Application

19836 - 2024 Traffic Management Technology
20488 - Washington County Traffic Signal Battery Backup Systems
Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
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Primary Contact

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What Grant Programs are you most interested in? Regional Solicitation - Roadways Including Multimodal Elements

Organization Information

Name: WASHINGTON CTY

Jurisdictional Agency (if different):

Organization Type:

Organization Website:

Address: PUBLIC WORKS
11660 MYERON RD

* STILLWATER (City) Minnesota (State/Province) 55082 (Postal Code/Zip)

County: Washington

Phone:* 651-430-4325 (Ext.)

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PeopleSoft Vendor Number 0000028637A10

Project Information

Project Name Washington County Traffic Signal Battery Backup Systems

Primary County where the Project is Located Washington

Cities or Townships where the Project is Located: City of Woodbury, City of Oakdale, City of Lake Elmo

Jurisdictional Agency (If Different than the Applicant):

Brief Project Description (Include location, road name/functional class, type of improvement, etc.)

The proposed project will install battery backup systems (BBS) at 26 existing high-priority traffic signals within the City of Woodbury, City of Oakdale, and City of Lake Elmo in Washington County. The BBS work will include a combination of retrofitting signal cabinets that already accommodate the BBS or replacing existing service cabinets with new, compatible cabinets.

The project focuses on traffic signals along the CSAH 16 and CSAH 13 corridors, which serve as key access routes for residents traveling to local destinations and accessing the Interstate system at I-94 or I-494. Once installed, the BBS will provide a backup power source at traffic signals that will operate during unexpected outages, preventing the critical safety, congestion, and accessibility impacts that result when outages occur.

BBS installed through the project will benefit a diverse group of commuters including pedestrians and bicyclists, public transportation users, and motorists. The project is adjacent to the area that will feed to the METRO Gold Line park and ride off of Valley Creek Road and Bielenberg Drive. Given the high traffic volumes and number of lanes on the CSAH 16 and CSAH 13 corridors, project improvements will provide significant benefits for congestion mitigation and overall safety.

(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.

Install battery backup systems at 26 traffic signals along the CSAH 16 and CSAH 13 corridors in Washington County.

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)

9.0

to the nearest one-tenth of a mile

Project Funding

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

No

If yes, please identify the source(s)

Federal Amount

$532,000.00

Match Amount

$133,000.00

Minimum of 20% of project total

Project Total

$665,000.00

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

County Funds

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

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

Additional Program Years:

2025, 2026, 2027

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

Project Information: Roadway Projects

NOTE: If your project has already been assigned a State Aid Project # (SAP or SP), please Indicate SAP# here

SAP#:

County, City, or Lead Agency

Washington County

Functional Class of Road

A-minor arterial

Road System

CSAH

TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET

Road/Route No.

1316

i.e., 53 for CSAH 53

Name of Road

Radio Dr (CSAH 13) and Valley Creek Rd (CSAH 16)

Example; 1st ST., MAIN AVE

TERMINI:(Termini listed must be within 0.3 miles of any work)	
From: **Road System**	CSAH 16 from Century Ave S; CSAH 13 from Hargis Pkwy
Road/Route No. *i.e., 53 for CSAH 53*	
Name of Road *Example; 1st ST., MAIN AVE*	
To: **Road System** *DO NOT INCLUDE LEGAL DESCRIPTION*	CSAH 16 to Colby Lake Dr; CSAH 13 to 34th St
Road/Route No. *i.e., 53 for CSAH 53*	
Name of Road *Example; 1st ST., MAIN AVE*	
In the City/Cities of: *(List all cities within project limits)*	City of Woodbury, City of Oakdale, City of Lake Elmo
OR:	
At: **Road System** *(TH, CSAH, MSAS, CO. RD., TWP. RD., City Street)*	
Road/Route No. *i.e., 53 for CSAH 53*	
Name of Road *Example; 1st ST., MAIN AVE*	
In the City/Cities of: *(List all cities within project limits)*	
PROJECT LENGTH	
Miles *(nearest 0.1 miles)*	9
Primary Types of Work (check all the apply)	
New Construction	
Reconstruction	
Resurfacing	
Bituminous Pavement	
Concrete Pavement	
Roundabout	
New Bridge	
Bridge Replacement	
Bridge Rehab	
New Signal	
Signal Replacement/Revision	
Bike Trail	
Other (do not include incidental items)	The project will add battery backup systems (BBS) at 26 county traffic signals along CSAH 16 & CSAH 13. For signal cabinets that have already been updated for ?BBS-readiness? (6x), the project includes installing an inverter, bypass switch, & batteries, & completing minor electrical work. For cabinets that are not yet ?BBS-ready? (20x), the project will replace service cabinets with upgraded cabinets & full BBS. This includes minor concrete work & coordination with the relevant utility company.
BRIDGE/CULVERT PROJECTS (IF APPLICABLE)	
Old Bridge/Culvert No.:	
New Bridge/Culvert No.:	
Structure is Over/Under (Bridge or culvert name):	
OTHER INFORMATION:	
Zip Code where Majority of Work is Being Performed	55125
Approximate Begin Construction Date	03/01/2025
Approximate End Construction Date	10/31/2025
Miles of Trail (nearest 0.1 miles)	0
Miles of Sidewalk (nearest 0.1 miles)	0

Miles of trail on the Regional Bicycle Transportation Network (nearest 0.1 miles):	0
Is this a new trail?	No

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:

Goal A: Transportation System Stewardship (Page 2.2). Objective A (Page 2.2), Objective B (Page 2.2), Strategy A1 (Page 2.2), Strategy A2 (Page 2.3);

Goal B: Safety and Security (Page 2.5). Objective A (Page 2.5), Strategy B1 (Page 2.5);

Goal C: Access to Destinations (Page 2.10). Objective B (Page 2.10), Strategy C7 (Page 2.16), Strategy C9 (Page 2.17), Strategy C17 (Page 2.24);

Goal D: Competitive Economy (Page 2.26). Objective B (Page 2.26), Objective C (Page 2.26), Strategy D1 (Page 2.26), Strategy D4 (Page 2.28).

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. 2040 Washington County Comprehensive Plan (p.3-10)

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).

Strategic Capacity (Roadway Expansion): *$1,000,000 to $10,000,000*
Roadway Reconstruction/Modernization: *$1,000,000 to $7,000,000*
Traffic Management Technologies (Roadway System Management): *$500,000 to $3,500,000*
Spot Mobility and Safety: *$1,000,000 to $3,500,000*
Bridges Rehabilitation/Replacement: *$1,000,000 to $7,000,000*

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. Yes

(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.

