Application

17063 - 2022 Roadway Modernization

17622 - Wabasha Street Reconstruction (7th St to 11th St)

Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
Submitted Date:	04/13/2022 10:13 PM

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

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	Minnesota	55101
	City	State/Province	Postal Code/Zip

County: Ramsey

Phone:* 651-266-9700 Ext.

Fax:

PeopleSoft Vendor Number 0000003222A22

Project Information

Project Name Wabasha Street Reconstruction (7th Street to 11th Street)

Primary County where the Project is Located Ramsey

Cities or Townships where the Project is Located: St. Paul

Jurisdictional Agency (If Different than the Applicant):

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

The Wabasha Street Reconstruction project will replace aging street infrastructure and reallocate space in the corridor to accommodate an off-road two-way bikeway facility (Capital City Bikeway) on a 0.2-mile segment of Wabasha Street between 7th Street (Trunk Highway (TH) 5) and 11th Street, while providing safer pedestrian travel, and two lanes of travel for motorists.

Wabasha Street is primarily an urban, two- to three-lane, one-way roadway, classified as an A Minor Arterial. Pedestrian facilities include deteriorating sidewalk on both sides of the street with little to no boulevard. In addition, there is on-street parking on both sides, with the exception of transit stop locations.

Project improvements will include:

- A two-way bikeway on the west side between 7th Street and 10th Street, raised at sidewalk height.

- A landscaped boulevard between the sidewalk and bikeway to provide a more comfortable pedestrian space along both sides of the corridor.
- Replacement of deteriorated pavement, pavement substructure, curb and gutter, and storm sewer

- New traffic signals at the 11th Street, 10th Street, Exchange Street, and 7th Street (TH 5) intersections

- Pedestrian improvements including ADA compliant ramps and sidewalks (free of obstructions), Accessible Pedestrian Signals (APS), high visibility crosswalk markings, curb extensions, and countdown timers.

- Stormwater treatment infrastructure

In the last 10 years there have been five pedestrian/vehicle crashes within the project limits. Two were minor injury crashes and three were possible injury crashes. The reconstruction project will significantly improve pedestrian and bicycle safety by adding curb extensions at all intersections, narrowing the driving space by removing parking on the west side, reducing travel lane widths, and constructing a separated two-way bikeway.

The goal of the Capital City Bikeway: Network Study and Design Guide completed in 2016 was to establish a network of bicycle facilities in the downtown core that will encourage bicycling and economic development. Each implemented segment of the bikeway "will not only make bicycling safer for people of all ages and abilities in St. Paul, but it will positively contribute to the overall experience and vitality of the City". Making investments in quality infrastructure improvements along the Bikeway will provide development opportunities by local businesses and increase local spending as people are encouraged to spend more time in downtown St. Paul. The Capital City Bikeway Interim Design Study completed in 2021 identified Wabasha Street as the preferred alignment for the Capital City Bikeway. Significant public and stakeholder engagement was completed throughout the study process that led to this recommendation.

(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.

Wabasha Street reconstruction from 7th Street (TH 5) to 11th Street (0.2 miles), Roadway reconstruction, ADA Improvements, off-street bikeway, landscaping, drainage, signage/striping, signals, lighting, and stormwater management

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

Project Length (Miles) 0.2

to the nearest one-tenth of a mile

Project Funding

Are you applying for competitive funds from another source(s) to implement this project? No

If yes, please identify the source(s)

Federal Amount $5,337,600.00

Match Amount $1,334,400.00

Minimum of 20% of project total

Project Total $6,672,000.00

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

Match Percentage 20.0%

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

Source of Match Funds City of St. Paul

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: 2027

Select 2024 or 2025 for TDM and Unique projects only. For all other applications, select 2026 or 2027.

Additional Program Years:

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

Project Information-Roadways

County, City, or Lead Agency City of St. Paul

Functional Class of Road A Minor Reliever

Road System MSAS

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

Road/Route No. 235

i.e., 53 for CSAH 53

Name of Road Wabasha Street

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed 55101

(Approximate) Begin Construction Date 04/01/2027

(Approximate) End Construction Date 11/01/2027

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

From:
(Intersection or Address)

To:
(Intersection or Address)

DO NOT INCLUDE LEGAL DESCRIPTION

Or At

Miles of Sidewalk (nearest 0.1 miles)	0.4
Miles of Trail (nearest 0.1 miles)	0.2
Miles of Trail on the Regional Bicycle Transportation Network (nearest 0.1 miles)	0.2
Primary Types of Work	CURB AND GUTTER, BIT BASE, AGG BASE, LIGHTING, PED RAMPS, SIGNALS, STORM SEWER, BIKE PATH, SIDEWALK, LIGHTING, LANDSCAPING

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

BRIDGE/CULVERT PROJECTS (IF APPLICABLE)

Old Bridge/Culvert No.:

New Bridge/Culvert No.:

Structure is Over/Under
(Bridge or culvert name):

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:

Objective: Efficiently preserve and maintain the regional transportation system in a state of good repair.

Objective: Operate the regional transportation system to efficiently and cost-effectively connect people and freight to destinations

Strategies: A1 and A2 (Page 2.6)

Goal B: Safety and Security:

Objective: Reduce crashes and improve safety and security for all modes of passenger travel and freight transportation.

Strategies: B1, B4, B5, and B6 (Page 2.7)

Goal C: Access to Destinations:

Objective: Increase the availability of multimodal travel options, especially in congested highway corridors.

Objective: Increase travel time reliability and predictability for travel on highway and transit systems.
Objective: Ensure access to freight terminals such as river ports, airports, and intermodal rail yards.

Objective: Increase transit ridership and share of trips taken using transit bicycling and walking.

Objective: improve multimodal travel options for people of all ages and abilities to connect to jobs and other opportunities, particularly for historically underrepresented populations.

Strategies: C1, C2, C4, C7, C8, C9, C11, C12, and C17 (Page 2.8-2.10)

Goal D: Competitive Economy

Objective: Improve multimodal access to regional job concentrations identified in Thrive MSP 2040.

Objective: Invest in a multimodal transportation system to attract and retain businesses and residents.

Strategies: D1, D3 (Page 2.11)

Goal E: Healthy Environment

Objective: Increase the availability and attractiveness of transit, bicycling, and walking to encourage healthy communities and active car-free lifestyles.

Objective: Provide a transportation system that promotes community cohesion and connectivity for historically underrepresented populations.

Strategies: E1, E2, E3, E5, E6, and E7 (Page 2.12-2.13)

Goal F: Leveraging Transportation Investments to Guide Land Use.

Objective: Focus regional growth in areas that support the full range of multimodal travel.

Objective: Encourage local land use design that integrates highways, streets, transit, walking, and bicycling.

Strategies: F1, F2, F3, F4, F5, F6, and F7 (Page 2.14-2.15)

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.

City of St. Paul Bicycle Plan (2017):

- Identified the Capital City Bikeway alignment as a priority (pg. 62).

- Capital City Bikeway Interim Design Study (2021) which was a continuation of the Bicycle Plan identified Wabasha Street between 10th Street and 7th Street as the preferred alignment for the Capacity City Bikeway alignment. (pg. 25) https://www.stpaul.gov/sites/default/files/2021-04/CCB_Presentation_033121%20-%20Final.pdf

City of St. Paul 2040 Comprehensive Plan (2020):

- Policy T-2. Use surface condition and multimodal usage rates to prioritize transportation projects and ensure well-maintained infrastructure that benefits the most people (See Maps T-10 and T-12). (pg. 73)

-Policy T-9. Design the rights-of-way for all users, including older people, children and those with mobility constraints, as guided by the Street Design Manual and Safe Routes to School Plans, and by thoughtfully addressing streetscape issues such as curb cut design, level sidewalks, lighting, accessibility to/from bus stops, and the presence of benches and buffers between sidewalks and streets. (pg. 73)

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 2022 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 the 2022 Regional Solicitation funding cycle, this requirement may include that the plan is updated within the past five years.

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: 01/13/2016

Link to 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, per FHWA direction established 8/27/2008 and updated 6/27/2017. 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 and bridge 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.

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 MnDOTs 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 bridge clear span must exceed 20 feet.

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

6. The bridge must have a National Bridge Inventory Rating of 6 or less for rehabilitation projects and 4 or less for replacement projects.

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 Michael Corbett at MnDOT (Michael.J.Corbett@state.mn.us or 651-234-7793) 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)	$144,000.00
Removals (approx. 5% of total cost)	$46,700.00
Roadway (grading, borrow, etc.)	$204,000.00
Roadway (aggregates and paving)	$1,107,600.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$245,000.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$56,400.00
Traffic Control	$144,000.00
Striping	$26,000.00
Signing	$7,000.00
Lighting	$285,000.00
Turf - Erosion & Landscaping	$93,000.00
Bridge	$0.00
Retaining Walls	$0.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$1,600,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$1,456,000.00
Other Roadway Elements	$201,000.00
Totals	**$5,615,700.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$249,400.00

Sidewalk Construction	$332,900.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$68,400.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$0.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$50,000.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$274,000.00
Other Bicycle and Pedestrian Elements	$81,600.00
Totals	**$1,056,300.00**

Specific Transit and TDM Elements

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

Transit Operating Costs

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

Totals

Total Cost	$6,672,000.00

Construction Cost Total	$6,672,000.00
Transit Operating Cost Total	$0.00

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

Existing Employment within 1 Mile:	81472
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	3804
Existing Post-Secondary Students within 1 Mile:	5823
Upload Map	1649791892362_WabashaEconomyMap.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:

Miles: 0

(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: Yes

None of the tiers:

Measure A: Current Daily Person Throughput

Location	North of 7th Street (TH 5)
Current AADT Volume	10300
Existing Transit Routes on the Project	Other

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

Upload Transit Connections Map 1649792014090_WabashaTransitMap.pdf

Please upload attachment in PDF form.

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	13390.0

Measure B: 2040 Forecast ADT

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

Measure A: Engagement

i.Describe any Black, Indigenous, and People of Color populations, low-income populations, disabled populations, youth, or older adults within a ½ mile of the proposed project. Describe how these populations relate to regional context. Location of affordable housing will be addressed in Measure C.
ii.Describe how Black, Indigenous, and People of Color populations, low-income populations, persons with disabilities, youth, older adults, and residents in affordable housing were engaged, whether through community planning efforts, project needs identification, or during the project development process.
iii.Describe the progression of engagement activities in this project. A full response should answer these questions:

Response:

As shown on the Socio-Economic map, the project's census tracts are above the regional average for population in poverty or population of color. Community engagement has through community planning efforts, starting with the St. Paul Bike Plan public hearing conducted in December 2014 - summary of the meeting at www.stpaul.gov/bikeplan.

In 2016, the Capital City Bikeway: Network Study and Design Guide was completed, resulting in a downtown network of bikeways that are accessible for people of all ages, backgrounds, and abilities. During this study, several opportunities were provided to engage with equity populations within the project area:

- A four day "discovery workshop" was held in May 2015 with individual stakeholder interviews with community leaders, downtown business/property owners, cultural institution representatives, local organizations, City staff, and elected officials.
- A four-day design workshop was held in June 2015 with "open studio" hours for the public to provide input and react to the designs.
- Four pop-up events took place to gather additional project input on the project at Mears Park, Pedro Park, and Rondo Days, including a bike ride at Rondo Days with the NiceRide Neighborhood Group and Major Taylor Bicycling Club.

The Capital City Interim Design Study completed in 2021, resulted in Wabasha Street identified as the preferred alignment for the Capital City Bikeway. The following comprehensive public outreach was conducted for this study:

- Three public open houses (May 2019, October 2019 and February 2020) with a total of 235 in attendance.

- Three online surveys in coordination with the public open houses. A total of 420 responses were received.
- Other activities included direct mailings and emails, targeted stakeholder engagement, direct outreach to stakeholders and meetings with stakeholder groups.

- The City offered translated materials for those that requested them. According to 2019 ACS data in the project area, approximately 45 percent of the population identifies as BIPOC, 26 percent of the population has an income below the poverty threshold, and 24 percent of the population is under age 18 or over age 65.
- Final recommendations vetted through the public process detailed above were shared with the City Council at a public hearing on May 21, 2021.

- Additional details on this outreach can be found at https://www.stpaul.gov/projects/public-works/pw2022ccbwest#project-documents

As shown on the Equity Populations and Destinations map, low-income and senior populations living along or near Wabasha Street were included in these engagement activities related to the project.

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

Measure B: Equity Population Benefits and Impacts

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

This is not an exhaustive list. A full response will support the benefits claimed, identify benefits specific to Equity populations residing or engaged in activities near the project area, identify benefits addressing a transportation issue affecting Equity populations 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.

Response:

The project is in an area above the regional average for population in poverty or people of color. The project will provide direct benefits to residents living in subsidized and senior apartments, persons with disabilities and youth to destinations in the area (see Equity Populations and Destinations map).

According to 2019 ACS population data in the project area, approximately 45 percent identifies as BIPOC, 26 percent has an income below the poverty threshold, and 24 percent is under 18 or over 65.

