Application

19838 - 2024 Roadway Modernization
20240 - Robert Street Reconstruction (Annapolis to Kellogg)
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 - Bicycle and Pedestrian Facilities

Organization Information

Name: ST PAUL, CITY OF
Jurisdictional Agency (if different):
Organization Type: City
Organization Website:
Address: DEPT OF PUBLIC WORKS-CITY HALL ANNEX
25 W 4TH ST #1500

* ST PAUL (City) Minnesota (State/Province) 55101 (Postal Code/Zip)

County: Ramsey
Phone:* 651-266-9700 Ext.

Fax:
PeopleSoft Vendor Number 0000003222A22

Project Information

Project Name Robert Street Reconstruction
Primary County where the Project is Located Ramsey
Cities or Townships where the Project is Located: Saint Paul
Jurisdictional Agency (If Different than the Applicant): MnDOT Metro District
Brief Project Description (Include location, road name/functional class, type of improvement, etc.) The TH 3 (Robert Street) project includes reconstructing a Minor Arterial in the City of Saint Paul from the southern city limits (Annapolis St E) to the northern limits of Robert Street Bridge over the Mississippi River (Kellogg Boulevard).

Attachment 2 provides a graphic of the project location.

Objectives are to improve the accessibility, mobility, and safety for people who walk, roll, bike, take transit, and drive along the corridor. Photos illustrating the roadway's existing condition are included in Attachment 3.

Equity is a critical focus for the Robert Street project and an outreach campaign has been ongoing with over 1,600 people providing feedback since 2020. The outreach campaign has been promoted through social media, news articles, flyers, and sidewalk stickers with QR codes. Outreach events have included virtual and in-person meetings, discussions with local businesses along the corridor, community meetings, and pop-up events. In-person outreach has been the most successful with non-traditional groups, such as having Spanish-speaking staff at the 2023 Cinco de Mayo event. Community feedback provided includes the currently scoped resurfacing project does not suitably address the issues along the corridor.

Recent engagement efforts solicited input regarding design elements of Robert Street via an online survey. Participants affirmed the top priority should reallocate space within the road right of way to create a more pedestrian-friendly environment that will benefit the community and make the area more accessible and safer for all users. Additional funding would allow the project to make substantial improvements for multimodal accommodations and safety, not possible within the current budget.

Some of the key project elements include:

- Roadway improvements; including replacement of the pavement, curb and gutter, and storm sewer.

- Construction of transit infrastructure within project limits (funded by Metro Transit).

- Replacement of lead water services and watermain (funded by Saint Paul Regional Water Services).

- Safety improvements including converting the existing 5-lane roadway to a 3-lane roadway, and traffic calming features to reduce vehicular speeds.

- Pedestrian improvements including ADA compliant ramps and sidewalks, enhanced crosswalks, curb extensions, and raised medians.

- Bicycle improvements, including a separated bicycle facility between Cesar Chavez Street and Fillmore Ave and on-street striped bike lane across the river bridge to Kellogg Blvd. in accordance with the Saint Paul Bicycle Plan.

- Aesthetic improvements, potentially including landscaping, trees, , streetscaping, and lighting as determined through a visual quality process and approval by the agency responsible for maintenance.

(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.

MN 3 (ROBERT ST), FROM ANNAPOLIS ST. E TO KELLOGG BLVD IN ST PAUL ? RECONSTRUCT ROADWAY

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)

1.6

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)

Potential RAISE grant submittal in early 2024. This project is also a Reconnecting Communities Grant candidate. MnDOT may apply for that source as well if the RAISE grant is unsuccessful.

Federal Amount

$7,000,000.00

Match Amount

$14,825,000.00

Minimum of 20% of project total

Project Total

$21,825,000.00

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

Match Percentage

67.93%

Minimum of 20%
Compute the match percentage by dividing the match amount by the project total

Source of Match Funds

MnDOT Trunk Highway state funding under SP 6217-50 - $2,865,000 , Saint Paul Public Works Municipal State Aid funding - $1,500,000, MnDOT Federal funding under SP 6217-50 - $10,460,000

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:

2027

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

Project Information-Roadways

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

SAP#:

6217-50

County, City, or Lead Agency

MnDOT

Functional Class of Road

Minor Arterial

Road System

TH

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

Road/Route No.

3

i.e., 53 for CSAH 53

Name of Road

Robert Street

Example; 1st ST., MAIN AVE

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

From:
Road System

Road/Route No.

i.e., 53 for CSAH 53

Name of Road

Annapolis St E

Example; 1st ST., MAIN AVE

To:
Road System

DO NOT INCLUDE LEGAL DESCRIPTION

Road/Route No.

i.e., 53 for CSAH 53

Name of Road

Kellogg Boulevard

Example; 1st ST., MAIN AVE

In the City/Cities of:

Saint Paul

(List all cities within project limits)

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	1.6 (1.9 with bridge exception area)
(nearest 0.1 miles)	
Primary Types of Work (check all the apply)	
New Construction	
Reconstruction	Yes
Resurfacing	
Bituminous Pavement	Yes
Concrete Pavement	
Roundabout	
New Bridge	
Bridge Replacement	
Bridge Rehab	
New Signal	
Signal Replacement/Revision	Yes
Bike Trail	Yes
Other (do not include incidental items)	Transit Infrastructure, Ped Ramps, Sidewalk, Lighting

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	55107
Approximate Begin Construction Date	05/03/2027
Approximate End Construction Date	11/30/2028
Miles of Trail (nearest 0.1 miles)	0
Miles of Sidewalk (nearest 0.1 miles)	1.6
Miles of trail on the Regional Bicycle Transportation Network (nearest 0.1 miles):	0.7
Is this a new trail?	Yes

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 Objectives: A, B Strategies: A1 and A2 (Pages 2.2-2.4)

Goal B: Safety and Security Objectives: A, B Strategies: B1, B2, B3, B4, and B6 (Pages 2.5-2.9)

Goal C: Access to Destinations Objectives: A, B, C, D, E Strategies: C1, C2, C3, C4, C9, C11, C12, C15, C16 (Pages 2.10- 2.23)

Goal D: Competitive Economy Objectives: A, B, C Strategies: D3, D4, (Pages 2.27-2.28)

Goal E: Healthy and Equitable Communities Objectives: A, B, C, D, Strategies: E2, E3, E4, E5, E6, E7 (Pages 2.31-2.34)

Goal F: Leveraging Transportation Investments to Guide Land Use Objectives: A, B, C, D Strategies: F5, F6 (Pages 2.35- 2.38)

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.

- MnDOT 2024-2027 State Transportation Improvement Program (https://www.dot.state.mn.us/planning/program/pdf/stip/MINNESOTA%202024-2027%20STIP.pdf), refer to page 186.

- Saint Paul Transportation Safety Action Plan (https://www.stpaul.gov/sites/default/files/2023-07/Transportation%20Safety%20Action%20Plan%20-%20FINAL.pdf), page 19. Note that Robert Street within project limits is on the High Injury Crash Network, the Vulnerable Road User High Crash Network, and is in an Equity Priority Area.

- Saint Paul Safe Routes to School Plan (https://www.stpaul.gov/sites/default/files/2022-01/SPPSWestSide_SafeRoutesToSchool_Plan.pdf), refer to page 29-30 . Note that 9 specific improvements are identified within Robert Street project limits.

- Saint Paul Draft Bicycle Plan (https://www.stpaul.gov/sites/default/files/2023-04/Saint%20Paul%20Bicycle%20Plan_DRAFT%2004.27.23c_0.pdf), refer to page 31. Note that Robert Street is a planned separated bicycle facility north of Cesar Chavez Ave.

- Saint Paul 2024-2028 Capital Improvement Program (https://www.stpaul.gov/sites/default/files/2022-12/PW%205-Year%20Plan%202023%20to%202027%20Adopted%2012.7.22.pdf), refer to page 1. Note Robert M&O under 2026 program.

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: 01/05/2015

Link to plan: MnDOT Plan: https://www.dot.state.mn.us/ada/transitionplan.html

City Plan: https://www.stpaul.gov/sites/default/files/Media%20Root/ADA%20Transiton%20Plan%20for%20Public%20Works_2016.pdf

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. Yes

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. Yes

Requirements - Roadways Including Multimodal Elements

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$968,000.00
Removals (approx. 5% of total cost)	$968,000.00
Roadway (grading, borrow, etc.)	$2,389,000.00
Roadway (aggregates and paving)	$2,703,000.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$2,240,000.00
Ponds	$223,000.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$967,000.00
Traffic Control	$532,000.00
Striping	$112,000.00
Signing	$158,000.00
Lighting	$1,710,000.00
Turf - Erosion & Landscaping	$373,000.00
Bridge	$0.00
Retaining Walls	$0.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$1,000,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$3,059,000.00
Other Roadway Elements	$0.00
Totals	**$17,402,000.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$738,000.00
Sidewalk Construction	$1,445,000.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$215,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$0.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$614,000.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$904,000.00
Other Bicycle and Pedestrian Elements	$0.00
Totals	**$3,916,000.00**

Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Fixed Guideway Elements	$0.00
Stations, Stops, and Terminals	$507,000.00

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	**$507,000.00**

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).

Response:

PROTECT-eligible project elements include storm sewer and stormwater treatment, which will be upgraded to meet current MS4 standards and rainfall intensity levels. The exact type of stormwater treatment is yet to be determined but could include green stormwater infrastructure. The project will also include landscaping, although the details of any landscaping are yet to be determined. The project will also result in an overall decrease in impervious area by reducing the roadway footprint

Totals

Total Cost	$21,825,000.00
Construction Cost Total	$21,825,000.00
Transit Operating Cost Total	$0.00

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

Existing Employment within 1 Mile:	47010
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	3175
Existing Post-Secondary Students within 1 Mile:	0
Upload Map	1702557588777_01_RobertStreet_RoadReconMod_RegionalEconomy_12.8.23.pdf

Please upload attachment in PDF form

Measure C: Current Heavy Commercial Traffic

RESPONSE: Select one for your project, based on the updated 2021 Regional Truck Corridor Study:

Along Tier 1:	
Miles:	0
(to the nearest 0.1 miles)	
Along Tier 2:	Yes
Miles:	1.6
(to the nearest 0.1 miles)	
Along Tier 3:	
Miles:	0
(to the nearest 0.1 miles)	
The project provides a direct and immediate connection (i.e., intersects) with either a Tier 1, Tier 2, or Tier 3 corridor:	
None of the tiers:	

Measure A: Current Daily Person Throughput

Location	TH 3 (Robert Street) from Plato Ave to Filmore Ave.
Current AADT Volume	17600
Existing Transit Routes on the Project	62, 68, 71, 75, 484, Other

For New Roadways only, list transit routes that will likely be diverted to the new proposed roadway (if applicable).

Upload Transit Connections Map 1702557845252_02_RobertStreet_RoadReconMod_TransitConnections_12.8.23.pdf

Please upload attachment in PDF form

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership 0

Current Daily Person Throughput 22880.0

Measure B: 2040 Forecast ADT

Use Metropolitan Council model to determine forecast (2040) ADT volume

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 2040 Metropolitan Council TDM model updated for TH 3 Robert Street Project

Forecast (2040) ADT volume 17900

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:

The Robert Street corridor is in the heart of Saint Pauls West Side neighborhood. The West Side neighborhood is approximately 1.5 miles wide, bounded on three sides by the Mississippi River. The neighborhood is bisected by Robert Street; therefore West Side neighborhood statistics are a comparable proxy to areas within a half mile of the project area. According to MN Compass, 45.5% of neighborhood residents identify as BIPOC, with 27% of residents identifying as Hispanic. 13% of neighborhood residents have a disability, 19% have income below the poverty level. 30% of residents are under the age of 18 and 10% are over the age of 65 (https://www.mncompass.org/profiles/city/st-paul/west-side).

The West Sides 45.5% BIPOC population is significantly higher than the regions (26.3%), as are individuals living with a disability (10% regionally). Neighborhood residents living below poverty (19%) far exceeds regional averages of 8.4%.

Recognizing that equity is a critical focus for this project, MnDOT developed and implemented an equitable, inclusive engagement process starting in 2020. To date, weve received comments from over 1,600 people. MnDOT has promoted engagement through social media, news articles, flyers, and sidewalk stickers with QR codes. Engagement events included virtual and in-person meetings, discussions with local businesses along the corridor, community meetings, and pop-up events. The most successful engagement with underserved populations resulted from in-person efforts, such as MnDOT Spanish-speaking staff attending the 2023 Cinco de Mayo event. A summary of these activities and findings is available on the project web page. Among the feedback MnDOT heard is that the current project purpose and need (Resurface the roadway to improve ride condition) does not comprehensively address the issues along the corridor. MnDOT is seeking funding for a project that reflects engagement outcomes by improving multimodal accommodations and safety as well as pavement condition.

In 2023, MnDOT reengaged community members to prioritize design elements. The design team distributed an online survey seeking input that will help develop designs for future improvements. Survey respondents affirmed their top priority for space within the MnDOT right of way is toward people walking or using sidewalks. This regional solicitation award will allow MnDOT to make substantial improvements to the pedestrian space that would not be possible within MnDOTs current project budget.

(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:

Within the project limits, 52% of households are low income, 67% of the population is non-white, and 1/3 of the population speaks a language other than English at home.

This project is not anticipated to permanently impact disadvantaged populations. Some temporary impacts like detours and noise are expected during construction. MnDOT will take steps to minimize impacts during construction.

When completed, this Regional Solicitation funded project will improve access for pedestrians by bringing all sidewalks and curb ramps into ADA compliance. It will also improve pedestrian safety at every crossing of Robert Street through measures like adding curb extensions, 5 lane to 3 lane conversion, and median refuge islands. This, in turn, will support future transit lines within project limits and will benefit those who live along the project corridor who have disabilities or lack access to a car. These improvements also support the Safe Routes to School plan for the area.

Other measures to improve safety will include the construction of a bicycle facility between Fillmore Ave. and Cesar Chavez Street, improving comfort and safety for anyone bicycling in the project area. MnDOT will continue to coordinate with Metro Transit on how to improve transit mobility with supportive transit infrastructure as part of project construction. Potential transit improvements include Transit Signal Priority and/or bus queue jumps.

(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:

The Robert Street corridor is in the heart of Saint Pauls West Side neighborhood. The West Side neighborhood is approximately 1.5 miles wide, bounded on three sides by the Mississippi River.

The neighborhood is bisected by Robert Street; therefore West Side neighborhood statistics are a comparable proxy to areas within a half mile of the project area.

According to Housing Link, 1,417 affordable units are available in 25 properties on the West Side. Saint Paul has made substantial investments in supporting affordable housing in the West Side neighborhood.

Within the last ten years, the Saint Paul Housing Redevelopment Authority has funded the following projects to construct new affordable housing on the West Side, totaling 680 affordable units (map attached):

o Farwell Yards, 102 W Water St. : 284 units, 63 affordable units (planned)

o Verdant 85 Livingston Ave: 82 affordable units (completed)

West Side Flats I 84 Wabasha St S: 178 units (60% AMI, 32 rooms reserved for 50% AMI) (completed)

o West Side Flats III 84 Wabasha St S: 264 units, 82 affordable (completed)

o Soul Apartments Robert St and Plato Blvd (under construction): 178 affordable units (30%-60% AMI)

o Stryker Senior Housing 617 Stryker Avenue: 57 affordable units available to people 55+ (planned)

o Villa Del Sol, 88 Cesar Chavez St. : 40 affordable units (60% AMI) (completed)

In addition, the city works to preserve affordable housing through its 4d Affordable Housing Incentive Program by providing rental property owners an avenue to receive 4d (Low Income rental classification) tax classification and one-time administrative grant assistance.

There are 74 4d program housing units within the West Side Planning District (see pages 10-11 of the 4d program results report).

o These properties have a 10 year rent and income restriction with the City of Saint Paul in exchange for agreeing to preserve those 74 NOAH units for at least 10 years. More details at: https://www.stpaul.gov/departments/planning-and-economic-development/housing/housing-trust-fund/4d

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

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:	Yes
Project?s census tracts are above the regional average for population in poverty or population of color (Regional Environmental Justice Area):	
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.	1702558113491_03_RobertStreet_RoadReconMod_SocioEconomic_12.8.23.pdf

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
1922	0.3	576.6	360.375
1930	0.8	1544.0	965.0
1976	0.2	395.2	247.0
1926	0.3	577.8	361.125
	2	**3094**	**1934**

Total Project Length

Total Project Length (as entered in "Project Information" form)	1.6

Average Construction Year

Weighted Year	1933

Total Segment Length (Miles)

Total Segment Length	1.6

Measure B: Geometric, Structural, or Infrastructure Improvements

Improved roadway to better accommodate freight movements: Yes

Response:

To support this Tier 2 freight corridor, MnDOT will reconstruct Robert Street replacing the signals at Filmore Ave and Plato Blvd with optimized timing reducing freight delay along the corridor. The signal at Cesar Chavez Street will also be retimed to reduce delay. The application assumes the signal at Curtice Ave will also be removed further reducing freight delay along the corridor. Freight access points will be designed to accommodate appropriate freight vehicles and with clear sightline to and from the new pedestrian and bike facilities.

(Limit 700 characters; approximately 100 words)

Improved clear zones or sight lines: Yes

Response:

Robert Street will undergo enhancements to optimize clearances and visibility, aligning it with modern urban roadway standards. Lateral clearances will meet current urban road standards, while pedestrian and bicycle clearances will be upgraded. The Robert Street and State Street intersection will be improved for reduced skew and enhanced sight lines. A 5 to 3-lane conversion will boost pedestrian visibility and minimize multi-threat crashes. Curb extensions, medians, and restricted parking near intersections will further enhance pedestrian sight lines. Additionally, the proposed design includes improved nighttime visibility through enhanced lighting.

(Limit 700 characters; approximately 100 words)

Improved roadway geometrics: Yes

Response:

The project aims to enhance the experience for motorized, non-motorized users and transit riders through effective geometric design. Sidewalks and ramps will surpass ADA standards, including PAR and MAR width requirements. Utilizing curb extensions, shifts, and medians will encourage traffic calming and lower vehicle speeds. Boulevards will facilitate snow storage and maintain clear distinctions between driving, walking, and biking areas. Intersection revisions at State Street and Cesar Chavez Street will prioritize safety. A 5 to 3-lane conversion will reduce speeds, shorten pedestrian crossings, and introduce a sidewalk-level bike facility.

(Limit 700 characters; approximately 100 words)

Access management enhancements: Yes

Response:

Access management along Robert Street will prioritize multimodal and vehicle safety in a corridor that currently has frequent full access, low-volume roads, and private access points. Using technical analysis and engagement, low-volume sideroads will be assessed for access restriction, integrating pedestrian crossing medians. These medians will align with pedestrian demand areas and the safe routes to school plan. The corridor will be reviewed for MnDOT's access management compliance, with necessary updates. Community engagement during design will consider consolidating or removing private access points to enhance safety.

(Limit 700 characters; approximately 100 words)

Vertical/horizontal alignment improvements: Yes

Response:

Due to steep grades along Robert Street and the adjacent side roads, many existing ADA ramps significantly exceed maximum allowable grades. 100 percent of the existing curb ramps and 80 percent of the existing sidewalk are non-compliant for ADA. Horizontal and vertical design improvements will be made to address these deficiencies including curb extensions, roadway superelevation changes, and profile adjustments if needed. Corridor wide, all sidewalks and ramps will be replaced and upgraded to current ADA standards. Sideroad vertical profiles will also be addresses to provide better sideroad approaches and stop conditions.

(Limit 700 characters; approximately 100 words)

Improved stormwater mitigation: Yes

Response:

The corridor's storm sewer, dating from the 1930s to 1980s must be replaced for condition and to addresses increased rainfall rates. Storm sewer and curb and gutter is being replaced for the entire corridor, greatly enhancing area drainage capacities and quality and upgrading the system to current design standards. Reductions in impervious areas with the 5 to 3 lane reduction will help reduce runoff rates and provide space for possible treatment options. This project will meet or exceed all stormwater requirements, and proposed treatments may include green infrastructure solutions such as bioswales and bio-retention features.

(Limit 700 characters; approximately 100 words)

Signals/lighting upgrades: Yes

Response:

Existing signals at Fillmore and Plato are being replaced, and a potential removal of the signal at Curtice is being considered. New signals will feature mast arms and lane control for a 5 to 3 lane conversion, with ADA and APS upgrades for these and two additional signal locations. Signal interconnect will be implemented for the entire corridor. Corridor lighting will be improved and upgraded to City standards. Other signal improvements could include flashing yellow arrow, leading pedestrian and bike intervals. Improvements at Curtice Street with the proposed signal removal could include enhanced crossings like RRFB or Hawk signals.

(Limit 700 characters; approximately 100 words)

Other Improvements Yes

Response:

Supportive transit infrastructure will be constructed at the same time as the project in anticipation of the planned G Line aBRT in 2028. BRT Stations will be strategically located along the corridor to create transportation options and reliability in an area where many residents have limited access to vehicles. Crossing enhancements and multimodal connections will be evaluated at each stop location as part of the project. Additionally, the project will be coordinated with planned water improvements. Led water services at up to 67 parcels will be replaced as well as cast iron water main that is over 100 years old.

(Limit 700 characters; approximately 100 words)

Measure A: Congestion Reduction/Air Quality

Total Peak Hour Delay Per Vehicle Without The Project (Seconds/Vehicle)	Total Peak Hour Delay Per Vehicle With The Project (Seconds/Vehicle)	Total Peak Hour Delay Per Vehicle Reduced by Project (Seconds/Vehicle)	Volume without the Project (Vehicles per hour)	Volume with the Project (Vehicles Per Hour):	Total Peak Hour Delay without the Project:	Total Peak Hour Delay by the Project:	Total Peak hour Delay Reduced by project	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable.	Synchro or HCM Reports
42.9	40.6	2.3	7100	7100	304590.0	288260.0	16330.0	N/A	1702559307018_05_Build Timing Reports.pdf

Vehicle Delay Reduced

Total Peak Hour Delay Reduced	Total Peak Hour Delay Reduced	Delay Reduced Total

Measure B: Roadway projects that do not include new roadway segments or railroad grade-separation elements

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
57578.0	57434.0	144.0
57578	**57434**	**144**

Total

Total Emissions Reduced:	144.0
Upload Synchro Report	1702574716975_05_Build Results and Emmisions.pdf

Please upload attachment in PDF form (Save Form, then click 'Edit' in top right to upload file.)

Measure B: Roadway projects that are constructing new roadway segments, but do not include railroad grade-separation elements (for Roadway Expansion applications only):

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
0	**0**	**0**

Total Parallel Roadway

Emissions Reduced on Parallel Roadways	0
Upload Synchro Report	

Please upload attachment in PDF form (Save Form, then click 'Edit' in top right to upload file.)

New Roadway Portion:

Cruise speed in miles per hour with the project:	0
Vehicle miles traveled with the project:	0
Total delay in hours with the project:	0
Total stops in vehicles per hour with the project:	0
Fuel consumption in gallons:	0
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced or Produced on New Roadway (Kilograms):	0
EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)	
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	0.0

Measure B: Roadway projects that include railroad grade-separation elements

Cruise speed in miles per hour without the project:	0
Vehicle miles traveled without the project:	0

Total delay in hours without the project:	0
Total stops in vehicles per hour without the project:	0
Cruise speed in miles per hour with the project:	0
Vehicle miles traveled with the project:	0
Total delay in hours with the project:	0
Total stops in vehicles per hour with the project:	0
Fuel consumption in gallons (F1)	0
Fuel consumption in gallons (F2)	0
Fuel consumption in gallons (F3)	0
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	0
EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)	

Measure A: Roadway Projects that do not Include Railroad Grade-Separation Elements

Crash Modification Factor Used:

North and including Cesar Chavez Street:

10737: INSTALL BICYCLE LANES (CMF =0.435)

199: ROAD DIET CONVERT 4-LANE UNDIVIDED ROAD TO 2-LANES PLUS TURNING LANE (CMF =0.71)

South of Cesar Chavez Street:

RAISED MEDIAN W/WO MARKED CROSSWALK (CMF =0.70)

(Limit 700 Characters; approximately 100 words)

Rationale for Crash Modification Selected:

These CMF were all selected as the bike lanes, 3-lane conversion, boulevards, medians, and lane width reductions are all captured within the benefits for the various segments. The crash modification factors were applied to segment and intersection crashes based on the improvements applicable north and south of the Cesar Chavez Street intersection based on the CMFs identified above. Total crash reduction was selected versus specific crash types to reflect the complete street nature of the improvements.

Multimodal Benefits are expected to exceed the calculated benefits for this project. In the 2020-2022 period, 7 multimodal crashes occurred on the corridor in marked intersection crossings and only one of these was a serious injury crash. 5 of the 7 crashes did include a vehicle traveling through on Robert Street where if any of these crashes were serious injury crashes, the Project Benefits could range anywhere from $27.6M to $43.5M increasing the B/C Ratio to 2.00.

(Limit 1400 Characters; approximately 200 words)

Project Benefit ($) from B/C Ratio	$27,656,089.00
Total Fatal (K) Crashes:	0
Total Serious Injury (A) Crashes:	3
Total Non-Motorized Fatal and Serious Injury Crashes:	3
Total Crashes:	62
Total Fatal (K) Crashes Reduced by Project:	0
Total Serious Injury (A) Crashes Reduced by Project:	2
Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:	1
Total Crashes Reduced by Project:	41
Worksheet Attachment	1702559457576_06_HSIP Benefit-Cost 2023_Robert Street.pdf

Please upload attachment in PDF form

Roadway projects that include railroad grade-separation elements:

Current AADT volume:	0
Average daily trains:	0

Crash Risk Exposure eliminated: 0

Measure B: Pedestrian Safety

Determine if these measures do not apply to your project. *Does the project match either of the following descriptions?*

If either of the items are checked yes, then ***score for entire pedestrian safety measure is zero****. Applicant does not need to respond to the sub-measures and can proceed to the next section.*

Project is primarily a freeway (or transitioning to a freeway) and does not provide safe and comfortable pedestrian facilities and crossings. No

Existing location lacks any pedestrian facilities (e.g., sidewalks, marked crossings, wide shoulders in rural contexts) and project does not add pedestrian elements (e.g., reconstruction of a roadway without sidewalks, that doesn?t also add pedestrian crossings and sidewalk or sidepath on one or both sides). No

SUB-MEASURE 1: Project-Based Pedestrian Safety Enhancements and Risk Elements

To receive maximum points in this category, pedestrian safety countermeasures selected for implementation in projects should be, to the greatest extent feasible, consistent with the countermeasure recommendations in the Regional Pedestrian Safety Action Plan and state and national best practices. Links to resources are provided on the Regional Solicitation Resources web page.

Please answer the following two questions with as much detail as possible based on the known attributes of the proposed design. If any aspect referenced in this section is not yet determined, describe the range of options being considered, to the greatest extent available. If there are project elements that may increase pedestrian risk, describe howthese risks are being mitigated.

1. Describe how this project will address the safety needs of people crossing the street at signalized intersections, unsignalized intersections, midblock locations, and roundabouts.

Treatments and countermeasures should be well-matched to the roadway?s context (e.g., appropriate for the speed, volume, crossing distance, and other location attributes). Refer to the Regional Solicitation Resources web page for guidance links.

Response:

This segment of Robert Street has been identified in multiple plans for improvements for crossing including the West Side Safe Routes to school plan and the City Transportation Safety Action Plan.

Its an area where the High Injury Network (HIN) and High Crash Network (HCN) overlap with the Equity Priority Areas in the Safety Action Plan, making it a great candidate for crossing improvement investment.

The project improvements target existing crossing deficiencies that include an under capacity 5-lane roadway section, long (60-foot plus) pedestrian crossing lengths, an unwarranted signal, and underutilized parking lanes, high 85th percentile vehicle speed, and lack of ADA compliant facilities and signals. Currently all ADA ramps do not meet current design standards and do not allow safe crossings for all users. Eight intersection along the project were identified in the West Side Safe Routes to school plan and were flagged for risk factors including crossing distance, vehicle speed and volume, and proximity to schools and pedestrian routes.

All intersections along the project will be enhanced to promote safe and efficient crossing for pedestrians including all safe routes to school locations. The project will construct proven counter measures like curb extensions to shadow parking, medians for two stage crossings, curb narrowing, access management, reduction in vehicle movements at low volume intersections, and removal an unwarranted signal at Curtice Street south of Cesar Chavez Street. On the North side of the corridor, a 5-lane to 3-lane road diet is allowing space for a boulevard, bike lanes, and compliant sidewalks to be added along the extents of the corridor. These complete streets improvements will create a lower speed environment providing safety benefits for all users, especially vulnerable users, traveling along and crossing the roadway. Improvements will directly address and mitigate seven multimodal crashes that have occurred in the last three years. Signals replacements will be evaluated for leading pedestrian interval implementation, and appropriate clearance intervals for cyclists. APS will be incorporated at 5 signal locations along the corridor.

While traffic volumes are under a 3-lane capacity threshold, volumes are high enough to warrant crossing enhancements. Unsignalized crossing locations including the signal removal at Curtice will be analyzed for high volume crossing treatments such as RRFB and enhanced crosswalks. Roadway design will also keep cross sections at minimized widths to encourage lower and more consistent speeds at crossing locations.

(Limit 2,800 characters; approximately 400 words)

Is the distance in between signalized intersections increasing (e.g., removing a signal)?

Select one: Yes

If yes, describe what measures are being used to fill the gap between protected crossing opportunities for pedestrians (e.g., adding High-Intensity Activated Crosswalk beacons to help motorists yield and help pedestrians find a suitable gap for crossing, turning signal into a roundabout to slow motorist speed, etc.).

Response:

With a signal being removed at Curtice Street, signal spacing is increasing along that portion of corridor. All intersections between the signal at Annapolis Street and Cesar Chavez street will be improved for crossing. Curb bumpouts and /or mid-block crossings medians improvments will be implemented to provide safer crossings for pedestrians. Vehicle conflicts will be reduced by restricting turning movements to Right-in Right-out.