Date plan completed: 06/18/2015

Link to plan: https://www.co.washington.mn.us/DocumentCenter/View/7981/Cover-page?bidId=

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.

Date self-evaluation completed:

Link to plan:

Upload plan or self-evaluation if there is no link

Upload as PDF

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

Roadways Including Multimodal Elements

1. All roadway projects must be identified as a principal arterial (non-freeway facilities only) or A-minor arterial as shown on the latest TAB approved roadway functional classification map. Bridge Rehabilitation/Replacement projects must be located on a minor collector and above functionally classified roadway in the urban areas or a major collector and above in the rural areas.

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

Roadway Strategic Capacity and Reconstruction/Modernization and Spot Mobility projects only:

2. The project must be designed to meet 10-ton load limit standards.

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

Bridge Rehabilitation/Replacement and Strategic Capacity projects only:

3. Projects requiring a grade-separated crossing of a principal arterial freeway must be limited to the federal share of those project costs identified as local (non-MnDOT) cost responsibility using MnDOT?s ?Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities? manual. In the case of a federally funded trunk highway project, the policy guidelines should be read as if the funded trunk highway route is under local jurisdiction.

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

4. The bridge must carry vehicular traffic. Bridges can carry traffic from multiple modes. However, bridges that are exclusively for bicycle or pedestrian traffic must apply under one of the Bicycle and Pedestrian Facilities application categories. Rail-only bridges are ineligible for funding.

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

Bridge Rehabilitation/Replacement projects only:

5. The length of the in-place structure is 20 feet or longer.

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

6. The bridge must have a Local Planning Index (LPI) of less than 60 OR a National Bridge Inventory (NBI) Rating of 3 or less for either Deck Geometry, Approach Roadway, or Waterway Adequacy as reported on the most recent Minnesota Structure Inventory Report.

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

Roadway Expansion, Reconstruction/Modernization, and Bridge Rehabilitation/Replacement projects only:

7. All roadway projects that involve the construction of a new/expanded interchange or new interchange ramps must have approval by the Metropolitan Council/MnDOT Interchange Planning Review Committee prior to application submittal. Please contact David Elvin at MnDOT (David.Elvin@state.mn.us or 651-234-7795) to determine whether your project needs to go through this process as described in Appendix F of the 2040 Transportation Policy Plan.

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

Requirements - Roadways Including Multimodal Elements

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	$665,000.00
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	**$665,000.00**

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	$0.00
Support Facilities	$0.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	$0.00
Vehicles	$0.00
Contingencies	$0.00
Right-of-Way	$0.00
Other Transit and TDM Elements	$0.00
Totals	**$0.00**

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).

Response:

As defined within the USDOT guidance, a resilience improvement allows a project to: 1) Better anticipate, prepare for, and adapt to changing conditions and to withstand and respond to disruptions; and 2) Reduce the magnitude and duration of impacts of current and future weather events and natural disasters. Power outages that result from extreme weather events can cause traffic signals to go dark, causing critical safety, congestion, and accessibility impacts. By providing a backup power source that allows traffic signals to continue operating during outages, project improvements will allow the community to better respond to disruptions and will reduce the magnitude and duration of extreme weather impacts. Because of this, the entire project cost ($665,000) is eligible to receive PROTECT funds.

Totals

Total Cost	$665,000.00
Construction Cost Total	$665,000.00
Transit Operating Cost Total	$0.00

Measure A: Functional Classification of Project

The majority of the project funds will be invested on the principal arterial system:

(50 points)

The majority of the project funds will be invested on the A-minor arterial system: Yes

(25 points)

The majority of the project funds will be invested on the collector or local system with some investment either on the principal arterial or A-minor arterial system:

(0 points)

Measure 1B: Regional Truck Corridor Tiers

RESPONSE (Select one for your project, based on the updated 2021 Regional Truck Corridors):

The majority of the project funds will be invested on either a Tier 1, Tier 2, or Tier 3 corridor:

(50 Points)

Miles (to the nearest 0.1 miles): 0

If box above is checked, fill in length.

A majority of the project funds will NOT be invested on a Tier 1, Tier 2, or Tier 3 corridor, but at least 10 percent of the funds will be invested on these corridors:

(25 Points)

Miles (to the nearest 0.1 miles): 0

If box above is checked, fill in length.

No project funds will be invested on a Tier 1, Tier 2, or Tier 3 corridor: Yes

(0 Points)

Measure C: Integration within existing traffic management systems

Response:

When power outages occur, signalized intersections become uncontrolled. Whether an outage lasts a few seconds or for an extended period, signalized intersections lose all functionality during the outage period. Due to the seriousness of these impacts, county traffic signals without battery backup systems (BBS) can be considered obsolete. Power disruptions due to severe weather events are likely to increase in the future.

The installation of BBS at select traffic signals will enhance the county?s existing traffic management infrastructure by adding technology in the form of a reliable backup power source at existing traffic signals that will operate during unexpected outages. This backup power temporarily maintains the normal function of the intersection, preventing the serious safety impacts & reduced operations that occur when power supply is disrupted.

Washington county maintains a robust traffic signal system with over 85 signals. The proposed project focuses on a subset of 26 high-priority signals located along the CSAH 13 and CSAH 16 corridors. Enhancing these signals with BBS is especially important due to the role of CSAH 13 and CSAH 16 as high volume corridors & key access routes for jobs, shopping, services, and a variety of other essential needs adjacent to the project & throughout the region.

Six of the high-priority signals in this project have already been updated by the county for BBS-readiness. This included replacing the standard cabinets with upgraded cabinets that can accommodate the space & electrical hardware required to install & operate a BBS. For the BBS ready signals, an additional investment of $7,000 per location is needed to install a full BBS including an inverter, bypass switch, batteries, and completing minor electrical work.

For the high-priority traffic signals not yet BBS-ready, the project will replace existing service cabinets with upgraded cabinets and full BBS. This process will cost $30,000 per cabinet & involve minor concrete work at the cabinet base, as well as coordination with the relevant utility company.

The County's prior investment in updating six signals for BBS-readiness results in these signals needing only $7,000 of additional investment for full BBS installation, compared to the $30,000 needed for signals that have not been updated. The proposed project will build on this investment, in addition to the county's original investment in signal infrastructure, to deploy a cost-effective solution with significant benefits for travel safety & operations within the community.