Benefits include:

Bicycle/Pedestrian Safety - Wabasha Street currently does not have a safe separated bike facility. The project provides a two-way bikeway raised to sidewalk height with a landscaped boulevard between the bikeway and sidewalk. In the past 10 years there have been five pedestrian/vehicle injury crashes along the project corridor. The sidewalk will be reconstructed, and all intersections will be upgraded to full ADA compliance to further improve bicycle and pedestrian safety. Bump outs will also be installed to reduce the crossing distance and visually narrow the roadway.

Access - The two-way bikeway and reconstructed sidewalk will provide access improvements for residents living in the low-income and senior housing along or near Wabasha Street, such as the Exchange Hi-Rise and Central Towers, to various area destinations.

The project improves access to the many

downtown St. Paul destinations. For equity populations relying on public transit as an alternative transportation mode, the improvements provide a better pedestrian connection to the downtown employment pool for daily commuter travel.

New Modal Option and Public Health Benefits - The two-way bikeway provides a new transportation option for equity populations with limited access to a car, while encouraging biking as a recreational activity and improving the health for all underserved communities. The Capital City Bikeway goal is to increase the mode share of bicycling. This provides the opportunity to use biking as a commuting option.

Gap Closure - The project includes a two-way bikeway between 7th and 10th Streets to implement the Capital City Bikeway and complete a gap in the St. Paul bicycle network and regional trail system.

Leveraging Investments - The City plans to construct the bikeway segment on Wabasha Street between Kellogg Boulevard and 7th Street in 2022. This project leverages another beneficial project planned for near-term construction.

There will be construction activities along Wabasha Street that will directly impact the traveling public and nearby residents and businesses. However, project construction will incorporate proper noise, dust, traffic management mitigation, access management and planned detour routes for all users.

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

Measure C: Affordable Housing Access

Describe any affordable housing developmentsexisting, under construction, or plannedwithin 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 projects benefits to current and future affordable housing residents within ½ mile of the project. Benefits must relate to affordable housing residents. Examples may include:

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:

As shown on the attached "Socio-Economic" map, there are 4,604 subsidized housing units in the census tracts within ½ mile of the project. As shown on the attached Affordable Housing and Destinations map, there are a significant amount of low-income housing located in the project area where Wabasha Street provides direct access to daily destinations and other alternative modes of travel:

- Wabasha Hi-Rise (71 units)

- Exchange Hi-Rise (194 units)
- Central Towers (197 units)

- Dorothy Day Residence Mary Hall (75 units)
- Dorothy Day Residence (177 units)
- Dorothy Day Phase I (193 units)
- Higher Ground I (193 units)
- Renaissance Box (70 units)
- Lyons Court Independent Living Facility (60 units)
- Sibley Court Apartments (52 units)
- Sibley Park Apartments (50 units)
- Heritage House (58 units)
- Mears Park Place (50 units)
- The Straus Building (34 units)
- American House (70 units)
- Crane Ordway (70 units)
- Northern Warehouse (52 units)
- Tilsner Building (65 units)
- Pioneer Press Building (143 units)
- Minnesota Place (137 units)
- Commerce Apartments Phase II (45 units)
- Commerce Apartments Phase I (55 units)
- Valley Hi-Rise (158 units)
- Cathedral Hill Homes (60 units)
- Ravoux Hi-Rise (220 units)
- Capitol Plaza (36 units)
- Neill Hi-Rise(103 units)

The two-way bikeway and reconstructed sidewalk will provide direct access improvements for residents living in the low-income and senior housing along or near Wabasha Street, such as the Exchange Hi-Rise and Central Towers, to various destinations in the area. It will also provide an improved connection for equity populations relying on public transit and walking as alternative modes of transportation to businesses and downtown employment destinations.

The project includes multimodal improvements for these residents of affordable housing that use bicycling and walking as their mode of transportation for short trips to the grocery store, church or health services. This project will reallocate space in the corridor to improve accommodations for people biking and walking with the addition of boulevard space (to provide separation from the roadway), lighting (to promote user comfort), and proven countermeasures such as raised medians and curb extensions (to promote safety along and across the corridor). The project will also add a two-way bikeway facility separated by a barrier on the west side of Wabasha Street. This bikeway will provide a new modal option and improve connections to important community destination and provides a direct connection to existing transit stops on 10th Street.

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

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:

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

Project located in a census tract that is below the regional average for population in poverty or populations of color (Regional Environmental Justice Area):	
Upload the Socio-Economic Conditions map used for this measure.	1649884926631_WabashaSocioMap.pdf

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
1957	0.2	391.4	1957.0
	0	**391**	**1957**

Total Project Length

Total Project Length (as entered in "Project Information" form)	0

Average Construction Year

Weighted Year	1957

Total Segment Length (Miles)

Total Segment Length	0.2

Measure B: Geometric, Structural, or Infrastructure Improvements

Improved roadway to better accommodate freight movements:	Yes
Response:	Wabasha Street is one of only a few Mississippi River crossings in downtown St. Paul. In addition, this corridor moves freight to 11th Street (on-ramp for I-94 eastbound and I-35E northbound) and 12th Street (on-ramp for I-94 westbound and I-35E southbound). Freight movements along the corridor will be greatly improved with the reconstruction of the deteriorated roadway pavement, installation of new traffic signals for better signal timing - hence reliable travel times and improved pedestrian visibility to minimize potential accidents.

(Limit 700 characters; approximately 100 words)

Improved clear zones or sight lines: Yes

Response:

A variety of improvements will be made to improve clear zones and sight lines along the corridor:

- The addition of curb extensions will expand sight lines at intersections.

- Crossing improvements will be implemented on cross streets and along Wabasha Street where appropriate, to increase visibility of pedestrians and bicyclists at the intersections.

- All access points will be evaluated.

- Upgraded and consistent street and pedestrian scale lighting will improve night visibility and safety via CPTED (Crime Prevention Through Environmental Design) principles.

- Boulevards will provide clear zones.

(Limit 700 characters; approximately 100 words)

Improved roadway geometrics: Yes

Response:

- Roadway geometric improvements such as optimized turning radii and lane widths, crossing improvements, curb extensions and other traffic calming improvements will reduce crossing distances and exposure for pedestrians and bicyclists while preserving auto movements.

- The construction of curb bump outs will also reduce the crossing distance and visually narrow the roadway to provide additional pedestrian safety.

(Limit 700 characters; approximately 100 words)

Access management enhancements: Yes

Response:

Due to the downtown street system, access is already well managed with relatively few driveways along the Wabasha Street project corridor. Between 7th Street and Exchange Street, driveway access is limited to parking areas. Between Exchange Street and 11th Street, there are no existing access driveways. The project will maintain current conditions that minimizes driveway access along Wabasha Street.

(Limit 700 characters; approximately 100 words)

Vertical/horizontal alignment improvements:

Yes

Response:

The existing vertical alignment along Wabasha Street is relatively flat with adequate sight distance. Curb extensions will be added at all intersections along the corridor to minimize crossing distances thus reducing stopping sight distances needed by motorists reacting to pedestrian traffic crossing the intersections.

(Limit 700 characters; approximately 100 words)

Improved stormwater mitigation:

Yes

Response:

The project will include stormwater BMPs in accordance with the requirements of the Watershed District. Streetscape elements such as bio-retention features and other sustainable landscaping practices will be evaluated as needed to address localized stormwater retention and necessary stormwater quality requirements. Reconstructed curb and gutter will provide added drainage benefits.

(Limit 700 characters; approximately 100 words)

Signals/lighting upgrades:

Yes

Response:

The project will include full replacement of the traffic signals at 11th Street, 10th Street, Exchange Street and 7th Street (TH 5). All intersections will also be upgraded to full ADA compliance including ramps, traffic signals, countdown timers, and Accessible Pedestrian Signals to further improve bicycle and pedestrian safety. In addition, upgraded and consistent street lighting will improve night visibility and safety via CPTED principles.

(Limit 700 characters; approximately 100 words)

Other Improvements

Yes

Response:

The project will include full replacement of the traffic signals at 11th Street, 10th Street, Exchange Street and 7th Street (TH 5). All intersections will also be upgraded to full ADA compliance including ramps, traffic signals, countdown timers, and Accessible Pedestrian Signals to further improve bicycle and pedestrian safety. In addition, upgraded and consistent street lighting will improve night visibility and safety via CPTED principles.

(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 Reduced by the Project:	Total Peak Hour Delay Reduced by the Project:	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable.	Synchro or HCM Reports
9.0	9.0	0	1732	1732	0	0	N/A	1649792962951_Wabasha Traffic Analysis.pdf

11.0	11.0	0	1625	1625	0	0	N/A	1649792990730_Wabasha Traffic Analysis.pdf
8.0	8.0	0	1286	1286	0	0	N/A	1649793019659_Wabasha Traffic Analysis.pdf
15.0	15.0	0	2292	2292	0	0	N/A	1649793045890_Wabasha Traffic Analysis.pdf
						0		

Vehicle Delay Reduced

Total Peak Hour Delay Reduced	0
Total Peak Hour Delay Reduced	0

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):
5.45	5.45	0
5	**5**	**0**

Total

Total Emissions Reduced:	0
Upload Synchro Report	1649793198356_Wabasha Traffic Analysis.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:	Install bicycle lane CMF and curb extension CMF were used. The curb extension CMF was provided by MnDOT from the Best Practices for Pedestrian Safety Manual, published January 2021. There was not a CMF available for this improvement within the CMF Clearinghouse website
(Limit 700 Characters; approximately 100 words)	
Rationale for Crash Modification Selected:	Based on the proposed concept, this is the directly applicable CMF. These features will be installed throughout the length of the corridor and at the study intersections.
(Limit 1400 Characters; approximately 200 words)	
Project Benefit ($) from B/C Ratio	$11,018,393.00
Total Fatal (K) Crashes:	0
Total Serious Injury (A) Crashes:	0
Total Non-Motorized Fatal and Serious Injury Crashes:	0
Total Crashes:	31
Total Fatal (K) Crashes Reduced by Project:	0
Total Serious Injury (A) Crashes Reduced by Project:	0
Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:	0
Total Crashes Reduced by Project:	24
Worksheet Attachment	1649885165009_Wabasha Crash Analysis.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 A: 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 doesnt 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 how these 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 roadways 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.

In the last 10 years there have been five pedestrian/vehicle crashes within the project limits. Two were minor injury crashes and three were possible injury crashes. The project improvements will have a direct impact on pedestrian and bicycle safety as described below.

The project will add curb extensions to reduce crossing distances and high visibility continental crosswalk markings to further enhance the pedestrian and bicycle safety along the corridor. Additionally, a boulevard space between the sidewalk and bikeway will be incorporated into the design to provide a more comfortable pedestrian space along both sides of the corridor. Finally, a two-way separated bikeway at sidewalk height will be added on the west side of Wabasha Street.

Response:

According to PEDSAFE, curb extensions improve pedestrian safety by reducing the pedestrian crossing distance, reducing the time that pedestrians are in the street, visually and physically narrowing the roadway, and improving the ability of pedestrians and motorists to see each other. MnDOT also recommends the incorporation of curb extensions as a best practice for increasing pedestrian and bicycle safety.

Another PEDSAFE countermeasure the project will include is reduced lane widths to improve the safety and comfort of pedestrians, and other modes of travel by shortening the crossing distance and lowering vehicle speeds. In addition, the short block lengths will naturally discourage mid-block crossings.

PEDSAFE also states designing streets for bicycle use helps create a more predictable traffic environment by reducing conflicts between all

modes of travel, whether the conflict is between bicyclists and motor vehicles or pedestrians and bicyclists. Dedicated bicycle facilities (e.g., bicycle lanes) on the roadway also help provide a buffer between pedestrians and motor vehicle traffic, encourage lower motor vehicle speeds, and reduce pedestrian exposure to motor vehicles at crossings. Bicycle lanes are also a proven safety countermeasure per FHWA by creating a safer and more comfortable environment for bicyclists and can mitigate or prevent interactions, conflicts and crashes between bicycles and motor vehicles.

Crosswalk visibility enhancements will be incorporated into the project through the implementation of upgraded lighting, signing, pavement markings and high-visibility continental crosswalk markings. Each of these items are proven safety countermeasures according to FHWA. FHWA notes that high-visibility crosswalks can reduce pedestrian injury crashes up to 40 percent and intersection lighting can reduce pedestrian crashes up to 42 percent.

(Limit 2,800 characters; approximately 400 words)

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

Select one: No

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:

(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 doesnt 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:

The Wabasha Street reconstruction project will add a dedicated bicycle facility with the construction of a separated two-way bikeway on the west side of the roadway. According to PEDSAFE, dedicated bicycle facilities (e.g., bicycle lanes) on the roadway help provide a buffer between pedestrians and motor vehicle traffic, encourage lower motor vehicle speeds, and reduce pedestrian exposure to motor vehicles at crossings.

The project will also remove parking on the west side of the roadway between 7th Street and 10th Street and add curb extensions at all intersections. Both of these features will narrow the space for vehicles and calm traffic thereby naturally slowing vehicle speeds.

(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:

The posted speed limit on Wabasha Street is 25 mph. The proposed project is not anticipated to change the posted speed limit on Wabasha Street.