Curb narrowing and boulevard plantings (trees) will reduce vehicle speeds along the corridor. Additionally, crosswalk and appropriate median refuge will be added at King Street. Currently this intersection lacks crossing accommodations.

Crosswalks will be analyzed for applicability of Rectangular Rapid Flashing Beacons (RRFBs) and other crosswalk enhancements to optimize the safety of each future crossing with focus on areas identified in the West Side Safe routes to school plan, and enhanced transit station locations.

(Limit 1,400 characters; approximately 200 words)

Will your design increase the crossing distance or crossing time across any leg of an intersection? (e.g., by adding turn or through lanes, widening lanes, using a multi-phase crossing, prohibiting crossing on any leg of an intersection, pedestrian bridge requiring length detour, etc.). This does not include any increases to crossing distances solely due to the addition of bike lanes (i.e., no other through or turn lanes being added or widened).

Select one: No

If yes,
? How many intersections will likely be affected?

Response:

? Describe what measures are being used to reduce exposure and delay for pedestrians (e.g., median crossing islands, curb bulb-outs, etc.)

Response:

(Limit 1,400 characters; approximately 200 words)

? If grade separated pedestrian crossings are being added and increasing crossing time, describe any features that are included that will reduce the detour required of pedestrians and make the separated crossing a more appealing option (e.g., shallow tunnel that doesn?t require much elevation change instead of pedestrian bridge with numerous switchbacks).

Response:

(Limit 1,400 characters; approximately 200 words)

If mid-block crossings are restricted or blocked, explain why this is necessary and how pedestrian crossing needs and safety are supported in other ways (e.g., nearest protected or enhanced crossing opportunity).

Response:

(Limit 1,400 characters; approximately 200 words)

2. Describe how motorist speed will be managed in the project design, both for through traffic and turning movements. *Describe any project-related factors that may affect speed directly or indirectly, even if speed is not the intended outcome (e.g., wider lanes and turning radii to facilitate freight movements, adding turn lanes to alleviate peak hour congestion, etc.). Note any strategies or treatments being considered that are intended to help motorists drive slower (e.g., visual narrowing, narrow lanes, truck aprons to mitigate wide turning radii, etc.) or protect pedestrians if increasing motorist speed (e.g., buffers or other separation from moving vehicles, crossing treatments appropriate for higher speed roadways, etc.).*

Response:

Speed has been identified as a major concern along Robert Street particularly for crossing Robert Street. The current posted speed limit is 35 mph with 85th percentile speed approaching 40 mph based on clear guide analysis. The existing corridor design allows for significant speed violations as its generally tangent, has a wide pavement section with parking often underutilized, and has steep roadway grades in sections.

A Robert Street project goal is to reduce vehicle speeds on the corridor to improve multi-modal and vehicular safety. The proposed target speed is 30 mph or less. By incorporating raised medians, reducing travel lanes widths, removing under used parking locations, curb narrowing, and curb extensions, the travel lanes on Robert Street will feel constrained causing vehicle speeds to consolidate, be reduced, and create traffic calming. Additional boulevard space created will be evaluated for tree planting and other landscaping in coordination with MnDOT and City standards and polices to further promote speed reduction. Enhanced transit service will also help speed reduction by providing additional perception of an urban environment with the station locations and create more uniform speeds with in-lane bus operations.

Near the Robert Street viaduct, the transitions from Robert Street to the frontage roads will be modified to reduce vehicle speeds. Especially northbound, drivers exit to the frontage road with ramp style operation at high speeds. This transition will be improved to reduce speed. Additionally, a wider median incorporating pedestrian refuge will be incorporated near King Street. This will also help reduce speed and create a safe pedestrian crossing where it does not exist today. The 5-lane to 3-lane road diet north of Wood Street, additional boulevard and bike lanes will provide a dedicated facility for walking, biking, and driving and create a separated facility from the roadway for bikes.

All crossing locations will be improved along Robert Street with either curb extensions or raised median refugee islands, crosswalk marking, and signing.

Additional enhanced crossing treatments like Hawk Signals and RRFB will be evaluated based on pedestrian demand (pedestrian data collection underway) and the safe routes to school plan. In combination, these improvements will help facilitate safe and efficient crossing of Robert Street for all users and reduce the potential for vehicle and pedestrian incidents.

(Limit 2,800 characters; approximately 400 words)

If known, what are the existing and proposed design, operation, and posted speeds? Is this an increase or decrease from existing conditions?

Response:

Pedestrian crashes have occurred along the corridor with 12 crashes in the last five years. Only one of these crashes resulted in serious injury, but given the existing operating speeds, the risk for more severe pedestrian incidents is possible given the history. The current posted speed limit is 35 mph with 85th percentile speed approaching 40 mph based on clear guide analysis. The existing corridor design allows for significant speed violations as its generally tangent, has a wide pavement section with parking often underutilized, and has steep grades in sections.

A Robert Street project goal is to reduce vehicle speeds on the corridor to improve multi-modal and vehicular safety. The proposed target speed is 30 mph or less. This will be accomplished with by incorporating raised medians, reducing travel lanes widths, removing under used parking locations, curb narrowing, curb extensions, intersection turning restrictions, access management, enhanced transit implementation, and improved boulevard space.

(Limit 1,400 characters; approximately 200 words)

SUB-MEASURE 2: Existing Location-Based Pedestrian Safety Risk Factors

These factors are based on based on trends and patterns observed in pedestrian crash analysis done for the Regional Pedestrian Safety Action Plan. Check off how many of the following factors are present. Applicants receive more points if more risk factors are present.

Existing road configuration is a One-way, 3+ through lanes	
or	
Existing road configuration is a Two-way, 4+ through lanes	Yes
Existing road has a design speed, posted speed limit, or speed study/data showing 85th percentile travel speeds in excess of 30 MPH or more	Yes
Existing road has AADT of greater than 15,000 vehicles per day	Yes
List the AADT	17600

SUB-MEASURE 3: Existing Location-Based Pedestrian Safety Exposure Factors

These factors are based on based on trends and patterns observed in pedestrian crash analysis done for the Regional Pedestrian Safety Action Plan. Check off how many of the following existing location exposure factors are present. Applicants receive more points if more risk factors are present.

Existing road has transit running on or across it with 1+ transit stops in the project area (If flag-stop route with no fixed stops, then 1+ locations in the project area where roadside stops are allowed. Do not count portions of transit routes with no stops, such as non-stop freeway sections of express or limited-stop routes.)	Yes
Existing road has high-frequency transit running on or across it and 1+ high-frequency stops in the project area (high-frequency defined as service at least every 15 minutes from 6am to 7pm weekdays and 9am to 6pm Saturdays.)	Yes
Existing road is within 500? of 1+ shopping, dining, or entertainment destinations (e.g., grocery store, restaurant)	Yes

If checked, please describe:

Robert Street is a critical connection for regional and local shopping, dining, and entertainment.

South of Cesar Chavez, the corridor serves the westside neighborhood providing access to local business including Auto Repair stores, haircare facilities, and other small businesses enterprises. Robert Street also provides connections to businesses in West Saint Paul that residents rely on for home, work, and entertainment.

District Del Sol between Cesar Chavez street and Wood Street is a unique commercial and cultural destination filled with local businesses and community spaces. It is a destination for many residents in the West Side neighborhood as well as those who seek to experience the unique character, history and culture of the area. Robert Street traverses through District Del Sol providing the transportation gateway to the area.

Restaurants/grocery stores along the corridor include Pollos Asados, St Paul Flatbread Co, Michaels Pizza, Captain Kens Food, and West Side Grocery, West Side Hair care. In the greater area, several other food options are in the Cesar Chavez Street Intersection area as well.

North on the corridor, development plans for the West Side Flats call for future mixed-use development along Robert Street further increasing pedestrian generators and areas of shopping, dining, and entertainment.

(Limit 1,400 characters; approximately 200 words)

Existing road is within 500? of other known pedestrian generators (e.g., school, civic/community center, senior housing, multifamily housing, regulatorily-designated affordable housing) Yes

If checked, please describe:

Robert Street serves as a key connection between the businesses listed above and other community institutions. These are listed below:

- Humboldt High School (School)

- Riverview Spanish/English Dual Immersion (School)

- Escuela Ingles (School)

- Quantum Steam Academy (School)

- Red Cross Blood and Platelet Donation Center

- Open World Learning (Community Center)

- Villa del Sol Community Space (Community Center)

- El Rio Vista Recreation / Wellstone Center (Community Center)

- AA Fuente de vida. (Community Center)

In addition to commercial and community destination, Robert Street connects residents of the West Side neighborhood, including several multi-family structures. According to Housing Link, 1,417 affordable units are available in 25 multi-family properties on the West Side.

(Limit 1,400 characters; approximately 200 words)

Measure A: Multimodal Elements and Existing Connections

Response:

Several plans have identified the need to improve multimodal facilities along Robert Street.

It has long been identified as a minor bikeway from Cezar Chavez Street to Kellogg Blvd and Saint Pauls recent 2023 Draft Bicycle Plan continues to identify this need. Currently there are not bike facilities along Robert Street limiting multimodal connections between business and residents in the west side flats to downtown. The project will improve this condition by adding a separated bike facility consistent with the plan from Cesar Chavez Street to Fillmore Street. A striped bike lane will also be incorporated across the Mississippi River bridge to Kellogg Blvd. The improvements will also include sidewalk improvements and intersection crossing enhancements promoting high quality and safe alternative modes of transportation and connections. This is critical in an area with multiple schools and residents are known to have limited access to vehicles.

Additionally, Robert Street was identified in the Saint Pauls West Side Safe Routes to School Plan and the City Transportation Safety Action Plan. Eight intersections along the corridor were flagged as needing improvement to allow safer school crossings. As part of the project these intersections will be evaluated for improvements that could include curb extensions, refugee medians, enhanced crosswalk marking, and evaluation of RRFB or Hawk signals for crossing (selected locations).

Additionally, curb extensions will be employed in parking areas to help achieve flatter ramps grades whiles also promoting slower vehicular travel speeds. Parking will be consolidated to select locations based on community feedback to allow curb narrowing and slow travel speeds. Offset intersections will have pedestrian crossings that align with the natural walking path, and intersections like State and Robert will be realigned for improved pedestrian connectivity.

In accordance with MnDOTs ADA transition plan, corridor wide, all sidewalks and ramps will be replaced and upgraded to current ADA standards. Enhanced pavement marking and signing will be applied at all cross walks. Signals at Filmore Street and Plato Ave will be upgraded with APS.

Lastly, the corridor was identified as part of Metro Transits Network Next plan as a enhanced transit route. The project will construct 5 enhanced transit stations. These stations will provide faster and more reliable transit service in an area that lacks transportation alternatives. Local service stations will also be incorporated along the corridor in coordination with Metro Transit.

Robert Street once completed will provide a variety of transportation options and connect people from where they live to schools, businesses, and recreation of the greater Saint Paul area.

(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:

Recognizing that equity is a critical focus for this project, MnDOT developed and implemented an equitable, inclusive engagement process starting in 2020. To date, MnDOT has received comments from over 1,600 people, and have promoted outreach through social media, news articles, flyers, and sidewalk stickers with QR codes. Outreach events have included virtual and in-person meetings, discussions with local businesses along the corridor, community meetings, and pop-up events.

The most successful outreach with non-traditional groups has come through in-person outreach, such as having Spanish-speaking staff at the 2023 Cinco de Mayo event. A summary of these activities and findings is available to the public on the project web page. Among the feedback heard is that our current project purpose and need (Resurface the roadway to improve ride condition) does not suitably address the issues along the corridor, which is why MnDOT and Saint Paul are seeking funding for a larger project to improve multimodal accommodations and improve safety.

In 2023, MnDOT reengaged community members to prioritize design elements. MnDOT distributed an online survey seeking input that will help develop designs for future improvements. Survey participants affirmed that their top priority for allocating space on the road right of way is toward people walking or using sidewalks. This regional solicitation award will allow MnDOT and Saint Paul to make substantial improvements to the pedestrian space that would not be possible within the projects original budget.

(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	1702574145297_231213_Regional Solicitation Concept Exhibit Plans_8.5x11_A.pdf
Please upload attachment in PDF form	
Additional Attachments	1702574145282_231213_Regional Solicitation Concept Exhibit Plans_8.5x11_B.pdf
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	
100%	
There are historical/archeological properties present but determination of ?no historic properties affected? is anticipated.	Yes
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	
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	Yes
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

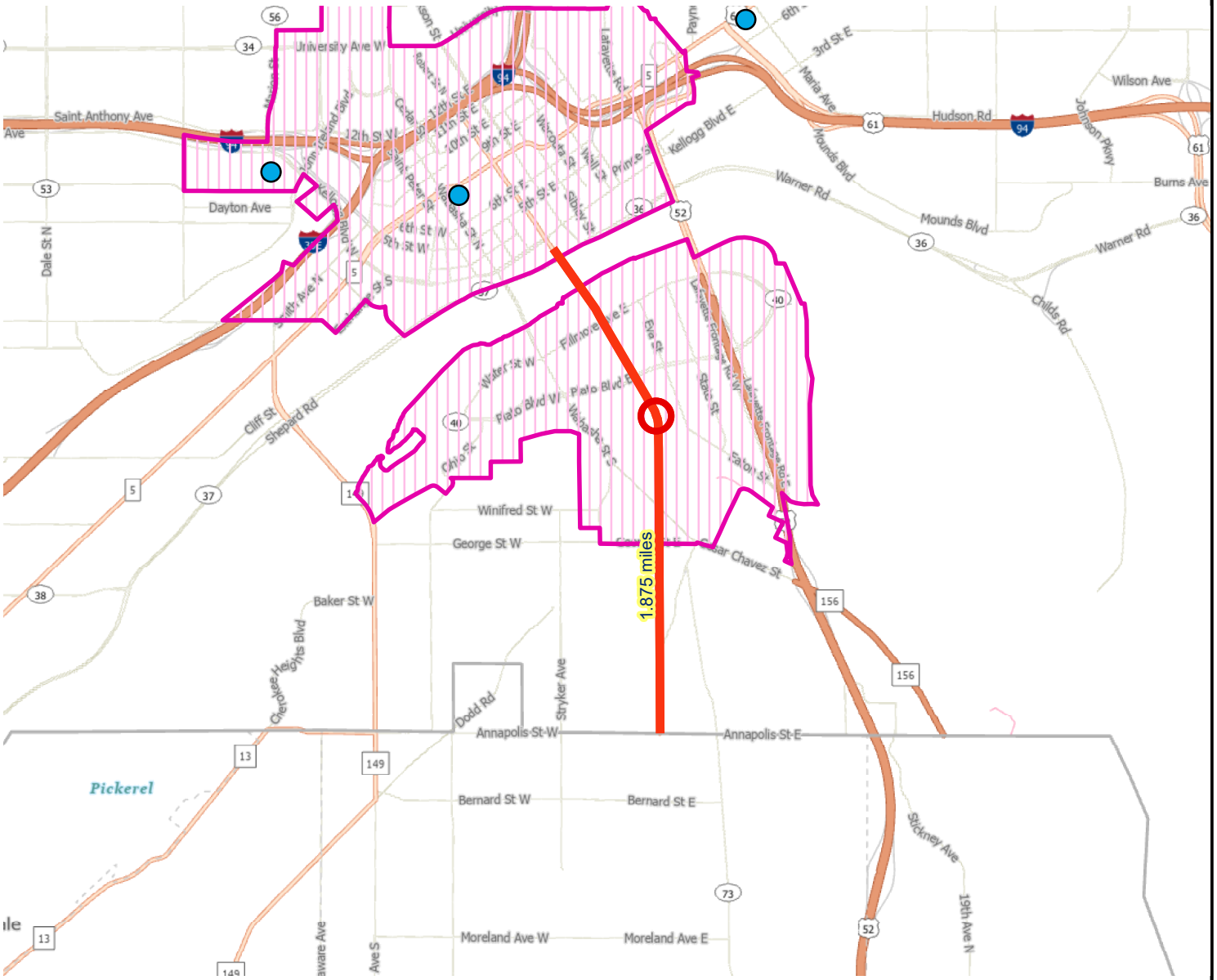
Total Project Cost (entered in Project Cost Form):	$21,825,000.00
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$21,825,000.00
Enter amount of any outside, competitive funding:	$0.00
Attach documentation of award:	
Points Awarded in Previous Criteria	
Cost Effectiveness	$0.00

Other Attachments

File Name	Description	File Size
02_Existing and Future ADT.pdf	Attachment 6 - Measure 2 - Existing and Future ADT Map	358 KB
03_Affordable Housing.pdf	Attachment 7 - Measure 3 - Robert Street - Affordable Housing Locations	1.7 MB
05_Existing Results and Emmisions.pdf	Attachment 8 - Measure 5 - Synchro - Existing Results and Emissions	182 KB
05_Existing Timing Reports.pdf	Attachment 9 - Measure 5 - Synchro - Existing Timing Reports	910 KB
05_No Build Results and Emmisions.pdf	Attachment 10 - Measure 5 - Synchro - No Build Results and Emissions	183 KB
05_No Build Timing Reports.pdf	Attachment 11 - Measure 5 - Synchro - No Build Timing Reports	932 KB
05_Regional Solictiation Synchro Summarized Results.pdf	Attachment 12 - Measure 5 - Synchro - Summarized Results	96 KB
06_CMF Factors.pdf	Attachment 13 - Measure 6 - CMF Factors	31 KB
2024 Regional Solicitation_SP_Robert Street.pdf	Attachment 4 - MnDOT Letter of Support	208 KB
Existing Roadway Photos.pdf	Attachment 3 -Existing Roadway Photos	6.0 MB
RES 23-1763 Regional Solicitation Applications.pdf	Attachment 1 - City of Saint Paul Council Resolution	96 KB
RobertStreet_RoadReconMod_LevelOfCongestion_12.8.23.pdf	Attachment 5 - Level of Congestion Map	2.8 MB
TH 3 SP 6217-50 Mississippi River to Annapolis_One-Pager.pdf	Attachment 2 - Robert Street - One Page Summary	238 KB

Regional Economy

Roadway Reconstruction/Modernization Project: Robert_Street_Reconstruction | Map ID: 1701996833732



Results

WITHIN ONE MI of project:
Postsecondary Students: 0

Totals by City:
St. Paul
Population: 24002
Employment: 47010
Mfg and Dist Employment: 3175

Project Points
Project
Postsecondary Education Centers
Manfacturing/Distribution Centers
Job Concentration Centers

0 0.35 0.7 1.4 2.1 2.8 Miles

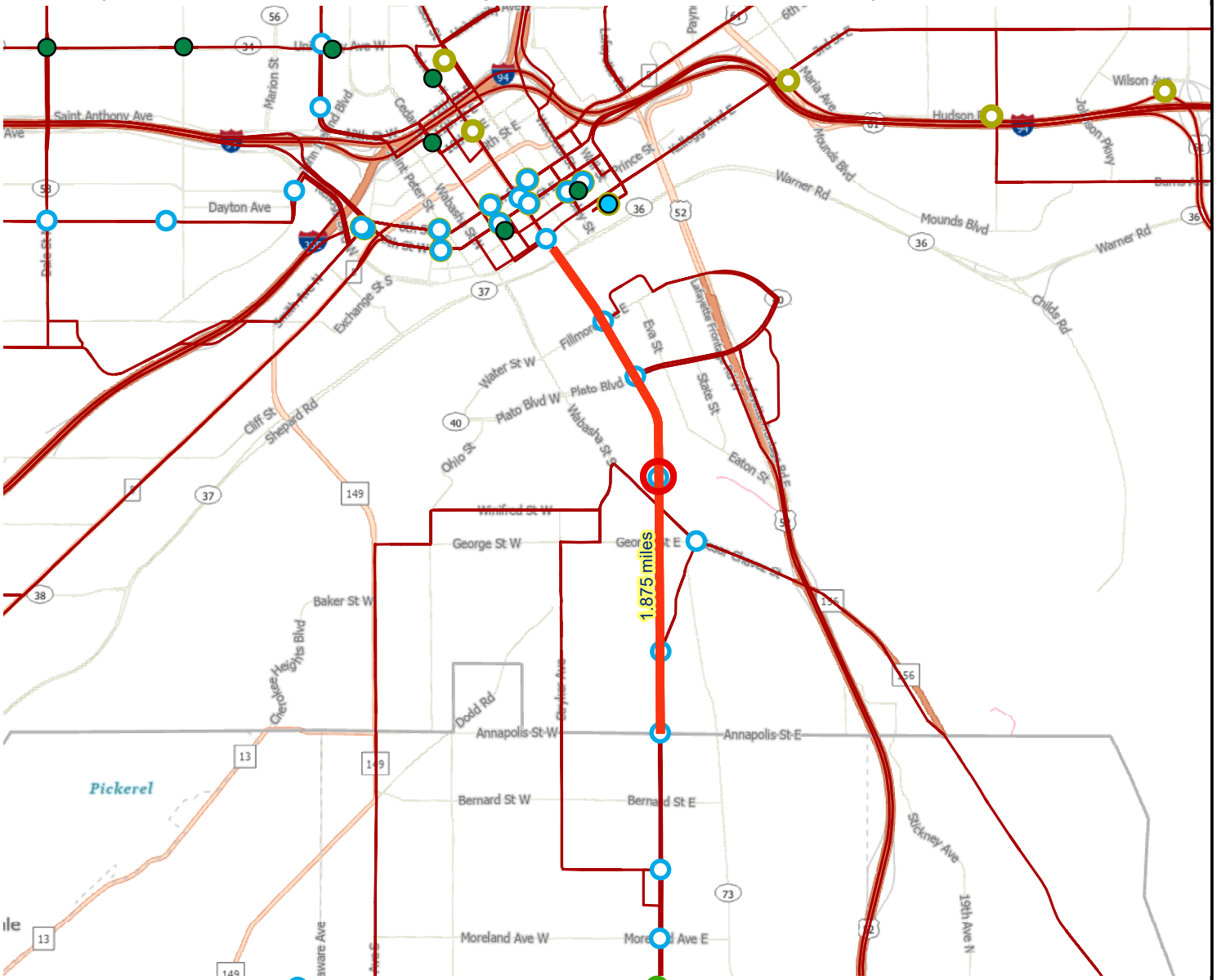
Created: 12/7/2023
LandscapeRSA5

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

METROPOLITAN COUNCIL

Transit Connections

Roadway Reconstruction/Modernization Project: Robert_Street_Reconstruction | Map ID: 1701996902557



Results

Transit with a Direct Connection to project:
3 484 62 67 68 71 75 902
*G Line
*Riverview

**indicates Planned Alignments*

Transit Market areas: 2

- Project Points
- Project
- Project Area
- Arterial Bus Rapid Transit
- Commuter Rail
- Dedicated Bus Rapid Transit
- Highway Bus Rapid Transit
- Light Rail
- Arterial Bus Rapid Transit
- Commuter Rail
- Dedicated Bus Rapid Transit
- Highway Bus Rapid Transit
- Light Rail
- Transit Routes

0 0.35 0.7 1.4 2.1 2.8 Miles

Created: 12/7/2023
LandscapeRSA3

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

METROPOLITAN COUNCIL

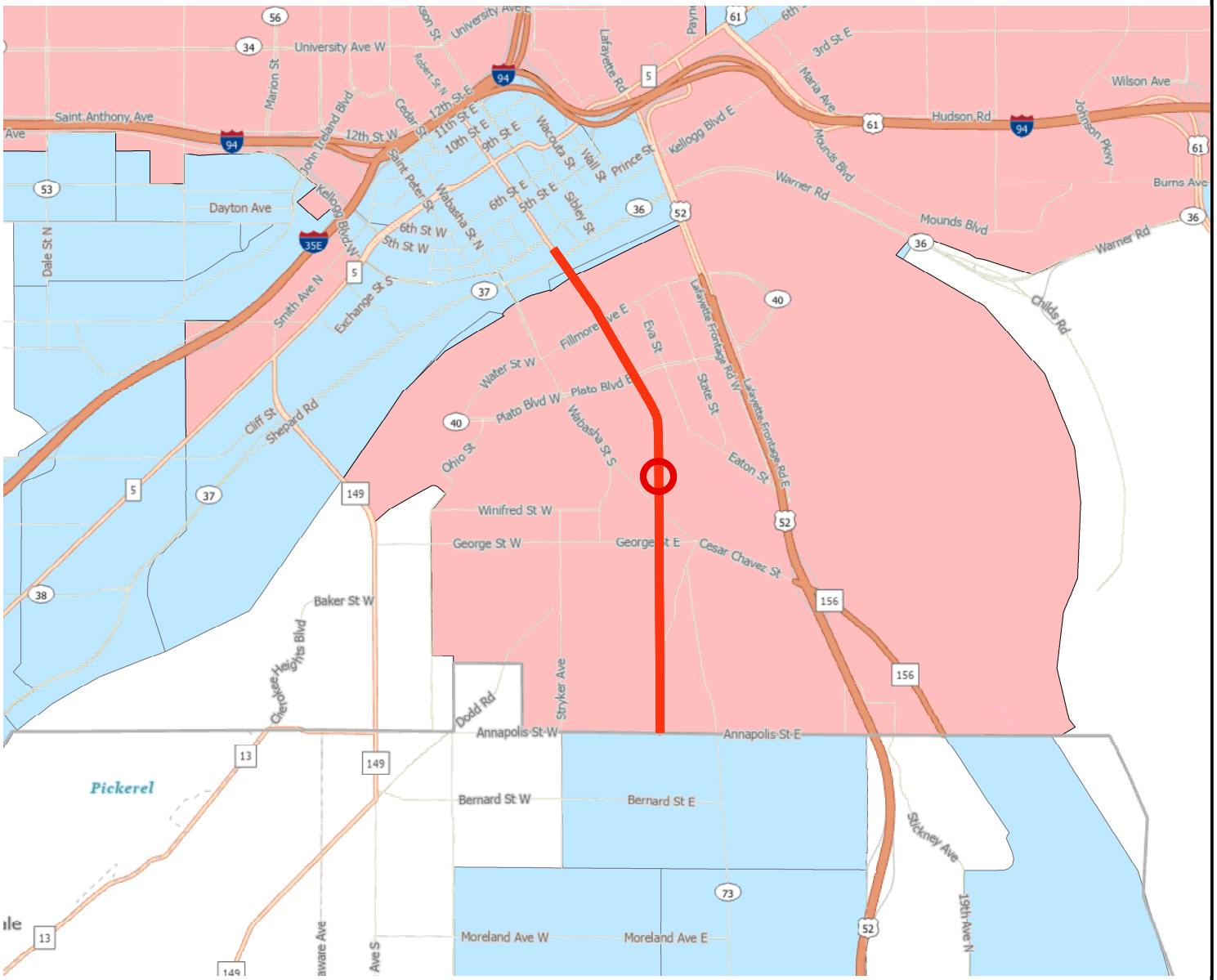
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: Robert_Street_Reconstruction | Map ID: 1701996902557

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 4774

Project located IN an Area of Concentrated Poverty.



Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

0 0.35 0.7 1.4 2.1 2.8 Miles

Created: 12/7/2023
LandscapeRSA2

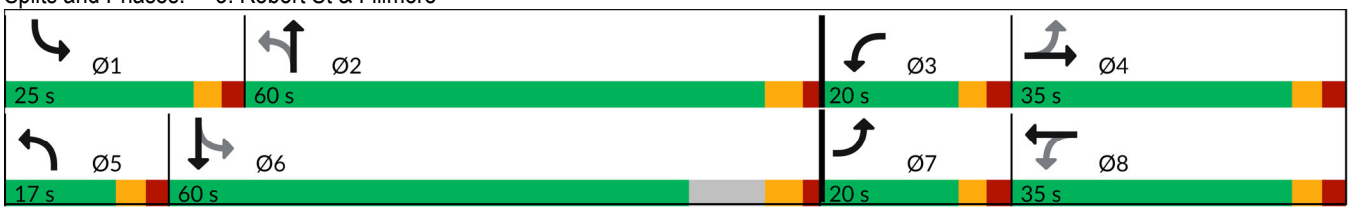
For complete disclaimer of accuracy, please visit http://giswebsite.metc.state.mn.us/gissite/notice.aspx

METROPOLITAN COUNCIL

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	32	49	8	45	64	608	62	167
Future Volume (vph)	32	49	8	45	64	608	62	167
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	9.0	7.0	9.0	7.0	12.0	7.0	12.0
Minimum Split (s)	12.4	21.6	12.4	21.6	12.3	21.6	12.3	21.6
Total Split (s)	20.0	35.0	20.0	35.0	17.0	60.0	25.0	60.0
Total Split (%)	14.3%	25.0%	14.3%	25.0%	12.1%	42.9%	17.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.9	3.0	3.9
All-Red Time (s)	2.4	2.6	2.4	2.6	2.3	1.7	2.3	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.6	5.4	5.6	5.3	5.6	5.3	5.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	18.6	16.8	15.6	11.5	62.6	56.5	62.5	56.4
Actuated g/C Ratio	0.19	0.17	0.16	0.12	0.65	0.58	0.65	0.58
v/c Ratio	0.15	0.37	0.04	0.59	0.09	0.33	0.13	0.15
Control Delay (s/veh)	31.8	27.4	29.9	34.0	7.3	13.2	7.6	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.8	27.4	29.9	34.0	7.3	13.2	7.6	7.5
LOS	C	C	C	C	A	B	A	A
Approach Delay (s/veh)		28.4		33.7		12.7		7.5
Approach LOS		C		C		B		A

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 96.7	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay (s/veh): 15.4	Intersection LOS: B
Intersection Capacity Utilization 55.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Robert St & Fillmore



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	131	137	507	321	413	73	111
Future Volume (vph)	26	131	137	507	321	413	73	111
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	7	4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	10.0	10.0	10.0	12.0	12.0	7.0	12.0
Minimum Split (s)	13.1	22.1	22.1	22.1	22.6	22.6	12.9	22.6
Total Split (s)	20.0	35.0	35.0	35.0	35.0	35.0	15.0	35.0
Total Split (%)	19.0%	33.3%	33.3%	33.3%	33.3%	33.3%	14.3%	33.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.6	3.6	3.0	3.6
All-Red Time (s)	3.1	2.8	2.8	2.8	3.0	3.0	2.9	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.6	6.6	5.9	6.6
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	32.3	32.3	25.0	25.0	29.8	29.8	41.0	40.3
Actuated g/C Ratio	0.38	0.38	0.29	0.29	0.35	0.35	0.48	0.47
v/c Ratio	0.12	0.23	0.49	0.78	0.85	0.47	0.21	0.11
Control Delay (s/veh)	17.5	8.5	34.1	32.7	51.9	25.8	16.6	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.5	8.5	34.1	32.7	51.9	25.8	16.6	10.9
LOS	B	A	C	C	D	C	B	B
Approach Delay (s/veh)		9.3		32.9		35.8		12.7
Approach LOS		A		C		D		B

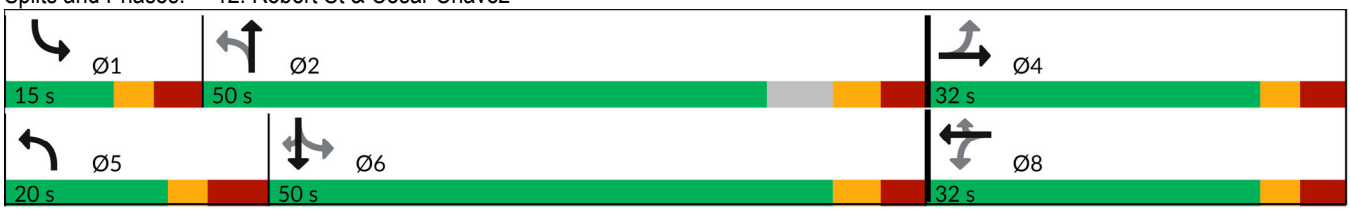
Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 85.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay (s/veh): 28.7	Intersection LOS: C
Intersection Capacity Utilization 76.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Robert St & Plato

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	138	82	4	81	201	41	450	52	213	52
Future Volume (vph)	138	82	4	81	201	41	450	52	213	52
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8	2		6		6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	14.5	23.0	13.6	23.0	23.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	20.0	50.0	15.0	50.0	50.0
Total Split (%)	31.4%	31.4%	31.4%	31.4%	31.4%	19.6%	49.0%	14.7%	49.0%	49.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.6	3.0	3.6	3.6
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	4.5	3.4	3.6	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	7.5	7.0	6.6	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effct Green (s)	14.5	14.5	14.5	14.5	14.5	28.2	25.2	28.9	24.9	24.9
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.45	0.41	0.47	0.40	0.40
v/c Ratio	0.49	0.30	0.01	0.20	0.41	0.08	0.71	0.13	0.31	0.08
Control Delay (s/veh)	31.8	23.1	24.8	25.3	6.9	7.6	22.7	7.7	15.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.8	23.1	24.8	25.3	6.9	7.6	22.7	7.7	15.8	0.7
LOS	C	C	C	C	A	A	C	A	B	A
Approach Delay (s/veh)		27.8		12.3			21.5		11.9	
Approach LOS		C		B			C		B	

Intersection Summary	
Cycle Length: 102	
Actuated Cycle Length: 62	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay (s/veh): 18.6	Intersection LOS: B
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	

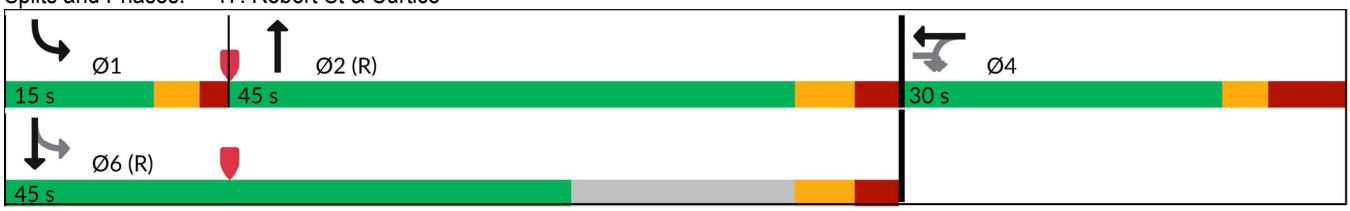
Splits and Phases: 12: Robert St & Cesar Chavez



Lane Group	EBR	WBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	9	1	619	3	270
Future Volume (vph)	9	1	619	3	270
Turn Type	Perm	NA	NA	pm+pt	NA
Protected Phases		4	2	1	6
Permitted Phases	4			6	
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	9.0	9.0	10.0	7.0	10.0
Minimum Split (s)	29.3	29.3	26.9	11.9	26.9
Total Split (s)	30.0	30.0	45.0	15.0	45.0
Total Split (%)	33.3%	33.3%	50.0%	16.7%	50.0%
Yellow Time (s)	3.1	3.1	4.0	3.0	4.0
All-Red Time (s)	5.2	5.2	2.9	1.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	6.9	4.9	6.9
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Min	None	C-Min
Act Effct Green (s)	9.1	9.1	73.0	74.7	75.4
Actuated g/C Ratio	0.10	0.10	0.81	0.83	0.84
v/c Ratio	0.01	0.18	0.45	0.01	0.19
Control Delay (s/veh)	0.0	26.1	6.9	2.7	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	26.1	6.9	2.7	3.3
LOS	A	C	A	A	A
Approach Delay (s/veh)		26.1	6.9		3.3
Approach LOS		C	A		A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 40 (44%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay (s/veh): 6.4	Intersection LOS: A
Intersection Capacity Utilization 52.9%	ICU Level of Service A
Analysis Period (min) 15	

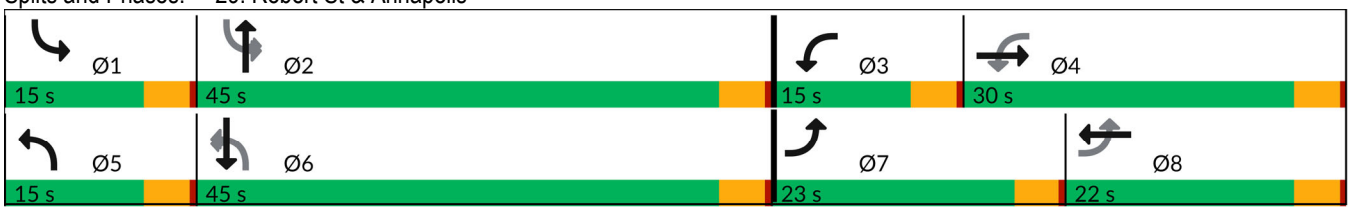
Splits and Phases: 17: Robert St & Curtice



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	72	28	7	69	39	443	8	14	259	46
Future Volume (vph)	72	28	7	69	39	443	8	14	259	46
Turn Type	D.P+P	NA	D.P+P	NA	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	8		4		6		2	2		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	23.0	30.0	15.0	22.0	15.0	45.0	45.0	15.0	45.0	45.0
Total Split (%)	21.9%	28.6%	14.3%	21.0%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		11.3		11.3	47.3	47.8	47.8	48.9	43.7	43.7
Actuated g/C Ratio		0.16		0.16	0.69	0.69	0.69	0.71	0.63	0.63
v/c Ratio		0.69		0.46	0.05	0.37	0.01	0.02	0.24	0.05
Control Delay (s/veh)		40.6		24.7	3.8	6.9	0.0	3.7	7.9	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		40.6		24.7	3.8	6.9	0.0	3.7	7.9	0.1
LOS		D		C	A	A	A	A	A	A
Approach Delay (s/veh)		40.6		24.7		6.5			6.6	
Approach LOS		D		C		A			A	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 69	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay (s/veh): 13.1	Intersection LOS: B
Intersection Capacity Utilization 55.1%	ICU Level of Service B
Analysis Period (min) 15	

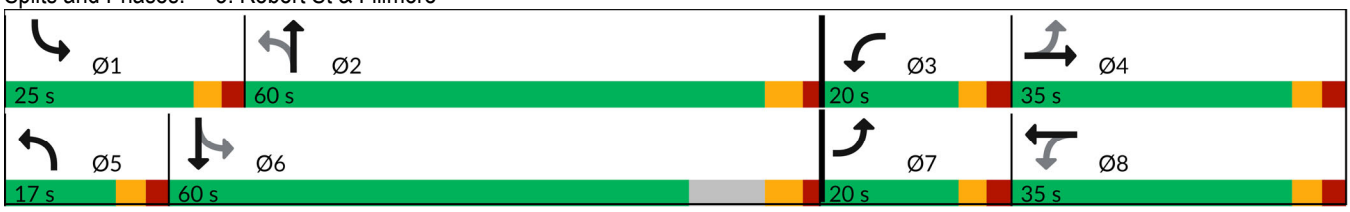
Splits and Phases: 29: Robert St & Annapolis



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	75	60	18	75	68	835	30	702
Future Volume (vph)	75	60	18	75	68	835	30	702
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	9.0	7.0	9.0	7.0	12.0	7.0	12.0
Minimum Split (s)	12.4	21.6	12.4	21.6	12.3	21.6	12.3	21.6
Total Split (s)	20.0	35.0	20.0	35.0	17.0	60.0	25.0	60.0
Total Split (%)	14.3%	25.0%	14.3%	25.0%	12.1%	42.9%	17.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.9	3.0	3.9
All-Red Time (s)	2.4	2.6	2.4	2.6	2.3	1.7	2.3	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.6	5.4	5.6	5.3	5.6	5.3	5.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	25.3	21.0	19.2	13.6	63.8	58.9	61.5	55.8
Actuated g/C Ratio	0.25	0.20	0.19	0.13	0.62	0.57	0.60	0.54
v/c Ratio	0.30	0.58	0.08	0.63	0.19	0.46	0.09	0.47
Control Delay (s/veh)	32.5	30.6	29.5	47.0	10.3	16.5	9.7	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.5	30.6	29.5	47.0	10.3	16.5	9.7	17.9
LOS	C	C	C	D	B	B	A	B
Approach Delay (s/veh)		31.1		45.1		16.1		17.6
Approach LOS		C		D		B		B

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 102.8	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay (s/veh): 20.8	Intersection LOS: C
Intersection Capacity Utilization 66.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Robert St & Fillmore



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	18	380	167	353	197	277	216	624
Future Volume (vph)	18	380	167	353	197	277	216	624
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	7	4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	10.0	10.0	10.0	12.0	12.0	7.0	12.0
Minimum Split (s)	13.1	22.1	22.1	22.1	22.6	22.6	12.9	22.6
Total Split (s)	20.0	35.0	35.0	35.0	35.0	35.0	15.0	35.0
Total Split (%)	19.0%	33.3%	33.3%	33.3%	33.3%	33.3%	14.3%	33.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.6	3.6	3.0	3.6
All-Red Time (s)	3.1	2.8	2.8	2.8	3.0	3.0	2.9	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.6	6.6	5.9	6.6
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	34.0	34.0	29.1	29.1	28.6	28.6	44.2	43.5
Actuated g/C Ratio	0.38	0.38	0.32	0.32	0.32	0.32	0.49	0.48
v/c Ratio	0.06	0.69	1.17	0.40	0.98	0.43	0.56	0.44
Control Delay (s/veh)	17.2	23.0	155.9	25.0	92.1	19.7	21.0	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.2	23.0	155.9	25.0	92.1	19.7	21.0	17.0
LOS	B	C	F	C	F	B	C	B
Approach Delay (s/veh)		22.8		62.7		41.7		18.0
Approach LOS		C		E		D		B

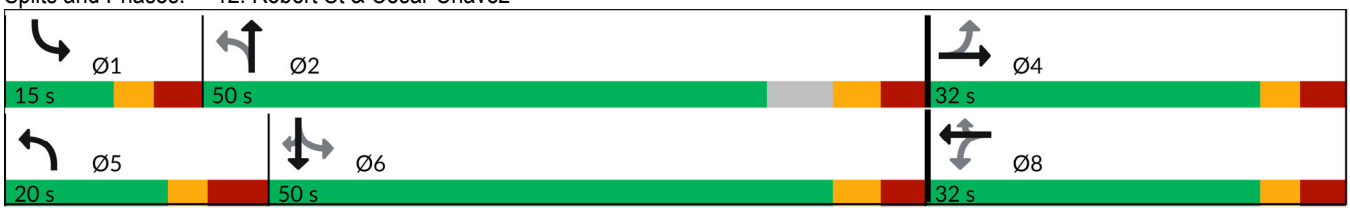
Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 90.3	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay (s/veh): 33.3	Intersection LOS: C
Intersection Capacity Utilization 85.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Robert St & Plato

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	83	128	40	146	117	71	389	144	469	61
Future Volume (vph)	83	128	40	146	117	71	389	144	469	61
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8	2		6		6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	14.5	23.0	13.6	23.0	23.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	20.0	50.0	15.0	50.0	50.0
Total Split (%)	31.4%	31.4%	31.4%	31.4%	31.4%	19.6%	49.0%	14.7%	49.0%	49.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.6	3.0	3.6	3.6
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	4.5	3.4	3.6	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	7.5	7.0	6.6	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effct Green (s)	13.6	13.6	13.6	13.6	13.6	32.5	24.9	34.8	28.3	28.3
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.48	0.37	0.51	0.42	0.42
v/c Ratio	0.37	0.60	0.21	0.43	0.30	0.18	0.64	0.32	0.66	0.09
Control Delay (s/veh)	30.8	30.3	28.3	29.8	7.9	7.9	22.2	8.8	22.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.8	30.3	28.3	29.8	7.9	7.9	22.2	8.8	22.9	1.3
LOS	C	C	C	C	A	A	C	A	C	A
Approach Delay (s/veh)		30.5		21.1			20.1		17.9	
Approach LOS		C		C			C		B	

Intersection Summary	
Cycle Length: 102	
Actuated Cycle Length: 67.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay (s/veh): 21.2	Intersection LOS: C
Intersection Capacity Utilization 71.6%	ICU Level of Service C
Analysis Period (min) 15	

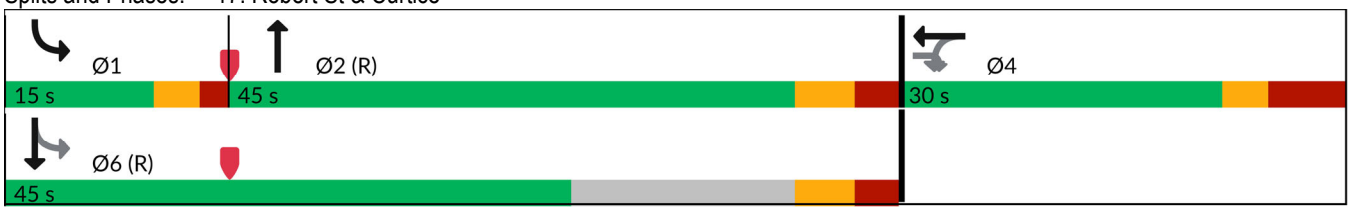
Splits and Phases: 12: Robert St & Cesar Chavez



Lane Group	EBR	WBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	5	1	696	12	771
Future Volume (vph)	5	1	696	12	771
Turn Type	Perm	NA	NA	pm+pt	NA
Protected Phases		4	2	1	6
Permitted Phases	4			6	
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	9.0	9.0	10.0	7.0	10.0
Minimum Split (s)	29.3	29.3	26.9	11.9	26.9
Total Split (s)	30.0	30.0	45.0	15.0	45.0
Total Split (%)	33.3%	33.3%	50.0%	16.7%	50.0%
Yellow Time (s)	3.1	3.1	4.0	3.0	4.0
All-Red Time (s)	5.2	5.2	2.9	1.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.3	8.3	6.9	4.9	6.9
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Min	None	C-Min
Act Effct Green (s)	9.0	9.0	73.1	74.7	75.5
Actuated g/C Ratio	0.10	0.10	0.81	0.83	0.84
v/c Ratio	0.02	0.14	0.51	0.02	0.54
Control Delay (s/veh)	0.0	28.9	7.7	2.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	28.9	7.7	2.8	5.9
LOS	A	C	A	A	A
Approach Delay (s/veh)		28.9	7.7		5.9
Approach LOS		C	A		A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 40 (44%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay (s/veh): 7.1	Intersection LOS: A
Intersection Capacity Utilization 75.3%	ICU Level of Service D
Analysis Period (min) 15	

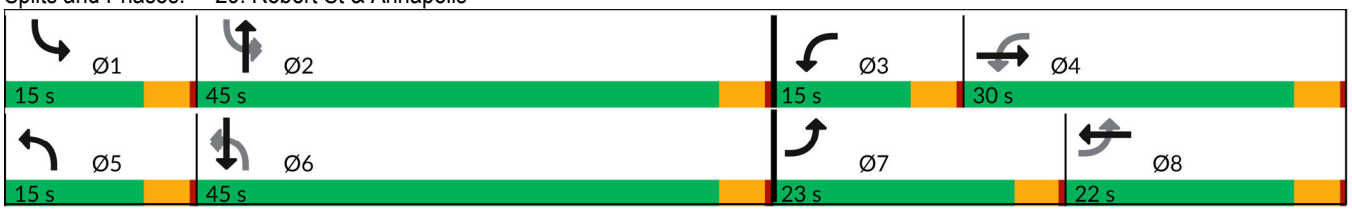
Splits and Phases: 17: Robert St & Curtice



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	74	92	17	64	79	610	31	43	642	97
Future Volume (vph)	74	92	17	64	79	610	31	43	642	97
Turn Type	D.P+P	NA	D.P+P	NA	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	8		4		6		2	2		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	23.0	30.0	15.0	22.0	15.0	45.0	45.0	15.0	45.0	45.0
Total Split (%)	21.9%	28.6%	14.3%	21.0%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		16.8		16.8	47.7	44.7	44.7	48.5	42.1	42.1
Actuated g/C Ratio		0.22		0.22	0.63	0.59	0.59	0.64	0.56	0.56
v/c Ratio		0.72		0.29	0.22	0.60	0.03	0.11	0.67	0.11
Control Delay (s/veh)		36.5		23.9	6.9	15.6	0.1	6.0	18.9	1.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		36.5		23.9	6.9	15.6	0.1	6.0	18.9	1.7
LOS		D		C	A	B	A	A	B	A
Approach Delay (s/veh)		36.5		23.9		14.0			16.1	
Approach LOS		D		C		B			B	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 75.7	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 18.4	Intersection LOS: B
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 29: Robert St & Annapolis



Total Network Performance By Run

Run Number	1	2	3	4	5	Avg
HC Emissions (g)	1071	1012	1036	1003	1009	1026
CO Emissions (g)	34629	33168	33868	33642	33916	33845
NOx Emissions (g)	3690	3451	3563	3497	3481	3537

3: Robert St & Fillmore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.0	0.4	0.0	0.8	0.4
Total Del/Veh (s)	22.6	22.0	9.4	5.9	11.4

6: Robert St & Plato Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.7	0.0	0.0	0.3
Total Del/Veh (s)	9.8	19.3	22.2	13.3	18.5

9: Robert St & Isabel Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	16.8	13.9	2.5	1.2	2.6

12: Robert St & Cesar Chavez Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	2.3	0.3	0.0	0.0	0.5
Total Del/Veh (s)	25.4	10.5	17.6	10.9	16.0

16: Robert St & Baker Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.0	0.6	3.3	1.5

17: Robert St & Curtice Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.7	23.9	2.2	1.9	2.9

19: Robert St & State Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	23.8	0.0	0.1	16.8
Total Del/Veh (s)	0.4	0.5	21.7	1.2

22: Robert St & Page Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.6	10.5	0.6	0.7	0.9

25: Robert St & Sidney Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	12.8	3.4
Total Del/Veh (s)	13.8	24.2	1.6	0.3	2.3

29: Robert St & Annapolis Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.6	0.1	0.3
Total Del/Veh (s)	22.5	16.3	5.2	5.6	9.0

Total Network Performance

Denied Del/Veh (s)	6.0
Total Del/Veh (s)	30.8

Total Network Performance By Run

Run Number	1	3	4	5	Avg
HC Emissions (g)	1657	1549	1404	1728	1585
CO Emissions (g)	55437	51395	48993	52529	52088
NOx Emissions (g)	1950	5419	5036	2638	3761

3: Robert St & Fillmore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.2	0.6	0.3	0.3	0.4
Total Del/Veh (s)	24.6	29.3	12.3	12.5	15.2

6: Robert St & Plato Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	5.5	0.0	0.0	1.2
Total Del/Veh (s)	19.0	58.1	36.2	18.7	30.2

9: Robert St & Isabel Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.0	0.0
Total Del/Veh (s)	27.6	14.1	2.8	2.4	3.2

12: Robert St & Cesar Chavez Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.2	0.6	0.0	0.0	0.3
Total Del/Veh (s)	23.7	18.4	16.7	17.3	18.4

16: Robert St & Baker Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	11.5	0.7	4.2	2.8

17: Robert St & Curtice Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.2	27.2	6.9	2.8	5.2

19: Robert St & State Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	0.5	1.4	67.1	3.4

22: Robert St & Page Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.0
Total Del/Veh (s)	7.2	9.3	0.6	3.0	2.2

25: Robert St & Sidney Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.1	0.0	0.0	0.0
Total Del/Veh (s)	35.6	42.9	3.6	0.4	4.8

29: Robert St & Annapolis Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.9	0.0	0.4
Total Del/Veh (s)	25.2	21.6	9.0	14.7	14.3

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	40.6

Arterial Level of Service: NB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Annapolis	29	8.5	19.6	0.1	20
Curtice	17	7.1	30.5	0.2	27
Sidney	25	3.4	9.5	0.1	22
State	19	0.5	1.7	0.0	53
Page	22	0.7	5.7	0.1	34
Baker	16	0.6	11.3	0.1	31
Cesar Chavez	12	16.7	50.1	0.4	26
Isabel	9	3.4	14.9	0.1	27
	32	2.4	33.5	0.3	32
Plato	6	22.9	31.0	0.1	10
Fillmore	3	11.8	27.4	0.2	31
Total		77.9	235.3	1.7	25

Arterial Level of Service: SB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fillmore	3	13.3	30.5	0.2	20
Plato	6	19.2	42.6	0.2	20
	32	3.0	12.1	0.1	25
Isabel	9	2.3	26.7	0.3	41
Cesar Chavez	12	17.5	31.8	0.1	12
Baker	16	4.5	39.7	0.4	33
Page	22	2.9	13.0	0.1	27
State	19	1.4	5.9	0.1	33
Sidney	25	0.3	1.4	0.0	64
Curtice	17	2.8	10.0	0.1	21
Annapolis	29	15.7	39.5	0.2	21
Total		82.9	253.4	1.7	25

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route	MN 03	**District**	Metro	**County**	Ramsey
Begin RP	046+00.680	**End RP**	048+00.250	**Miles**	1.600
Location	St Paul, MN				

B. Project Description

Proposed Work	Complete Streets Improvements: Crossings, Boulevards, Bike Lanes, and 5 to 3 conversion		
Project Cost*	$21,800,000	**Installation Year**	2025
Project Service Life	30	**Traffic Growth Factor**	0.4%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

0.31	**Fatal (K) Crashes**	**Reference**	CMFs 10737 and 199
0.31	**Serious Injury (A) Crashes**		
0.31	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.31	**Possible Injury (C) Crashes**		
0.31	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

0.70	**Fatal (K) Crashes**	**Reference**	8800: RAISED MEDIAN W/WO MARKED CROSSWALK
0.70	**Serious Injury (A) Crashes**		
0.70	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.70	**Possible Injury (C) Crashes**		
0.70	**Property Damage Only Crashes**		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2020	**End Date**	12/31/2022	3 years
Data Source	MnCMAT2 2020-2022 filtered intersection and segment.			

Crash Severity	**All**	**All**
K crashes	0	0
A crashes	1	2
B crashes	5	3
C crashes	4	3
PDO crashes	24	16

F. Benefit-Cost Calculation

$27,656,089	**Benefit (present value)**
$21,800,000	**Cost**

B/C Ratio = 1.27

Proposed project expected to reduce 11 crashes annually, 1 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:	0.4%	**Revised**
Project Service Life:	30	**Revised**

G. Annual Benefit

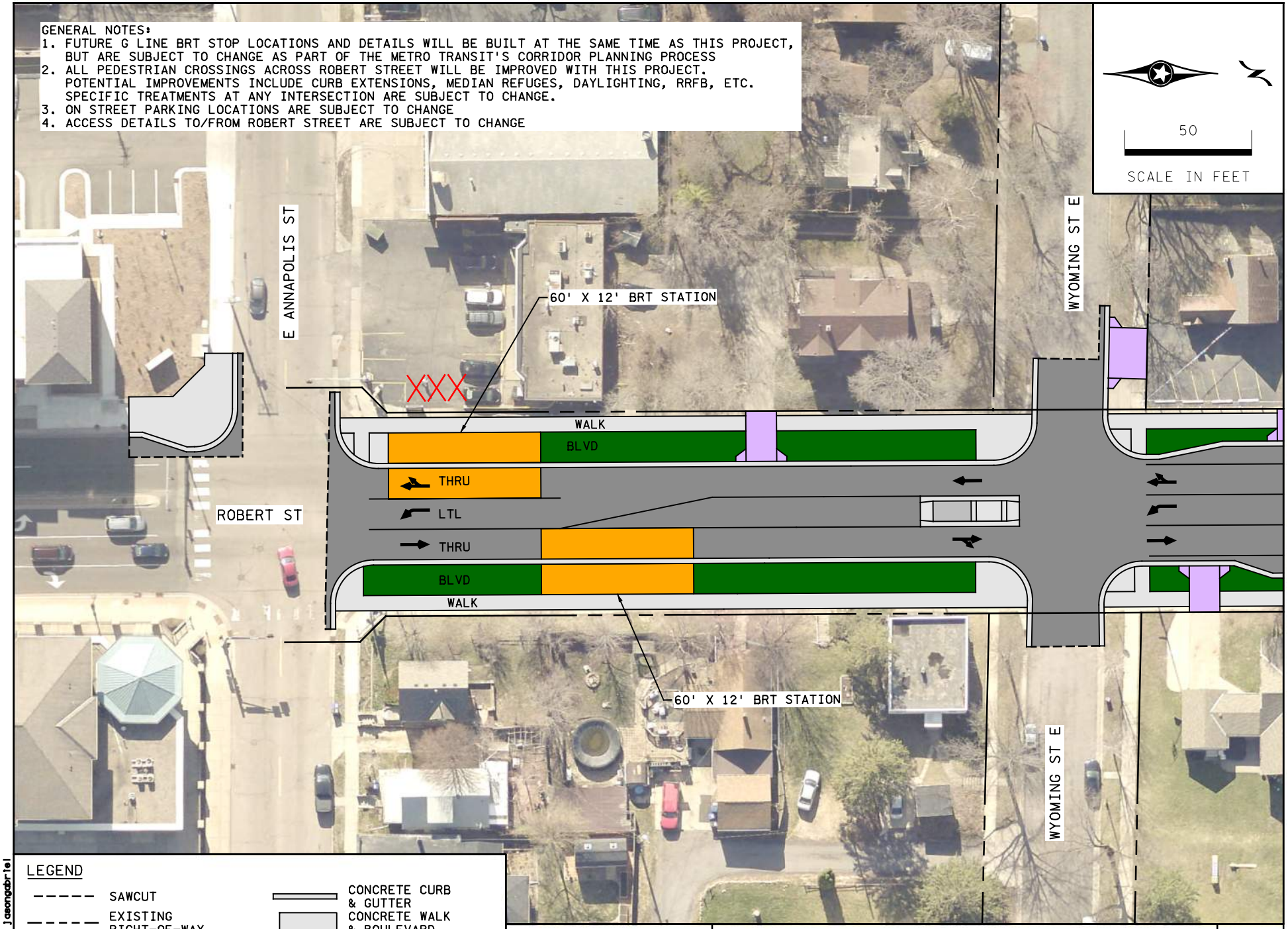
Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	1.30	0.43	$345,907
B crashes	4.36	1.45	$363,729
C crashes	3.67	1.22	$159,189
PDO crashes	21.44	7.15	$107,178
			$976,003

H. Amortized Benefit

Year	Crash Benefits	Present Value
2025	$976,003	$976,003
2026	$979,907	$972,130
2027	$983,827	$968,272
2028	$987,762	$964,430
2029	$991,713	$960,603
2030	$995,680	$956,791
2031	$999,663	$952,994
2032	$1,003,661	$949,213
2033	$1,007,676	$945,446
2034	$1,011,707	$941,694
2035	$1,015,754	$937,957
2036	$1,019,817	$934,235
2037	$1,023,896	$930,528
2038	$1,027,991	$926,835
2039	$1,032,103	$923,157
2040	$1,036,232	$919,494
2041	$1,040,377	$915,845
2042	$1,044,538	$912,211
2043	$1,048,716	$908,591
2044	$1,052,911	$904,986
2045	$1,057,123	$901,394
2046	$1,061,351	$897,817
2047	$1,065,597	$894,255
2048	$1,069,859	$890,706
2049	$1,074,139	$887,171
2050	$1,078,435	$883,651
2051	$1,082,749	$880,144
2052	$1,087,080	$876,652
2053	$1,091,428	$873,173
2054	$1,095,794	$869,708
0	$0	$0