(Limit 2,800 characters; approximately 400 words)

Measure D: Coordination with other agencies

Response:

Washington County relies on an intricate smart grid to administer and operate its traffic management system. This includes several key traffic signal components such as detection cameras, signal coordination systems, pedestrian push buttons, traffic management cameras, and others. Maintaining power to these systems is essential not only due to the immediate safety impacts of a dark traffic signal, but to ensure that communication channels remain open between smart grid components and the County's traffic management software.

The project will install battery backup systems (BBS) at 26 county-owned signals. In the event of a power outage, a BBS will activate and provide battery power necessary to keep the traffic signals functioning. This will include the maintained function of various smart grid communications systems that rely on a traffic signal's power supply. For example, traffic management cameras collect real-time data that is fed into the traffic management software to enable automated system optimization features, such as signal coordination. Interruptions to this and other critical feedback systems disrupt the collection and communication of information, preventing the County's staff and traffic management system from efficiently adapting to real-time traffic conditions.

Maintenance of these communication features will allow Washington County's smart grid to respond to critical alerts even in the event of a power outage. This capability is essential for prompt decision-making and problem-solving in cases of emergencies or system failures. The proposed project will provide BBS to 26 high-priority traffic signals with smart grid communication features, allowing for seamless functionality of the traffic management system even during utility power interruptions.

(Limit 2,800 characters; approximately 400 words)

Measure A: Current Daily Person Throughput

Location	CSAH 13 at Hudson Rd
Current AADT Volume	39312.0
Existing transit routes at the location noted above	N/A
Select all transit routes that apply.	
Upload "Transit Connections" map	1702485003402_Attachment E_Make-a-Map Transit Connections.pdf
Please upload attachment in PDF form	

Response - Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	51106.0

Measure B: 2040 Forecast ADT

Use Metropolitan Council model to determine forecast (2040) ADT volume	Yes
If checked, METC Staff will provide Forecast (2040) ADT volume	
OR	
Identify the approved county or city travel demand model to determine forecast (2040) ADT volume	
Forecast (2040) ADT volume	

Measure A: Engagement

i. Describe any Black, Indigenous, and People of Color populations, low-income populations, disabled populations, youth, or older adults within a ½ 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:

Signal power outages are a known issue impacting transportation safety and traffic management within the County. County data shows that the average power outage lasts for two hours, and the average signal experiences two to three outages per year. This does not include "brownout" conditions where a drop in electrical grid voltage causes a signal to go dark or flash for a short time. As extreme weather events become more frequent, these occurrences may increase in the future.

For this project, Washington County has selected two high volume arterial corridors with significant numbers of signals that do not have battery backup systems. This battery backup system project includes 26 signal locations, roughly 27% of the signals in Washington County. The project need and locations were selected based on a combination of traffic and population characteristics, and cost-effectiveness. The selection also incorporates a risk management approach, targeting locations where through traffic is higher, side street traffic is lower, and through traffic is less likely to be aware of traffic on the intersecting road.

The result is a project area that includes major local traffic and commuter routes, and serves motorists, non-motorized travelers, and transit riders. As shown on the Socio-Economic map, all but four of the signal locations are adjacent to a Regional Environmental Justice Area.

Because this project covers such a large area, FHWA's Screening Tool for Equity Analysis of Projects (STEAP) estimates that within 1/2 mile of the project (within 1/2 mile of CSAH 16, CSAH 13, and the CSAH 13 & CSAH 14 intersection), the socio demographic makeup of residents generally resembles the makeup of Washington County; however, there are slightly more people of color within the battery backup project area. Other noteworthy statistics include that within a 1/2 mile of the project, there is a higher proportion of older adults (20% of residents, compared to 15% throughout Washington County). There is also a higher proportion of people with annual incomes between $25,000 and $35,000 (10% of households, compared to 5% throughout the County) near the CSAH 13 & CSAH 14 intersection area. By providing for safer, more reliable traffic infrastructure, the project helps implement the Washington County Comprehensive Plan resilience goal to "Recognize and plan for the support of populations with high needs and vulnerabilities to all hazards including extreme weather events and climate-related events."

Because of the broad nature of the battery backup system project, project-specific community engagement has not been specifically conducted. As part of implementation, Washington County will communicate the project benefits through county-wide print and communications channels.

(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:

This project provides safety and mobility benefits to all roadway users by providing assurance that the signal systems on these highly used roadway corridors will be maintained in the event of a power outage. However, the project would provide disproportionate benefits to vulnerable populations who are more likely than others to be walking or bicycling in the corridor where they are already vulnerable. When an arterial traffic signal temporarily goes out, this can be particularly dangerous for pedestrians, older drivers, and motorists on cross streets as the motorists on larger multi-lane roads--such as CSAH 13 and CSAH 16--must be hyper-aware of their surroundings to make safe decisions navigating through suddenly unsignalized intersections with high speed and high volume traffic. In recent years, dangerous driving trends such as speeding have increased, and there is less trust in the public to make the right choices when faced with a traffic signal that is out, especially when they are on a major through route.

CSAH 13 and CSAH 16 are roadways that area residents use on a daily basis to reach key destinations such as schools, childcare, healthcare, jobs, and recreation. These corridors are also key connections to transit, directly connecting to routes 294, 323, 353, 355, and the future Gold Line BRT. There will be two park and ride lots off of the CSAH 16 corridor that are anticipated to be major hubs for transit users as they are a terminus for the future Gold Line in Woodbury and will provide access to jobs and other transit connections in downtown St. Paul.

The battery backup systems also provide travel time and safety improvements for motorists, as motorists would no longer be required to treat an intersection as a four-way stop during an outage, but instead can progress through as they would at a signal without an outage.

There are no known negative impacts of this project.

(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:

There are 578 publicly subsidized rental housing units identified on the Socio-Economic map. These include the following locations in proximity to the BBS locations:

- The Glen at Valley Creek (42 units specifically serving families, elderly, and disabled people)

- Stonecrest Senior Living (17 units specifically serving elderly people)

- Mosaic Homes (8 units)

- Orville Commons (235 units)

- Pondview Townhomes (40 units specifically serving families)

- Washington County CDA (6 units)

The attached map shows these affordable housing locations related to the battery backup signal project locations. The map also shows schools and childcare as well as transit within the area. Additionally, there are countless healthcare facilities, places of worship, jobs, and a variety of other key destinations that affordable housing residents travel to via these intersections. As an example, Orville Commons is home to 235 units of affordable housing and located in the SW quadrant of CSAH 13 (Radio Drive) and Hargis Parkway, one of the BBS locations. To reach nearly all of the many nearby services, residents must cross either one or both of these roadways. The BBS project in this location will add a layer of safety during power outages for residents traveling by all modes as they seek to access basic needs.

