward, MVTA will be finalizing a phase two fleet transition plan, which will follow up on the items identified for further analysis in this report. Not only this, but the additional phase of planning will also incorporate a step to perform additional feasibility evaluations. This analysis will include performance modeling to project BEB performance on MVTA routes by leveraging physics-based simulation models to further refine fleet transition projections beyond the minimums evaluated in this report. Based on the outcomes of this assessment, MVTA will be able to further refine fleet transition projections and identify blocks in need of additional mitigation strategies for transition. These strategies can include opportunity charging, block splitting, and midday charging, based on scheduling, infrastructure, operational, and cost constraints. This phase of transition planning will also help to right-size infrastructure needs through charging analysis based on BEB schedules.



December 15, 2023

Metropolitan Council
Elaine Koutsoukos, TAB Coordinator
390 Robert Street North
Saint Paul, Minnesota 55101
United States

Re: Minnesota Valley Transit Authority (MVTA) solicitation for funding in the 2024 Regional Solicitation Program

Dear Elaine Koutsoukos,

Minnesota Valley Transit Authority (MVTA) is excited to submit the Burnsville Transit Station (BTS) Mobility Hub application through the 2024 Regional Solicitation program. Requested funds will be used toward the transformation of BTS into a mobility hub, complete with a customer outreach and training center. This training center will allow community members the opportunity to learn about and test the on-bus and route amenities, such as securement and ticket devices.

The total project cost for the BTS Mobility Hub is estimated at \$25 million. MVTA would place the \$7 million from Regional Solicitation toward the full project scope and is actively pursuing funding from other sources to complete this project in its entirety. The Metropolitan Council has committed to providing \$1,400,000 in funding to fulfill the local match capital portions of this request and MVTA pledges to provide any additional or unforeseen funding needs this stage of the project may require.

MVTA is the second-largest public transit agency in Minnesota based on ridership and provides public transportation to the fast-growing population and employment centers in Dakota County and Scott County. We presently operate twenty transit stations and park and ride facilities in our service area. As the major transit provider for the southern metro area, MVTA is equipped to operate and maintain transit facilities. MVTA is committed to providing transit services through an efficient, integrated network of facilities and services.

We appreciate your consideration. Please contact Vicky Loehrer, Program Manager, at VLoehrer@mvta.com, if you have questions.

Sincerely,

A handwritten signature in black ink that reads "Luther Wynder". The signature is written in a cursive style and is positioned above a horizontal line.

Luther Wynder
MVTA Chief Executive Officer



December 12, 2023

Transportation Advisory Board
Metropolitan Council
390 N. Robert Street
St. Paul, MN 55101

To Whom It May Concern:

Minnesota Valley Transit Authority (MVTA) is requesting a grant through the 2024 Regional Solicitation to fund a portion of the modernization to the Burnsville Transit Station and construct a mobility hub at the location.

The Metropolitan Council is committed to providing \$1,400,000 in local funding to match capital portions of this request if it is selected for funds. Funds are programmed in our Capital Improvement Program and will become available in calendar year 2028. Any necessary operating funds, including match to federal funds for the operation of this project will be provided by MVTA.

Following increased funding for transit resulting from the 2023 state legislative session, the Council will consider revisions to existing policies and will establish new policies for financial assistance to transit service providers. These changes will be developed in coordination with providers in the region.

Under current practice, the Council establishes a shared pool of capital funds for suburban transit providers for federal project match requests. In the future, the Council may increase general assistance to providers so that providers may prioritize and fund their own match requests within available resources for their communities' operating and capital priorities. With this change, if implemented, match funding for this project may be provided by MVTA from increased resources allocated by the Council.

Sincerely,

A handwritten signature in blue ink, appearing to read "Charles Carlson".