Total = $27,656,089

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


GENERAL NOTES:
1. FUTURE G LINE BRT STOP LOCATIONS AND DETAILS WILL BE BUILT AT THE SAME TIME AS THIS PROJECT, BUT ARE SUBJECT TO CHANGE AS PART OF THE METRO TRANSIT'S CORRIDOR PLANNING PROCESS
2. ALL PEDESTRIAN CROSSINGS ACROSS ROBERT STREET WILL BE IMPROVED WITH THIS PROJECT. POTENTIAL IMPROVEMENTS INCLUDE CURB EXTENSIONS, MEDIAN REFUGES, DAYLIGHTING, RRFB, ETC. SPECIFIC TREATMENTS AT ANY INTERSECTION ARE SUBJECT TO CHANGE.
3. ON STREET PARKING LOCATIONS ARE SUBJECT TO CHANGE
4. ACCESS DETAILS TO/FROM ROBERT STREET ARE SUBJECT TO CHANGE
50
SCALE IN FEET
E ANNAPOLIS ST
WYOMING ST E
60' X 12' BRT STATION
XXX
WALK
BLVD
THRU
LTL
THRU
BLVD
WALK
ROBERT ST
60' X 12' BRT STATION
WYOMING ST E
LEGEND
SAWCUT
EXISTING RIGHT-OF-WAY
CONCRETE DRIVEWAY
BUS STATION
TOPSOIL
CONCRETE CURB & GUTTER
CONCRETE WALK & BOULEVARD
CONCRETE MEDIAN
BITUMINOUS ROADWAY
SEPARATED BIKE LANE
jasongabriel
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KLJ
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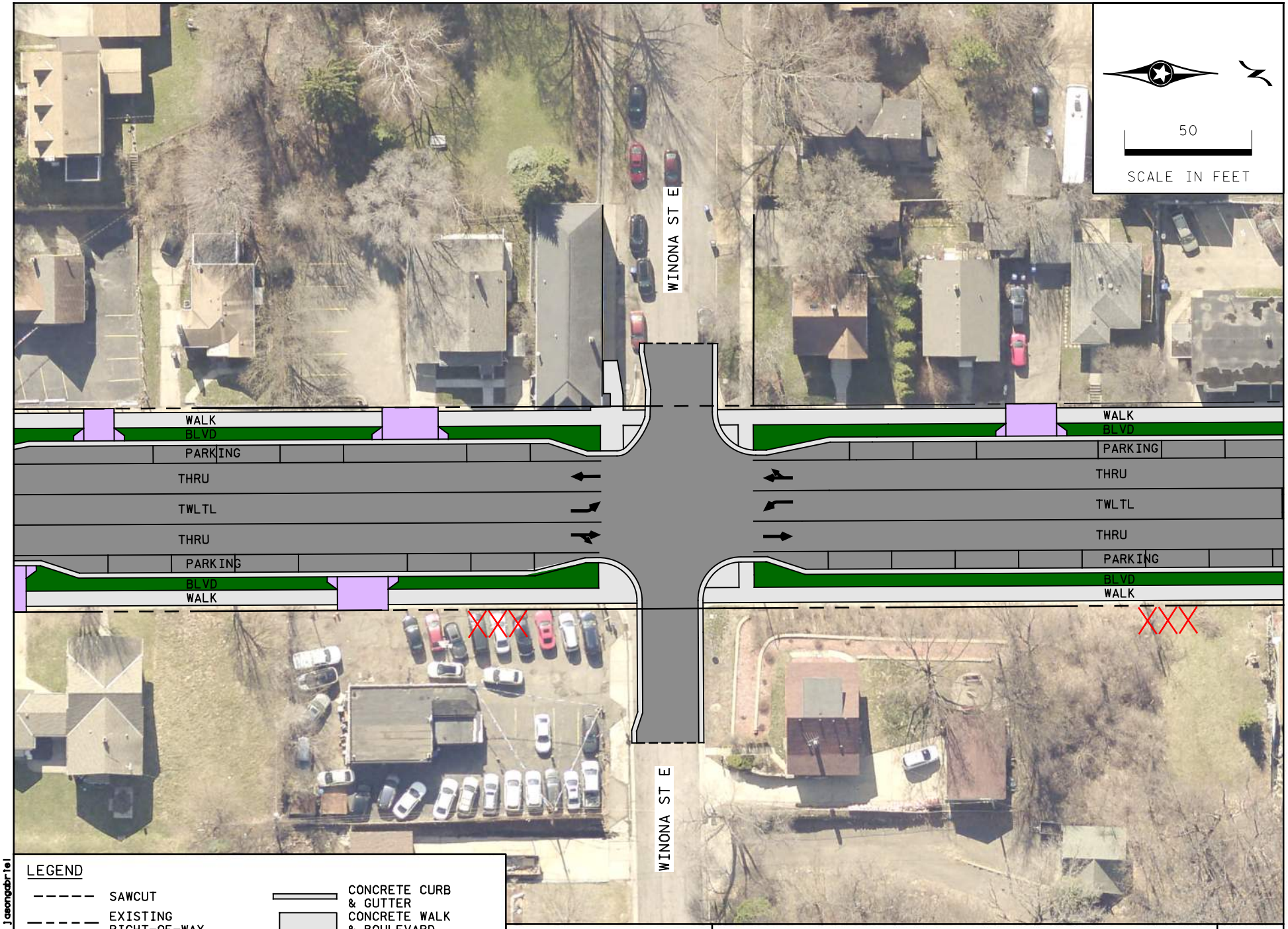
ROBERT STREET (T.H. 3)
REGIONAL SOLICITATION
ALTERNATIVE CONCEPT EXHIBIT
SHEET 1 OF 23



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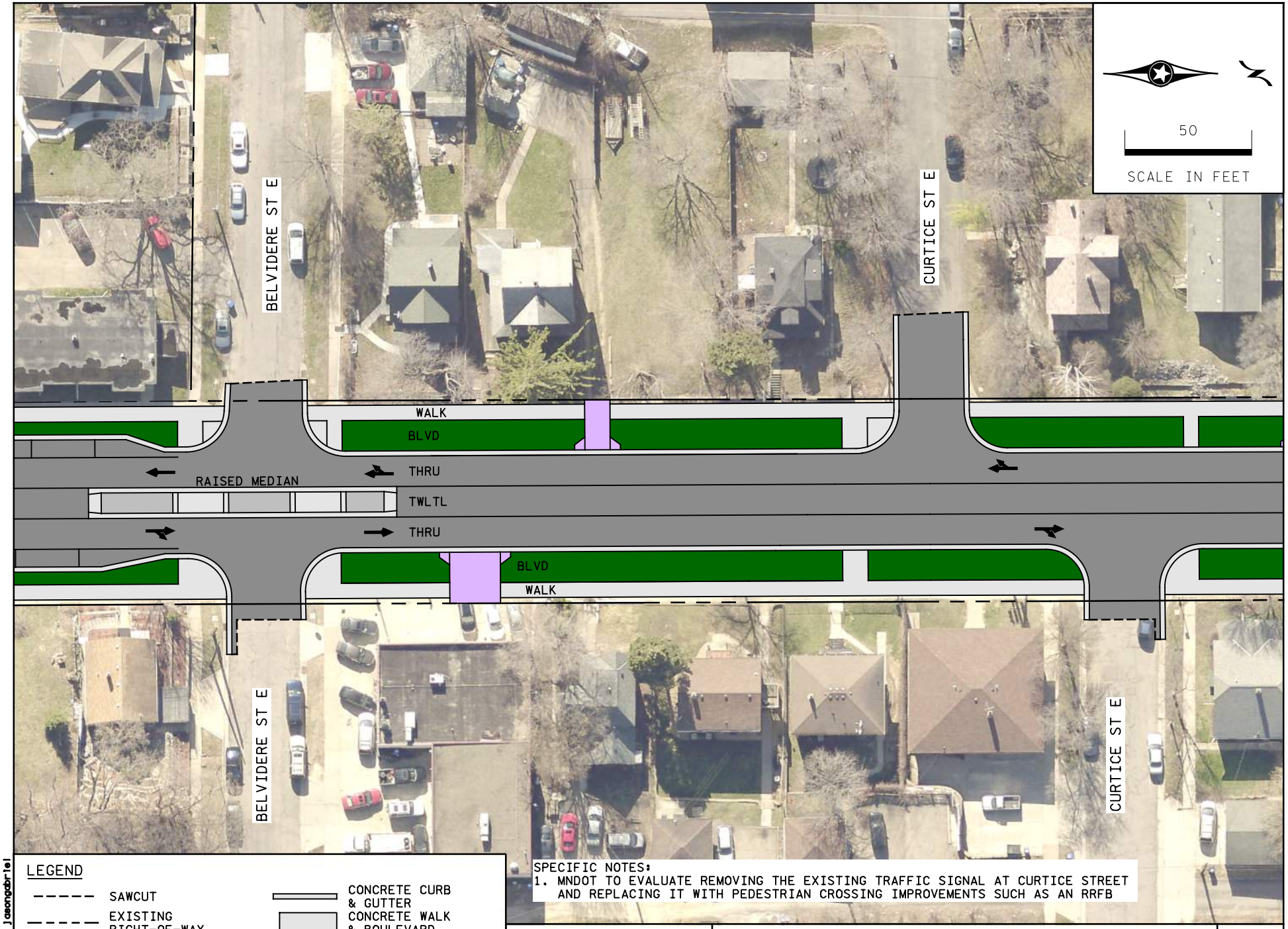
ROBERT STREET (T.H. 3)
REGIONAL SOLICITATION
ALTERNATIVE CONCEPT EXHIBIT



LEGEND

- SAWCUT
- EXISTING RIGHT-OF-WAY
- CONCRETE DRIVEWAY
- BUS STATION
- TOPSOIL
- CONCRETE CURB & GUTTER
- CONCRETE WALK & BOULEVARD
- CONCRETE MEDIAN
- BITUMINOUS ROADWAY
- SEPARATED BIKE LANE

SPECIFIC NOTES:
1. MNDOT TO EVALUATE REMOVING THE EXISTING TRAFFIC SIGNAL AT CURTICE STREET AND REPLACING IT WITH PEDESTRIAN CROSSING IMPROVEMENTS SUCH AS AN RRFB

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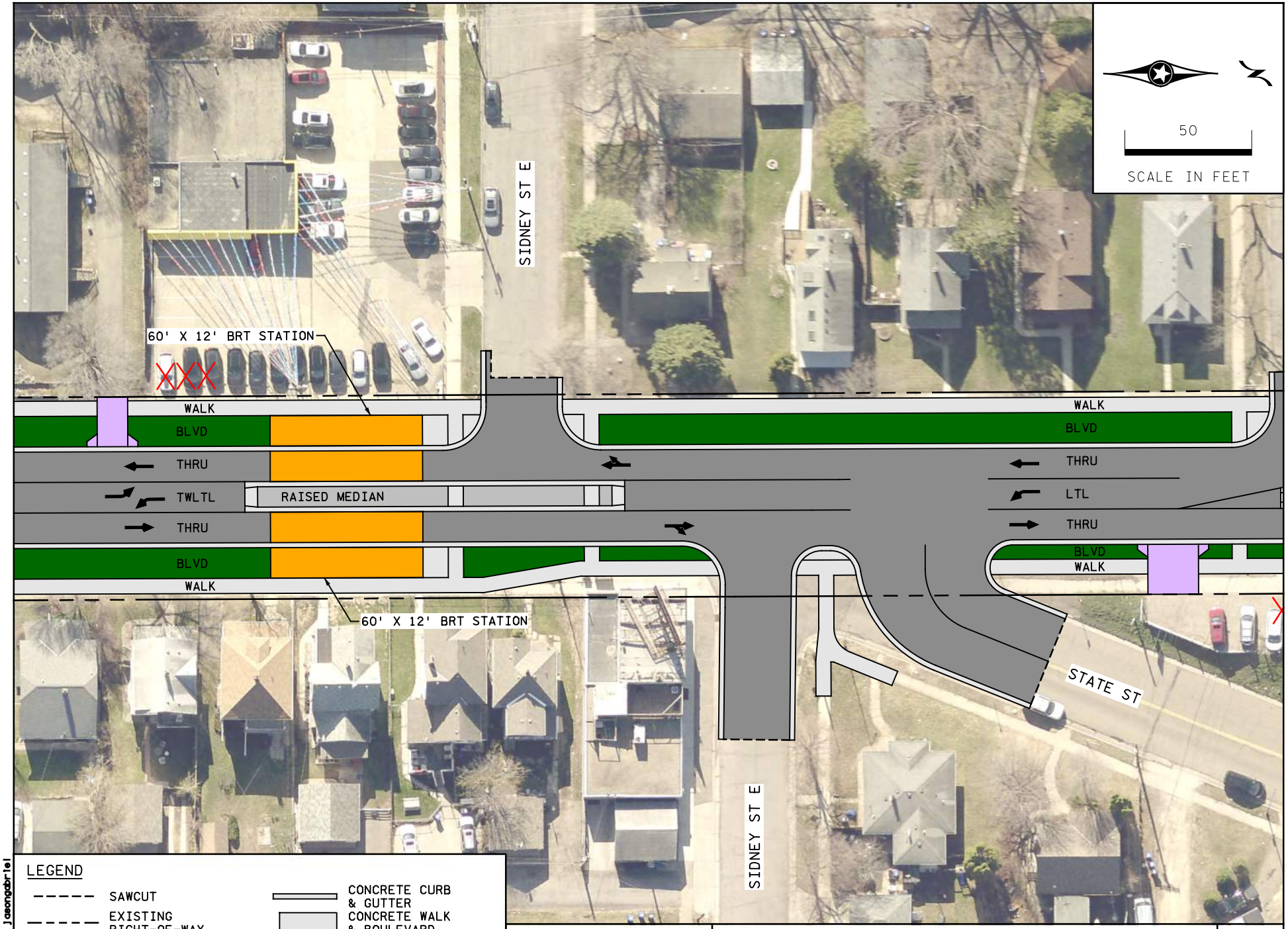
SHEET 3 OF 23



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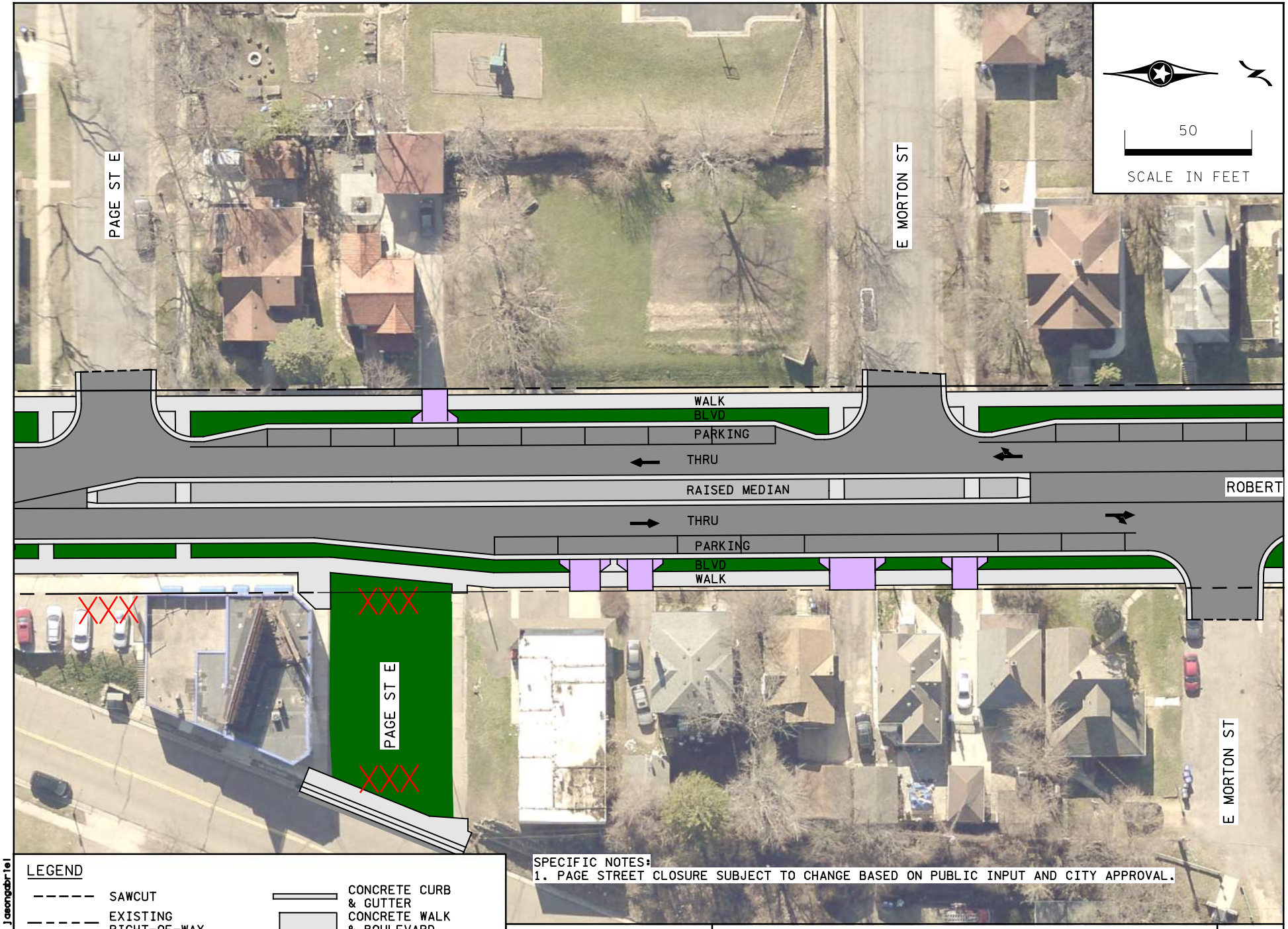
SHEET 4 OF 23



LEGEND

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- SEPARATED BIKE LANE

SPECIFIC NOTES:
1. PAGE STREET CLOSURE SUBJECT TO CHANGE BASED ON PUBLIC INPUT AND CITY APPROVAL.

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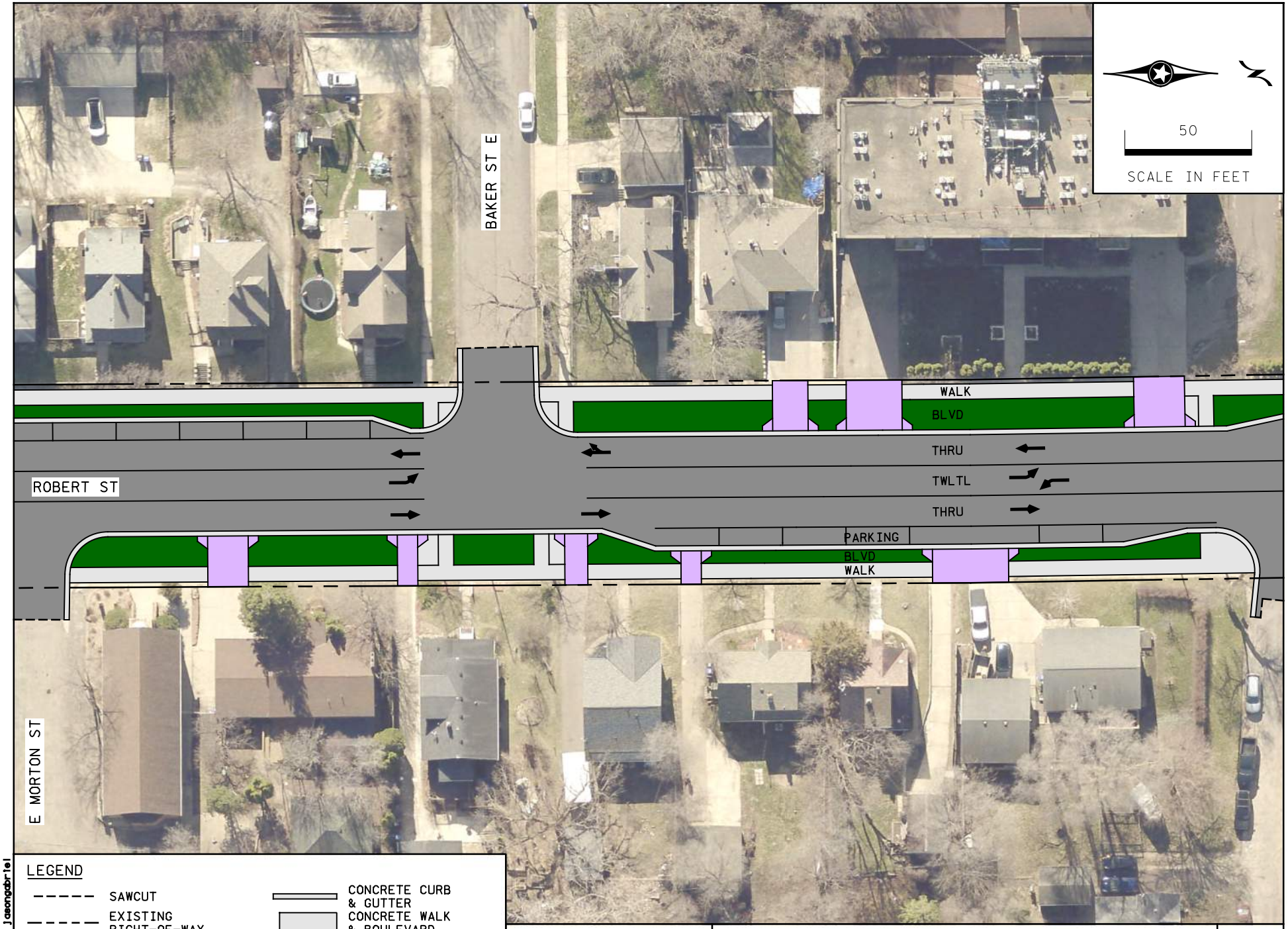
SHEET 5 OF 23



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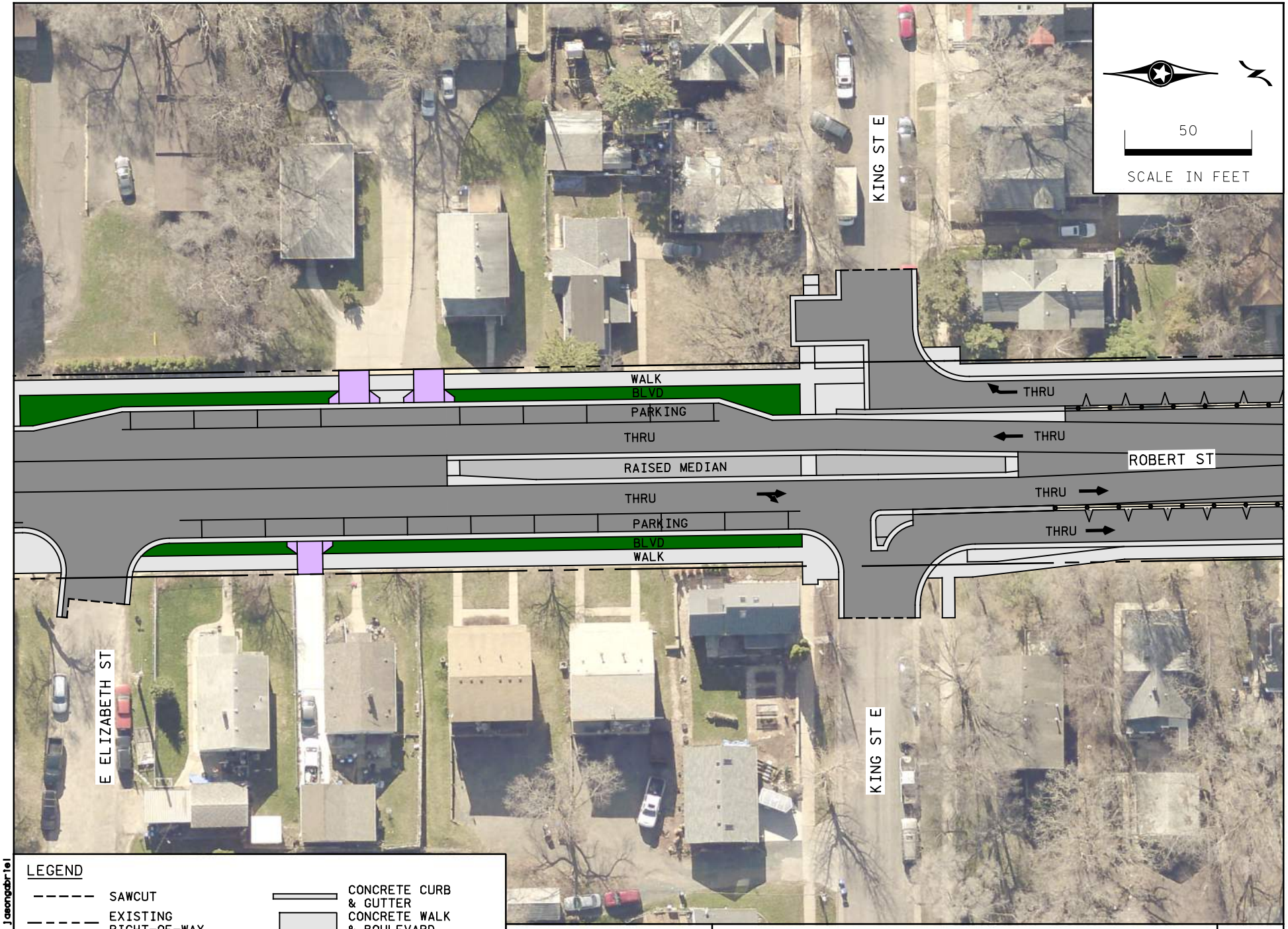
SHEET 6 OF 23



LEGEND

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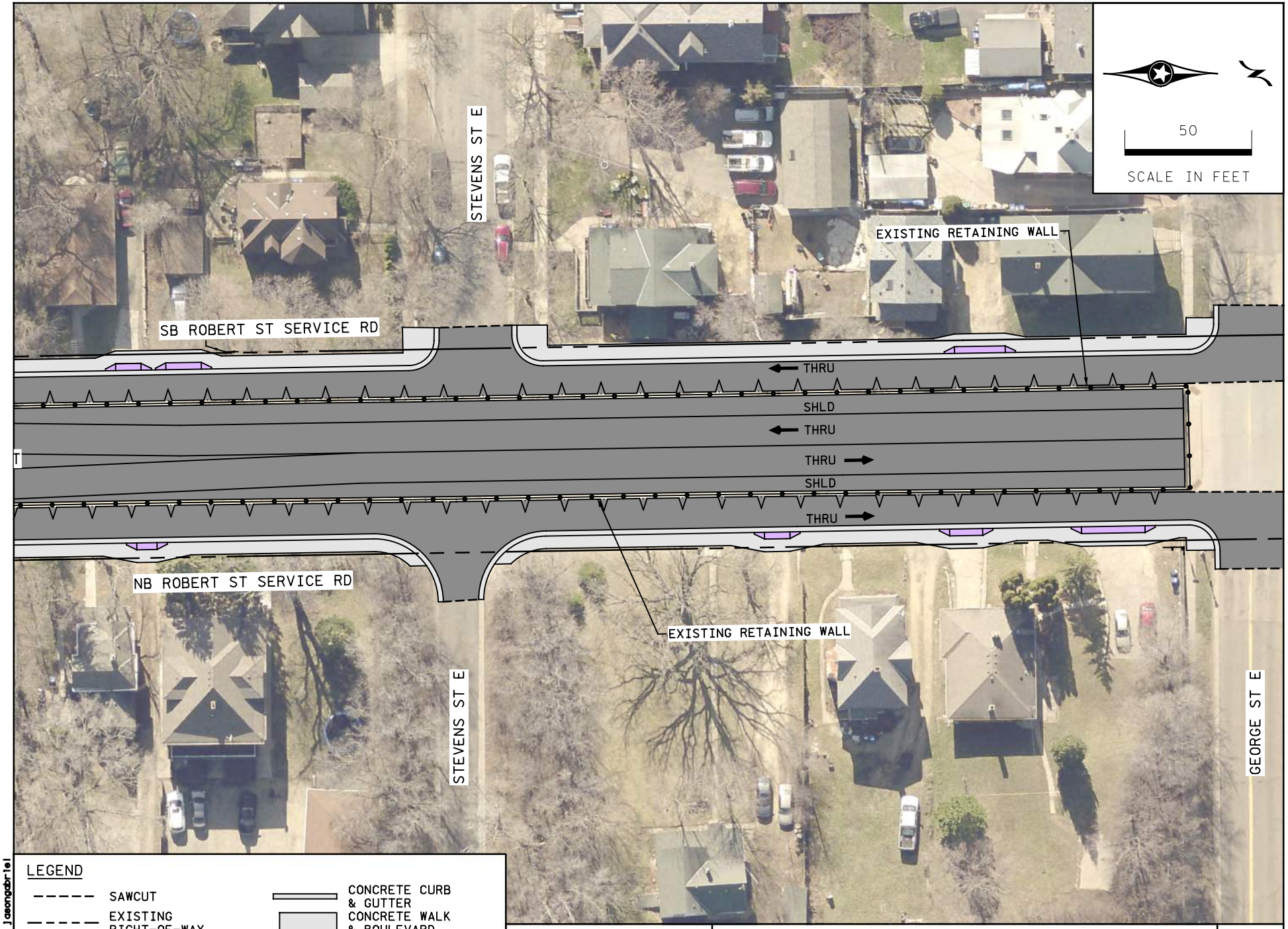