(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.	1702482188478_Attachment C_Make-a-Map Socio-Economic Conditions.pdf

Measure A: Upgrades to obsolete equipment

RESPONSE:

When power outages occur signalized intersections become uncontrolled, resulting in driver confusion over right of way, congestion, and the potential for serious crashes. Due to the seriousness of these impacts, county traffic signals without battery backup systems (BBS) can be considered obsolete.

Safety is a primary concern of signals without BBS. Whether an outage lasts only a few seconds or for an extended period, signalized intersections lose all functionality during the outage period and any outage duration is long enough to cause a crash. With many motorists not understanding who has the right of way when approaching an uncontrolled intersection, drivers on the 'main' road often assume they can proceed through a dark intersection without stopping. Alternatively, other motorists may treat a dark signal as an all-way stop. In both cases, safety is compromised because motorists have different perceptions of how the intersection should operate, setting up for conflicts and crashes. Traffic control system failures account for numerous serious injury and fatal crashes, property damage crashes, and insurance claims every year.

Power outages also contribute to significant operational impacts. Signals that have lost power can create immediate gridlock and congestion on arterial roads and adjacent intersections, impacting air quality, noise levels, and travel times, and reducing transit reliability. Motorists may stop at intersections for long periods because they do not understand who has the right of way, causing the intersection efficiency to degrade. Importantly, dark signals can have significant impacts on emergency vehicles. Ambulances, fire trucks, police vehicles, and other emergency vehicles may become trapped behind a slow-moving queue, or worse, be struck as they pass through the intersection. Calls for emergency vehicles can increase during widespread power outages precisely due to the failure of critical safety systems such as traffic signals.

County data shows that the average power outage lasts for 2 hours, and the average signal experiences two to three outages per year. This does not include "brownout" conditions where a drop in electrical grid voltage causes a signal to go dark or flash for a short time. Longer outages and nighttime outages increase the risk of severe impacts.

Due to these impacts, installation of BBS at traffic signals is becoming best practice across the nation. The proposed project will ensure that County signals remain functional during power outages, a necessary improvement to provide transportation users a safe, modern, and reliable system.

(Limit 2,800 characters; approximately 400 words)

Measure A: Congested Roadway

RESPONSE:

Corridor:	CSAH 13
Corridor Start and End Points:	
Start Point:	Silverwood Rd
End Point:	Seasons Pkwy
Free-Flow Travel Speed:	41

Free-Flow Travel Speed is black number.

Peak Hour Travel Speed: 29.5

Peak Hour Travel Speed is red number.

Percentage Decrease in Travel Speed in Peak Hour Compared to Free-Flow (online calculation): 28.05%

Upload the "Level of Congestion" map used for this measure. 1702482734000_Attachment D_Make-a-Map Level of Congestion.pdf

Measure 5B: Emissions and congestion benefits of project

Response:

Dark traffic signals cause driver confusion at intersections, leading to inefficiency and congestion. This stop-and-go traffic contributes to heightened emissions as vehicles spend more time idling and accelerating. Along arterial roadways with higher traffic volumes, loss of power can result in gridlock and congestion spilling over to adjacent intersections. Congestion, specifically the number of vehicle stops and the resulting delay, is an important contributing factor in determining emissions impacts.

CSAH 16 and CSAH 13 are among Woodbury's higher volume corridors. CSAH 16 running east-west provides direct access to I-494, with a large commercial district surrounding the I-494 interchange that includes Woodbury Village and other dining, shopping, and entertainment destinations. The CSAH 13 corridor runs north-south and connects to I-94, with Tamarack Village, other commercial uses, and new development surrounding the I-94 interchange area. With a combined AADT of over 50,000, the CSAH 16 and CSAH 13 corridors provide essential connectivity for Woodbury, Oakdale, and Lake Elmo residents to access commercial and entertainment destinations, access the regional Interstate highway system, and benefit from the associated jobs, education, and services.

Given their importance for Woodbury, surrounding communities, and the region, even brief losses to signal function along the project corridors can be disruptive at a minimum and devastating in the result of a severe or fatal crash. Driver confusion combined with the loss of signal coordination and other smart grid functionality has immediate impacts on the efficiency of traffic. Congestion impacts the ability of residents to complete essential trips, but it also affects transit. Metro Transit Routes 323, 353, and 355 rely on efficient traffic flow along CSAH 16 to maintain reliable service. Similarly, CSAH 16 will provide access to the future METRO Gold Line BRT park and ride, which will be located north of Woodbury Village. Importantly, the idling and accelerating resulting from stop-and-go traffic result in concentrated vehicle emissions, contributing to poor air quality and adverse health effects within the project area.

Installing BBS ensures that traffic signals maintain normal function during power outages. Coordinated signal systems that do not lose power maintain proper platooning which results in more efficient operations, less delay, and fewer emissions. These improvements are particularly important along the CSAH 16 and CSAH 13 corridors, which serve as key access routes for residents and help drive economic activity for Woodbury and the region.

(Limit 2,800 characters; approximately 400 words)

Measure A: Benefit of Crash Reduction

Crash Modification Factor Used: No CMF was used, instead engineering judgment was applied.

(Limit 700 Characters; approximately 100 words)

Rationale for Crash Modification Selected:

There were no applicable CMFs for installing a battery backup system. Crash narratives were reviewed to determine which crashes were the result of power outages at the intersections identified for battery backup systems. It can be assumed that these crashes would not occur with the proposed improvement and are effectively eliminated post-improvement.

(Limit 1400 Characters; approximately 200 words)

Project Benefit ($) from B/C Ratio $0.16

Total Fatal (K) Crashes: 0

Total Serious Injury (A) Crashes: 0

Total Non-Motorized Fatal and Serious Injury Crashes:	0
Total Crashes:	1
Total Fatal (K) Crashes Reduced by Project:	0
Total Serious Injury (A) Crashes Reduced by Project:	0
Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:	0
Total Crashes Reduced by Project:	1
Worksheet Attachment	1702483251962_Attachment H_Crash_BC.pdf

Upload Crash Modification Factors and B/C Worksheet in PDF form

Measure 6B: Safety issues in project area

Response:

Minnesota has seen a spike in crashes since the start of the 2019 COVID pandemic, with increased vehicle speeds cited as a key factor. When power outages occur, signalized intersections become uncontrolled, putting motorists at a higher risk for crashes. The combination of increased speeds with dark traffic signals increases the risk for high-speed angle or rear-end crashes, with both crash types carrying the highest potential for fatal or serious injury crashes at signalized intersections. Battery backup systems (BBS) ensure that traffic signals maintain normal function during power outages, continuing to assign right of way for motorists while providing for the safe crossing of non-motorized users.