[Charles Carlson \(Dec 14, 2023 12:28 CST\)](#)

Charles Carlson
Executive Director, Metropolitan Transportation Services

Cc: Heather Giesel
Nicole Clapp
Ashlee Smith
Skylar Madsen
Heidi Scholl



BURNSVILLE TRANSIT STATION

MOBILITY HUB

Burnsville Transit Station



Submission for Award Consideration in the 2024 Regional Solicitation Program

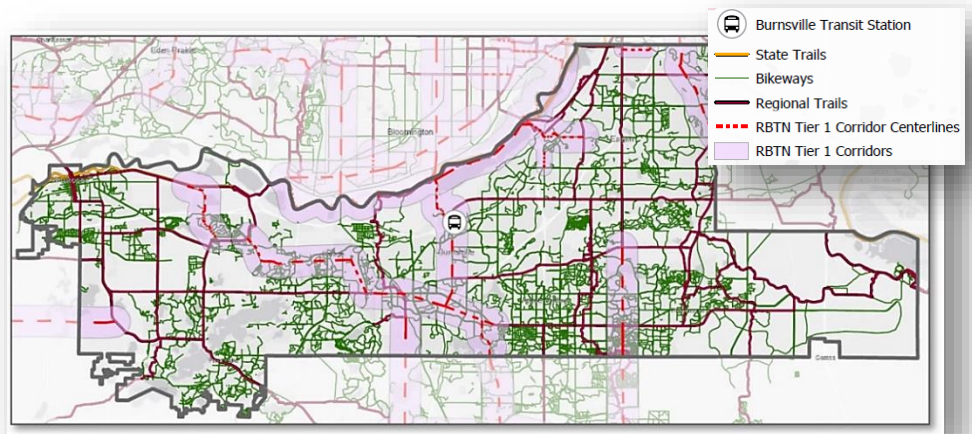
About MVTA

Minnesota Valley Transit Authority (MVTA) is the second largest transportation agency by ridership in Minnesota, serving seven cities throughout the south metropolitan area, including Dakota and Scott counties currently experiencing rapid population and job growth. MVTA operates 25 routes and approximately 169 buses, including a variety of service options ranging from micro transit to regional routes. MVTA also owns and operates several transit stations and park-and-ride facilities with a combined capacity of almost 6,500 spaces.

Mobility Hub

MVTA Burnsville Transit Station is to be transformed into a mobility hub by creating a customer outreach and training center. A new state-of-the-art customer training center will allow community members the opportunity to learn about and test the on-bus and route amenities, such as securement devices and ticket devices.

Site accessibility and onsite circulation will be reconfigured to provide better connectivity from Highway 13, and onsite safety for all modes of travel. The concept includes an updated kiss-and-ride, designated areas for MVTA Connect (on-demand microtransit) and Jefferson Lines (intercity connections), Uber and Lyft, as well as enhanced connections to nearby pedestrian and bicycle paths with intentions to implement e-bikes and scooter rentals.



Transit Oriented Development

Transit Oriented Development (TOD) initiatives are intended to provide a welcoming transit hub dedicated to our community by providing new amenities at Burnsville Transit Station. MVTA intends to work with developers to create retail space (e.g., grab-and-go grocery, coffee shop, etc.) and a free-of-charge community event space.

Customer Amenities

Additional customer-oriented amenities at the BTS mobility hub include improved technology, safety, and comfort for all MVTA riders.

Technology



- wayfinding
- real-time signage
- customer EV charging
- community broadband access

Safety



- parking ramp elevator
- indoor customer waiting enhancements
- equipment storage
- safety/security and CPTED initiatives

Customer Experience



- bicycle lockers/racks
- benches
- outdoor heaters
- Amazon/USPS lockers
- training and education area

Sustainability Initiatives

All aspects of the BTS Mobility center project, transitway design, and amenities will be driven by sustainability initiatives in design, maintenance, and electrification. This focus will contribute to reducing GHG emissions and creating a more sustainable future for the region.

ESTIMATED TOTAL PROJECT COST \$25M
REQUESTED FEDERAL AMOUNT \$7M
LOCAL MATCH \$1.4M

December 9, 2023

Metropolitan Council
Elaine Koutsoukos
390 Robert Street North
Saint Paul, Minnesota 55101

Elaine Koutsoukos:

I write in support of the Minnesota Valley Transit Authority's (MVTA) application for funding through the 2024 Regional Solicitation program. If awarded, funding would support the BTS Mobility Hub project.

The Minnesota Valley Transit Authority is the second largest public transportation agency in Minnesota, providing transportation throughout seven suburbs south of the Minneapolis-Saint Paul metropolitan area. As one of the largest public transit operators in the state, MVTA is a core component of public transit in Minnesota.