(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	Yes
Existing road configuration is a Two-way, 4+ through lanes	
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	
Existing road has AADT of greater than 15,000 vehicles per day	
List the AADT	

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. If service was temporarily reduced for the pandemic but is expected to return to 2019 levels, consider 2019 service for this item.)	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. If service frequency was temporarily reduced for the pandemic but is expected to return to 2019 levels, consider 2019 frequency for this item.)	Yes
Existing road is within 500 of 1+ shopping, dining, or entertainment destinations (e.g., grocery store, restaurant)	Yes
If checked, please describe:	Downtown St. Paul offers a wide variety of performing arts venues, museums, and dining options to walk using the City's extensive sidewalk system. As shown in the attached "Affordable Housing and Destination" map there are numerous shopping, dining, and entertainment destinations within 500 feet of the project including, but not limited to the History Theatre, Fitzgerald Theater, Palace Theatre, Minnesota Children's Museum, Walgreens, Peters Market, Pho Vietnamese, Ruam Mit Thai + Lao Food, Subway, Mickey's Diner, and Afro Deli & Grill.

(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:	As shown in the attached "Affordable Housing and Destination" map there are known pedestrian generators within 500 feet of the project including numerous affordable housing (e.g., Exchange Hi-Rise, Wabasha Hi-Rise, Central Towers), schools (e.g., Upper Mississippi Academy), civic/community center (e.g., St. Paul Public Housing Agency, Fairview St. Josephs Campus), and several churches (e.g., Church of Scientology, Central Presbyterian Church).

(Limit 1,400 characters; approximately 200 words)

Measure A: Multimodal Elements and Existing Connections

Response:

Wabasha Street is a high-density corridor with existing land use patterns that support active transportation and increasing development that demands it. The City's Complete Streets Policy will guide the design of this project, redistributing space within the right-of-way to the most vulnerable users: pedestrians, bicyclists, and transit users. The project will positively affect the multimodal system as described in detail below.

Bicycle and Pedestrian Elements and Connections - The project is located in an RBTN Tier 1 Corridor and includes reconstruction of the deteriorated sidewalks and non-compliant curb ramps along Wabasha Street. All intersections will include ADA compliant curb ramps, curb extensions to reduce crossing distances, and high visibility continental crosswalk markings to further enhance the pedestrian and bicycle safety along the corridor. A buffered green space between the sidewalk and roadway will be incorporated into the design to provide a more comfortable pedestrian space along both sides of the corridor. Finally, a two-way separated bikeway at sidewalk height will be added on the west side of Wabasha Street. This bikeway facility is part of the Capacity City Bikeway corridor that connects bike trails, the Grand Round trails, and fills and gap in the citywide bike infrastructure. The Capital City Bikeway is consistent with the city goals and priorities identified in the St. Paul Bicycle Plan, the 2040 Comprehensive Plan, and the Climate Action and Resiliency Plan. The City is constructing the Capital City Bikeway segment between Kellogg Boulevard and 7th Street in 2022. This project will tie into this project at 7th Street and continue the bikeway north to 10th Street.

Transit Connections - The proposed project will enhance pedestrian and bicycle access to Metro Transit routes 3, 62, and 67 offer service along 11th

Street with a stop just west of the project area. Route 3 offers high-frequency weekday service and service every half hour on weekends between downtown Minneapolis and Union Depot in downtown St. Paul. The route also connects to the A Line BRT and Metro Green Line LRT. Route 62 offers weekday and weekend service between West St. Paul and Shoreview and connects to downtown Minneapolis and Target Field via the Metro Green Line LRT. Route 67 offers weekday and weekend service between Franklin Avenue in Minneapolis and downtown St. Paul. The route provides connection to the Metro Green LRT, Metro Blue LRT, and the A Line BRT.

(Limit 2,800 characters; approximately 400 words)

Transit Projects Not Requiring Construction

If the applicant is completing a transit application that is operations only, check the box and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.
Park-and-Ride and other transit construction projects require completion of the Risk Assessment below.

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment - Construction Projects

1.Public Involvement (20 Percent of Points)

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

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

100%

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

Yes

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:

Community engagement has occurred through community planning efforts, starting with the St. Paul Bike Plan public hearing conducted in December 2014 - summary of the meeting at www.stpaul.gov/bikeplan.

The Capital City Bikeway: Network Study and Design Guide was completed in 2016.Outreach opportunities included:

- A four day "discovery workshop" was held in May 2015 with individual stakeholder interviews with community leaders, downtown business/property owners, cultural institution representatives, local organizations, City staff, and elected officials.
- A four-day design workshop was held in June 2015 with "open studio" hours for the public to provide input and react to the designs.
- Four pop-up events took place to gather additional project input on the project at Mears Park, Pedro Park, and Rondo Days, including a bike ride at Rondo Days with the NiceRide Neighborhood Group and Major Taylor Bicycling Club.

The Capital City Interim Design Study was completed in 2021 and included a comprehensive public outreach campaign as described below:

- Three public open houses (May 2019, October 2019 and February 2020) with a total of 235 in attendance.

- The City sent out direct mailings to adjacent residents and businesses, distributed a public notice, and sent out an email to the project contact list notifying the public of each of the open houses.
- The City also facilitated three online surveys in coordination with the public open houses. A total of

420 responses were received.
- Final recommendations were shared with the City Council at a public hearing on May 21, 2021.
- Targeted stakeholder engagement including direct outreach to stakeholders and meetings with stakeholder groups was completed.
- The study was guided by a Technical Advisory Committee.

Additional details on this outreach can be found here https://www.stpaul.gov/projects/public-works/pw2022ccbwest#project-documents

(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 projects 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 1649889370440_Wabasha_Layout.pdf

Please upload attachment in PDF form.

Additional Attachments

Please upload attachment in PDF form.

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

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

100%

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

100%

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

80%

Historic/archeological property impacted; determination of adverse effect anticipated

40%

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

0%

Project is located on an identified historic bridge

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

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

100%

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

50%

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

25%

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

0%

5.Railroad Involvement (15 Percent of Points)

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

100%

Signature Page

Please upload attachment in PDF form.

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

50%

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

0%

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	$6,672,000.00
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$6,672,000.00
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
Wabasha Project Summary.pdf	1-page Project Summary	295 KB
WabashaCongestionMap.pdf	Met Council Congestion Map	2.5 MB
Wabasha_Existing photos.pdf	Existing Photos	751 KB
Wabasha_LOS_City.pdf	City Resolution	96 KB
Wabasha_LOS_MnDOT.pdf	MnDOT Letter of Support	262 KB

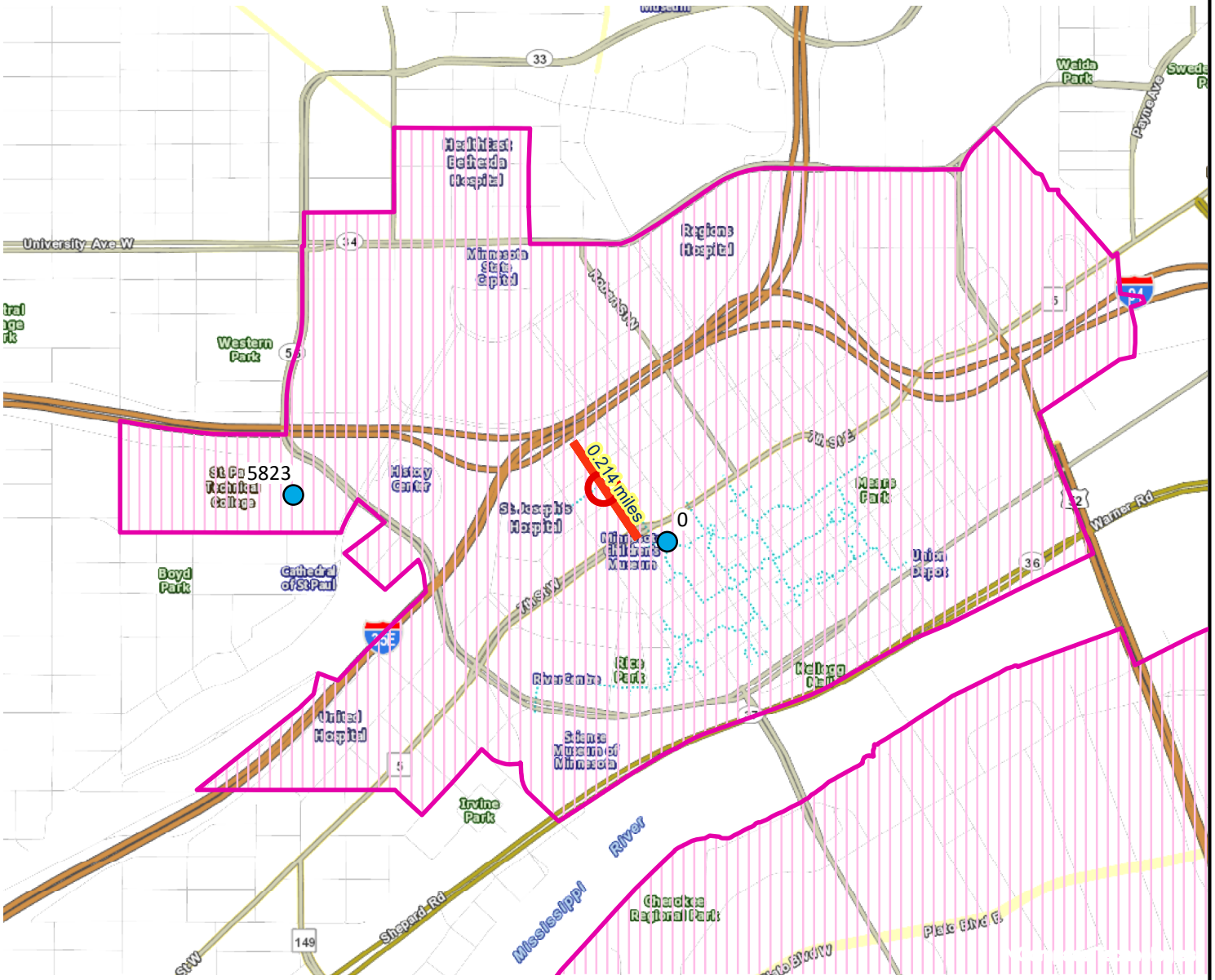
Regional Economy

Roadway Reconstruction/Modernization Project: Wabasha Street | Map ID: 1648301685072

Results

WITHIN ONE MI of project:
Postsecondary Students: 5823

Totals by City:
St. Paul
Population: 39948
Employment: 81472
Mfg and Dist Employment: 3804



Created: 3/26/2022
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: Wabasha Street | Map ID: 1648301685072

Results

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

**indicates Planned Alignments*

Transit Market areas: 1

Project Points
Project
Project Area
Active Stop
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

Arterial Bus Rapid Transit
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Modern Streetcar

Undetermined
Arterial Bus Rapid Transit
Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit

Light Rail
Modern Streetcar
Undetermined

0 0.175 0.35 0.7 1.05 1.4 Miles

Created: 3/26/2022
LandscapeRSA3

METROPOLITAN COUNCIL

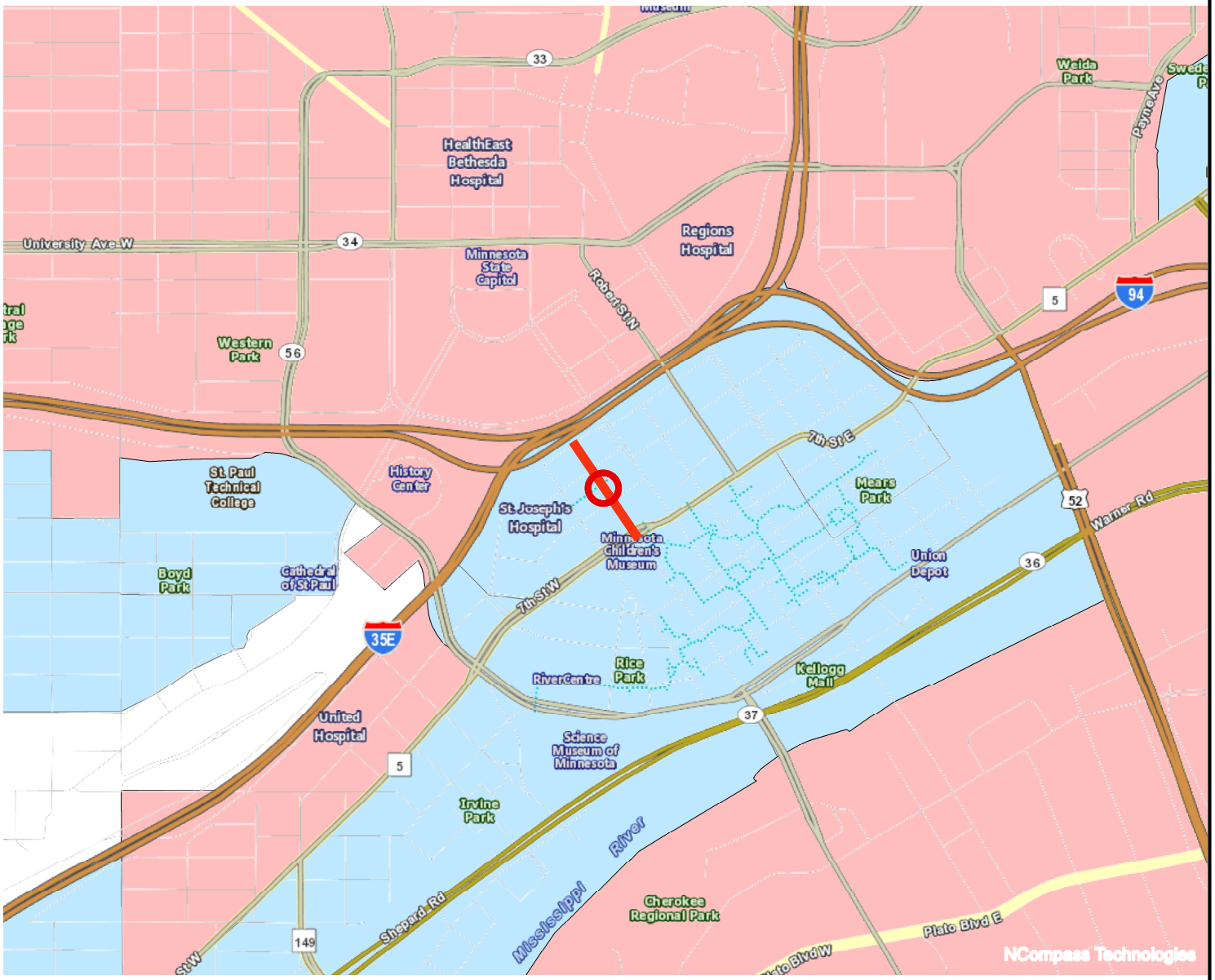
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: Wabasha Street | Map ID: 1648301685072