BBS capacity is critical for the CSAH 16 and CSAH 13 corridors. These roadways serve an essential role for residents' daily travel, allowing for a combined average of over 50,000 vehicles per day to access jobs, services, shopping, & entertainment. This includes access between Woodbury's, Oakdale's, & Lake Elmo's residential areas & the commercial districts surrounding the CSAH 16/I-494 & CSAH 13/I-94 interchanges. Reliable access to the interchanges is also an important driver for this project, as they provide a direct link to the principal arterial and interstate system.

CSAH 16 and CSAH 13 are key multimodal corridors allowing non-motorized travel to a range of destinations and access to the regional transit system. Along CSAH 16, existing trail and signaled crossings allow for a continuous non-motorized connection to Lunds & Byerlys, Kohl's, Target & other destinations near the CSAH 16/I-494 interchange. Along CSAH 13, trail & signalized crossings connect to Tamarack Village, Whole Foods, & other destinations near the CSAH 13/I-94 interchange. These facilities link to several existing local & regional bus routes along the project corridors. Transit service will be enhanced by the Gold Line BRT, with its eastern terminus at Woodlane Dr & Guider Dr.

Given the importance of these corridors, power outages are more than an inconvenience--they present significant risks to travel safety. The 40 to 50 mph speeds combined with high vehicle volumes increase the risk of fatal or serious injury crashes when signals go dark. The roadway's most vulnerable users--pedestrians & bicyclists--are of special concern, having to navigate uncontrolled intersections amid the confusion of motorists without the safety features of signals. Those relying on multimodal travel because they lack access to a vehicle are especially burdened by the safety impacts of outages.

Installation of BBS will provide needed redundancy at the project signals, allowing residents, including vulnerable roadway users, to complete safe trips even in the event of a power outage.

(Limit 2,800 characters; approximately 400 words)

Measure A: Multimodal Elements and Existing Connections

Response:

The CSAH 16 and CSAH 13 project corridors provide multimodal access to many local destinations. With continued development of the RBTN and the 2025 opening of the METRO Gold Line BRT, these corridors will become increasingly important within the larger multimodal networks. The proposed project will install battery backup systems (BBS) at 26 traffic signals along CSAH 16 and CSAH 13, allowing the signals to function normally during power outages. Given the corridors' adjacent pedestrian generators, planned transit investments, and location relative to regional multimodal networks, these improvements will be essential to ensuring that travel remains safe and accessible, even in the event of a power outage.

The project corridors offer robust multimodal infrastructure, with multiuse trails running along at least one side of the roadways, and often both sides, within the project area. These trails provide access from neighborhoods throughout Woodbury and Oakdale and Lake Elmo north of I-94 to the diverse uses surrounding the CSAH 16/I-494 interchange, the CSAH 13/I-94 interchange, the CSAH 16/CSAH 13 intersection and other locations. They also provide access to transit service including local Metro Route 323 as well as cross-city Routes 355 and 353, which stop along CSAH 16 and at Woodbury Village. Existing trails along the project corridors will be essential for accessing the future Gold Line BRT, which will begin service in 2025 with a station at Woodland Dr and Guider Dr.

While these facilities adequately serve non-motorized travel under normal conditions, loss of power creates critical safety, accessibility, and reliability issues for users. Multiuse paths along CSAH 16 and CSAH 13 leverage the safety benefits of signals, including push buttons, pedestrian signals, pedestrian countdown timers, and audible pedestrian signals that indicate when it is safe to cross. When power is lost at traffic signals, pedestrians and bicyclists must navigate uncontrolled intersections, in the dark, amid the confusion of motorists and without most crossing safety features. Power outages also have a significant impact on transit service, with congestion affecting the travel time and reliability of buses and loss of power at signalized crossings reducing residents' ability to reach transit stops.

Residents without access to a personal vehicle, those who cannot drive, and those with mobility impairments bear the highest burden when traffic signal power is lost, as they often rely on multimodal systems for their essential travel. Accessibility features provided by signals, including audible warnings, are not available. Installation of BBS will ensure that safe and accessible conditions are maintained for the roadway's most vulnerable users when utility power is lost.

(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.

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. Yes

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:

Because of the broad nature of the battery backup system project, project-specific community engagement has not yet been conducted.

However, by providing for safer, more reliable traffic infrastructure, the project directly supports the Washington County Comprehensive Plan resilience goal to "Recognize and plan for the support of populations with high needs and vulnerabilities to all hazards including extreme weather events and climate-related events." The importance of emergency power is also discussed in the Comprehensive Plan section "Back-Up Power and Resilience" (9-29).

The Comprehensive Plan goals and recommendations were developed using input from the plan's extensive engagement effort. Engagement strategies included pop-up events, open houses, and an interactive website. Engagement activities focused on identifying community members' priorities to develop goals and policies, presenting and discussing draft findings, and providing opportunities to review final plan elements.

Project-specific engagement will be conducted as the project advances towards implementation. Outreach will give special focus to the county's vulnerable populations, including those at risk of facing the most severe climate change impacts, to consider and incorporate these perspectives within the final project design.

(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.