Every day, MVTA buses serve high volumes of riders and help connect commuters, students, and workers to education, employment, and recreational opportunities. However, MVTA's service region is currently experiencing significant development and growth. In order to accommodate for the growth in the region, MVTA is actively seeking to update its main transit station and construct a mobility hub in order to better accommodate riders. Funding from Regional Solicitation would support a new state-of-the-art customer training center, improvements to site accessibility, and a designated area for MVTA Connect, the agency's microtransit service.

Again, I support the Minnesota Valley Transit Authority's application for funding through the 2024 Regional Solicitation Program.

Sincerely,



Elizabeth B. Kautz
Mayor



4646 Dakota Street SE | Prior Lake, MN 55372
952.949.9800 | www.cityofpriorlake.com

December 11, 2023

Metropolitan Council
Elaine Koutsoukos
390 Robert Street North
Saint Paul, Minnesota 55101

Re: Minnesota Valley Transit Authority (MVTA) solicitation for funding in the 2024 Regional Solicitation Program – BTS Mobility Hub Project

Dear Elaine Koutsoukos,

I write in support of the Minnesota Valley Transit Authority's (MVTA) application for funding through the 2024 Regional Solicitation program. If awarded, funding would support the BTS Mobility Hub project.

Every day, MVTA buses serve high volumes of riders and help connect commuters, students, and workers to education, employment, and recreational opportunities. However, MVTA's service region is currently experiencing significant development and growth. To accommodate the growth in the region, MVTA is actively seeking to update its main transit station and construct a mobility hub in order to better accommodate riders.

Funding from Regional Solicitation would support a new state-of-the-art customer training center, improvements to site accessibility, and a designated area for MVTA Connect, the agency's microtransit service.

Again, I support the Minnesota Valley Transit Authority's application for funding through the 2024 Regional Solicitation Program.

Sincerely,

Kevin Burkart
Councilor, Prior Lake City Council
Current Chair, Minnesota Valley Transit Association
Past Chair, Current Member Suburban Transit Association
Past Chair, Current Member Highway 169 Corridor Coalition
Vice Chair, Scott County Unified Transit Management Task Force
Voting Member, Spring Lake Orderly Annexation Committee
Alternate, Transportation Advisory Board
Past Prior Lake Voting Member, SmartLink | Metro Mobility County Advisory Board
Past Traffic Safety Advisory Committee
Past Special Assessments Committee
952.457.8066
kevin@kevinburkart.com



December 12, 2023

Metropolitan Council
Elaine Koutsoukos
390 Robert Street North
Saint Paul, Minnesota 55101

Dear Elaine Koutsoukos,

I write in support of the Minnesota Valley Transit Authority's (MVTA) application for funding through the 2024 Regional Solicitation program. If awarded, funding would support the BTS Mobility Hub project.

The Minnesota Valley Transit Authority is the second largest public transportation agency in Minnesota, providing transportation throughout seven suburbs south of the Minneapolis-Saint Paul metropolitan area. As one of the largest public transit operators in the state, MVTA is a core component of public transit in Minnesota. Every day, MVTA buses serve high volumes of riders and help connect commuters, students, and workers to education, employment, and recreational opportunities. However, MVTA's service region is currently experiencing significant development and growth. In order to accommodate for the growth in the region, MVTA is actively seeking to update its main transit station and construct a mobility hub in order to better accommodate riders.

Funding from Regional Solicitation would support a new state-of-the-art customer training center, improvements to site accessibility, and a designated area for MVTA Connect, the agency's microtransit service.

Again, I support the Minnesota Valley Transit Authority's application for funding through the 2024 Regional Solicitation Program.

Sincerely,

A handwritten signature in black ink that reads "Jill Dunkley". The signature is written in a cursive, flowing style.

Jill Dunkley
General Counsel
& Executive Vice President

December 14, 2023

Metropolitan Council
Elaine Koutsoukos
390 Robert Street North
Saint Paul, Minnesota 55101

Dear Elaine Koutsoukos,

I write in support of the Minnesota Valley Transit Authority's (MVTA) application for funding through the 2024 Regional Solicitation program. If awarded, funding would support the BTS Mobility Hub project.