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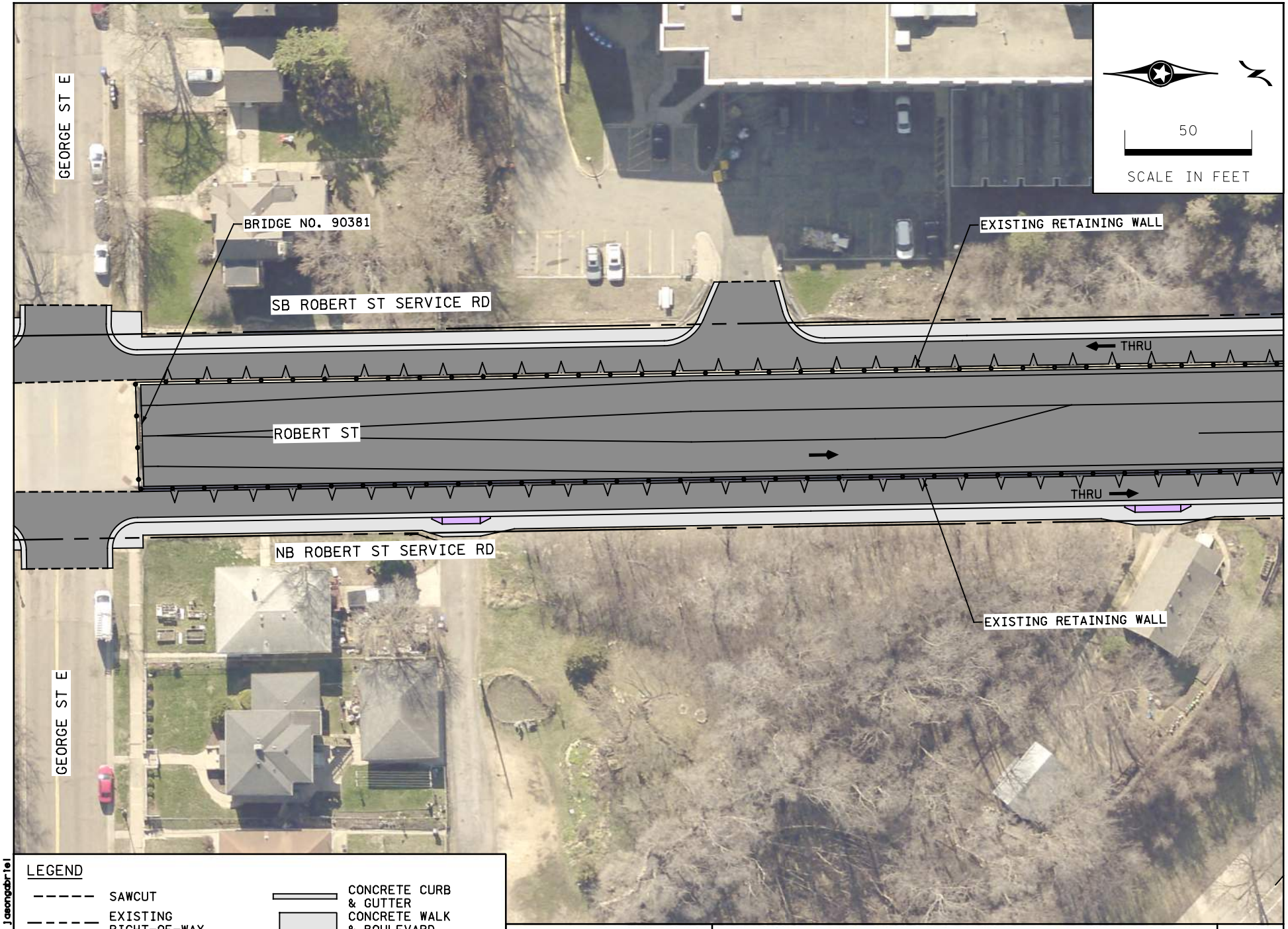
SHEET 8 OF 23



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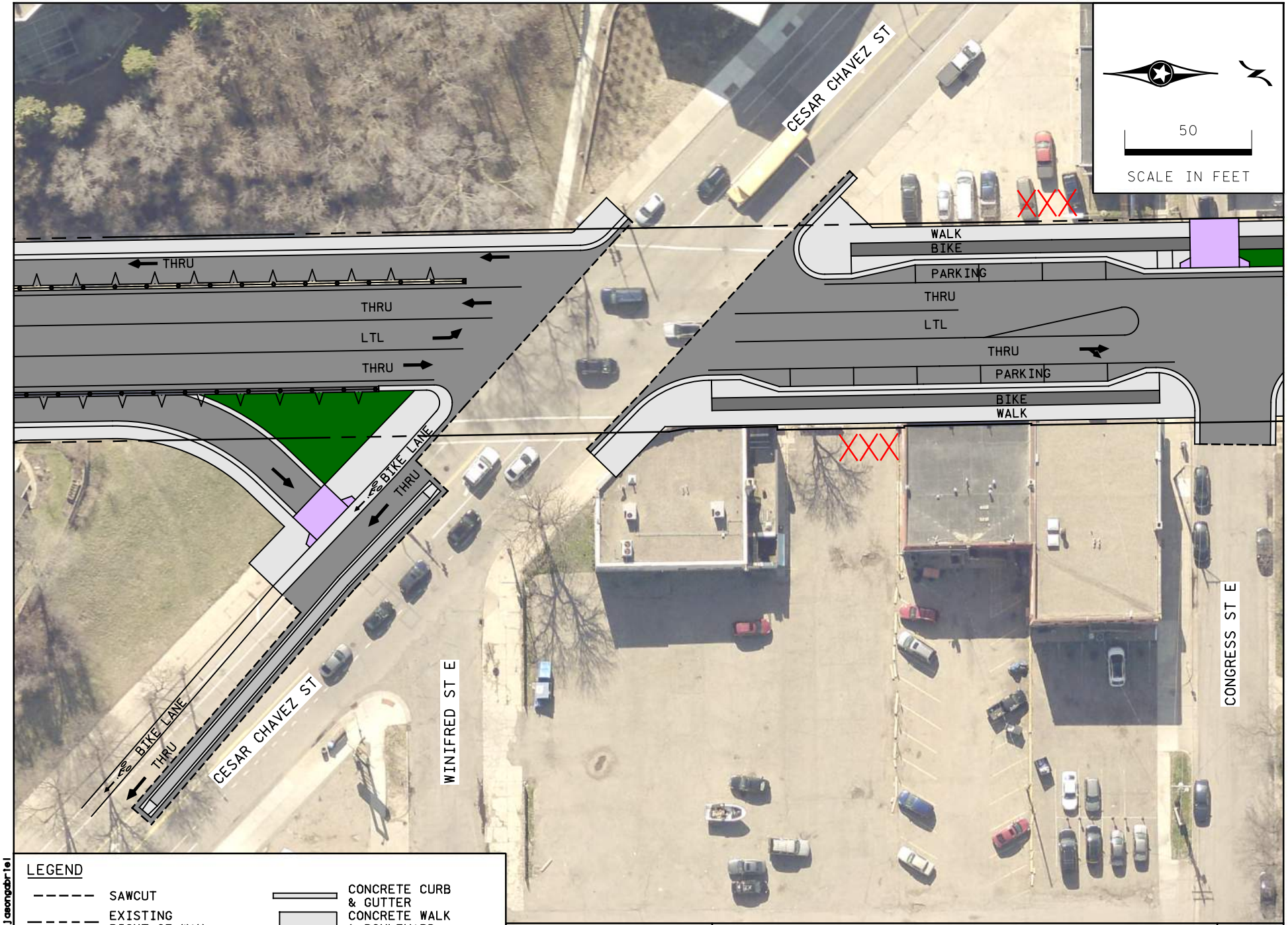

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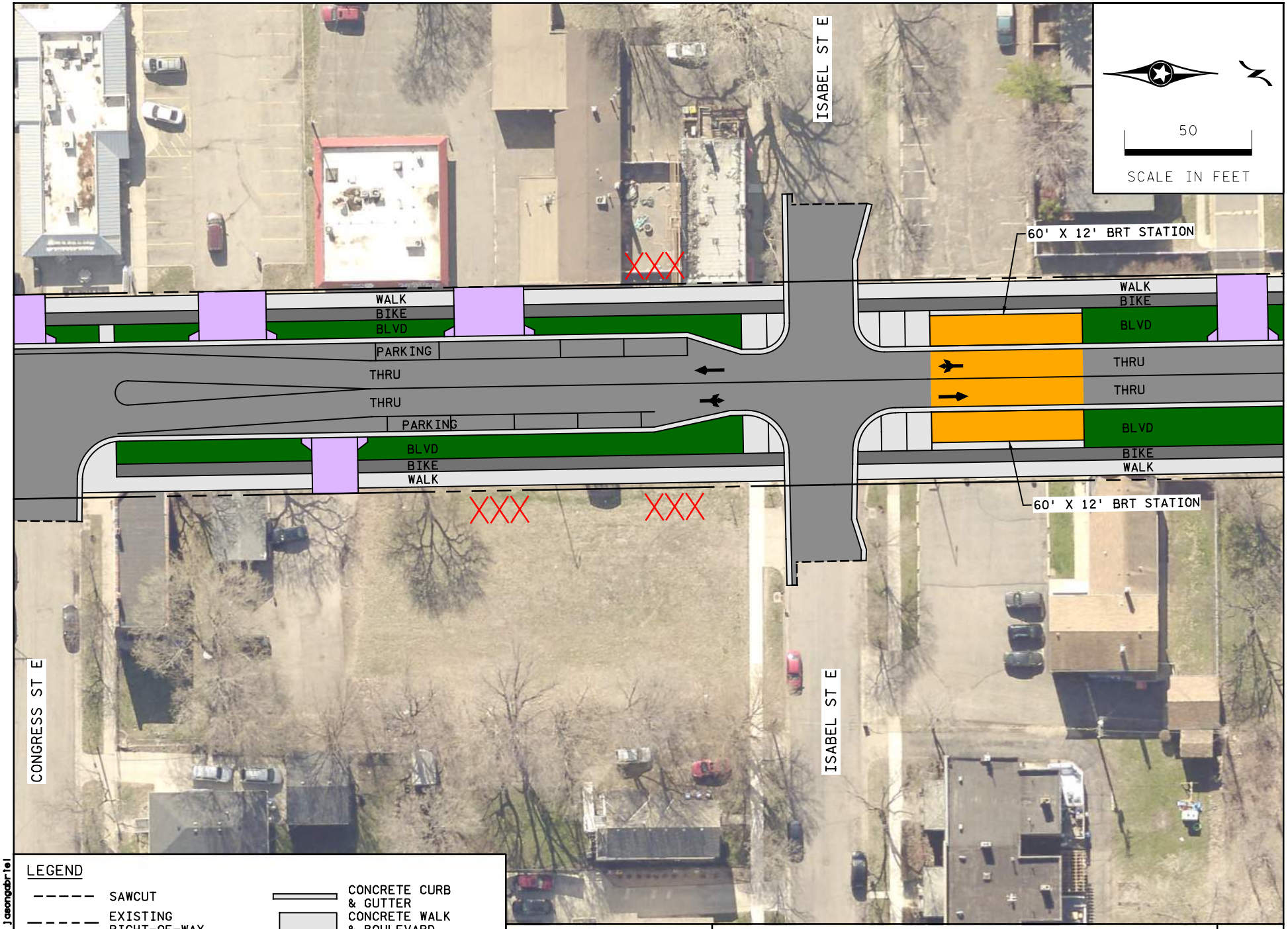

LEGEND

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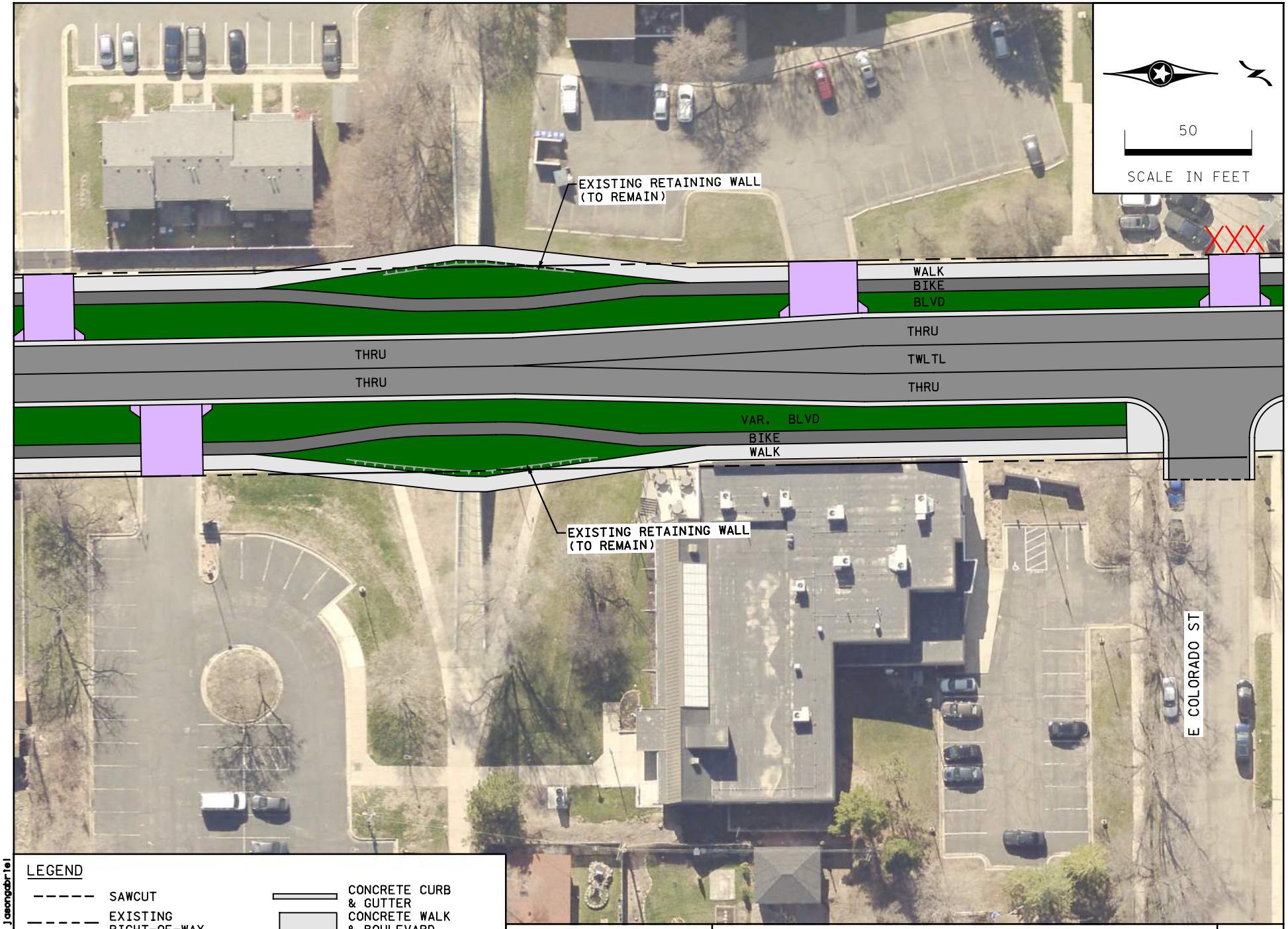
SHEET 11 OF 23



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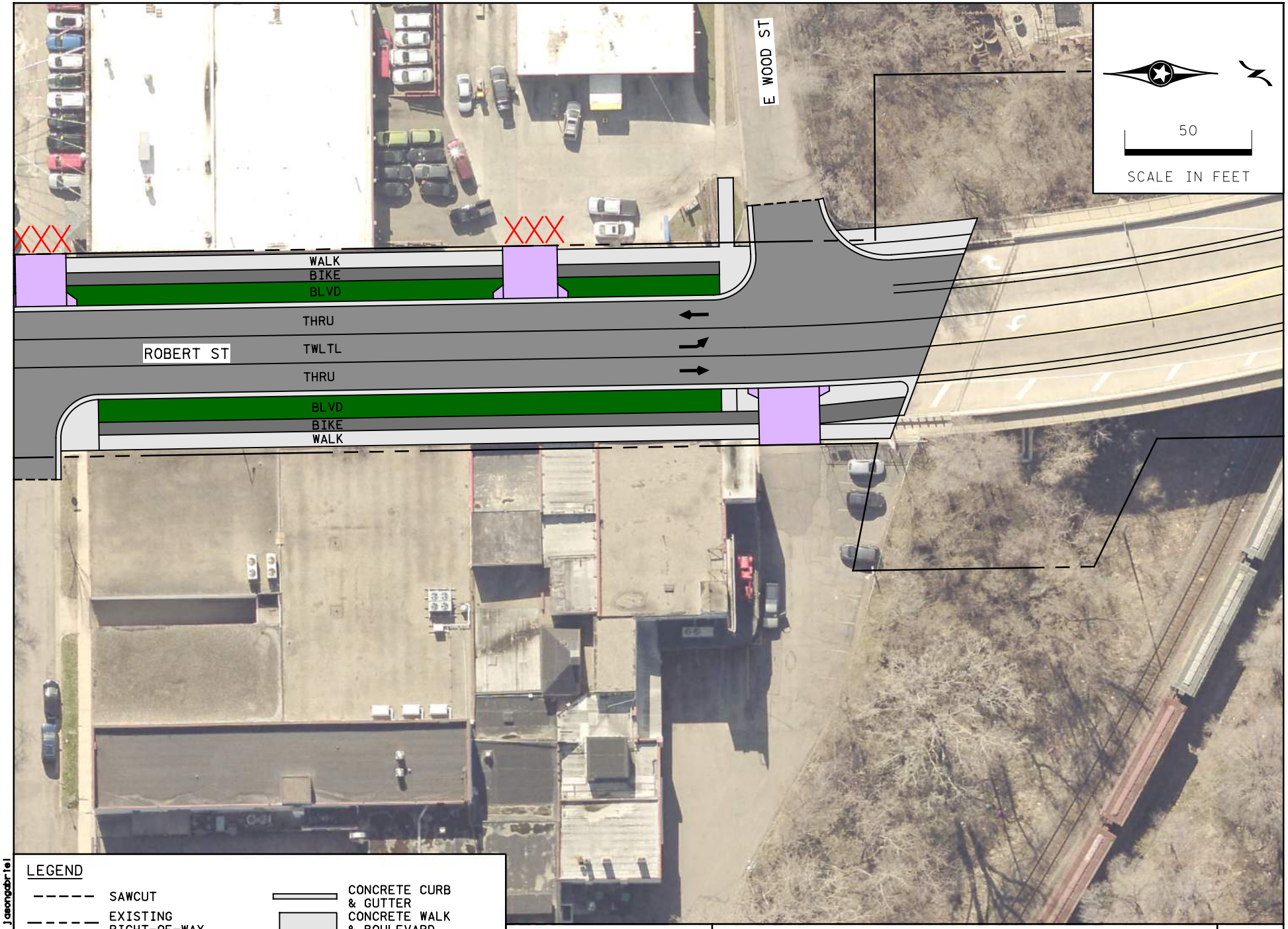

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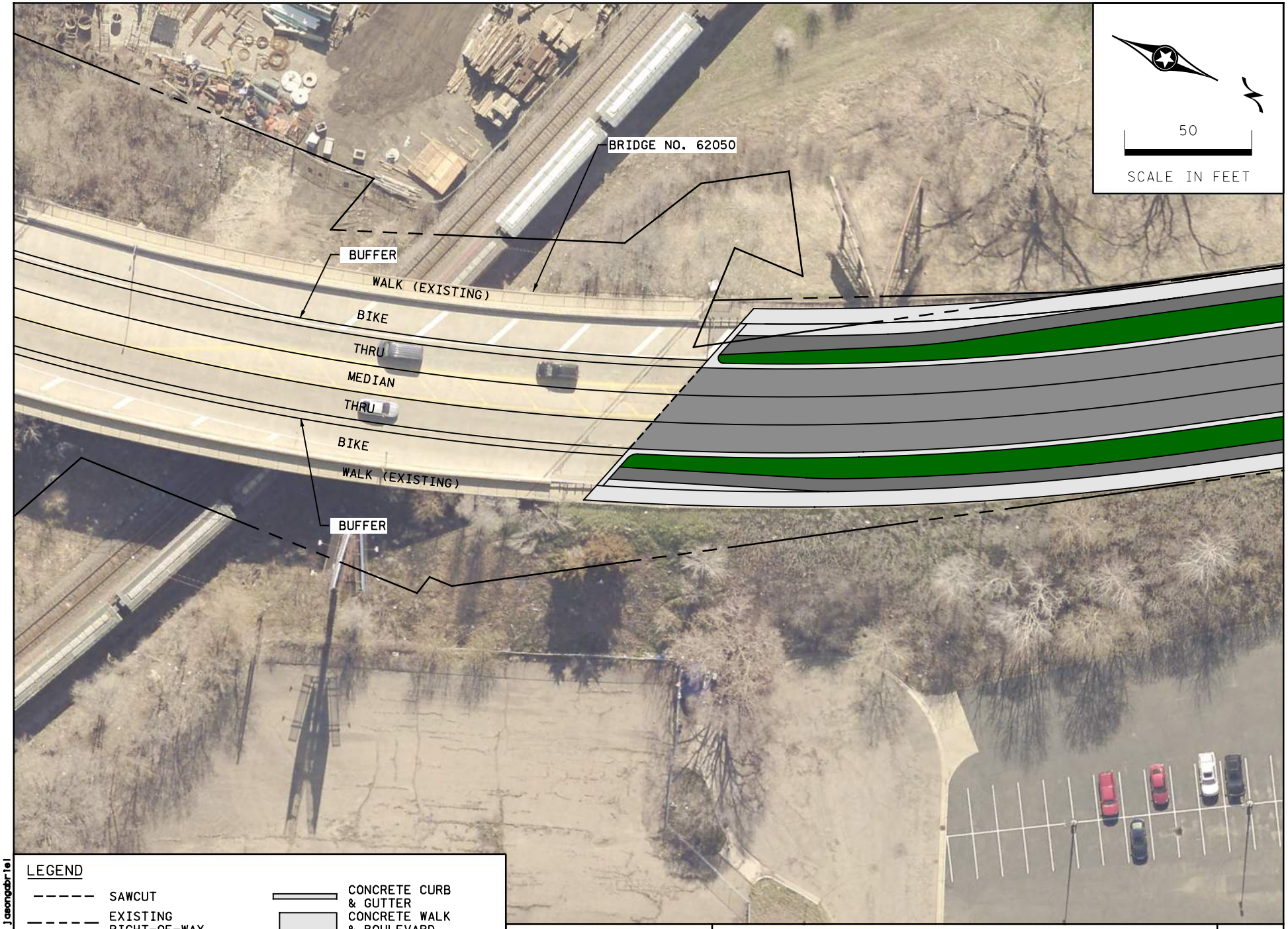

LEGEND

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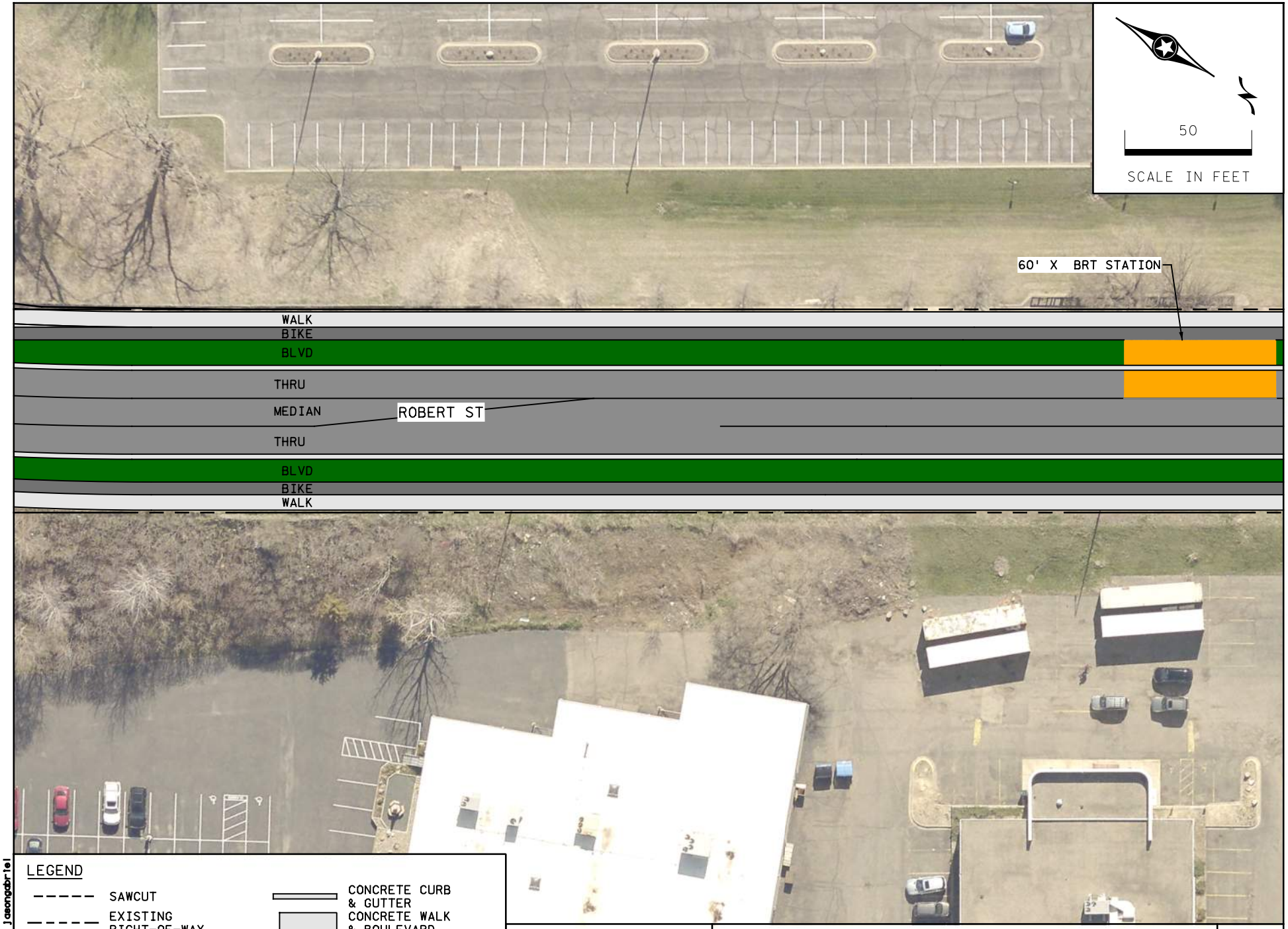
SHEET 14 OF 23



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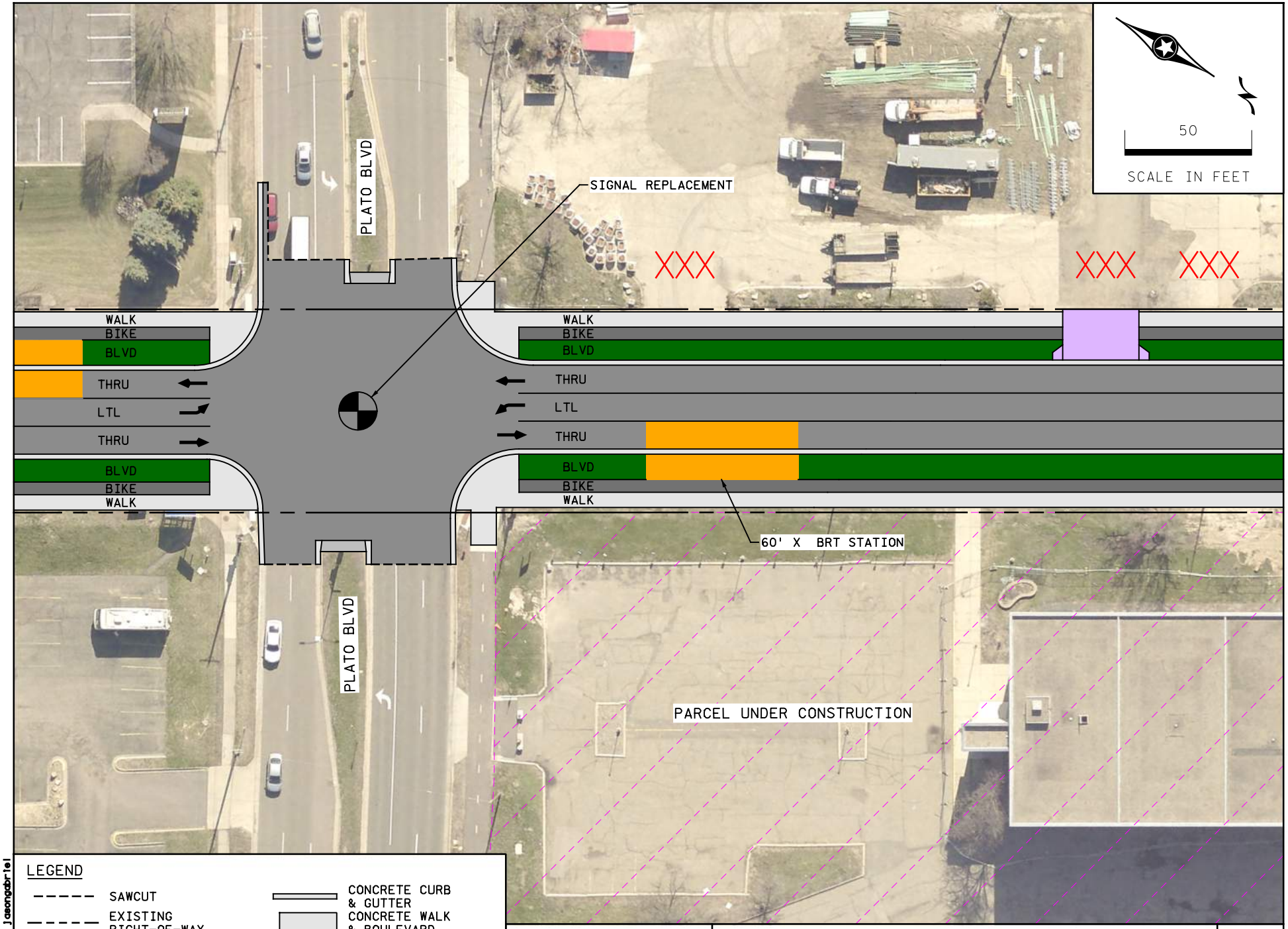