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. Yes

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	1702483858592_Attachment B_Project_Map.pdf
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 A: Cost Effectiveness

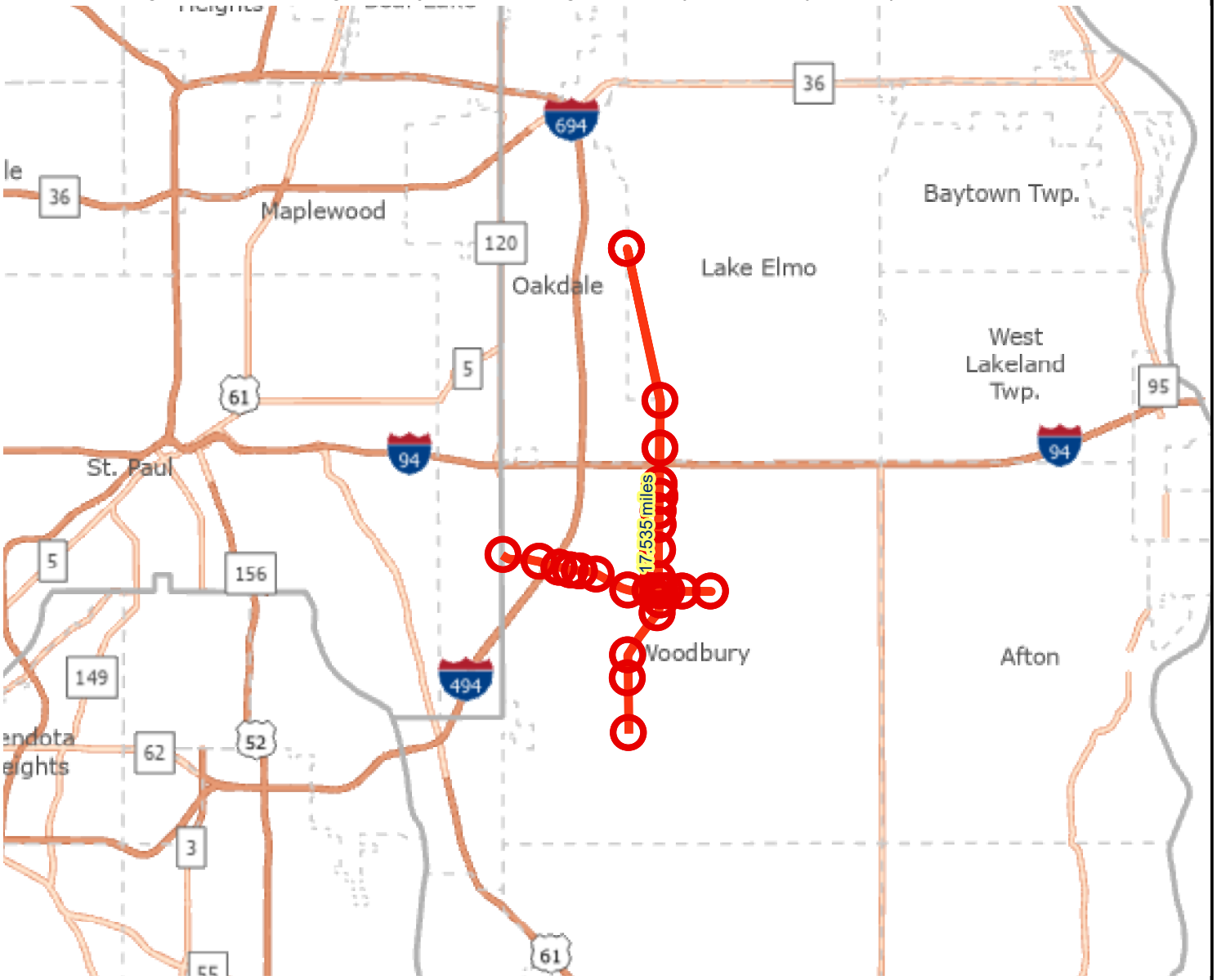
Total Project Cost (entered in Project Cost Form):	$665,000.00
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$665,000.00
Enter amount of any outside, competitive funding:	$0.00
Attach documentation of award:	
Points Awarded in Previous Criteria	
Cost Effectiveness	$0.00

Other Attachments

File Name	Description	File Size
Attachments_Combined.pdf	Attachments_combined.pdf includes: - One page summary - Existing conditions photos - Project Map - Met Council Make a Maps - Crash Summary and Crash BC - Letters of support	15.0 MB

Transit Connections

Traffic Management Technologies Project: Traffic Signal Battery Backup Systems | Map ID: 1699465579004