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 4604

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



Points

Lines

Area of Concentrated Poverty

Regional Environmental Justice Area

0 0.175 0.35 0.7 1.05 1.4 Miles

Created: 3/26/2022
LandscapeRSA2

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

METROPOLITAN COUNCIL

Wabasha Street Reconstruction (7th Street to 11th Street)

Equity Populations and Destinations

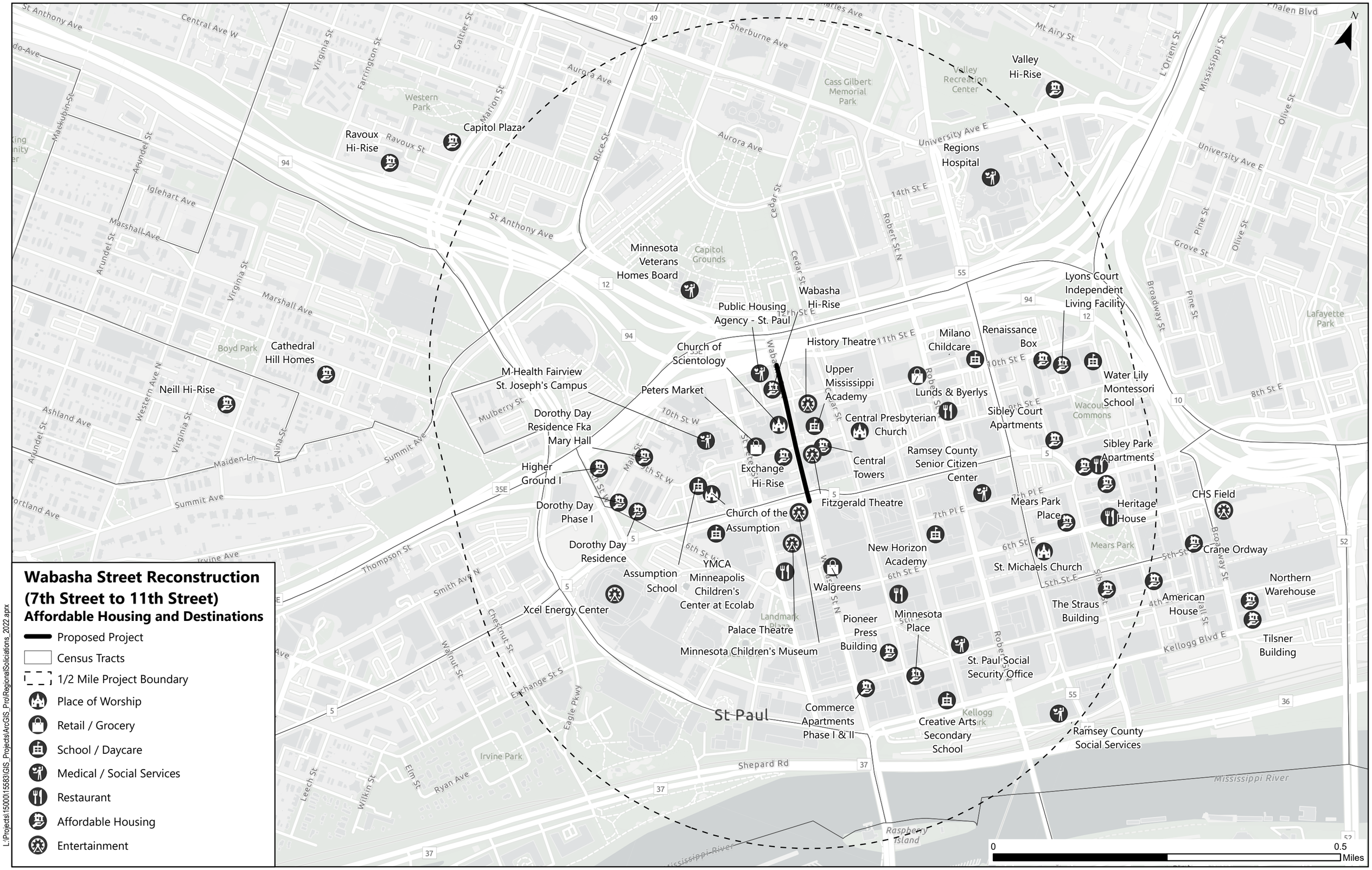
- Proposed Project
- Census Tracts
- 1/2 Mile Project Boundary
- Place of Worship
- School / Daycare
- Senior Housing
- Medical / Social Services
- Affordable Housing

Ravoux Hi-Rise
Capitol Plaza
Valley Hi-Rise
Regions Hospital
Minnesota Veterans Homes Board
Public Housing Agency - St. Paul
Lyons Court Independent Living Facility
Cathedral Hill Homes
M Health Fairview St. Joseph's Campus
Wabasha Hi-Rise
Renaissance Box
Milano Childcare
Water Lily Montessori School
Neill Hi-Rise
Church of Scientology
Upper Mississippi Academy
Dorothy Day Residence Fka Mary Hall
Higher Ground I
Exchange Hi-Rise
Central Towers
Ramsey County Senior Citizen Center
Sibley Court Apartments
Sibley Park Apartments
Dorothy Day Phase I
Central Presbyterian Church
Mears Park Place
Heritage House
Dorothy Day Residence
Church of the Assumption
New Horizon Academy
St. Michaels Church
Crane Ordway
YMCA Minneapolis Children's Center at Ecolab
Assumption School
Pioneer Press Building
Minnesota Place
The Straus Building
American House
Northern Warehouse
Tilsner Building
St. Paul Social Security Office
Commerce Apartments Phase I & II
Creative Arts Secondary School
Ramsey County Social Services

St Paul

0 0.5 Miles

L:\Projects\15000\15683\GIS_Projects\ArcGIS_Pro\RegionalSolicitations_2022.aprx


Wabasha Street Reconstruction
(7th Street to 11th Street)
Affordable Housing and Destinations
Proposed Project
Census Tracts
1/2 Mile Project Boundary
Place of Worship
Retail / Grocery
School / Daycare
Medical / Social Services
Restaurant
Affordable Housing
Entertainment
L:\Projects\150001\15583\GIS_Projects\ArcGIS_Pro\RegionalSolicitations_2022.aprx
N
0
0.5
Miles
St Paul
Mississippi River
Ravoux Hi-Rise
Capitol Plaza
Valley Hi-Rise
Regions Hospital
Minnesota Veterans Homes Board
Wabasha Hi-Rise
Public Housing Agency - St. Paul
Lyons Court Independent Living Facility
Cathedral Hill Homes
Neill Hi-Rise
Church of Scientology
History Theatre
Milano Childcare
Renaissance Box
Water Lily Montessori School
M-Health Fairview St. Joseph's Campus
Peters Market
Upper Mississippi Academy
Lunds & Byerlys
Dorothy Day Residence Fka Mary Hall
Central Presbyterian Church
Sibley Court Apartments
Higher Ground I
Exchange Hi-Rise
Central Towers
Ramsey County Senior Citizen Center
Sibley Park Apartments
Dorothy Day Phase I
Fitzgerald Theatre
Mears Park Place
Heritage House
CHS Field
Church of the Assumption
Dorothy Day Residence
New Horizon Academy
St. Michaels Church
Crane Ordway
Assumption School
YMCA Minneapolis Children's Center at Ecolab
Walgreens
Xcel Energy Center
Palace Theatre
Pioneer Press Building
Minnesota Place
The Straus Building
American House
Northern Warehouse
Minnesota Children's Museum
St. Paul Social Security Office
Tilsner Building
Commerce Apartments Phase I & II
Creative Arts Secondary School
Ramsey County Social Services
Cass Gilbert Memorial Park
Valley Recreation Center
Western Park
Boyd Park
Irvine Park
Lafayette Park
Capitol Grounds
Landmark Plaza
Kellogg Park
Wacouta Commons
Raspberry Island
Aurora Ave
Sherburne Ave
Mt Airy St
University Ave E
St Anthony Ave
Marshall Ave
Summit Ave
Iglehart Ave
Ravoux St
Grove St
Kellogg Blvd E
Shepard Rd
Thompson St
Chestnut St
Walnut St
Exchange St S
Eagle Pkwy
Ryan Ave
Irvine Ave
Smith Ave N
Maiden Ln
Mulberry St
10th St W
9th St W
6th St W
5th St W
12th St E
11th St E
10th St E
8th St E
7th Pl E
6th St E
5th St E
4th St E
14th St E
Central Ave W
Virginia St
Farrington St
Galtier St
Marion St
Rice St
Cedar St
Robert St N
Wabasha St
Minnesota St
Robert St S
Broadway St
Pine St
Olive St
Mississippi St
L'Orient St
Arundel St
Maeklubin St
Western Ave N
Nina St
Elm St
Wilkin St
Leech St
Ashland Ave
Portland Ave
Summit Ave
Hall St
49
94
35E
55
12
5
52
36
37
10

Wabasha

1	Wabasha Ave and 11th St		
	Existing Volume	1732	vehicles
	Existing Delay	9	sec/veh
	Existing Total Delay	15588	seconds
	Future Volume	1732	vehicles
	Future Delay	9	sec/veh
	Future Total Delay	15588	seconds
	Total Delay Reduction	0	seconds

2	Wabasha Ave and 10th St		
	Existing Volume	1625	vehicles
	Existing Delay	11	sec/veh
	Existing Total Delay	17875	seconds
	Future Volume	1625	vehicles
	Future Delay	11	sec/veh
	Future Total Delay	17875	seconds
	Total Delay Reduction	0	seconds

3	Wabasha Ave and Exchange St		
	Existing Volume	1286	vehicles
	Existing Delay	8	sec/veh
	Existing Total Delay	10288	seconds
	Future Volume	1286	vehicles
	Future Delay	8	sec/veh
	Future Total Delay	10288	seconds
	Total Delay Reduction	0	seconds

4	Wabasha Ave and 7th St		
	Existing Volume	2292	vehicles
	Existing Delay	15	sec/veh
	Existing Total Delay	34380	seconds
	Future Volume	2292	vehicles
	Future Delay	15	sec/veh
	Future Total Delay	34380	seconds
	Total Delay Reduction	0	seconds

Total Network Delay Reduction	**0**	**seconds**

Emissions

Existing	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

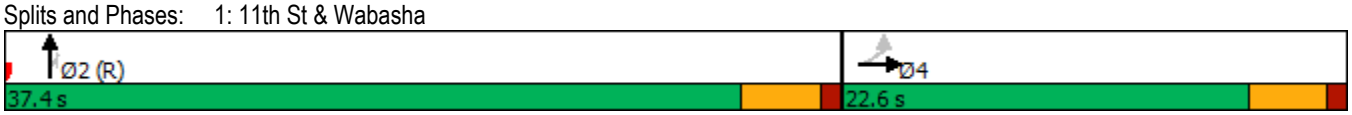
Build	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

Reduction	**0**

Lane Group	EBT	NBT	NBR
Lane Configurations			
Traffic Volume (vph)	274	828	602
Future Volume (vph)	274	828	602
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.6	37.4	37.4
Total Split (%)	37.7%	62.3%	62.3%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	10.6	40.4	40.4
Actuated g/C Ratio	0.18	0.67	0.67
v/c Ratio	0.51	0.38	0.56
Control Delay	22.8	5.2	5.1
Queue Delay	0.0	0.5	1.3
Total Delay	22.8	5.8	6.4
LOS	C	A	A
Approach Delay	22.8	6.1	
Approach LOS	C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