The Minnesota Valley Transit Authority is the second largest public transportation agency in Minnesota, providing transportation throughout seven suburbs south of the Minneapolis-Saint Paul metropolitan area. As one of the largest public transit operators in the state, MVTA is a core component of public transit in Minnesota. Every day, MVTA buses serve high volumes of riders and help connect commuters, students, and workers to education, employment, and recreational opportunities. However, MVTA's service region is currently experiencing significant development and growth. In order to accommodate for the growth in the region, MVTA is actively seeking to update its main transit station and construct a mobility hub in order to better accommodate riders.

Funding from Regional Solicitation would support a new state-of-the-art customer training center, improvements to site accessibility, and a designated area for MVTA Connect, the agency's microtransit service.

Again, I support the Minnesota Valley Transit Authority's application for funding through the 2024 Regional Solicitation Program.

Sincerely,

A handwritten signature in cursive script that reads "Lindsey Port".

Senator Lindsey Port

Minnesota Senate District 55

Congress of the United States
House of Representatives
Washington, DC 20515-2302

Elaine Koutsoukos
Transportation Advisory Board Coordinator
Metropolitan Council
Minnesota Department of Employment and Economic Development
390 Robert Street North
Saint Paul, Minnesota 55101

RE: Support for the Minnesota Valley Transit Authority's BTS Mobility Hub 2024 Regional Solicitation Program Funding Application

Dear Coordinator Elaine Koutsoukos:

I am writing in support of the Minnesota Valley Transit Authority's (MVTA) application for funding through the 2024 Regional Solicitation program. If awarded, this funding would support the Bureau of Transportation Services Mobility Hub project. I'm proud to have supported the bipartisan Infrastructure Investment and Jobs Act, which is vital to the Met Council's infrastructure investments.

The Minnesota Valley Transit Authority is the second largest public transportation agency in Minnesota, providing transportation throughout seven suburbs south of the Minneapolis-Saint Paul metropolitan area. As one of the largest public transit operators in the state, MVTA is a core component of public transit in Minnesota. Every day, MVTA buses serve high volumes of riders and help connect commuters, students and workers to education, employment and recreational opportunities. However, MVTA's service region is currently experiencing significant development and growth. To accommodate this regional growth and ensure broad accessibility of its services, MVTA is actively seeking to update its main transit station and construct a mobility hub: a state-of-the-art customer training center with improvements to site accessibility and a designated area for MVTA Connect, the agency's microtransit service.

In summary, the implementation of a mobility hub is a critical step toward more sustainable and accessible transit in Minnesota's Second District and the State of Minnesota. I fully support the Minnesota Valley Transit Authority's application for funding through the 2024 Regional Solicitation program and I encourage you to strongly consider their application. If I can answer any questions, please do not hesitate to contact me through my Legislative Assistant, Rachel Hunter, at (202) 225-2271 or Rachel.Hunter@mail.house.gov.

Sincerely,



Angie Craig
Member of Congress

**Elections Committee Chair
Senator Jim Carlson
Minnesota District 52**
3221 Minnesota Senate Building
95 University Avenue W.
St. Paul, Minnesota 55155



Minnesota State Senate

December 13, 2023

Metropolitan Council
Elaine Koutsoukos
390 Robert Street North
Saint Paul, Minnesota 55101

Dear Elaine Koutsoukos,

I write in support of the Minnesota Valley Transit Authority's (MVTA) application for funding through the 2024 Regional Solicitation program. If awarded, funding would support the BTS Mobility Hub project.

The Minnesota Valley Transit Authority is the second largest public transportation agency in Minnesota, providing transportation throughout seven suburbs south of the Minneapolis-Saint Paul metropolitan area. As one of the largest public transit operators in the state, MVTA is a core component of public transit in Minnesota. Every day, MVTA buses serve high volumes of riders and help connect commuters, students, and workers to education, employment, and recreational opportunities. However, MVTA's service region is currently experiencing significant development and growth. In order to accommodate for the growth in the region, MVTA is actively seeking to update its main transit station and construct a mobility hub in order to better accommodate riders.

Funding from Regional Solicitation would support a new state-of-the-art customer training center, improvements to site accessibility, and a designated area for MVTA Connect, the agency's microtransit service.

Again, I support the Minnesota Valley Transit Authority's application for funding through the 2024 Regional Solicitation Program.

Sincerely,

A handwritten signature in cursive script that reads "Jim Carlson".

Jim Carlson
Senator, Minnesota District 52