Results

Transit with a Direct Connection to project:
294 323 353 355

**indicates Planned Alignments*

Transit Market areas: 3, 4

Project Points

Project

Project Area

0 1.5 3 6 9 12 Miles

Created: 11/8/2023
LandscapeRSA3

METROPOLITAN COUNCIL

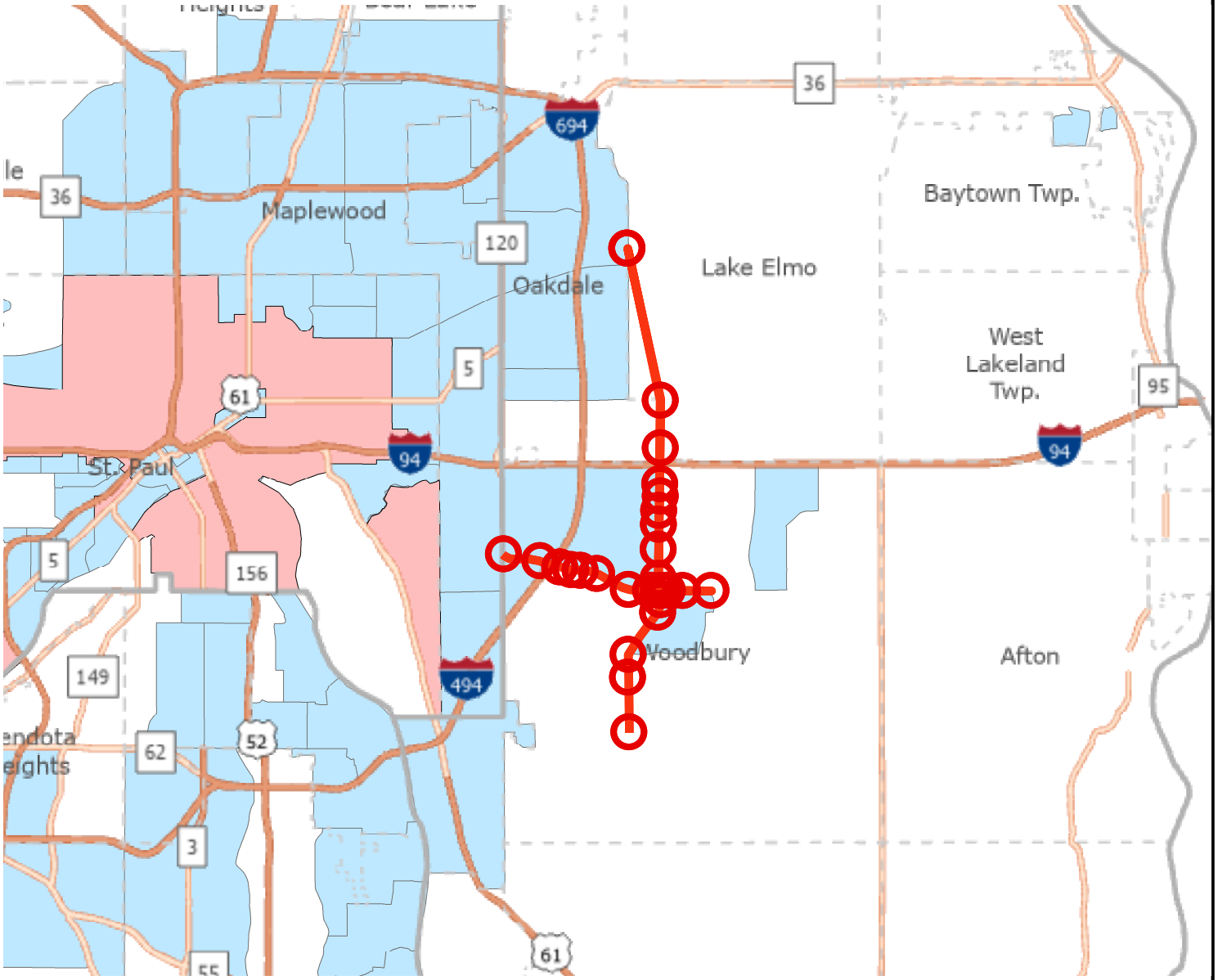
Socio-Economic Conditions

Traffic Management Technologies Project: Traffic Signal Battery Backup Systems | Map ID: 1699465579004

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 578

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



Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

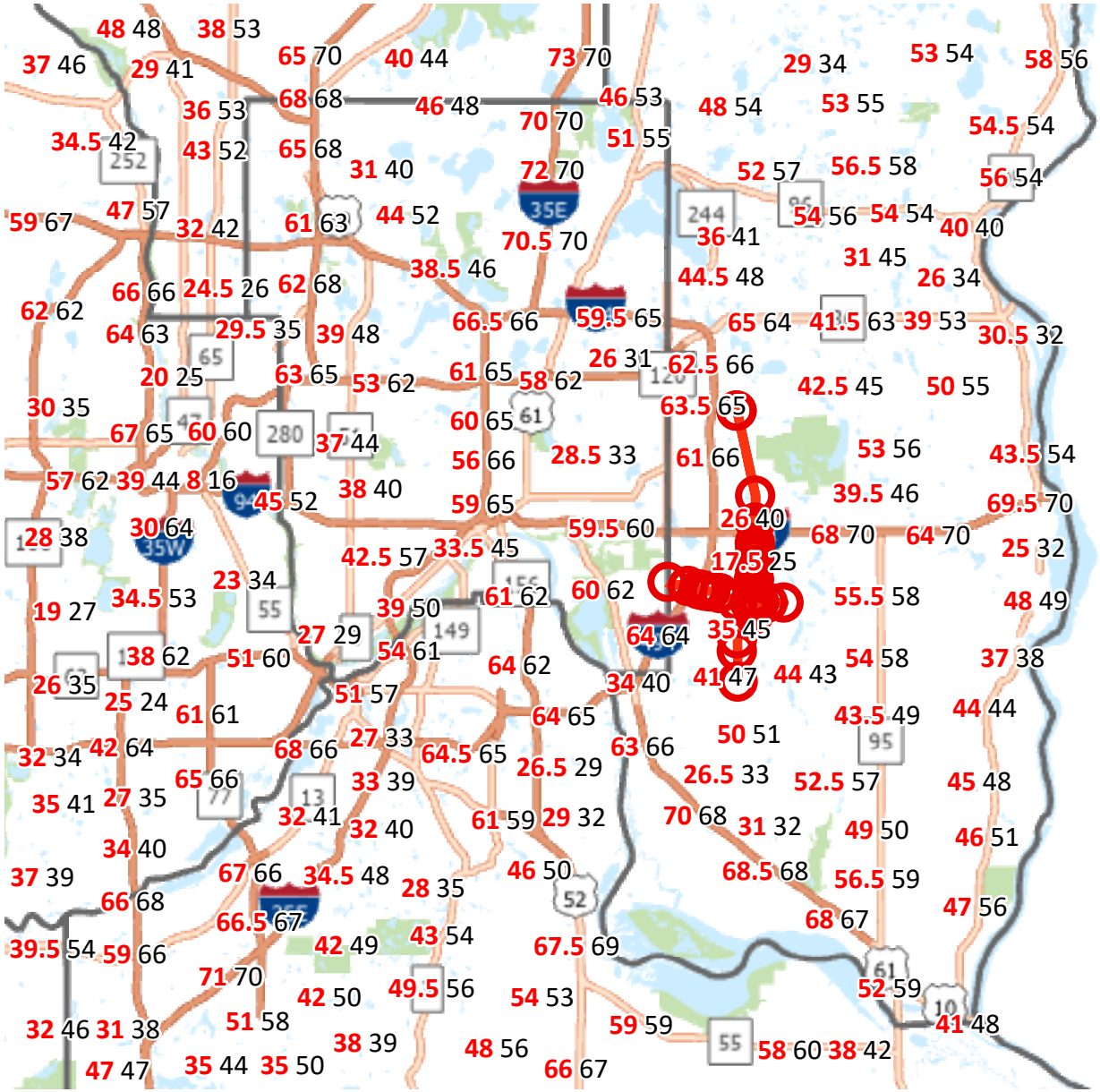
0 1.5 3 6 9 12 Miles

Created: 11/8/2023
LandscapeRSA2

METROPOLITAN COUNCIL

Level of Congestion

Traffic Management Technologies Project: Traffic Signal Battery Backup Systems | Map ID: 1699465579004



Project Points

Project

0 3 6 12 18 24 Miles

Created: 11/8/2023

LandscapeRSA1

For complete disclaimer of accuracy, please visit https://giswebsite.metc.state.mn.us/gissite/notice.aspx

METROPOLITAN COUNCIL

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route	Varies	**District**	Metro	**County**	Washington
Begin RP	n/a	**End RP**	n/a	**Miles**	n/a
Location	Approximately 27 Washington County signal locations				

B. Project Description

Proposed Work	Add backup batteris and cabinets to select Washington County signals		
Project Cost*	$665,000	**Installation Year**	2029
Project Service Life	20 years	**Traffic Growth Factor**	1.0%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