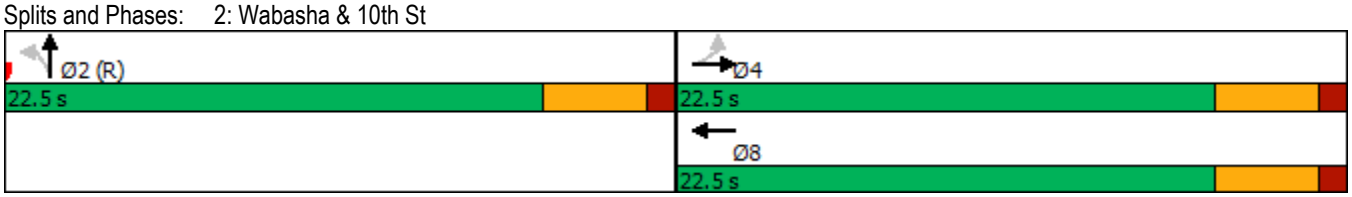
Splits and Phases: 1: 11th St & Wabasha



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	253	102	42	1151
Future Volume (vph)	253	102	42	1151
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		16.0	16.0	20.0
Actuated g/C Ratio		0.36	0.36	0.44
v/c Ratio		0.79	0.12	0.58
Control Delay		26.4	7.9	6.7
Queue Delay		0.0	0.0	0.0
Total Delay		26.4	7.9	6.7
LOS		C	A	A
Approach Delay		26.4	7.9	6.7
Approach LOS		C	A	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

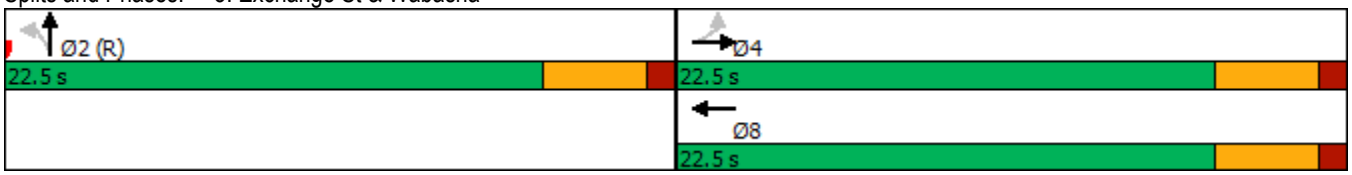
Splits and Phases: 2: Wabasha & 10th St



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	122	23	35	1055
Future Volume (vph)	122	23	35	1055
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		10.4	10.3	28.6
Actuated g/C Ratio		0.23	0.23	0.64
v/c Ratio		0.51	0.12	0.37
Control Delay		20.0	10.2	6.1
Queue Delay		0.0	0.0	0.0
Total Delay		20.0	10.2	6.1
LOS		B	B	A
Approach Delay		20.0	10.2	6.1
Approach LOS		B	B	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 43.3%	ICU Level of Service A
Analysis Period (min) 15	

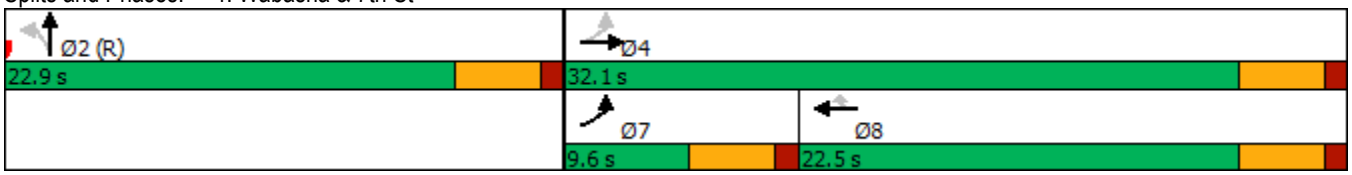
Splits and Phases: 3: Exchange St & Wabasha



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	174	613	526	176	84	660
Future Volume (vph)	174	613	526	176	84	660
Turn Type	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases	7	4	8			2
Permitted Phases	4			8	2	
Detector Phase	7	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	23.0	23.0	15.3	15.3	23.0	23.0
Actuated g/C Ratio	0.42	0.42	0.28	0.28	0.42	0.42
v/c Ratio	0.59	0.45	0.58	0.36	0.12	0.53
Control Delay	16.9	11.8	19.3	8.4	12.9	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	11.8	19.3	8.4	12.9	14.8
LOS	B	B	B	A	B	B
Approach Delay		12.9	16.5			14.6
Approach LOS		B	B			B

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 55.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Wabasha & 7th St



1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

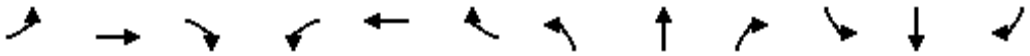
Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	11
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	8
CO Emissions (kg)	0.65
NOx Emissions (kg)	0.13
VOC Emissions (kg)	0.15

4: Wabasha & 7th St

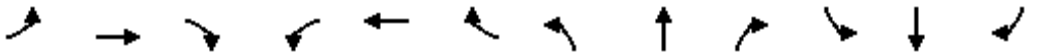
Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35



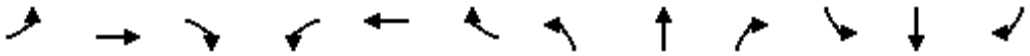
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Future Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1870	1870	0				0	1870	1870			
Adj Flow Rate, veh/h	30	298	0				0	900	654			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	98	475	0				0	2499	1115			
Arrive On Green	0.15	0.15	0.00				0.00	0.70	0.70			
Sat Flow, veh/h	192	3319	0				0	3647	1585			
Grp Volume(v), veh/h	178	150	0				0	900	654			
Grp Sat Flow(s),veh/h/ln	1809	1617	0				0	1777	1585			
Q Serve(g_s), s	2.4	5.2	0.0				0.0	6.0	12.5			
Cycle Q Clear(g_c), s	5.5	5.2	0.0				0.0	6.0	12.5			
Prop In Lane	0.17		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	336	237	0				0	2499	1115			
V/C Ratio(X)	0.53	0.63	0.00				0.00	0.36	0.59			
Avail Cap(c_a), veh/h	611	488	0				0	2499	1115			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	0.79	0.79			
Uniform Delay (d), s/veh	24.2	24.1	0.0				0.0	3.5	4.5			
Incr Delay (d2), s/veh	1.3	2.8	0.0				0.0	0.3	1.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	2.1	0.0				0.0	1.4	2.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	26.9	0.0				0.0	3.9	6.3			
LnGrp LOS	C	C	A				A	A	A			
Approach Vol, veh/h		328						1554				
Approach Delay, s/veh		26.1						4.9				
Approach LOS		C						A				

Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		46.7		13.3								
Change Period (Y+Rc), s		4.5		4.5								
Max Green Setting (Gmax), s		32.9		18.1								
Max Q Clear Time (g_c+I1), s		14.5		7.5								
Green Ext Time (p_c), s		9.0		1.3								

Intersection Summary												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Future Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	275	111	0	0	46	29	24	1251	30			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	450	139	0	0	358	225	44	2423	60			
Arrive On Green	0.33	0.33	0.00	0.00	0.33	0.33	0.15	0.15	0.15			
Sat Flow, veh/h	938	418	0	0	1073	676	94	5192	129			
Grp Volume(v), veh/h	386	0	0	0	0	75	478	397	431			
Grp Sat Flow(s),veh/h/ln	1355	0	0	0	0	1749	1866	1702	1847			
Q Serve(g_s), s	10.9	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Cycle Q Clear(g_c), s	12.2	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Prop In Lane	0.71		0.00	0.00		0.39	0.05		0.07			
Lane Grp Cap(c), veh/h	589	0	0	0	0	583	871	794	862			
V/C Ratio(X)	0.66	0.00	0.00	0.00	0.00	0.13	0.55	0.50	0.50			
Avail Cap(c_a), veh/h	685	0	0	0	0	699	871	794	862			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.83	0.83	0.83			
Uniform Delay (d), s/veh	14.5	0.0	0.0	0.0	0.0	10.4	14.7	14.2	14.2			
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.0	0.0	0.1	2.1	1.9	1.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	0.0	0.4	5.3	4.2	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	0.0	0.0	0.0	0.0	10.5	16.7	16.1	15.9			
LnGrp LOS	B	A	A	A	A	B	B	B	B			
Approach Vol, veh/h		386			75			1305				
Approach Delay, s/veh		16.3			10.5			16.3				
Approach LOS		B			B			B				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.5		19.5				19.5				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		12.7		14.2				3.3				
Green Ext Time (p_c), s		3.5		0.8				0.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Future Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	133	25	0	0	38	13	28	1147	14			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	316	44	0	0	222	76	53	2280	29			
Arrive On Green	0.17	0.17	0.00	0.00	0.17	0.17	0.63	0.63	0.63			
Sat Flow, veh/h	1016	263	0	0	1332	456	84	3598	46			
Grp Volume(v), veh/h	158	0	0	0	0	51	623	0	566			
Grp Sat Flow(s),veh/h/ln	1280	0	0	0	0	1788	1866	0	1862			
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Cycle Q Clear(g_c), s	5.5	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Prop In Lane	0.84		0.00	0.00		0.25	0.04		0.02			
Lane Grp Cap(c), veh/h	360	0	0	0	0	297	1183	0	1180			
V/C Ratio(X)	0.44	0.00	0.00	0.00	0.00	0.17	0.53	0.00	0.48			
Avail Cap(c_a), veh/h	691	0	0	0	0	715	1183	0	1180			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.85	0.00	0.85			
Uniform Delay (d), s/veh	18.2	0.0	0.0	0.0	0.0	16.1	4.5	0.0	4.3			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.3	1.4	0.0	1.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.0	0.0	0.4	2.0	0.0	1.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	0.0	0.0	0.0	0.0	16.4	6.0	0.0	5.5			
LnGrp LOS	B	A	A	A	A	B	A	A	A			
Approach Vol, veh/h		158			51			1189				
Approach Delay, s/veh		19.1			16.4			5.8				
Approach LOS		B			B			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		33.0		12.0				12.0				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		10.3		7.5				3.1				
Green Ext Time (p_c), s		4.5		0.6				0.1				
Intersection Summary												
HCM 6th Ctrl Delay			7.6									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Future Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	189	666	0	0	572	191	91	717	64			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	358	1453	0	0	832	371	762	1411	126			
Arrive On Green	0.09	0.41	0.00	0.00	0.23	0.23	0.43	0.43	0.43			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	3300	294			
Grp Volume(v), veh/h	189	666	0	0	572	191	91	386	395			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1777	1817			
Q Serve(g_s), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Cycle Q Clear(g_c), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.16			
Lane Grp Cap(c), veh/h	358	1453	0	0	832	371	762	760	777			
V/C Ratio(X)	0.53	0.46	0.00	0.00	0.69	0.51	0.12	0.51	0.51			
Avail Cap(c_a), veh/h	358	1783	0	0	1163	519	762	760	777			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	13.7	11.8	0.0	0.0	19.2	18.3	9.5	11.5	11.5			
Incr Delay (d2), s/veh	1.5	0.2	0.0	0.0	1.0	1.1	0.3	2.4	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.6	0.0	0.0	3.1	2.0	0.6	3.4	3.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	12.1	0.0	0.0	20.2	19.4	9.8	13.9	13.9			
LnGrp LOS	B	B	A	A	C	B	A	B	B			
Approach Vol, veh/h		855			763			872				
Approach Delay, s/veh		12.7			20.0			13.5				
Approach LOS		B			C			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		28.0		27.0			9.6	17.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.4		27.6			5.1	18.0				
Max Q Clear Time (g_c+I1), s		10.7		9.5			6.2	10.1				
Green Ext Time (p_c), s		3.1		4.4			0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			15.2									
HCM 6th LOS			B									

1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	12
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.72
NOx Emissions (kg)	0.14
VOC Emissions (kg)	0.17

4: Wabasha & 7th St

Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35

Wabasha

1	Wabasha Ave and 11th St		
	Existing Volume	1732	vehicles
	Existing Delay	9	sec/veh
	Existing Total Delay	15588	seconds
	Future Volume	1732	vehicles
	Future Delay	9	sec/veh
	Future Total Delay	15588	seconds
	Total Delay Reduction	0	seconds

2	Wabasha Ave and 10th St		
	Existing Volume	1625	vehicles
	Existing Delay	11	sec/veh
	Existing Total Delay	17875	seconds
	Future Volume	1625	vehicles
	Future Delay	11	sec/veh
	Future Total Delay	17875	seconds
	Total Delay Reduction	0	seconds

3	Wabasha Ave and Exchange St		
	Existing Volume	1286	vehicles
	Existing Delay	8	sec/veh
	Existing Total Delay	10288	seconds
	Future Volume	1286	vehicles
	Future Delay	8	sec/veh
	Future Total Delay	10288	seconds
	Total Delay Reduction	0	seconds

4	Wabasha Ave and 7th St		
	Existing Volume	2292	vehicles
	Existing Delay	15	sec/veh
	Existing Total Delay	34380	seconds
	Future Volume	2292	vehicles
	Future Delay	15	sec/veh
	Future Total Delay	34380	seconds
	Total Delay Reduction	0	seconds