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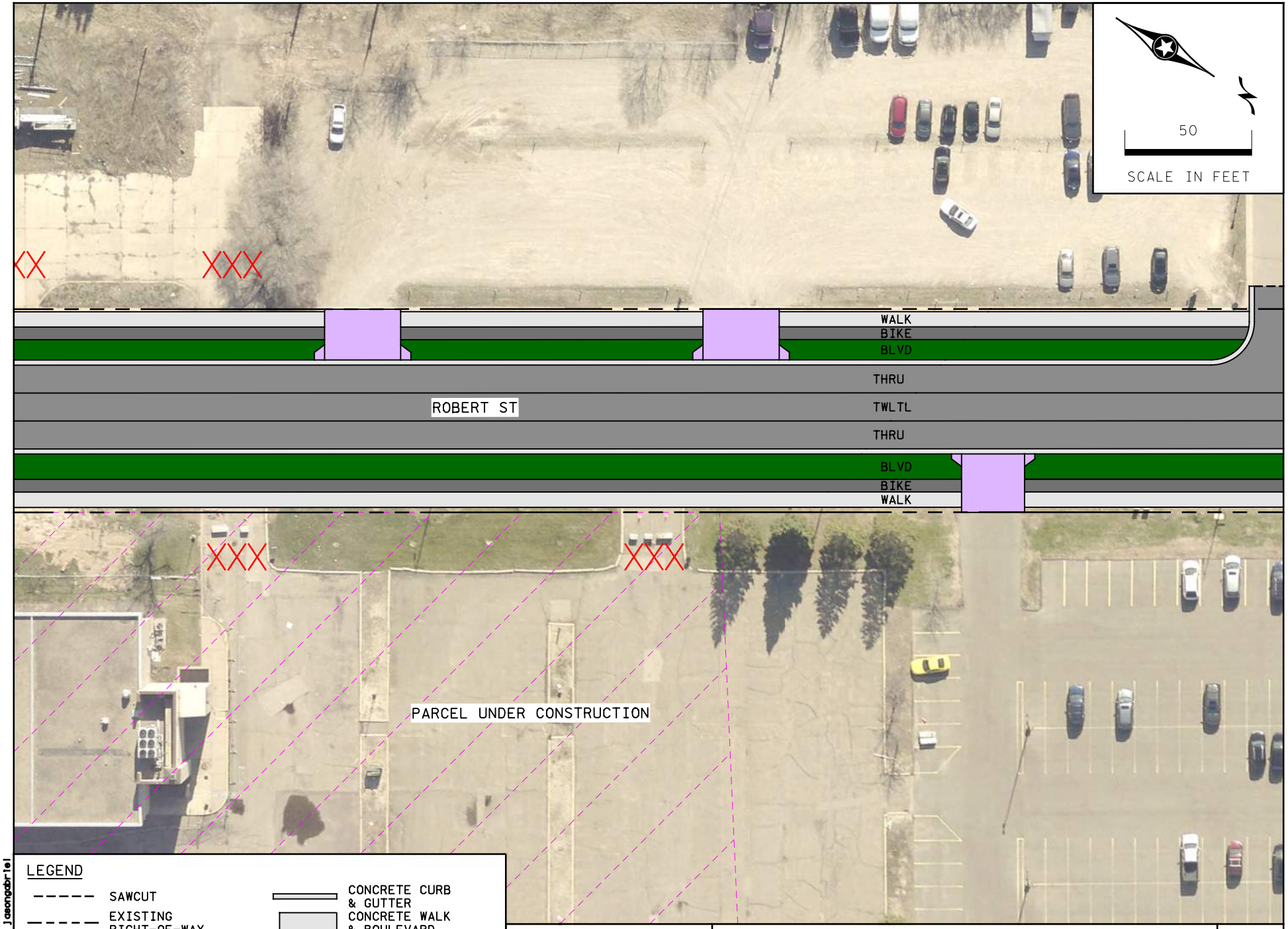
SHEET 16 OF 23



LEGEND

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ROBERT STREET (T.H. 3)
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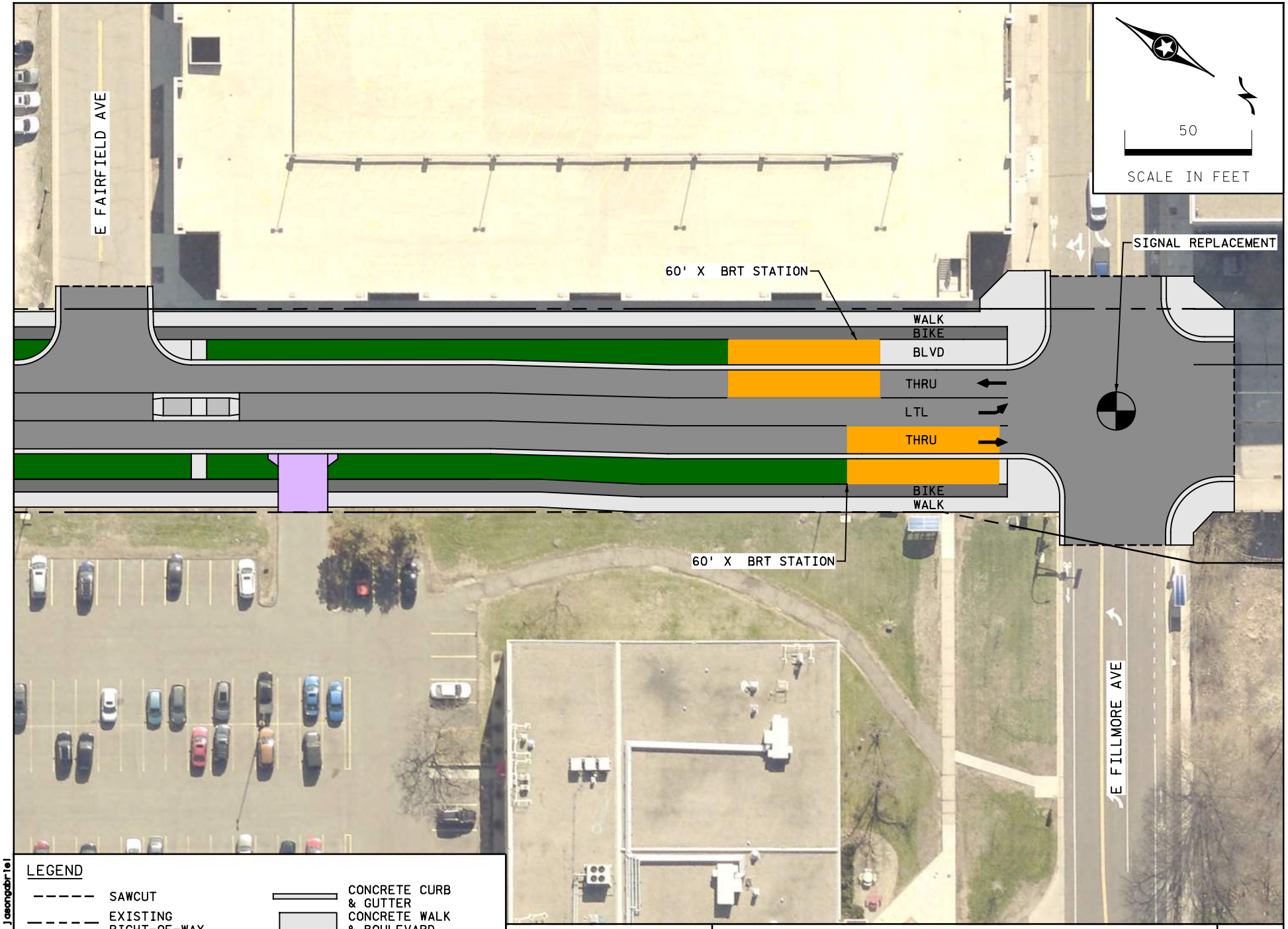
SHEET 17 OF 23



LEGEND

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ROBERT STREET (T.H. 3)
REGIONAL SOLICITATION
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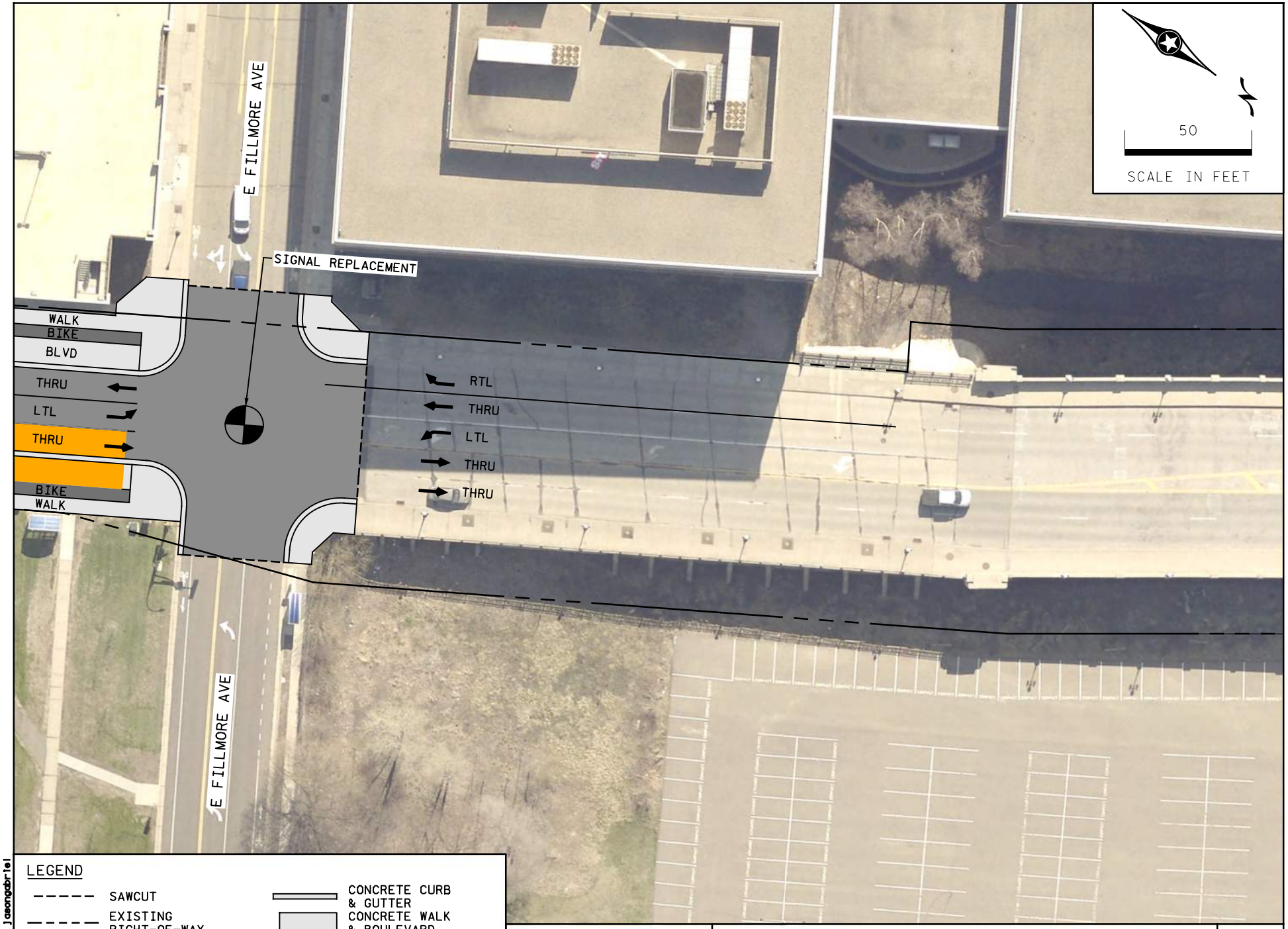
SHEET 18 OF 23



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ROBERT STREET (T.H. 3)
REGIONAL SOLICITATION
ALTERNATIVE CONCEPT EXHIBIT

SHEET 19 OF 23

LEGEND

- SAWCUT
- EXISTING RIGHT-OF-WAY
- CONCRETE DRIVEWAY
- BUS STATION
- TOPSOIL
- CONCRETE CURB & GUTTER
- CONCRETE WALK & BOULEVARD
- CONCRETE MEDIAN
- BITUMINOUS ROADWAY
- SEPARATED BIKE LANE

SPECIFIC NOTES:
1. NO WORK CURRENTLY PLANNED ON ROBERT STREET BRIDGE. MNDOT MAY RE-STRIPE THE BRIDGE TO ADD PAINTED BIKE LANES IF THE STATE HISTORIC PRESERVATION OFFICE APPROVES.

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ROBERT STREET (T.H. 3)
REGIONAL SOLICITATION
ALTERNATIVE CONCEPT EXHIBIT

SHEET 20 OF 23

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SCALE IN FEET

LEGEND

- SAWCUT
- EXISTING RIGHT-OF-WAY
- CONCRETE DRIVEWAY
- BUS STATION
- TOPSOIL
- CONCRETE CURB & GUTTER
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SPECIFIC NOTES:
1. NO WORK CURRENTLY PLANNED ON ROBERT STREET BRIDGE. MNDOT MAY RE-STRIPE THE BRIDGE TO ADD PAINTED BIKE LANES IF THE STATE HISTORIC PRESERVATION OFFICE APPROVES.

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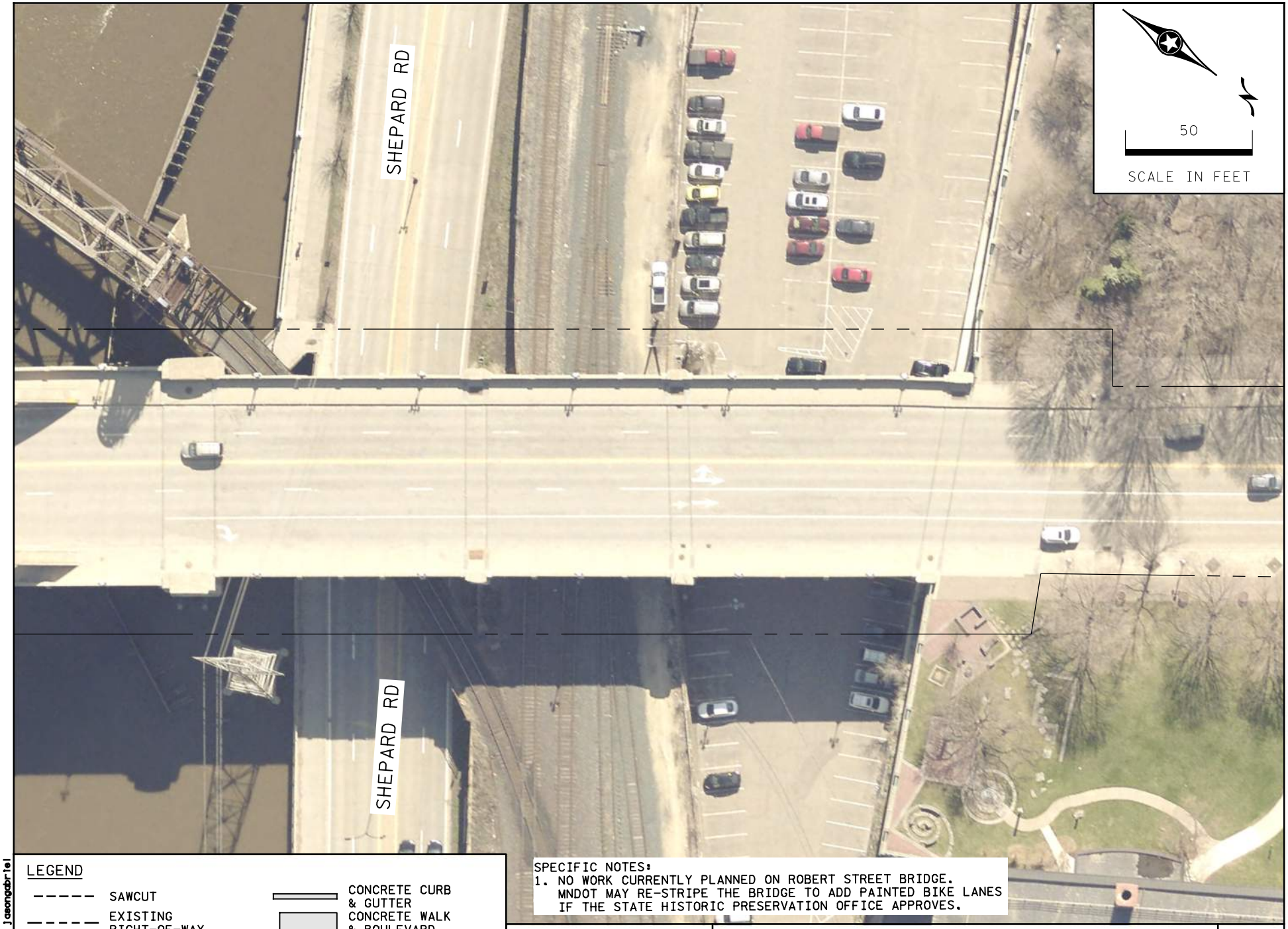
ROBERT STREET (T.H. 3)
REGIONAL SOLICITATION
ALTERNATIVE CONCEPT EXHIBIT

SHEET 21 OF 23



LEGEND

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SPECIFIC NOTES:
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ROBERT STREET (T.H. 3)
REGIONAL SOLICITATION
ALTERNATIVE CONCEPT EXHIBIT

SHEET 22 OF 23

LEGEND

- SAWCUT
- EXISTING RIGHT-OF-WAY
- CONCRETE DRIVEWAY
- BUS STATION
- TOPSOIL
- CONCRETE CURB & GUTTER
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- CONCRETE MEDIAN
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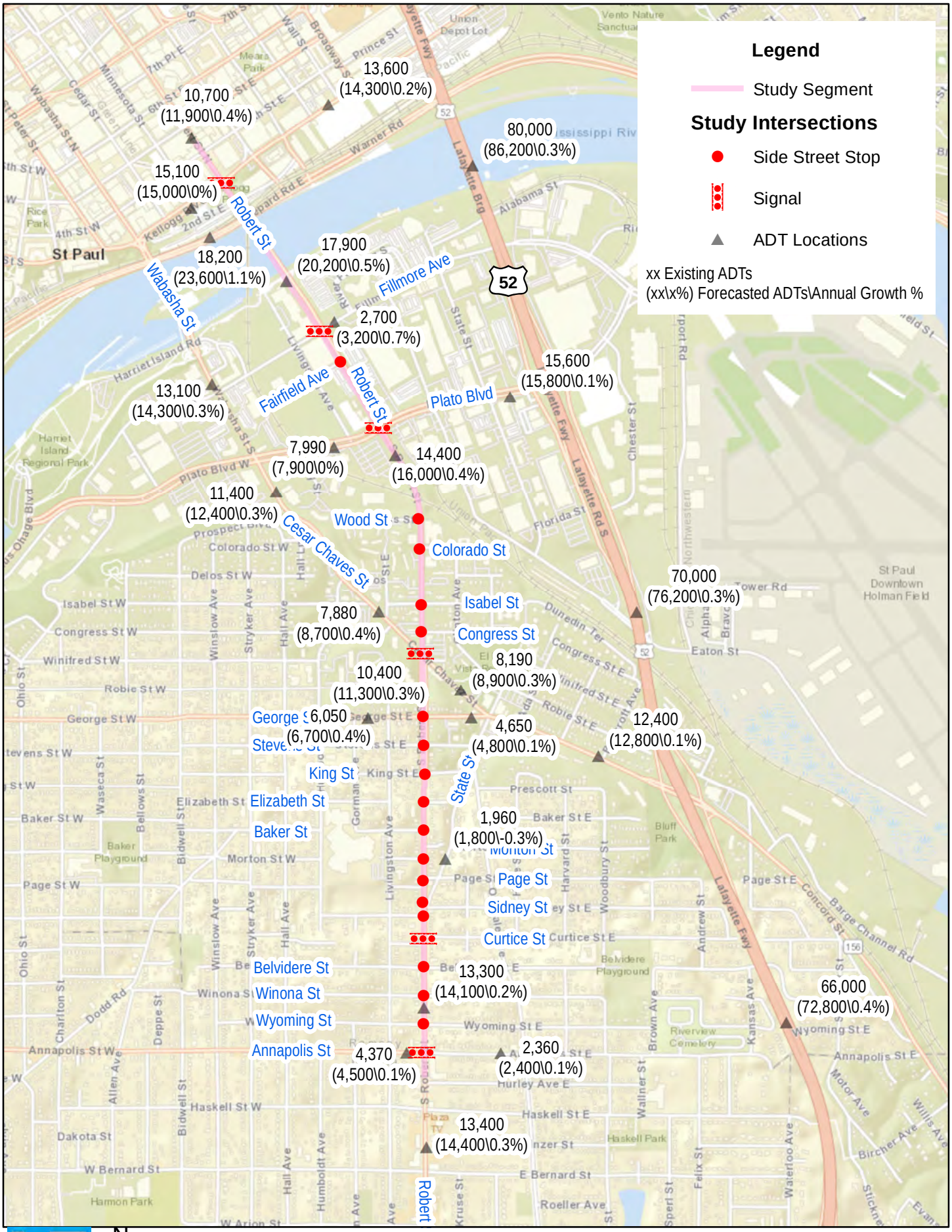
MnDOT

ROBERT STREET (T.H. 3)
REGIONAL SOLICITATION
ALTERNATIVE CONCEPT EXHIBIT

SHEET 23 OF 23



Author: HXiao

Date: 12/6/2023

Existing ADTs and 2046 No-Build Daily Traffic Forecasts

Robert Street Resurfacing Project
MnDOT Metro, Minnesota

Figure 4.1


TH 3 (Robert Street)
Affordable Housing
Legend
Affordable Housing Location
TH 3 (Robert Street) Project
Verdant
West Side Flats
Farwell Yards
Soul Apartments
Villa Del Sol
Stryker Senior Housing

Total Network Performance By Run

Run Number	1	2	3	4	5	Avg
HC Emissions (g)	827	1020	948	908	887	918
CO Emissions (g)	28828	31045	30608	29216	29199	29779
NOx Emissions (g)	2955	3384	3241	3021	3063	3133

Total Network Performance By Run

Run Number	1	3	5	Avg
HC Emissions (g)	1265	1353	1198	1272
CO Emissions (g)	43517	45507	42445	43823
NOx Emissions (g)	4483	4737	4330	4517

Arterial Level of Service: NB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Annapolis	29	7.1	18.1	0.1	22
Curtice	17	4.8	28.2	0.2	29
Sidney	25	1.8	8.0	0.1	27
State	19	0.5	3.6	0.0	43
Page	22	0.7	5.8	0.1	33
Baker	16	0.5	11.1	0.1	31
Cesar Chavez	12	17.8	52.7	0.4	25
Isabel	9	3.2	14.7	0.1	27
	32	2.2	33.5	0.3	33
Plato	6	21.1	29.2	0.1	10
Fillmore	3	10.5	26.6	0.2	32
Total		70.2	231.5	1.7	26

Arterial Level of Service: SB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fillmore	3	11.2	28.5	0.2	22
Plato	6	17.7	41.1	0.2	21
	32	2.7	11.8	0.1	26
Isabel	9	1.8	26.2	0.3	42
Cesar Chavez	12	13.5	27.3	0.1	14
Baker	16	3.6	37.1	0.4	35
Page	22	1.4	11.5	0.1	30
State	19	1.4	5.5	0.1	35
Sidney	25	0.5	2.9	0.0	40
Curtice	17	2.7	9.1	0.1	23
Annapolis	29	10.9	34.5	0.2	24
Total		67.3	235.6	1.7	26

3: Robert St & Fillmore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.0	0.4	0.0	0.8	0.4
Total Del/Veh (s)	22.3	22.3	9.0	5.0	10.6

6: Robert St & Plato Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.7	0.0	0.0	0.3
Total Del/Veh (s)	9.3	17.0	18.9	12.2	16.2

9: Robert St & Isabel Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	12.5	9.5	2.4	1.0	2.4

12: Robert St & Cesar Chavez Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	2.2	0.3	0.0	0.0	0.4
Total Del/Veh (s)	20.3	9.0	16.3	8.4	13.7

16: Robert St & Baker Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	10.3	0.6	6.8	2.6

17: Robert St & Curtice Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	1.1	0.0	0.8
Total Del/Veh (s)	61.8	33.3	18.7	1.9	14.7

19: Robert St & State Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	5.2	0.2
Total Del/Veh (s)	1.0	3.2	61.5	3.7

22: Robert St & Page Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	8.9	19.8	0.6	14.6	5.2

25: Robert St & Sidney Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	17.2	4.8
Total Del/Veh (s)	33.5	57.4	4.0	1.2	5.6

29: Robert St & Annapolis Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.5	6.3	0.1	3.0
Total Del/Veh (s)	34.1	26.3	11.1	4.4	14.0

Total Network Performance

Denied Del/Veh (s)	2.9
Total Del/Veh (s)	34.2

Arterial Level of Service: NB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Annapolis	29	11.5	28.0	0.1	17
Curtice	17	21.0	44.4	0.2	19
Sidney	25	4.2	10.4	0.1	21
State	19	1.1	2.7	0.0	34
Page	22	0.6	5.6	0.1	34
Baker	16	0.6	11.2	0.1	31
Cesar Chavez	12	17.0	52.8	0.4	25
Isabel	9	3.4	15.1	0.1	26
	32	2.4	33.5	0.3	32
Plato	6	17.9	25.9	0.1	12
Fillmore	3	9.9	33.6	0.2	25
Total		89.5	263.2	1.7	23

Arterial Level of Service: SB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fillmore	3	5.8	23.1	0.2	27
Plato	6	13.0	36.5	0.2	23
	32	1.9	11.0	0.1	27
Isabel	9	0.8	30.8	0.3	35
Cesar Chavez	12	8.3	17.6	0.1	22
Baker	16	7.9	42.3	0.4	31
Page	22	15.2	25.4	0.1	14
State	19	3.2	7.4	0.1	26
Sidney	25	0.2	22.1	0.0	46
Curtice	17	1.9	8.4	0.1	25
Annapolis	29	4.8	27.2	0.2	30
Total		63.0	251.8	1.7	27

3: Robert St & Fillmore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.2	0.7	0.2	0.3	0.4
Total Del/Veh (s)	22.7	28.3	10.8	10.3	13.4

6: Robert St & Plato Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	1.7	0.0	0.0	0.4
Total Del/Veh (s)	15.4	35.2	26.1	17.3	22.2

9: Robert St & Isabel Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	22.3	13.4	2.6	1.9	2.8

12: Robert St & Cesar Chavez Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.5	0.7	0.0	0.0	0.4
Total Del/Veh (s)	19.9	14.8	17.2	13.3	15.8

16: Robert St & Baker Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.1
Total Del/Veh (s)	7.4	0.6	3.2	2.1

17: Robert St & Curtice Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	22.1	27.0	4.5	2.6	4.0

19: Robert St & State Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	1.2	0.0	0.1	0.6
Total Del/Veh (s)	0.5	1.4	69.0	3.2

22: Robert St & Page Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.1	6.9	0.7	1.5	1.3

25: Robert St & Sidney Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.5	0.3
Total Del/Veh (s)	13.1	18.5	1.9	0.7	1.9

29: Robert St & Annapolis Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.8	0.0	0.3
Total Del/Veh (s)	23.6	22.4	7.1	10.2	11.6

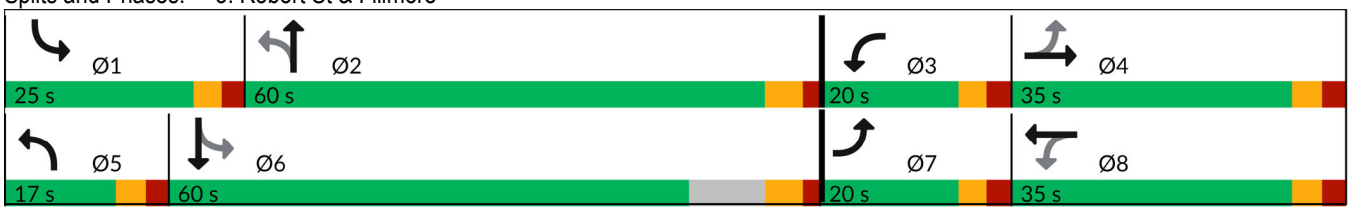
Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	31.9

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	28	42	7	38	56	561	56	151
Future Volume (vph)	28	42	7	38	56	561	56	151
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	9.0	7.0	9.0	7.0	12.0	7.0	12.0
Minimum Split (s)	12.4	21.6	12.4	21.6	12.3	21.6	12.3	21.6
Total Split (s)	20.0	35.0	20.0	35.0	17.0	60.0	25.0	60.0
Total Split (%)	14.3%	25.0%	14.3%	25.0%	12.1%	42.9%	17.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.9	3.0	3.9
All-Red Time (s)	2.4	2.6	2.4	2.6	2.3	1.7	2.3	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.6	5.4	5.6	5.3	5.6	5.3	5.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	17.4	15.7	14.6	10.5	63.2	57.1	63.1	57.1
Actuated g/C Ratio	0.18	0.16	0.15	0.11	0.66	0.59	0.66	0.59
v/c Ratio	0.13	0.34	0.03	0.54	0.08	0.30	0.11	0.16
Control Delay (s/veh)	31.9	26.1	30.3	29.7	6.6	12.1	6.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.9	26.1	30.3	29.7	6.6	12.1	6.8	6.2
LOS	C	C	C	C	A	B	A	A
Approach Delay (s/veh)		27.4		29.8		11.6		6.3
Approach LOS		C		C		B		A

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 96.2	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay (s/veh): 13.6	Intersection LOS: B
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Robert St & Fillmore



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	23	117	122	452	272	387	67	95
Future Volume (vph)	23	117	122	452	272	387	67	95
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	7	4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	10.0	10.0	10.0	12.0	12.0	7.0	12.0
Minimum Split (s)	13.1	22.1	22.1	22.1	22.6	22.6	12.9	22.6
Total Split (s)	20.0	35.0	35.0	35.0	35.0	35.0	15.0	35.0
Total Split (%)	19.0%	33.3%	33.3%	33.3%	33.3%	33.3%	14.3%	33.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.6	3.6	3.0	3.6
All-Red Time (s)	3.1	2.8	2.8	2.8	3.0	3.0	2.9	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.6	6.6	5.9	6.6
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	26.8	26.8	22.4	22.4	26.1	26.1	36.9	36.1
Actuated g/C Ratio	0.35	0.35	0.29	0.29	0.34	0.34	0.48	0.47
v/c Ratio	0.09	0.22	0.42	0.69	0.72	0.45	0.18	0.10
Control Delay (s/veh)	17.7	9.1	31.1	27.8	39.1	23.3	14.6	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.7	9.1	31.1	27.8	39.1	23.3	14.6	9.8
LOS	B	A	C	C	D	C	B	A
Approach Delay (s/veh)		9.9		28.3		28.9		11.4
Approach LOS		A		C		C		B