0.00	**Fatal (K) Crashes**	**Reference**	Engineering Judgement
0.00	**Serious Injury (A) Crashes**		
0.00	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.00	**Possible Injury (C) Crashes**		
0.00	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	**Crash Type**	
	Possible Injury (C) Crashes		
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2020	**End Date**	12/31/2022	3 years
Data Source	Minnesota Crash Mapping Analysis Tool (MnCMAT2)			

Crash Severity	All	< optional 2nd CMF >
K crashes	0	
A crashes	0	
B crashes	0	
C crashes	0	
PDO crashes	1	

F. Benefit-Cost Calculation

$101,908	**Benefit (present value)**	**B/C Ratio = 0.16**
$665,000	**Cost**	

Proposed project expected to reduce 1 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate:	0.8%	Default
Traffic Growth Rate:	1.0%	**Revised**
Project Service Life:	20 years	**Revised**

G. Annual Benefit

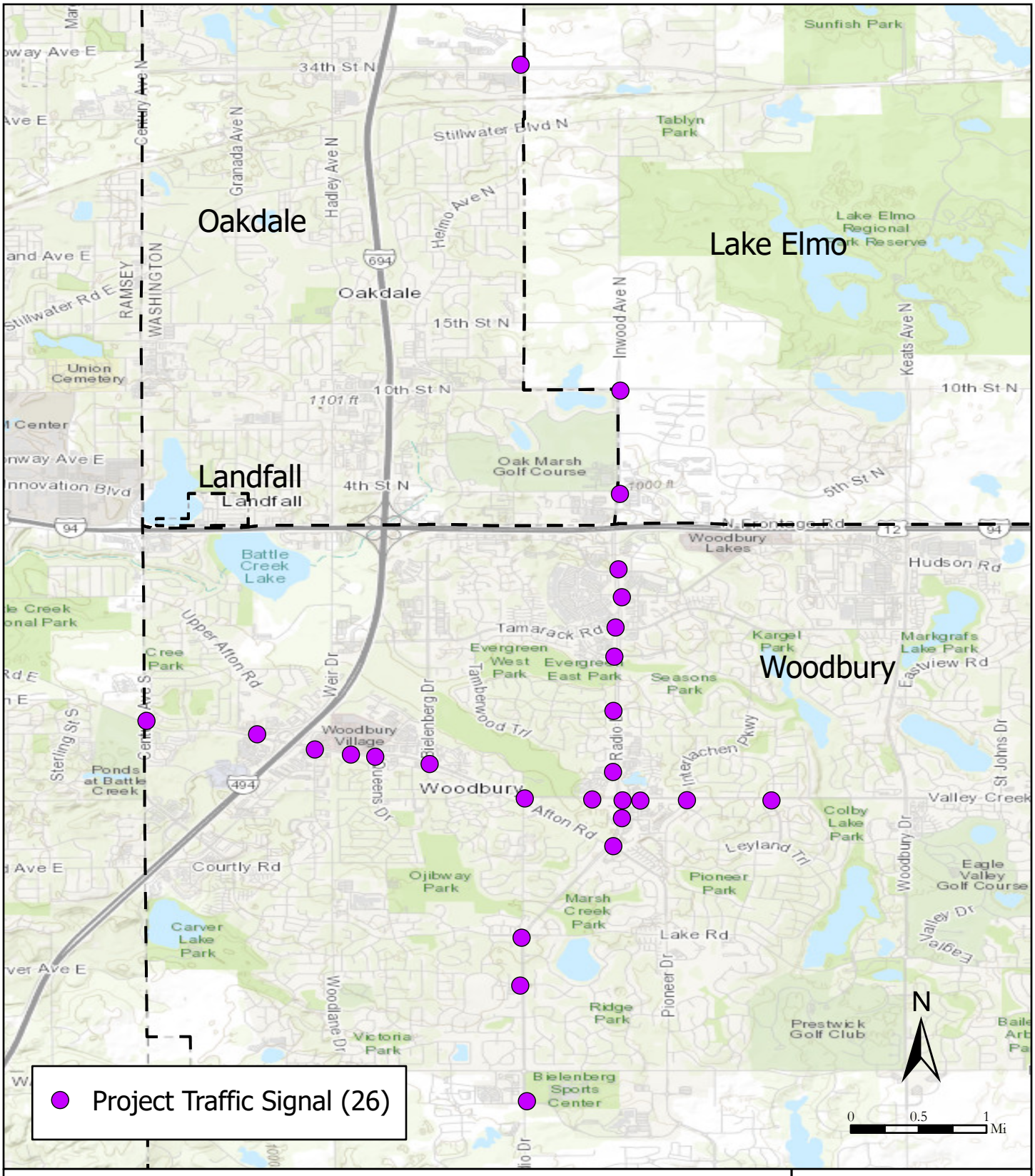
Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.00	0.00	$0
C crashes	0.00	0.00	$0
PDO crashes	1.00	0.33	$5,000
			$5,000

H. Amortized Benefit

Year	Crash Benefits	Present Value
2029	$5,000	$5,000
2030	$5,050	$5,010
2031	$5,101	$5,020
2032	$5,152	$5,030
2033	$5,203	$5,040
2034	$5,255	$5,050
2035	$5,308	$5,060
2036	$5,361	$5,070
2037	$5,414	$5,080
2038	$5,468	$5,090
2039	$5,523	$5,100
2040	$5,578	$5,110
2041	$5,634	$5,120
2042	$5,690	$5,131
2043	$5,747	$5,141
2044	$5,805	$5,151
2045	$5,863	$5,161
2046	$5,922	$5,171
2047	$5,981	$5,182
2048	$6,041	$5,192
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $101,908

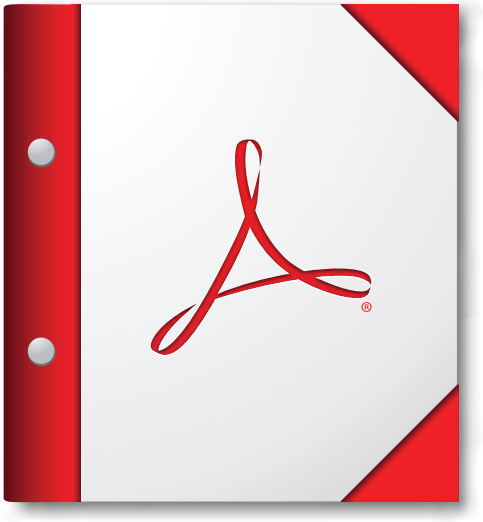
NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.



2024 Regional Solicitation Application

Washington County Traffic Signal Battery Backup Systems

Traffic Management Technologies



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