Total Network Delay Reduction	**0**	**seconds**

Emissions

Existing	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

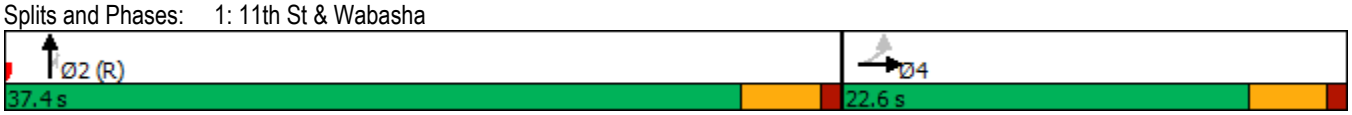
Build	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

Reduction	**0**

Lane Group	EBT	NBT	NBR
Lane Configurations			
Traffic Volume (vph)	274	828	602
Future Volume (vph)	274	828	602
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.6	37.4	37.4
Total Split (%)	37.7%	62.3%	62.3%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	10.6	40.4	40.4
Actuated g/C Ratio	0.18	0.67	0.67
v/c Ratio	0.51	0.38	0.56
Control Delay	22.8	5.2	5.1
Queue Delay	0.0	0.5	1.3
Total Delay	22.8	5.8	6.4
LOS	C	A	A
Approach Delay	22.8	6.1	
Approach LOS	C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

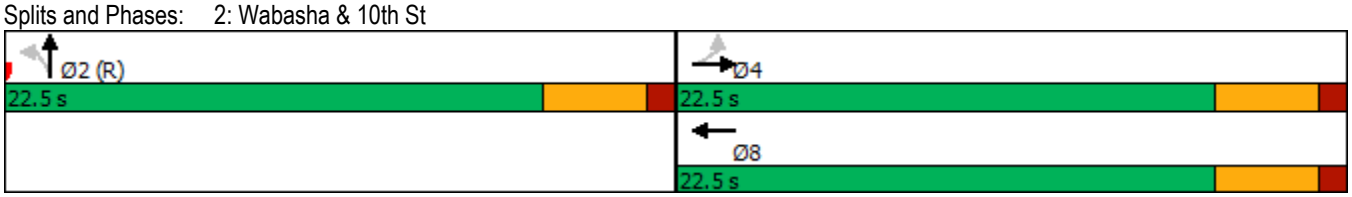
Splits and Phases: 1: 11th St & Wabasha



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	253	102	42	1151
Future Volume (vph)	253	102	42	1151
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		16.0	16.0	20.0
Actuated g/C Ratio		0.36	0.36	0.44
v/c Ratio		0.79	0.12	0.58
Control Delay		26.4	7.9	6.7
Queue Delay		0.0	0.0	0.0
Total Delay		26.4	7.9	6.7
LOS		C	A	A
Approach Delay		26.4	7.9	6.7
Approach LOS		C	A	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

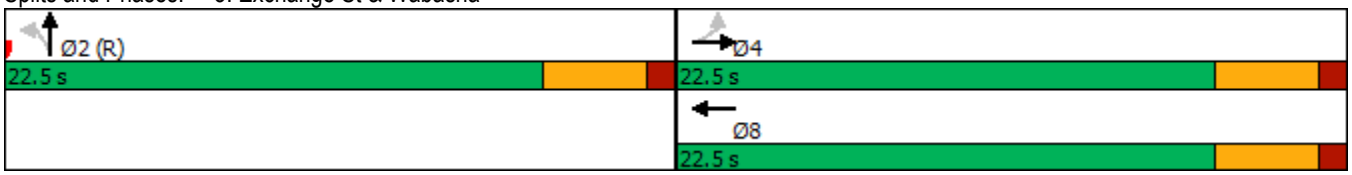
Splits and Phases: 2: Wabasha & 10th St



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	122	23	35	1055
Future Volume (vph)	122	23	35	1055
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		10.4	10.3	28.6
Actuated g/C Ratio		0.23	0.23	0.64
v/c Ratio		0.51	0.12	0.37
Control Delay		20.0	10.2	6.1
Queue Delay		0.0	0.0	0.0
Total Delay		20.0	10.2	6.1
LOS		B	B	A
Approach Delay		20.0	10.2	6.1
Approach LOS		B	B	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 43.3%	ICU Level of Service A
Analysis Period (min) 15	

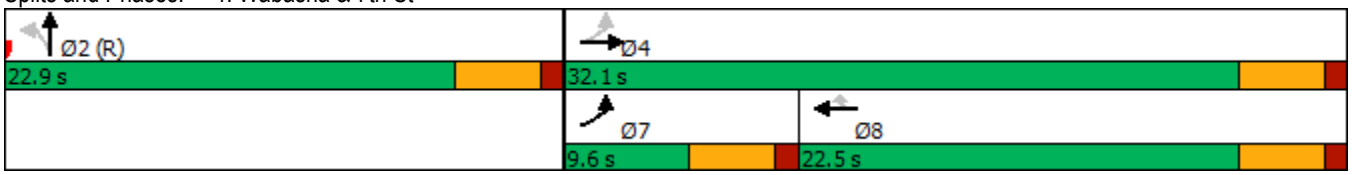
Splits and Phases: 3: Exchange St & Wabasha



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	174	613	526	176	84	660
Future Volume (vph)	174	613	526	176	84	660
Turn Type	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases	7	4	8			2
Permitted Phases	4			8	2	
Detector Phase	7	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	23.0	23.0	15.3	15.3	23.0	23.0
Actuated g/C Ratio	0.42	0.42	0.28	0.28	0.42	0.42
v/c Ratio	0.59	0.45	0.58	0.36	0.12	0.53
Control Delay	16.9	11.8	19.3	8.4	12.9	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	11.8	19.3	8.4	12.9	14.8
LOS	B	B	B	A	B	B
Approach Delay		12.9	16.5			14.6
Approach LOS		B	B			B

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 55.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Wabasha & 7th St



1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

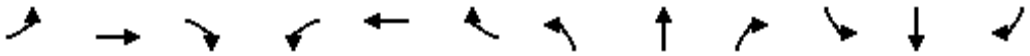
Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	11
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	8
CO Emissions (kg)	0.65
NOx Emissions (kg)	0.13
VOC Emissions (kg)	0.15

4: Wabasha & 7th St

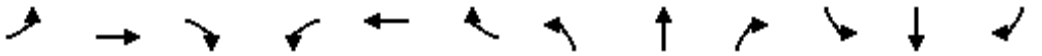
Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35



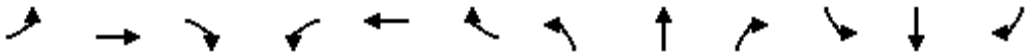
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Future Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1870	1870	0				0	1870	1870			
Adj Flow Rate, veh/h	30	298	0				0	900	654			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	98	475	0				0	2499	1115			
Arrive On Green	0.15	0.15	0.00				0.00	0.70	0.70			
Sat Flow, veh/h	192	3319	0				0	3647	1585			
Grp Volume(v), veh/h	178	150	0				0	900	654			
Grp Sat Flow(s),veh/h/ln	1809	1617	0				0	1777	1585			
Q Serve(g_s), s	2.4	5.2	0.0				0.0	6.0	12.5			
Cycle Q Clear(g_c), s	5.5	5.2	0.0				0.0	6.0	12.5			
Prop In Lane	0.17		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	336	237	0				0	2499	1115			
V/C Ratio(X)	0.53	0.63	0.00				0.00	0.36	0.59			
Avail Cap(c_a), veh/h	611	488	0				0	2499	1115			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	0.79	0.79			
Uniform Delay (d), s/veh	24.2	24.1	0.0				0.0	3.5	4.5			
Incr Delay (d2), s/veh	1.3	2.8	0.0				0.0	0.3	1.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	2.1	0.0				0.0	1.4	2.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	26.9	0.0				0.0	3.9	6.3			
LnGrp LOS	C	C	A				A	A	A			
Approach Vol, veh/h		328						1554				
Approach Delay, s/veh		26.1						4.9				
Approach LOS		C						A				

Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		46.7		13.3								
Change Period (Y+Rc), s		4.5		4.5								
Max Green Setting (Gmax), s		32.9		18.1								
Max Q Clear Time (g_c+I1), s		14.5		7.5								
Green Ext Time (p_c), s		9.0		1.3								

Intersection Summary												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Future Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	275	111	0	0	46	29	24	1251	30			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	450	139	0	0	358	225	44	2423	60			
Arrive On Green	0.33	0.33	0.00	0.00	0.33	0.33	0.15	0.15	0.15			
Sat Flow, veh/h	938	418	0	0	1073	676	94	5192	129			
Grp Volume(v), veh/h	386	0	0	0	0	75	478	397	431			
Grp Sat Flow(s),veh/h/ln	1355	0	0	0	0	1749	1866	1702	1847			
Q Serve(g_s), s	10.9	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Cycle Q Clear(g_c), s	12.2	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Prop In Lane	0.71		0.00	0.00		0.39	0.05		0.07			
Lane Grp Cap(c), veh/h	589	0	0	0	0	583	871	794	862			
V/C Ratio(X)	0.66	0.00	0.00	0.00	0.00	0.13	0.55	0.50	0.50			
Avail Cap(c_a), veh/h	685	0	0	0	0	699	871	794	862			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.83	0.83	0.83			
Uniform Delay (d), s/veh	14.5	0.0	0.0	0.0	0.0	10.4	14.7	14.2	14.2			
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.0	0.0	0.1	2.1	1.9	1.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	0.0	0.4	5.3	4.2	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	0.0	0.0	0.0	0.0	10.5	16.7	16.1	15.9			
LnGrp LOS	B	A	A	A	A	B	B	B	B			
Approach Vol, veh/h		386			75			1305				
Approach Delay, s/veh		16.3			10.5			16.3				
Approach LOS		B			B			B				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.5		19.5				19.5				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		12.7		14.2				3.3				
Green Ext Time (p_c), s		3.5		0.8				0.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Future Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	133	25	0	0	38	13	28	1147	14			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	316	44	0	0	222	76	53	2280	29			
Arrive On Green	0.17	0.17	0.00	0.00	0.17	0.17	0.63	0.63	0.63			
Sat Flow, veh/h	1016	263	0	0	1332	456	84	3598	46			
Grp Volume(v), veh/h	158	0	0	0	0	51	623	0	566			
Grp Sat Flow(s),veh/h/ln	1280	0	0	0	0	1788	1866	0	1862			
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Cycle Q Clear(g_c), s	5.5	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Prop In Lane	0.84		0.00	0.00		0.25	0.04		0.02			
Lane Grp Cap(c), veh/h	360	0	0	0	0	297	1183	0	1180			
V/C Ratio(X)	0.44	0.00	0.00	0.00	0.00	0.17	0.53	0.00	0.48			
Avail Cap(c_a), veh/h	691	0	0	0	0	715	1183	0	1180			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.85	0.00	0.85			
Uniform Delay (d), s/veh	18.2	0.0	0.0	0.0	0.0	16.1	4.5	0.0	4.3			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.3	1.4	0.0	1.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.0	0.0	0.4	2.0	0.0	1.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	0.0	0.0	0.0	0.0	16.4	6.0	0.0	5.5			
LnGrp LOS	B	A	A	A	A	B	A	A	A			
Approach Vol, veh/h		158			51			1189				
Approach Delay, s/veh		19.1			16.4			5.8				
Approach LOS		B			B			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		33.0		12.0				12.0				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		10.3		7.5				3.1				
Green Ext Time (p_c), s		4.5		0.6				0.1				
Intersection Summary												
HCM 6th Ctrl Delay			7.6									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Future Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	189	666	0	0	572	191	91	717	64			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	358	1453	0	0	832	371	762	1411	126			
Arrive On Green	0.09	0.41	0.00	0.00	0.23	0.23	0.43	0.43	0.43			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	3300	294			
Grp Volume(v), veh/h	189	666	0	0	572	191	91	386	395			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1777	1817			
Q Serve(g_s), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Cycle Q Clear(g_c), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.16			
Lane Grp Cap(c), veh/h	358	1453	0	0	832	371	762	760	777			
V/C Ratio(X)	0.53	0.46	0.00	0.00	0.69	0.51	0.12	0.51	0.51			
Avail Cap(c_a), veh/h	358	1783	0	0	1163	519	762	760	777			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	13.7	11.8	0.0	0.0	19.2	18.3	9.5	11.5	11.5			
Incr Delay (d2), s/veh	1.5	0.2	0.0	0.0	1.0	1.1	0.3	2.4	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.6	0.0	0.0	3.1	2.0	0.6	3.4	3.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	12.1	0.0	0.0	20.2	19.4	9.8	13.9	13.9			
LnGrp LOS	B	B	A	A	C	B	A	B	B			
Approach Vol, veh/h		855			763			872				
Approach Delay, s/veh		12.7			20.0			13.5				
Approach LOS		B			C			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		28.0		27.0			9.6	17.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.4		27.6			5.1	18.0				
Max Q Clear Time (g_c+I1), s		10.7		9.5			6.2	10.1				
Green Ext Time (p_c), s		3.1		4.4			0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			15.2									
HCM 6th LOS			B									

1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	12
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.72
NOx Emissions (kg)	0.14
VOC Emissions (kg)	0.17