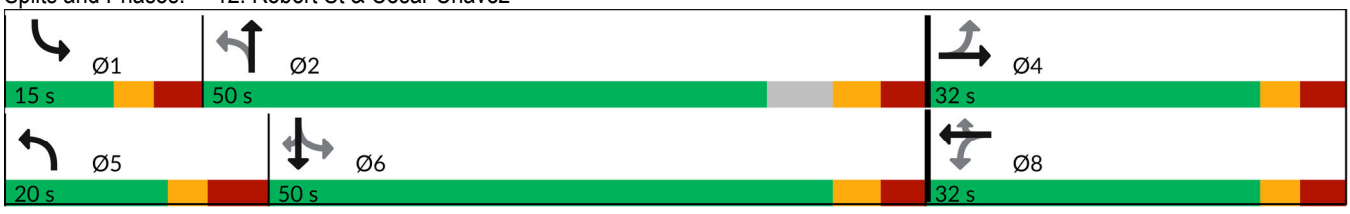
Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 77	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 24.3	Intersection LOS: C
Intersection Capacity Utilization 71.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Robert St & Plato

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	123	73	4	71	179	36	401	46	151	46
Future Volume (vph)	123	73	4	71	179	36	401	46	151	46
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8	2		6		6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	14.5	23.0	13.6	23.0	23.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	20.0	50.0	15.0	50.0	50.0
Total Split (%)	31.4%	31.4%	31.4%	31.4%	31.4%	19.6%	49.0%	14.7%	49.0%	49.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.6	3.0	3.6	3.6
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	4.5	3.4	3.6	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	7.5	7.0	6.6	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effct Green (s)	12.9	12.9	12.9	12.9	12.9	24.3	21.4	26.3	23.7	23.7
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.43	0.38	0.47	0.42	0.42
v/c Ratio	0.45	0.27	0.01	0.18	0.38	0.06	0.68	0.11	0.21	0.07
Control Delay (s/veh)	28.4	20.8	22.5	23.1	6.8	7.2	21.5	7.1	13.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.4	20.8	22.5	23.1	6.8	7.2	21.5	7.1	13.1	0.3
LOS	C	C	C	C	A	A	C	A	B	A
Approach Delay (s/veh)		24.9		11.6			20.4		9.5	
Approach LOS		C		B			C		A	

Intersection Summary	
Cycle Length: 102	
Actuated Cycle Length: 56.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 17.2	Intersection LOS: B
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 15	

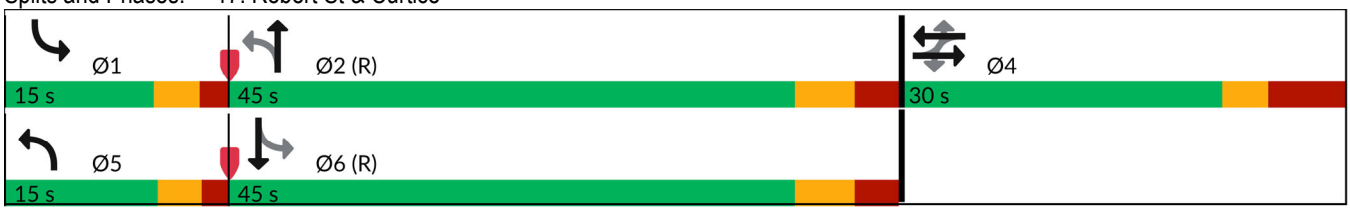
Splits and Phases: 12: Robert St & Cesar Chavez



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	1	13	1	1	526	3	231
Future Volume (vph)	4	1	13	1	1	526	3	231
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4		2		6	
Detector Phase	4	4	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	9.0	9.0	9.0	9.0	7.0	10.0	7.0	10.0
Minimum Split (s)	29.3	29.3	29.3	29.3	11.7	26.9	11.9	26.9
Total Split (s)	30.0	30.0	30.0	30.0	15.0	45.0	15.0	45.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	16.7%	50.0%	16.7%	50.0%
Yellow Time (s)	3.1	3.1	3.1	3.1	3.0	4.0	3.0	4.0
All-Red Time (s)	5.2	5.2	5.2	5.2	1.7	2.9	1.9	2.9
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		8.3		8.3	4.7	6.9	4.9	6.9
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		9.1		9.1	73.9	73.0	73.7	73.1
Actuated g/C Ratio		0.10		0.10	0.82	0.81	0.82	0.81
v/c Ratio		0.06		0.19	0.00	0.38	0.00	0.17
Control Delay (s/veh)		30.4		27.0	3.0	6.2	3.0	4.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		30.4		27.0	3.0	6.2	3.0	4.7
LOS		C		C	A	A	A	A
Approach Delay (s/veh)		30.4		27.0		6.2		4.7
Approach LOS		C		C		A		A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 40 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay (s/veh): 6.7	Intersection LOS: A
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

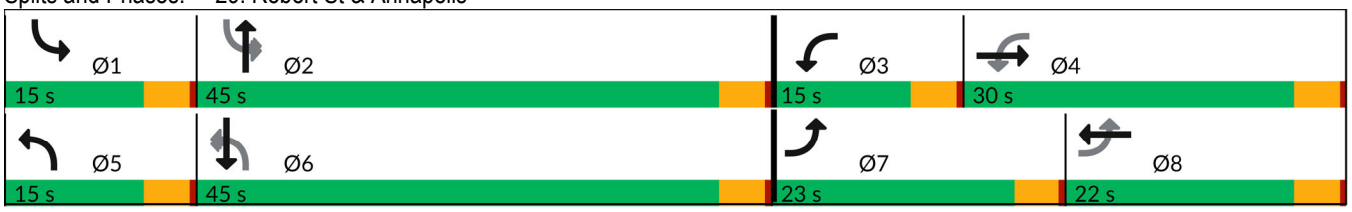
Splits and Phases: 17: Robert St & Curtice



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	62	24	6	60	34	374	7	9	223	40
Future Volume (vph)	62	24	6	60	34	374	7	9	223	40
Turn Type	D.P+P	NA	D.P+P	NA	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	8		4		6		2	2		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	23.0	30.0	15.0	22.0	15.0	45.0	45.0	15.0	45.0	45.0
Total Split (%)	21.9%	28.6%	14.3%	21.0%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		10.3		10.3	47.0	46.7	46.7	47.7	44.6	44.6
Actuated g/C Ratio		0.15		0.15	0.70	0.70	0.70	0.71	0.67	0.67
v/c Ratio		0.59		0.42	0.04	0.31	0.01	0.01	0.19	0.04
Control Delay (s/veh)		33.4		23.2	3.4	5.9	0.0	3.3	6.4	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		33.4		23.2	3.4	5.9	0.0	3.3	6.4	0.1
LOS		C		C	A	A	A	A	A	A
Approach Delay (s/veh)		33.4		23.2		5.6			5.4	
Approach LOS		C		C		A			A	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 66.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay (s/veh): 11.3	Intersection LOS: B
Intersection Capacity Utilization 46.3%	ICU Level of Service A
Analysis Period (min) 15	

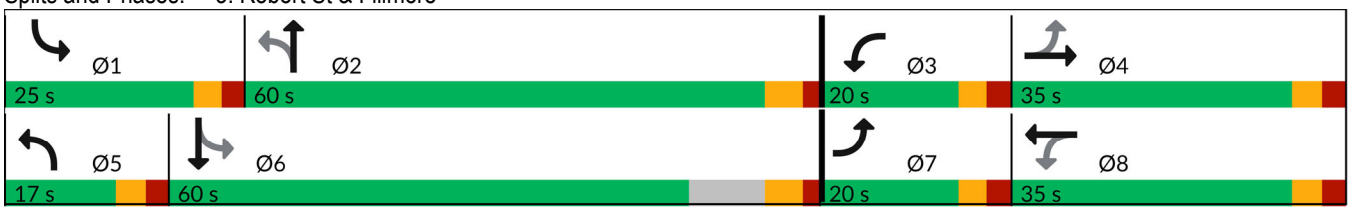
Splits and Phases: 29: Robert St & Annapolis



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	65	51	16	64	59	756	26	623
Future Volume (vph)	65	51	16	64	59	756	26	623
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	9.0	7.0	9.0	7.0	12.0	7.0	12.0
Minimum Split (s)	12.4	21.6	12.4	21.6	12.3	21.6	12.3	21.6
Total Split (s)	20.0	35.0	20.0	35.0	17.0	60.0	25.0	60.0
Total Split (%)	14.3%	25.0%	14.3%	25.0%	12.1%	42.9%	17.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.9	3.0	3.9
All-Red Time (s)	2.4	2.6	2.4	2.6	2.3	1.7	2.3	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.6	5.4	5.6	5.3	5.6	5.3	5.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	23.3	19.2	17.9	12.3	63.1	58.5	61.2	55.6
Actuated g/C Ratio	0.23	0.19	0.18	0.12	0.63	0.58	0.61	0.55
v/c Ratio	0.26	0.53	0.07	0.58	0.16	0.41	0.07	0.43
Control Delay (s/veh)	32.4	27.3	29.6	43.9	9.1	14.8	8.7	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.4	27.3	29.6	43.9	9.1	14.8	8.7	16.1
LOS	C	C	C	D	A	B	A	B
Approach Delay (s/veh)		28.6		42.3		14.4		15.8
Approach LOS		C		D		B		B

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 100.5	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay (s/veh): 18.7	Intersection LOS: B
Intersection Capacity Utilization 62.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Robert St & Fillmore



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	16	339	149	297	167	256	193	550
Future Volume (vph)	16	339	149	297	167	256	193	550
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	7	4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	10.0	10.0	10.0	12.0	12.0	7.0	12.0
Minimum Split (s)	13.1	22.1	22.1	22.1	22.6	22.6	12.9	22.6
Total Split (s)	20.0	35.0	35.0	35.0	35.0	35.0	15.0	35.0
Total Split (%)	19.0%	33.3%	33.3%	33.3%	33.3%	33.3%	14.3%	33.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.6	3.6	3.0	3.6
All-Red Time (s)	3.1	2.8	2.8	2.8	3.0	3.0	2.9	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.6	6.6	5.9	6.6
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	31.4	31.4	26.8	26.8	26.0	26.0	41.7	41.0
Actuated g/C Ratio	0.37	0.37	0.31	0.31	0.30	0.30	0.49	0.48
v/c Ratio	0.05	0.62	0.85	0.35	0.80	0.41	0.48	0.39
Control Delay (s/veh)	17.1	19.3	68.6	23.8	56.7	19.2	18.6	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.1	19.3	68.6	23.8	56.7	19.2	18.6	16.0
LOS	B	B	E	C	E	B	B	B
Approach Delay (s/veh)		19.2		37.1		30.0		16.6
Approach LOS		B		D		C		B

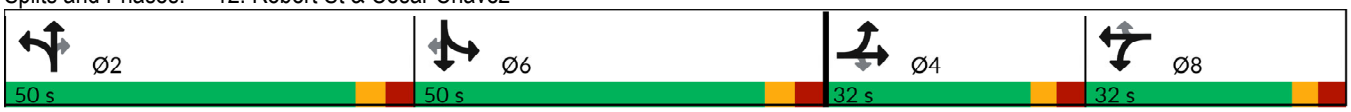
Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 85.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay (s/veh): 24.2	Intersection LOS: C
Intersection Capacity Utilization 78.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Robert St & Plato

Lane Group	EBT	EBR	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	115	70	130	104	347	35	379	54
Future Volume (vph)	115	70	130	104	347	35	379	54
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4		8		2		6	
Permitted Phases		4		8		2		6
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	23.0	23.0	23.0	23.0
Total Split (s)	32.0	32.0	32.0	32.0	50.0	50.0	50.0	50.0
Total Split (%)	19.5%	19.5%	19.5%	19.5%	30.5%	30.5%	30.5%	30.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.6	3.6	3.6	3.6
All-Red Time (s)	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	21.2	21.2	19.6	19.6	39.5	39.5	43.4	43.4
Actuated g/C Ratio	0.14	0.14	0.13	0.13	0.26	0.26	0.29	0.29
v/c Ratio	0.80	0.24	0.75	0.37	0.92	0.08	1.04	0.11
Control Delay (s/veh)	86.8	3.6	84.1	12.6	80.1	0.3	102.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	86.8	3.6	84.1	12.6	80.1	0.3	102.2	0.4
LOS	F	A	F	B	F	A	F	A
Approach Delay (s/veh)	64.3		56.4		73.8		92.3	
Approach LOS	E		E		E		F	

Intersection Summary	
Cycle Length: 164	
Actuated Cycle Length: 150.9	
Natural Cycle: 125	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay (s/veh): 75.9	Intersection LOS: E
Intersection Capacity Utilization 90.2%	ICU Level of Service E
Analysis Period (min) 15	

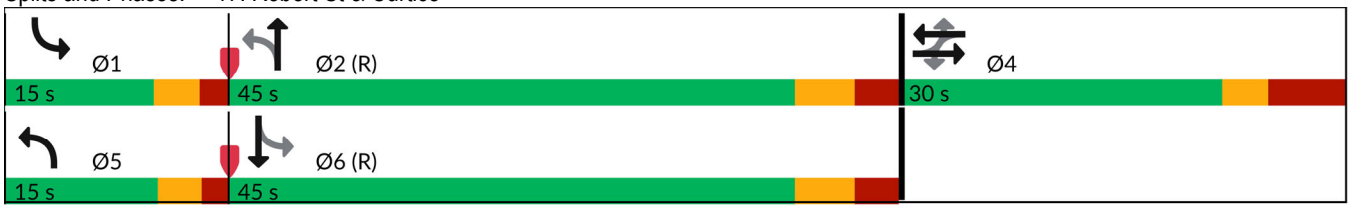
Splits and Phases: 12: Robert St & Cesar Chavez



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	3	1	12	1	1	576	11	663
Future Volume (vph)	3	1	12	1	1	576	11	663
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4		2		6	
Detector Phase	4	4	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	9.0	9.0	9.0	9.0	7.0	10.0	7.0	10.0
Minimum Split (s)	29.3	29.3	29.3	29.3	11.7	26.9	11.9	26.9
Total Split (s)	30.0	30.0	30.0	30.0	15.0	45.0	15.0	45.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	16.7%	50.0%	16.7%	50.0%
Yellow Time (s)	3.1	3.1	3.1	3.1	3.0	4.0	3.0	4.0
All-Red Time (s)	5.2	5.2	5.2	5.2	1.7	2.9	1.9	2.9
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		8.3		8.3	4.7	6.9	4.9	6.9
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		9.0		9.0	77.4	77.9	77.2	78.0
Actuated g/C Ratio		0.10		0.10	0.86	0.87	0.86	0.87
v/c Ratio		0.03		0.14	0.00	0.39	0.02	0.45
Control Delay (s/veh)		34.4		29.6	3.0	5.4	2.5	6.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		34.4		29.6	3.0	5.4	2.5	6.0
LOS		C		C	A	A	A	A
Approach Delay (s/veh)		34.4		29.6		5.4		5.9
Approach LOS		C		C		A		A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 40 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay (s/veh): 6.2	Intersection LOS: A
Intersection Capacity Utilization 55.2%	ICU Level of Service B
Analysis Period (min) 15	

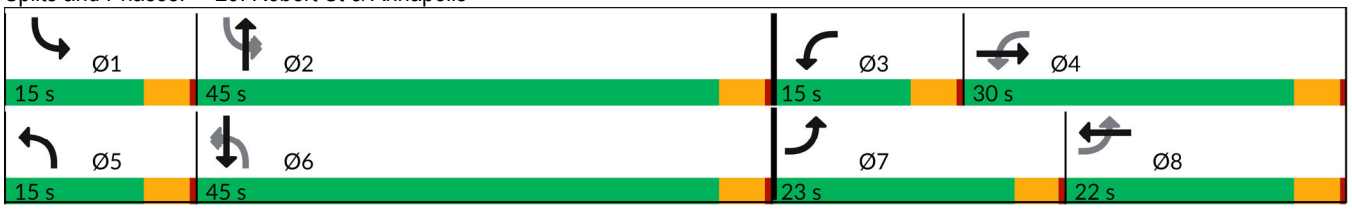
Splits and Phases: 17: Robert St & Curtice



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	64	80	15	55	68	503	27	37	553	84
Future Volume (vph)	64	80	15	55	68	503	27	37	553	84
Turn Type	D.P+P	NA	D.P+P	NA	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	8		4		6		2	2		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	23.0	30.0	15.0	22.0	15.0	45.0	45.0	15.0	45.0	45.0
Total Split (%)	21.9%	28.6%	14.3%	21.0%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		14.8		14.8	48.1	45.2	45.2	48.9	42.6	42.6
Actuated g/C Ratio		0.20		0.20	0.65	0.61	0.61	0.66	0.58	0.58
v/c Ratio		0.68		0.28	0.15	0.48	0.03	0.07	0.56	0.09
Control Delay (s/veh)		35.0		24.2	5.4	12.1	0.0	5.0	14.5	1.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		35.0		24.2	5.4	12.1	0.0	5.0	14.5	1.1
LOS		D		C	A	B	A	A	B	A
Approach Delay (s/veh)		35.0		24.2		10.8			12.3	
Approach LOS		D		C		B			B	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 74	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 15.5	Intersection LOS: B
Intersection Capacity Utilization 61.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 29: Robert St & Annapolis



3: Robert St & Fillmore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.0	0.4	0.0	0.8	0.4
Total Del/Veh (s)	22.8	24.6	9.7	6.1	11.9

6: Robert St & Plato Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.7	0.0	0.0	0.3
Total Del/Veh (s)	9.3	19.3	21.3	13.7	18.1

9: Robert St & Isabel Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	13.5	10.8	2.5	1.1	2.5

12: Robert St & Cesar Chavez Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	2.3	0.3	0.0	0.0	0.5
Total Del/Veh (s)	22.8	11.1	18.0	10.5	15.7

16: Robert St & Baker Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.8	0.6	3.1	1.4

17: Robert St & Curtice Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	17.4	21.0	4.3	2.3	4.5

19: Robert St & State Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.4	0.6	24.2	1.3

22: Robert St & Page Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	13.3	10.9	0.7	0.7	1.0

25: Robert St & Sidney Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	17.1	4.5
Total Del/Veh (s)	11.7	31.3	1.6	0.4	2.5

29: Robert St & Annapolis Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.7	0.1	0.4
Total Del/Veh (s)	21.4	17.3	5.5	6.0	9.1

Total Network Performance

Denied Del/Veh (s)	1.9
Total Del/Veh (s)	30.6

Arterial Level of Service: NB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Annapolis	29	5.4	16.3	0.1	24
Curtice	17	4.4	26.7	0.2	31
Sidney	25	1.6	7.7	0.1	27
State	19	0.4	2.0	0.0	45
Page	22	0.7	5.8	0.1	34
Baker	16	0.6	11.2	0.1	31
Cesar Chavez	12	18.7	54.5	0.4	24
Isabel	9	3.5	15.2	0.1	26
	32	2.5	33.6	0.3	32
Plato	6	17.8	25.9	0.1	12
Fillmore	3	10.1	33.9	0.2	25
Total		65.6	232.8	1.7	26

Arterial Level of Service: SB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fillmore	3	7.0	24.2	0.2	26
Plato	6	14.1	37.2	0.2	23
	32	1.9	11.0	0.1	28
Isabel	9	0.9	30.3	0.3	36
Cesar Chavez	12	11.1	21.2	0.1	19
Baker	16	3.6	40.7	0.4	32
Page	22	0.6	10.9	0.1	32
State	19	0.6	4.7	0.1	41
Sidney	25	0.2	22.8	0.0	45
Curtice	17	2.2	8.7	0.1	24
Annapolis	29	6.4	29.2	0.2	28
Total		48.5	240.7	1.7	28

Total Network Performance By Run

Run Number	1	2	3	4	5	Avg
HC Emissions (g)	1022	1069	1002	942	1031	1013
CO Emissions (g)	34104	34652	33656	32601	33557	33714
NOx Emissions (g)	3567	3671	3476	3327	3531	3514

3: Robert St & Fillmore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.3	0.7	0.3	0.3	0.5
Total Del/Veh (s)	27.1	30.1	12.4	12.6	15.8

6: Robert St & Plato Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.6	75.9	0.0	0.0	14.9
Total Del/Veh (s)	19.2	82.7	34.2	19.1	34.6

9: Robert St & Isabel Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	25.8	19.2	2.6	2.2	3.2

12: Robert St & Cesar Chavez Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.4	0.7	0.0	0.0	0.4
Total Del/Veh (s)	24.1	17.0	16.4	16.3	17.8

16: Robert St & Baker Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	7.3	0.6	3.9	2.5

17: Robert St & Curtice Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	31.5	28.2	5.1	2.8	4.3

19: Robert St & State Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	2.6	0.0	0.2	1.2
Total Del/Veh (s)	0.6	1.7	93.5	4.2

22: Robert St & Page Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.0
Total Del/Veh (s)	18.2	19.0	1.0	2.3	2.1

25: Robert St & Sidney Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	4.5	0.1	0.0	1.7	1.1
Total Del/Veh (s)	48.0	48.1	2.6	0.8	5.2

29: Robert St & Annapolis Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.2	0.9	0.0	0.4
Total Del/Veh (s)	26.2	23.2	9.7	12.6	13.9

Total Network Performance

Denied Del/Veh (s)	9.2
Total Del/Veh (s)	42.9

Arterial Level of Service: NB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Annapolis	29	9.3	20.4	0.1	19
Curtice	17	5.5	28.9	0.2	28
Sidney	25	2.4	8.5	0.1	25
State	19	0.7	4.9	0.0	39
Page	22	1.0	6.1	0.1	32
Baker	16	0.5	11.1	0.1	31
Cesar Chavez	12	16.2	49.7	0.4	26
Isabel	9	3.3	14.7	0.1	27
	32	2.6	33.7	0.3	32
Plato	6	22.3	30.4	0.1	10
Fillmore	3	12.0	27.7	0.2	31
Total		75.9	236.2	1.7	26

Arterial Level of Service: SB Robert St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fillmore	3	13.1	30.5	0.2	20
Plato	6	19.2	42.6	0.2	20
	32	2.8	11.9	0.1	26
Isabel	9	2.1	26.6	0.3	41
Cesar Chavez	12	16.9	31.4	0.1	13
Baker	16	4.4	39.7	0.4	33
Page	22	2.3	12.4	0.1	28
State	19	1.7	5.8	0.1	33
Sidney	25	0.6	3.4	0.0	38
Curtice	17	2.8	9.3	0.1	23
Annapolis	29	13.4	36.9	0.2	22
Total		79.3	250.3	1.7	25

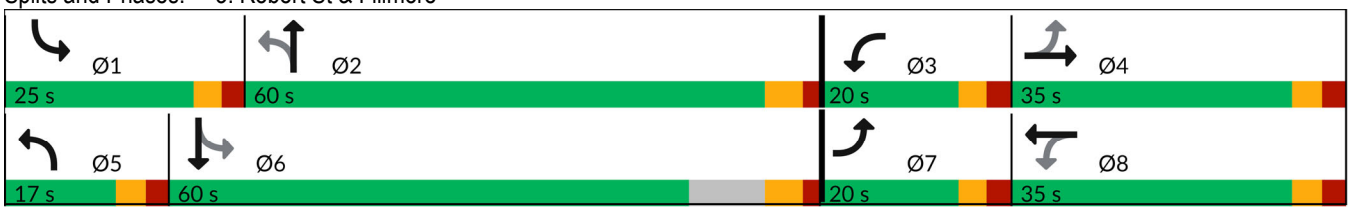
Total Network Performance By Run

Run Number	1	3	4	5	Avg
HC Emissions (g)	1548	1417	1620	1437	1505
CO Emissions (g)	51393	49331	53043	49427	50799
NOx Emissions (g)	5345	5091	5556	5105	5274

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	32	49	8	45	64	608	62	167
Future Volume (vph)	32	49	8	45	64	608	62	167
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	9.0	7.0	9.0	7.0	12.0	7.0	12.0
Minimum Split (s)	12.4	21.6	12.4	21.6	12.3	21.6	12.3	21.6
Total Split (s)	20.0	35.0	20.0	35.0	17.0	60.0	25.0	60.0
Total Split (%)	14.3%	25.0%	14.3%	25.0%	12.1%	42.9%	17.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.9	3.0	3.9
All-Red Time (s)	2.4	2.6	2.4	2.6	2.3	1.7	2.3	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.6	5.4	5.6	5.3	5.6	5.3	5.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	18.6	16.8	15.6	11.5	62.6	56.5	62.5	56.4
Actuated g/C Ratio	0.19	0.17	0.16	0.12	0.65	0.58	0.65	0.58
v/c Ratio	0.15	0.37	0.04	0.59	0.09	0.33	0.13	0.15
Control Delay (s/veh)	31.8	27.4	29.9	34.0	7.3	13.2	7.6	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.8	27.4	29.9	34.0	7.3	13.2	7.6	7.5
LOS	C	C	C	C	A	B	A	A
Approach Delay (s/veh)		28.4		33.7		12.7		7.5
Approach LOS		C		C		B		A

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 96.7	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay (s/veh): 15.4	Intersection LOS: B
Intersection Capacity Utilization 55.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Robert St & Fillmore



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	131	137	507	321	413	73	111
Future Volume (vph)	26	131	137	507	321	413	73	111
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	7	4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	10.0	10.0	10.0	12.0	12.0	7.0	12.0
Minimum Split (s)	13.1	22.1	22.1	22.1	22.6	22.6	12.9	22.6
Total Split (s)	20.0	35.0	35.0	35.0	35.0	35.0	15.0	35.0
Total Split (%)	19.0%	33.3%	33.3%	33.3%	33.3%	33.3%	14.3%	33.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.6	3.6	3.0	3.6
All-Red Time (s)	3.1	2.8	2.8	2.8	3.0	3.0	2.9	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.6	6.6	5.9	6.6
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	32.3	32.3	25.0	25.0	29.8	29.8	41.0	40.3
Actuated g/C Ratio	0.38	0.38	0.29	0.29	0.35	0.35	0.48	0.47
v/c Ratio	0.12	0.23	0.49	0.78	0.85	0.47	0.21	0.11
Control Delay (s/veh)	17.5	8.5	34.1	32.7	51.9	25.8	16.6	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.5	8.5	34.1	32.7	51.9	25.8	16.6	10.9
LOS	B	A	C	C	D	C	B	B
Approach Delay (s/veh)		9.3		32.9		35.8		12.7
Approach LOS		A		C		D		B

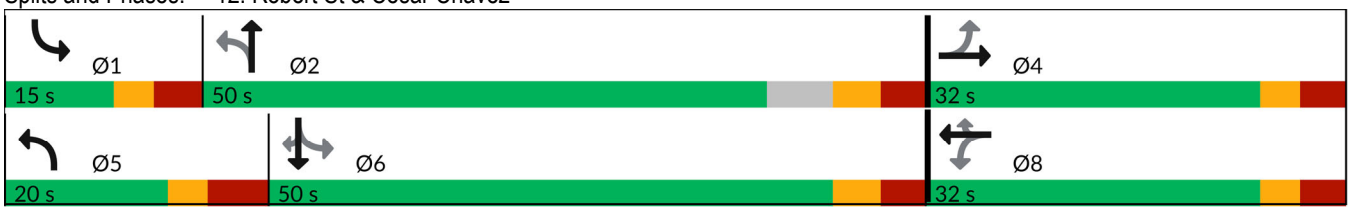
Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 85.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay (s/veh): 28.7	Intersection LOS: C
Intersection Capacity Utilization 76.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Robert St & Plato

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	138	82	4	81	201	41	450	52	213	52
Future Volume (vph)	138	82	4	81	201	41	450	52	213	52
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8	2		6		6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	14.5	23.0	13.6	23.0	23.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	20.0	50.0	15.0	50.0	50.0
Total Split (%)	31.4%	31.4%	31.4%	31.4%	31.4%	19.6%	49.0%	14.7%	49.0%	49.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.6	3.0	3.6	3.6
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	4.5	3.4	3.6	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	7.5	7.0	6.6	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effct Green (s)	14.5	14.5	14.5	14.5	14.5	28.2	25.2	28.9	24.9	24.9
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.45	0.41	0.47	0.40	0.40
v/c Ratio	0.49	0.30	0.01	0.20	0.41	0.08	0.71	0.13	0.31	0.08
Control Delay (s/veh)	31.8	23.1	24.8	25.3	6.9	7.6	22.7	7.7	15.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.8	23.1	24.8	25.3	6.9	7.6	22.7	7.7	15.8	0.7
LOS	C	C	C	C	A	A	C	A	B	A
Approach Delay (s/veh)		27.8		12.3			21.5		11.9	
Approach LOS		C		B			C		B	

Intersection Summary	
Cycle Length: 102	
Actuated Cycle Length: 62	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay (s/veh): 18.6	Intersection LOS: B
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	

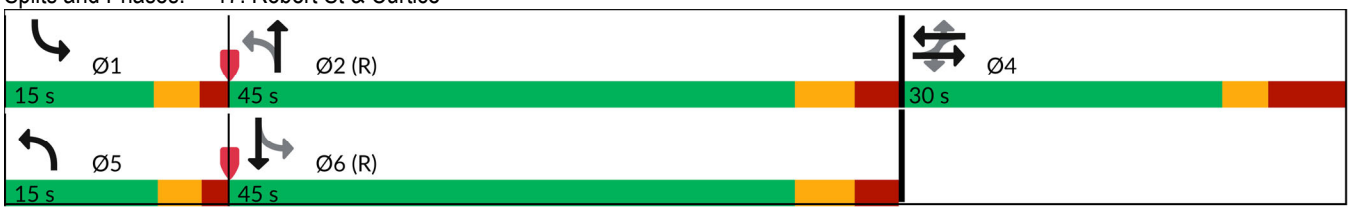
Splits and Phases: 12: Robert St & Cesar Chavez