4: Wabasha & 7th St

Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35

Wabasha

1	Wabasha Ave and 11th St		
	Existing Volume	1732	vehicles
	Existing Delay	9	sec/veh
	Existing Total Delay	15588	seconds
	Future Volume	1732	vehicles
	Future Delay	9	sec/veh
	Future Total Delay	15588	seconds
	Total Delay Reduction	0	seconds

2	Wabasha Ave and 10th St		
	Existing Volume	1625	vehicles
	Existing Delay	11	sec/veh
	Existing Total Delay	17875	seconds
	Future Volume	1625	vehicles
	Future Delay	11	sec/veh
	Future Total Delay	17875	seconds
	Total Delay Reduction	0	seconds

3	Wabasha Ave and Exchange St		
	Existing Volume	1286	vehicles
	Existing Delay	8	sec/veh
	Existing Total Delay	10288	seconds
	Future Volume	1286	vehicles
	Future Delay	8	sec/veh
	Future Total Delay	10288	seconds
	Total Delay Reduction	0	seconds

4	Wabasha Ave and 7th St		
	Existing Volume	2292	vehicles
	Existing Delay	15	sec/veh
	Existing Total Delay	34380	seconds
	Future Volume	2292	vehicles
	Future Delay	15	sec/veh
	Future Total Delay	34380	seconds
	Total Delay Reduction	0	seconds

Total Network Delay Reduction	**0**	**seconds**

Emissions

Existing	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

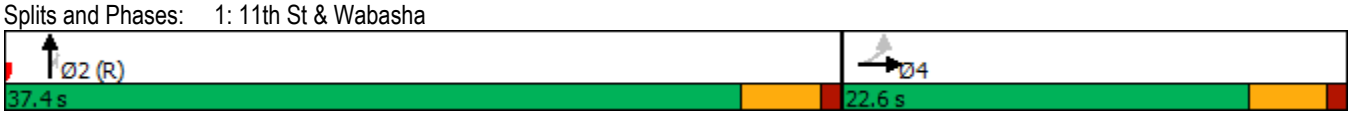
Build	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

Reduction	**0**

Lane Group	EBT	NBT	NBR
Lane Configurations			
Traffic Volume (vph)	274	828	602
Future Volume (vph)	274	828	602
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.6	37.4	37.4
Total Split (%)	37.7%	62.3%	62.3%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	10.6	40.4	40.4
Actuated g/C Ratio	0.18	0.67	0.67
v/c Ratio	0.51	0.38	0.56
Control Delay	22.8	5.2	5.1
Queue Delay	0.0	0.5	1.3
Total Delay	22.8	5.8	6.4
LOS	C	A	A
Approach Delay	22.8	6.1	
Approach LOS	C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

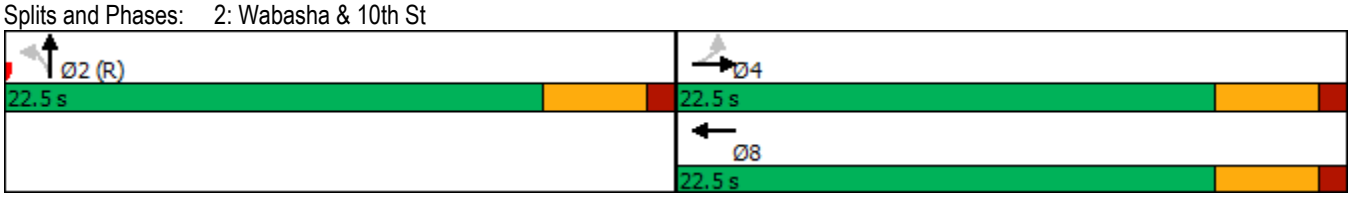
Splits and Phases: 1: 11th St & Wabasha



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	253	102	42	1151
Future Volume (vph)	253	102	42	1151
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		16.0	16.0	20.0
Actuated g/C Ratio		0.36	0.36	0.44
v/c Ratio		0.79	0.12	0.58
Control Delay		26.4	7.9	6.7
Queue Delay		0.0	0.0	0.0
Total Delay		26.4	7.9	6.7
LOS		C	A	A
Approach Delay		26.4	7.9	6.7
Approach LOS		C	A	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

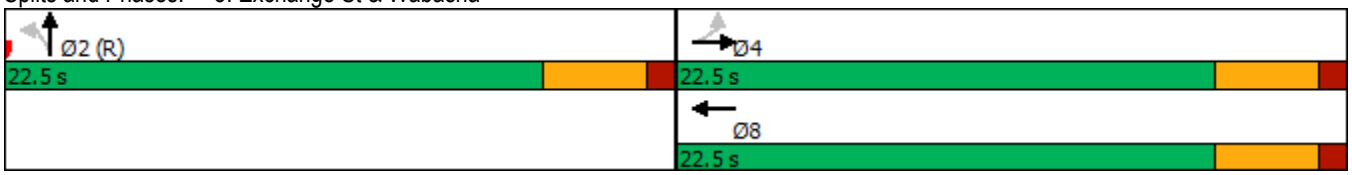
Splits and Phases: 2: Wabasha & 10th St



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	122	23	35	1055
Future Volume (vph)	122	23	35	1055
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		10.4	10.3	28.6
Actuated g/C Ratio		0.23	0.23	0.64
v/c Ratio		0.51	0.12	0.37
Control Delay		20.0	10.2	6.1
Queue Delay		0.0	0.0	0.0
Total Delay		20.0	10.2	6.1
LOS		B	B	A
Approach Delay		20.0	10.2	6.1
Approach LOS		B	B	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 43.3%	ICU Level of Service A
Analysis Period (min) 15	

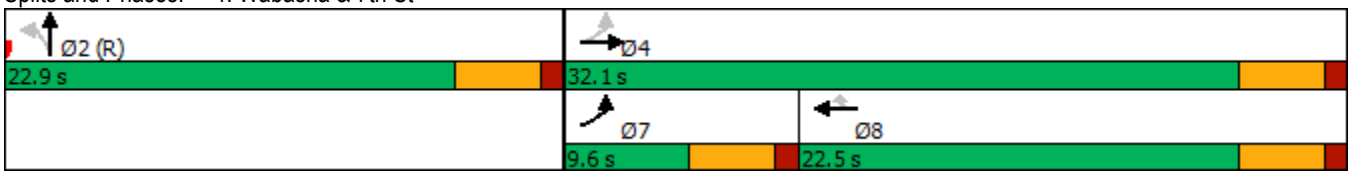
Splits and Phases: 3: Exchange St & Wabasha



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	174	613	526	176	84	660
Future Volume (vph)	174	613	526	176	84	660
Turn Type	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases	7	4	8			2
Permitted Phases	4			8	2	
Detector Phase	7	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	23.0	23.0	15.3	15.3	23.0	23.0
Actuated g/C Ratio	0.42	0.42	0.28	0.28	0.42	0.42
v/c Ratio	0.59	0.45	0.58	0.36	0.12	0.53
Control Delay	16.9	11.8	19.3	8.4	12.9	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	11.8	19.3	8.4	12.9	14.8
LOS	B	B	B	A	B	B
Approach Delay		12.9	16.5			14.6
Approach LOS		B	B			B

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 55.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Wabasha & 7th St



1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

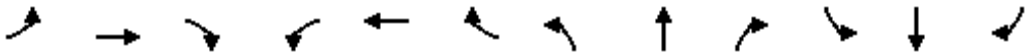
Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	11
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	8
CO Emissions (kg)	0.65
NOx Emissions (kg)	0.13
VOC Emissions (kg)	0.15

4: Wabasha & 7th St

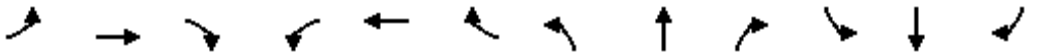
Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35



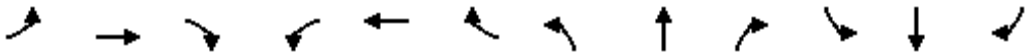
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Future Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1870	1870	0				0	1870	1870			
Adj Flow Rate, veh/h	30	298	0				0	900	654			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	98	475	0				0	2499	1115			
Arrive On Green	0.15	0.15	0.00				0.00	0.70	0.70			
Sat Flow, veh/h	192	3319	0				0	3647	1585			
Grp Volume(v), veh/h	178	150	0				0	900	654			
Grp Sat Flow(s),veh/h/ln	1809	1617	0				0	1777	1585			
Q Serve(g_s), s	2.4	5.2	0.0				0.0	6.0	12.5			
Cycle Q Clear(g_c), s	5.5	5.2	0.0				0.0	6.0	12.5			
Prop In Lane	0.17		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	336	237	0				0	2499	1115			
V/C Ratio(X)	0.53	0.63	0.00				0.00	0.36	0.59			
Avail Cap(c_a), veh/h	611	488	0				0	2499	1115			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	0.79	0.79			
Uniform Delay (d), s/veh	24.2	24.1	0.0				0.0	3.5	4.5			
Incr Delay (d2), s/veh	1.3	2.8	0.0				0.0	0.3	1.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	2.1	0.0				0.0	1.4	2.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	26.9	0.0				0.0	3.9	6.3			
LnGrp LOS	C	C	A				A	A	A			
Approach Vol, veh/h		328						1554				
Approach Delay, s/veh		26.1						4.9				
Approach LOS		C						A				

Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		46.7		13.3								
Change Period (Y+Rc), s		4.5		4.5								
Max Green Setting (Gmax), s		32.9		18.1								
Max Q Clear Time (g_c+I1), s		14.5		7.5								
Green Ext Time (p_c), s		9.0		1.3								

Intersection Summary												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Future Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	275	111	0	0	46	29	24	1251	30			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	450	139	0	0	358	225	44	2423	60			
Arrive On Green	0.33	0.33	0.00	0.00	0.33	0.33	0.15	0.15	0.15			
Sat Flow, veh/h	938	418	0	0	1073	676	94	5192	129			
Grp Volume(v), veh/h	386	0	0	0	0	75	478	397	431			
Grp Sat Flow(s),veh/h/ln	1355	0	0	0	0	1749	1866	1702	1847			
Q Serve(g_s), s	10.9	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Cycle Q Clear(g_c), s	12.2	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Prop In Lane	0.71		0.00	0.00		0.39	0.05		0.07			
Lane Grp Cap(c), veh/h	589	0	0	0	0	583	871	794	862			
V/C Ratio(X)	0.66	0.00	0.00	0.00	0.00	0.13	0.55	0.50	0.50			
Avail Cap(c_a), veh/h	685	0	0	0	0	699	871	794	862			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.83	0.83	0.83			
Uniform Delay (d), s/veh	14.5	0.0	0.0	0.0	0.0	10.4	14.7	14.2	14.2			
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.0	0.0	0.1	2.1	1.9	1.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	0.0	0.4	5.3	4.2	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	0.0	0.0	0.0	0.0	10.5	16.7	16.1	15.9			
LnGrp LOS	B	A	A	A	A	B	B	B	B			
Approach Vol, veh/h		386			75			1305				
Approach Delay, s/veh		16.3			10.5			16.3				
Approach LOS		B			B			B				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.5		19.5				19.5				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		12.7		14.2				3.3				
Green Ext Time (p_c), s		3.5		0.8				0.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Future Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	133	25	0	0	38	13	28	1147	14			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	316	44	0	0	222	76	53	2280	29			
Arrive On Green	0.17	0.17	0.00	0.00	0.17	0.17	0.63	0.63	0.63			
Sat Flow, veh/h	1016	263	0	0	1332	456	84	3598	46			
Grp Volume(v), veh/h	158	0	0	0	0	51	623	0	566			
Grp Sat Flow(s),veh/h/ln	1280	0	0	0	0	1788	1866	0	1862			
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Cycle Q Clear(g_c), s	5.5	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Prop In Lane	0.84		0.00	0.00		0.25	0.04		0.02			
Lane Grp Cap(c), veh/h	360	0	0	0	0	297	1183	0	1180			
V/C Ratio(X)	0.44	0.00	0.00	0.00	0.00	0.17	0.53	0.00	0.48			
Avail Cap(c_a), veh/h	691	0	0	0	0	715	1183	0	1180			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.85	0.00	0.85			
Uniform Delay (d), s/veh	18.2	0.0	0.0	0.0	0.0	16.1	4.5	0.0	4.3			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.3	1.4	0.0	1.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.0	0.0	0.4	2.0	0.0	1.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	0.0	0.0	0.0	0.0	16.4	6.0	0.0	5.5			
LnGrp LOS	B	A	A	A	A	B	A	A	A			
Approach Vol, veh/h		158			51			1189				
Approach Delay, s/veh		19.1			16.4			5.8				
Approach LOS		B			B			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		33.0		12.0				12.0				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		10.3		7.5				3.1				
Green Ext Time (p_c), s		4.5		0.6				0.1				
Intersection Summary												
HCM 6th Ctrl Delay			7.6									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Future Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	189	666	0	0	572	191	91	717	64			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	358	1453	0	0	832	371	762	1411	126			
Arrive On Green	0.09	0.41	0.00	0.00	0.23	0.23	0.43	0.43	0.43			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	3300	294			
Grp Volume(v), veh/h	189	666	0	0	572	191	91	386	395			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1777	1817			
Q Serve(g_s), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Cycle Q Clear(g_c), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.16			
Lane Grp Cap(c), veh/h	358	1453	0	0	832	371	762	760	777			
V/C Ratio(X)	0.53	0.46	0.00	0.00	0.69	0.51	0.12	0.51	0.51			
Avail Cap(c_a), veh/h	358	1783	0	0	1163	519	762	760	777			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	13.7	11.8	0.0	0.0	19.2	18.3	9.5	11.5	11.5			
Incr Delay (d2), s/veh	1.5	0.2	0.0	0.0	1.0	1.1	0.3	2.4	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.6	0.0	0.0	3.1	2.0	0.6	3.4	3.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	12.1	0.0	0.0	20.2	19.4	9.8	13.9	13.9			
LnGrp LOS	B	B	A	A	C	B	A	B	B			
Approach Vol, veh/h		855			763			872				
Approach Delay, s/veh		12.7			20.0			13.5				
Approach LOS		B			C			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		28.0		27.0			9.6	17.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.4		27.6			5.1	18.0				
Max Q Clear Time (g_c+I1), s		10.7		9.5			6.2	10.1				
Green Ext Time (p_c), s		3.1		4.4			0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			15.2									
HCM 6th LOS			B									