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	1	15	1	1	619	3	270
Future Volume (vph)	4	1	15	1	1	619	3	270
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4		2		6	
Detector Phase	4	4	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	9.0	9.0	9.0	9.0	7.0	10.0	7.0	10.0
Minimum Split (s)	29.3	29.3	29.3	29.3	11.7	26.9	11.9	26.9
Total Split (s)	30.0	30.0	30.0	30.0	15.0	45.0	15.0	45.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	16.7%	50.0%	16.7%	50.0%
Yellow Time (s)	3.1	3.1	3.1	3.1	3.0	4.0	3.0	4.0
All-Red Time (s)	5.2	5.2	5.2	5.2	1.7	2.9	1.9	2.9
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		8.3		8.3	4.7	6.9	4.9	6.9
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		9.1		9.1	73.8	73.0	73.7	73.0
Actuated g/C Ratio		0.10		0.10	0.82	0.81	0.82	0.81
v/c Ratio		0.06		0.21	0.00	0.45	0.00	0.20
Control Delay (s/veh)		30.3		26.8	3.0	7.0	3.0	4.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		30.3		26.8	3.0	7.0	3.0	4.9
LOS		C		C	A	A	A	A
Approach Delay (s/veh)		30.3		26.8		7.0		4.8
Approach LOS		C		C		A		A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 40 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay (s/veh): 7.2	Intersection LOS: A
Intersection Capacity Utilization 52.9%	ICU Level of Service A
Analysis Period (min) 15	

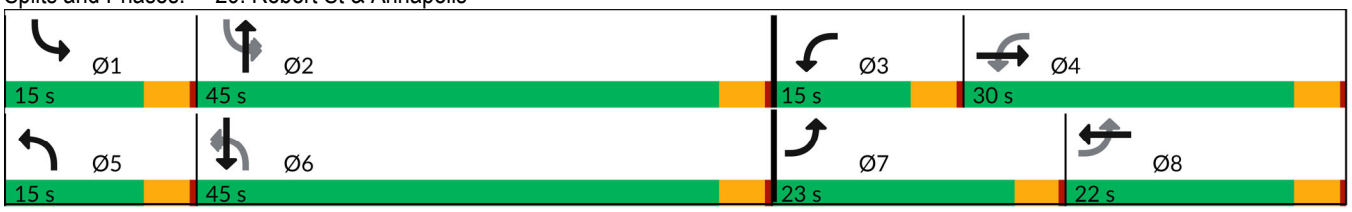
Splits and Phases: 17: Robert St & Curtice



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	72	28	7	69	39	443	8	10	259	46
Future Volume (vph)	72	28	7	69	39	443	8	10	259	46
Turn Type	D.P+P	NA	D.P+P	NA	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	8		4		6		2	2		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	23.0	30.0	15.0	22.0	15.0	45.0	45.0	15.0	45.0	45.0
Total Split (%)	21.9%	28.6%	14.3%	21.0%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		11.3		11.3	47.3	47.8	47.8	48.9	43.7	43.7
Actuated g/C Ratio		0.16		0.16	0.69	0.69	0.69	0.71	0.63	0.63
v/c Ratio		0.69		0.46	0.05	0.37	0.01	0.02	0.24	0.05
Control Delay (s/veh)		40.6		24.7	3.8	6.8	0.0	3.7	7.9	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		40.6		24.7	3.8	6.8	0.0	3.7	7.9	0.1
LOS		D		C	A	A	A	A	A	A
Approach Delay (s/veh)		40.6		24.7		6.5			6.7	
Approach LOS		D		C		A			A	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 69	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay (s/veh): 13.1	Intersection LOS: B
Intersection Capacity Utilization 55.1%	ICU Level of Service B
Analysis Period (min) 15	

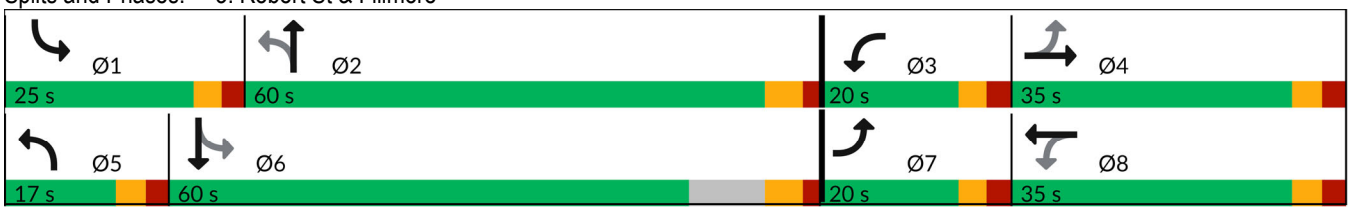
Splits and Phases: 29: Robert St & Annapolis



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	75	60	18	75	68	835	30	702
Future Volume (vph)	75	60	18	75	68	835	30	702
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	9.0	7.0	9.0	7.0	12.0	7.0	12.0
Minimum Split (s)	12.4	21.6	12.4	21.6	12.3	21.6	12.3	21.6
Total Split (s)	20.0	35.0	20.0	35.0	17.0	60.0	25.0	60.0
Total Split (%)	14.3%	25.0%	14.3%	25.0%	12.1%	42.9%	17.9%	42.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.9	3.0	3.9
All-Red Time (s)	2.4	2.6	2.4	2.6	2.3	1.7	2.3	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.6	5.4	5.6	5.3	5.6	5.3	5.6
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	25.3	21.0	19.2	13.6	63.8	58.9	61.5	55.8
Actuated g/C Ratio	0.25	0.20	0.19	0.13	0.62	0.57	0.60	0.54
v/c Ratio	0.30	0.58	0.08	0.63	0.19	0.46	0.09	0.47
Control Delay (s/veh)	32.5	30.6	29.5	47.0	10.3	16.5	9.7	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.5	30.6	29.5	47.0	10.3	16.5	9.7	17.9
LOS	C	C	C	D	B	B	A	B
Approach Delay (s/veh)		31.1		45.1		16.1		17.6
Approach LOS		C		D		B		B

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 102.8	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay (s/veh): 20.8	Intersection LOS: C
Intersection Capacity Utilization 66.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Robert St & Fillmore



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	18	380	167	353	197	277	216	624
Future Volume (vph)	18	380	167	353	197	277	216	624
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	7	4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	10.0	10.0	10.0	12.0	12.0	7.0	12.0
Minimum Split (s)	13.1	22.1	22.1	22.1	22.6	22.6	12.9	22.6
Total Split (s)	20.0	35.0	35.0	35.0	35.0	35.0	15.0	35.0
Total Split (%)	19.0%	33.3%	33.3%	33.3%	33.3%	33.3%	14.3%	33.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.6	3.6	3.0	3.6
All-Red Time (s)	3.1	2.8	2.8	2.8	3.0	3.0	2.9	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.6	6.6	5.9	6.6
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	34.0	34.0	29.1	29.1	28.6	28.6	44.2	43.5
Actuated g/C Ratio	0.38	0.38	0.32	0.32	0.32	0.32	0.49	0.48
v/c Ratio	0.06	0.69	1.17	0.40	0.98	0.43	0.56	0.44
Control Delay (s/veh)	17.2	23.0	155.9	25.0	92.1	19.7	21.0	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.2	23.0	155.9	25.0	92.1	19.7	21.0	17.0
LOS	B	C	F	C	F	B	C	B
Approach Delay (s/veh)		22.8		62.7		41.7		18.0
Approach LOS		C		E		D		B

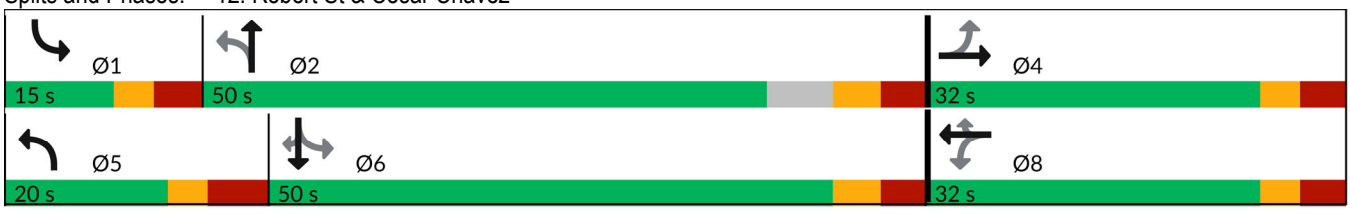
Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 90.3	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay (s/veh): 33.3	Intersection LOS: C
Intersection Capacity Utilization 85.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Robert St & Plato

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	83	128	40	146	117	71	389	144	469	61
Future Volume (vph)	83	128	40	146	117	71	389	144	469	61
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8	2		6		6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	14.5	23.0	13.6	23.0	23.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	20.0	50.0	15.0	50.0	50.0
Total Split (%)	31.4%	31.4%	31.4%	31.4%	31.4%	19.6%	49.0%	14.7%	49.0%	49.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.6	3.0	3.6	3.6
All-Red Time (s)	3.5	3.5	3.5	3.5	3.5	4.5	3.4	3.6	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	7.5	7.0	6.6	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effct Green (s)	13.6	13.6	13.6	13.6	13.6	32.5	24.9	34.8	28.3	28.3
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.48	0.37	0.51	0.42	0.42
v/c Ratio	0.37	0.60	0.21	0.43	0.30	0.18	0.64	0.32	0.66	0.09
Control Delay (s/veh)	30.8	30.3	28.3	29.8	7.9	7.9	22.2	8.8	22.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.8	30.3	28.3	29.8	7.9	7.9	22.2	8.8	22.9	1.3
LOS	C	C	C	C	A	A	C	A	C	A
Approach Delay (s/veh)		30.5		21.1			20.1		17.9	
Approach LOS		C		C			C		B	

Intersection Summary	
Cycle Length: 102	
Actuated Cycle Length: 67.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay (s/veh): 21.2	Intersection LOS: C
Intersection Capacity Utilization 71.6%	ICU Level of Service C
Analysis Period (min) 15	

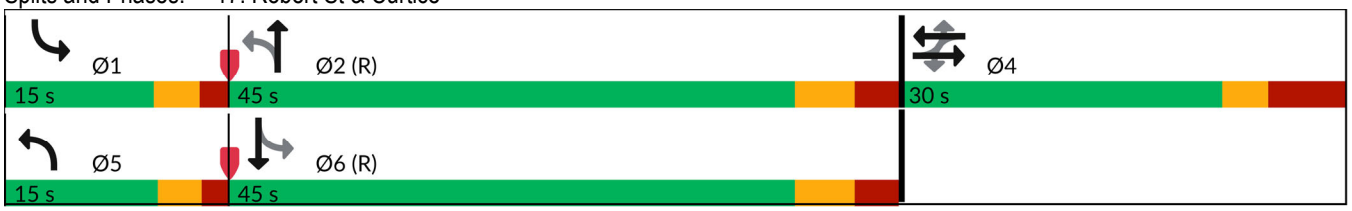
Splits and Phases: 12: Robert St & Cesar Chavez



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	3	1	13	1	1	696	12	771
Future Volume (vph)	3	1	13	1	1	696	12	771
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		4	5	2	1	6
Permitted Phases	4		4		2		6	
Detector Phase	4	4	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	9.0	9.0	9.0	9.0	7.0	10.0	7.0	10.0
Minimum Split (s)	29.3	29.3	29.3	29.3	11.7	26.9	11.9	26.9
Total Split (s)	30.0	30.0	30.0	30.0	15.0	45.0	15.0	45.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	16.7%	50.0%	16.7%	50.0%
Yellow Time (s)	3.1	3.1	3.1	3.1	3.0	4.0	3.0	4.0
All-Red Time (s)	5.2	5.2	5.2	5.2	1.7	2.9	1.9	2.9
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		8.3		8.3	4.7	6.9	4.9	6.9
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)		9.0		9.0	73.9	73.1	73.8	73.1
Actuated g/C Ratio		0.10		0.10	0.82	0.81	0.82	0.81
v/c Ratio		0.03		0.16	0.00	0.51	0.02	0.56
Control Delay (s/veh)		34.4		29.6	3.0	7.7	2.9	8.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		34.4		29.6	3.0	7.7	2.9	8.5
LOS		C		C	A	A	A	A
Approach Delay (s/veh)		34.4		29.6		7.7		8.4
Approach LOS		C		C		A		A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 40 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay (s/veh): 8.5	Intersection LOS: A
Intersection Capacity Utilization 60.9%	ICU Level of Service B
Analysis Period (min) 15	

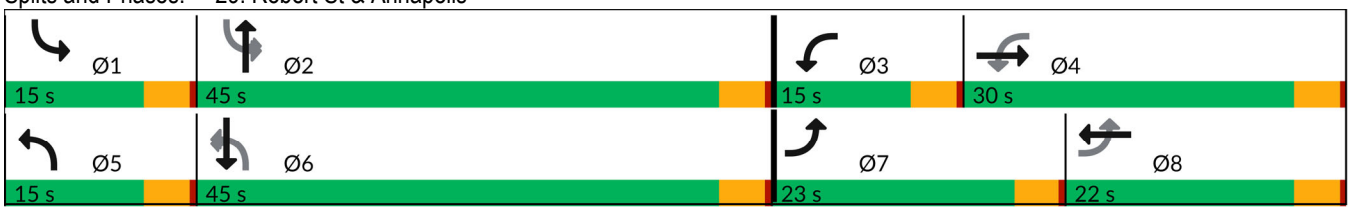
Splits and Phases: 17: Robert St & Curtice



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	74	92	17	64	79	610	31	43	642	97
Future Volume (vph)	74	92	17	64	79	610	31	43	642	97
Turn Type	D.P+P	NA	D.P+P	NA	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	8		4		6		2	2		6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	23.0	30.0	15.0	22.0	15.0	45.0	45.0	15.0	45.0	45.0
Total Split (%)	21.9%	28.6%	14.3%	21.0%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		16.8		16.8	47.7	44.7	44.7	48.5	42.1	42.1
Actuated g/C Ratio		0.22		0.22	0.63	0.59	0.59	0.64	0.56	0.56
v/c Ratio		0.72		0.29	0.22	0.60	0.03	0.11	0.67	0.11
Control Delay (s/veh)		36.5		23.9	6.9	15.6	0.1	6.0	18.9	1.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		36.5		23.9	6.9	15.6	0.1	6.0	18.9	1.7
LOS		D		C	A	B	A	A	B	A
Approach Delay (s/veh)		36.5		23.9		14.0			16.1	
Approach LOS		D		C		B			B	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 75.7	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 18.4	Intersection LOS: B
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 29: Robert St & Annapolis



Robert Street Synchro Peak Hour Results

Intersection Delay (s/veh)	Existing PM	No Build PM	Build PM	Difference
Fillmore	13.4	15.8	15.2	-0.6
Plato	22.2	34.6	30.2	-4.4
Isabel	2.8	3.2	3.2	0
Cesar Chavez	15.8	17.8	18.4	0.6
Baker	2.1	2.5	2.8	0.3
Curtice	4	4.3	5.2	0.9
State	3.2	4.2	3.4	-0.8
Page	1.3	2.1	2.2	0.1
Sidney	1.9	5.2	4.8	-0.4
Annapolis	11.6	13.9	14.3	0.4
Total	**31.9**	**42.9**	**40.6**	**-2.3**
Emissions (g)	Existing PM	No Build PM	Build PM	Difference
Hydrocarbon	1,272	1,505	1,585	5.32%
Carbon Monoxide	43,823	50,799	52,088	2.54%
Nitrous Oxide	4,517	5,274	3,761	-28.69%
Total	**49,612**	**57,578**	**57,434**	**-0.25%**

CMF / CRF Details

CMF ID: 10737

CMF Name: Install bicycle lanes

Description:

Prior Condition: No Bicycle Lane

Category: Bicyclists

Study ID: *Development of Crash Modification Factors for Bicycle Lane Additions While Reducing Lane and Shoulder Widths, 2021*

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.435
Adjusted Standard Error:	
Unadjusted Standard Error:	0.225

Crash Reduction Factor	
Value:	
Adjusted Standard Error:	
Unadjusted Standard Error:	

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	All
Minimum Number of Lanes:	4
Maximum Number of Lanes:	4
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	Undivided
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	Minimum of 10 to Maximum of 92462 Annual Average Daily Traffic (AADT)
Average Traffic Volume:	
Time of Day:	All
If countermeasure is intersection-based.	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	2015 to 2018
Municipality:	
State:	TX
Country:	
Type of Methodology Used:	Regression cross-section
Sample Size (sites):	372 sites

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Feb 25, 2021
Comments:	This CMF is for bicycle lane addition resulting in reduced shoulder or lane width and no change in average daily bicycle traffic (ADBT). The base condition was 11-ft lanes, no shoulder, no median, and four-lane urban collector or local road.

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

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CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 199

CMF Name: Road diet (Convert 4-lane undivided road to 2-lanes plus turning la

Description:

Prior Condition: No Prior Condition(s)

Category: Roadway

Study ID: *Crash Reduction Factors for Traffic Engineering and ITS Improvements*, Harkey et al. 2008

Star Quality Rating	
Star Quality Rating:	5 Stars

Crash Modification Factor (CMF)	
Value:	0.71
Adjusted Standard Error:	0.02
Unadjusted Standard Error:	

Crash Reduction Factor	
Value:	29
Adjusted Standard Error:	2
Unadjusted Standard Error:	

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Minor Arterial
Minimum Number of Lanes:	4
Maximum Number of Lanes:	4
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
If countermeasure is intersection-based.	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes

Other Details

Included in HSM:	Yes. HSM lists this CMF in bold font to indicate that it has the highest
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	

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CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 8800

CMF Name: Install raised median with or without marked crosswalk (uncontroll

Description:

Prior Condition: No median

Category: Pedestrians

Study ID: *Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments*, Zegeer et al. 2017

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.742
Adjusted Standard Error:	
Unadjusted Standard Error:	0.071

Crash Reduction Factor	
Value:	25.8
Adjusted Standard Error:	
Unadjusted Standard Error:	7.1

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Minor Arterial
Minimum Number of Lanes:	2
Maximum Number of Lanes:	8
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	Divided by Median
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban and suburban
Traffic Volume:	Minimum of 1245 to Maximum of 46000 Annual Average Daily Traffic (AADT)
Average Traffic Volume:	
Time of Day:	All
If countermeasure is intersection-based.	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	2004 to 2013
Municipality:	
State:	AZ,FL,IL,MA,NY,NC,OR,VA,WI
Country:	USA
Type of Methodology Used:	Regression cross-section
Sample Size (crashes):	10666 crashes
Sample Size (site-years):	5021 site-years

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Nov 17, 2017
Comments:	Study sites were a combination of intersection and mid-block locations.

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

The information contained in the Crash Modification Factors (CMF) Clearinghouse is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in the CMF Clearinghouse. The information contained in the CMF Clearinghouse does not constitute a standard, specification, or regulation, nor is it a substitute for sound engineering judgment.

MnDOT Metro District
1500 West County Road B-2
Roseville, MN 55113

11/29/2023

Reuben Collins, PE
Department of Public Works
Transportation Planning & Safety Division

Re: MnDOT Letter for City of Saint Paul
Metropolitan Council/Transportation Advisory Board 2024 Regional Solicitation Funding Request for the Robert Street Reconstruction Project.

Dear Reuben Collins,

This letter documents MnDOT Metro District's recognition for Saint Paul to pursue funding for the Metropolitan Council/Transportation Advisory Board's (TAB) 2024 Regional Solicitation for the Robert Street Reconstruction Project.

The proposed project will reconstruct Robert Street (TH 3) through the City of Saint Paul. This reconstruction will include ADA upgrades, bicycle accommodations, and coordinate with the Metro G-Line BRT, which is anticipated in FY27. The City's intention with a successful Regional Solicitation award is to add this funding and scope to a MnDOT pavement preservation project on TH 3. As proposed, MnDOT will support the City of Saint Paul to seek improvements proposed in the application. If funded, details of how the project is delivered and any future maintenance agreement with the City of Saint Paul will need to be determined during the project's development to define how the improvements will be maintained for the project's useful life.

MnDOT has identified 14 million in funding for this project. If your project receives funding, continue to work with MnDOT Area staff to coordinate and review needs and opportunities for cooperation.

MnDOT Metro District looks forward to continued cooperation with the City of Saint Paul as this project moves forward and as we work together to improve safety and travel options within the Metro Area.

If you have questions or require additional information at this time, please reach out to your Area Manager at Molly.McCartney@state.mn.us or 651-775-0326.

Sincerely,

Sheila Kauppi
Digitally signed by Sheila Kauppi
Date: 2023.11.29 13:54:24 -06'00'

Sheila Kauppi, PE
Metro District Engineer

CC:
Molly McCartney, North Area Manager
Aaron Tag, Metro Program Director
Dan Erickson, Metro State Aid Engineer

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: Robert Street and Annapolis Street \ Intersection – North to the right.

Photo: Pedestrian curb ramp and sidewalk at Wyoming Street – North to top of page.

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: Robert Street and State Street Intersection – North to top of page.

Photo: Robert Street and State Street Intersection – North to top of page.

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: Robert Street and Baker Street Intersection – North to the Right.

Photo: Crosswalk at Robert Street and Baker Street Intersection – North to the Right.

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: George Street bridge over Robert Street - North to top of page.

Photo: Frontage Road along Robert Street at Stevens Intersection – North to the top of page.

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: Robert Street and Cesar Chavez Street Intersection – North to the top of page.

Photo: Robert Street and Cesar Chavez Street Intersection – North to the left.

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: Robert Street and Isabel Street Intersection – North to the right.

Photo: Curb Ramp at Robert Street and Isabel Street Intersection – North to the bottom of page.

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: Pedestrian Bridge over Robert Street – North to the top of page.

Photo: Robert Street and Plato Boulevard Intersection – North to the top of page.

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: Robert Street and Plato Boulevard Intersection – North to the top of page.

Photo: Curb ramp at Robert Street and Plato Boulevard Intersection – North to the bottom of page.

TH 3 (Robert Street) Reconstruction Project

Attachment 4 | Existing Roadway Photos

Photo: Robert Street and Fillmore Avenue Boulevard Intersection – North to the top of page.

Photo: Curb ramp at Robert Street and Fillmore Avenue Intersection – North to the bottom of page.

City of Saint Paul

City Hall and Court House
15 West Kellogg Boulevard
Phone: 651-266-8560

Signature Copy

Resolution: RES 23-1763

File Number: RES 23-1763

Authorizing the Department of Public Works to submit project applications for federal funding into the 2024 Metropolitan Council Regional Solicitation Program and to authorize the commitment of a twenty percent local funding match plus engineering for any project that is awarded federal funding.

WHEREAS, the Department of Public Works is proposing to submit project applications for federal funding into the 2024 Metropolitan Council Regional Solicitation Program for funding in years 2028 and 2029; and

WHEREAS, there is a required twenty percent local funding match to any project awarded to an agency under the Regional Solicitation Program; and

WHEREAS, the City commits to ensuring that all sidewalks and bikeways included in these project applications will be fully open for use and cleared of snow throughout the winter, either by City staff or by adjacent property owners per existing City ordinances; and

WHEREAS, the projects to be submitted by the City under the Metropolitan Council Regional Solicitation are as follows:

- Flandrau Bike Boulevard
- West Side Safe Routes to School
- Gold Line Pedestrian Enhancements
- Robert Street - Fillmore to Annapolis in partnership with MnDOT
- Evie Carshare Expansion (Unique Projects 2026/2027 funding)

WHEREAS, these projects fall within appropriate funding categories and meet the conditions and requirements specified for eligibility of federal funding; now, therefore be it

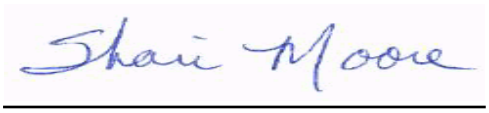
RESOLVED, that the Council of the City of Saint Paul authorizes submission of the project applications for possible award of federal transportation funds through the Metropolitan Council Regional Solicitation Program and to accept the funding if awarded; and be it finally

RESOLVED, that the Council of the City of Saint Paul authorizes the commitment of local funds on a twenty percent match basis plus engineering for any project awarded federal funding under the Regional Solicitation Program.

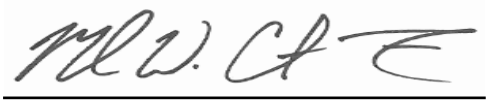
ResolutionRES 23-1763PassedMayor's OfficepassedSigned12/12/202312/6/2023Signed|DAYTHAt a meeting of the on , this Resolution was Signed.

Yea: 7 Councilmember Brendmoen, Councilmember Tolbert, Councilmember Noecker, Councilmember Prince, Councilmember Jalali, Councilmember Yang, and Councilmember Balenger

Nay: 0

Vote Attested by Council Secretary  Shari Moore

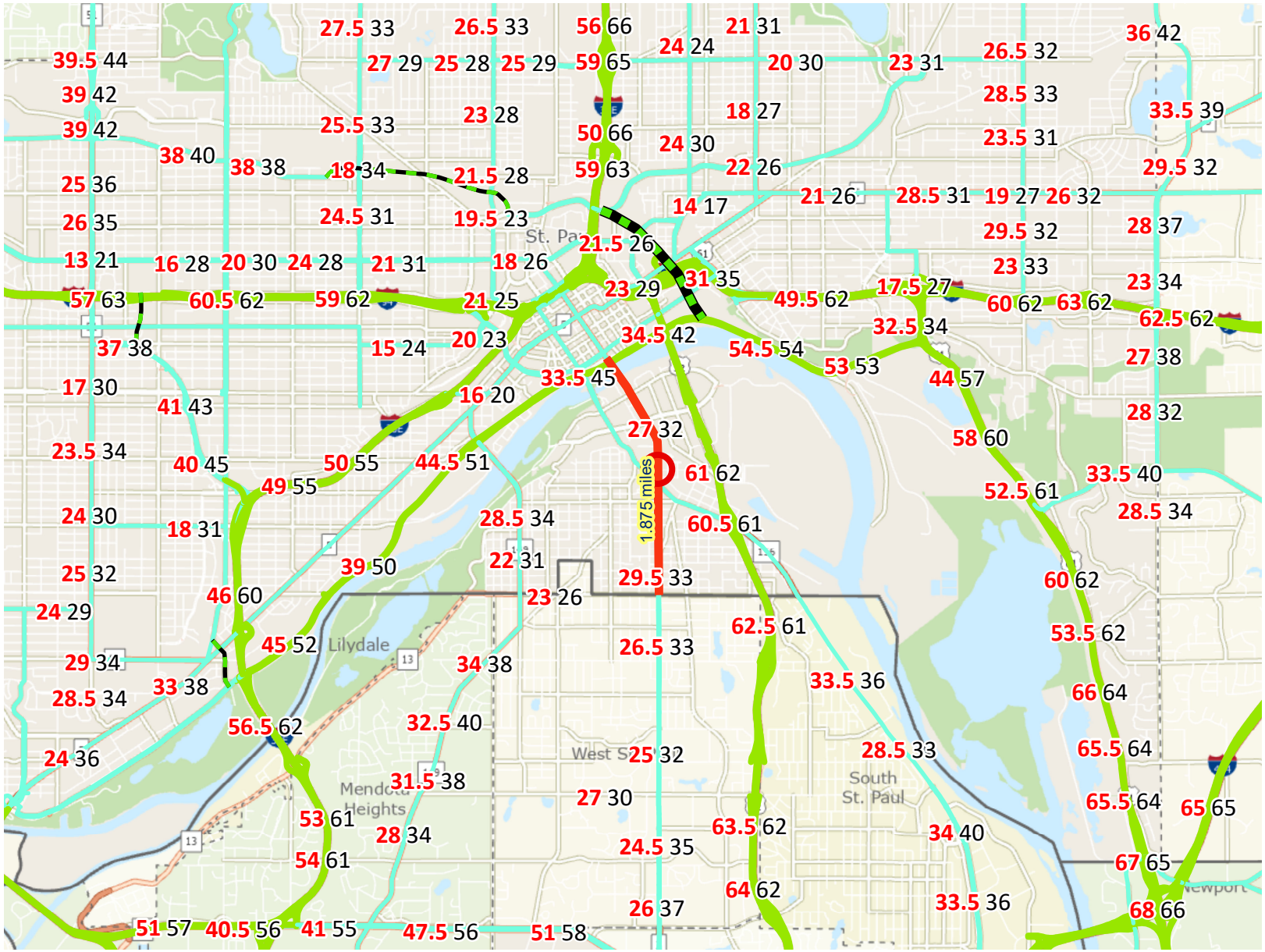
Date 12/6/2023

Approved by the Mayor  Melvin Carter III

Date 12/12/2023

Level of Congestion

Roadway Reconstruction/Modernization Project: Robert_Street_Reconstruction | Map ID: 1701996902557



Project Points
Project
Principal Arterials
A Minor Arterials
Principal Arterials Planned
A Minor Arterials Planned

0 0.5 1 2 3 4 Miles

Created: 12/7/2023
LandscapeRSA1

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METROPOLITAN COUNCIL

DEPARTMENT OF TRANSPORTATION

November 2023

MN 3 (Robert St) from Mississippi River to Annapolis St E in St. Paul

The Minnesota Department of Transportation will reconstruct Robert Street from the Mississippi River to Annapolis Street East in 2027 and 2028. This project will aim to replace the 90-year old roadway pavement, replace sidewalks and curb ramps, and add bicycle lanes between Fillmore Ave. and Cesar Chavez Street.

This work will be coordinated with the planned enhanced transit route, and planned lead water service replacement, which will be constructed at the same time.

MnDOT is pursuing grant funding for this project. With additional funding, MnDOT would: construct sidewalk-level bicycle lanes, improve streetscaping/landscaping, add lighting, reconstruct the roadway to allow for the replacement of underground utilities, and replace the Robert St. Viaduct between Cesar Chavez Street and King Street.

Summary of work

- Replace/repair sidewalks
- Rehabilitate pavement
- ADA upgrades
- Bicycling improvements

Benefits

- Extend the life of the road
- Improve pedestrian and bicyclist experience and safety
- Increase accessibility

Construction schedule

2027 through 2028

Traffic impacts

To be determined.

Cost

$13.45 million currently funded

MnDOT seeking up to $46.83 million for full project scope

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