1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	12
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.72
NOx Emissions (kg)	0.14
VOC Emissions (kg)	0.17

4: Wabasha & 7th St

Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35

Wabasha

1	Wabasha Ave and 11th St		
	Existing Volume	1732	vehicles
	Existing Delay	9	sec/veh
	Existing Total Delay	15588	seconds
	Future Volume	1732	vehicles
	Future Delay	9	sec/veh
	Future Total Delay	15588	seconds
	Total Delay Reduction	0	seconds

2	Wabasha Ave and 10th St		
	Existing Volume	1625	vehicles
	Existing Delay	11	sec/veh
	Existing Total Delay	17875	seconds
	Future Volume	1625	vehicles
	Future Delay	11	sec/veh
	Future Total Delay	17875	seconds
	Total Delay Reduction	0	seconds

3	Wabasha Ave and Exchange St		
	Existing Volume	1286	vehicles
	Existing Delay	8	sec/veh
	Existing Total Delay	10288	seconds
	Future Volume	1286	vehicles
	Future Delay	8	sec/veh
	Future Total Delay	10288	seconds
	Total Delay Reduction	0	seconds

4	Wabasha Ave and 7th St		
	Existing Volume	2292	vehicles
	Existing Delay	15	sec/veh
	Existing Total Delay	34380	seconds
	Future Volume	2292	vehicles
	Future Delay	15	sec/veh
	Future Total Delay	34380	seconds
	Total Delay Reduction	0	seconds

Total Network Delay Reduction	**0**	**seconds**

Emissions

Existing	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

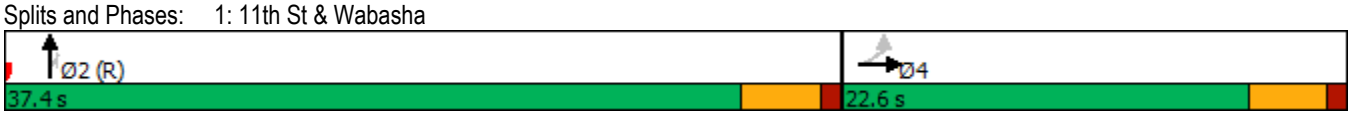
Build	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

Reduction	**0**

Lane Group	EBT	NBT	NBR
Lane Configurations			
Traffic Volume (vph)	274	828	602
Future Volume (vph)	274	828	602
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.6	37.4	37.4
Total Split (%)	37.7%	62.3%	62.3%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	10.6	40.4	40.4
Actuated g/C Ratio	0.18	0.67	0.67
v/c Ratio	0.51	0.38	0.56
Control Delay	22.8	5.2	5.1
Queue Delay	0.0	0.5	1.3
Total Delay	22.8	5.8	6.4
LOS	C	A	A
Approach Delay	22.8	6.1	
Approach LOS	C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

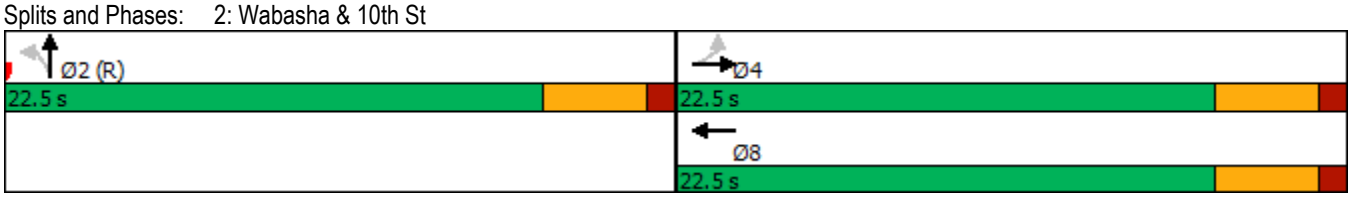
Splits and Phases: 1: 11th St & Wabasha



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	253	102	42	1151
Future Volume (vph)	253	102	42	1151
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		16.0	16.0	20.0
Actuated g/C Ratio		0.36	0.36	0.44
v/c Ratio		0.79	0.12	0.58
Control Delay		26.4	7.9	6.7
Queue Delay		0.0	0.0	0.0
Total Delay		26.4	7.9	6.7
LOS		C	A	A
Approach Delay		26.4	7.9	6.7
Approach LOS		C	A	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

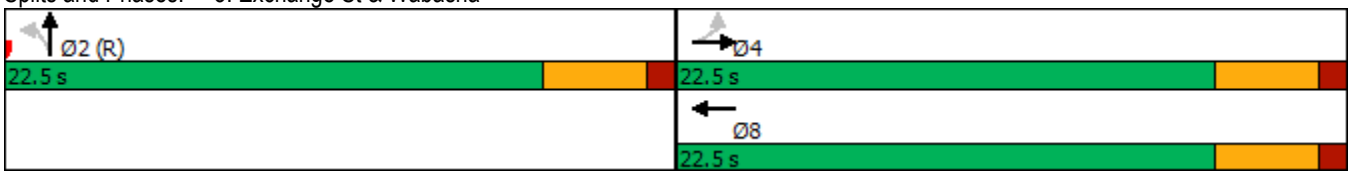
Splits and Phases: 2: Wabasha & 10th St



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	122	23	35	1055
Future Volume (vph)	122	23	35	1055
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		10.4	10.3	28.6
Actuated g/C Ratio		0.23	0.23	0.64
v/c Ratio		0.51	0.12	0.37
Control Delay		20.0	10.2	6.1
Queue Delay		0.0	0.0	0.0
Total Delay		20.0	10.2	6.1
LOS		B	B	A
Approach Delay		20.0	10.2	6.1
Approach LOS		B	B	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 43.3%	ICU Level of Service A
Analysis Period (min) 15	

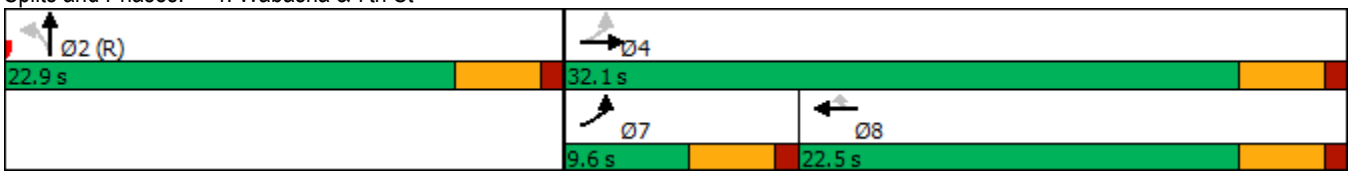
Splits and Phases: 3: Exchange St & Wabasha



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	174	613	526	176	84	660
Future Volume (vph)	174	613	526	176	84	660
Turn Type	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases	7	4	8			2
Permitted Phases	4			8	2	
Detector Phase	7	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	23.0	23.0	15.3	15.3	23.0	23.0
Actuated g/C Ratio	0.42	0.42	0.28	0.28	0.42	0.42
v/c Ratio	0.59	0.45	0.58	0.36	0.12	0.53
Control Delay	16.9	11.8	19.3	8.4	12.9	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	11.8	19.3	8.4	12.9	14.8
LOS	B	B	B	A	B	B
Approach Delay		12.9	16.5			14.6
Approach LOS		B	B			B

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 55.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Wabasha & 7th St



1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

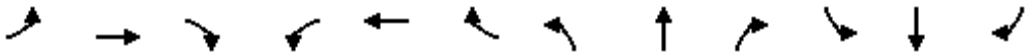
Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	11
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	8
CO Emissions (kg)	0.65
NOx Emissions (kg)	0.13
VOC Emissions (kg)	0.15

4: Wabasha & 7th St

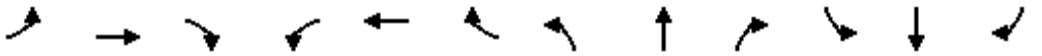
Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35



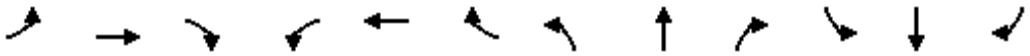
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Future Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1870	1870	0				0	1870	1870			
Adj Flow Rate, veh/h	30	298	0				0	900	654			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	98	475	0				0	2499	1115			
Arrive On Green	0.15	0.15	0.00				0.00	0.70	0.70			
Sat Flow, veh/h	192	3319	0				0	3647	1585			
Grp Volume(v), veh/h	178	150	0				0	900	654			
Grp Sat Flow(s),veh/h/ln	1809	1617	0				0	1777	1585			
Q Serve(g_s), s	2.4	5.2	0.0				0.0	6.0	12.5			
Cycle Q Clear(g_c), s	5.5	5.2	0.0				0.0	6.0	12.5			
Prop In Lane	0.17		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	336	237	0				0	2499	1115			
V/C Ratio(X)	0.53	0.63	0.00				0.00	0.36	0.59			
Avail Cap(c_a), veh/h	611	488	0				0	2499	1115			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	0.79	0.79			
Uniform Delay (d), s/veh	24.2	24.1	0.0				0.0	3.5	4.5			
Incr Delay (d2), s/veh	1.3	2.8	0.0				0.0	0.3	1.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	2.1	0.0				0.0	1.4	2.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	26.9	0.0				0.0	3.9	6.3			
LnGrp LOS	C	C	A				A	A	A			
Approach Vol, veh/h		328						1554				
Approach Delay, s/veh		26.1						4.9				
Approach LOS		C						A				

Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		46.7		13.3								
Change Period (Y+Rc), s		4.5		4.5								
Max Green Setting (Gmax), s		32.9		18.1								
Max Q Clear Time (g_c+I1), s		14.5		7.5								
Green Ext Time (p_c), s		9.0		1.3								

Intersection Summary												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Future Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	275	111	0	0	46	29	24	1251	30			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	450	139	0	0	358	225	44	2423	60			
Arrive On Green	0.33	0.33	0.00	0.00	0.33	0.33	0.15	0.15	0.15			
Sat Flow, veh/h	938	418	0	0	1073	676	94	5192	129			
Grp Volume(v), veh/h	386	0	0	0	0	75	478	397	431			
Grp Sat Flow(s),veh/h/ln	1355	0	0	0	0	1749	1866	1702	1847			
Q Serve(g_s), s	10.9	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Cycle Q Clear(g_c), s	12.2	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Prop In Lane	0.71		0.00	0.00		0.39	0.05		0.07			
Lane Grp Cap(c), veh/h	589	0	0	0	0	583	871	794	862			
V/C Ratio(X)	0.66	0.00	0.00	0.00	0.00	0.13	0.55	0.50	0.50			
Avail Cap(c_a), veh/h	685	0	0	0	0	699	871	794	862			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.83	0.83	0.83			
Uniform Delay (d), s/veh	14.5	0.0	0.0	0.0	0.0	10.4	14.7	14.2	14.2			
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.0	0.0	0.1	2.1	1.9	1.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	0.0	0.4	5.3	4.2	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	0.0	0.0	0.0	0.0	10.5	16.7	16.1	15.9			
LnGrp LOS	B	A	A	A	A	B	B	B	B			
Approach Vol, veh/h		386			75			1305				
Approach Delay, s/veh		16.3			10.5			16.3				
Approach LOS		B			B			B				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.5		19.5				19.5				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		12.7		14.2				3.3				
Green Ext Time (p_c), s		3.5		0.8				0.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Future Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	133	25	0	0	38	13	28	1147	14			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	316	44	0	0	222	76	53	2280	29			
Arrive On Green	0.17	0.17	0.00	0.00	0.17	0.17	0.63	0.63	0.63			
Sat Flow, veh/h	1016	263	0	0	1332	456	84	3598	46			
Grp Volume(v), veh/h	158	0	0	0	0	51	623	0	566			
Grp Sat Flow(s),veh/h/ln	1280	0	0	0	0	1788	1866	0	1862			
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Cycle Q Clear(g_c), s	5.5	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Prop In Lane	0.84		0.00	0.00		0.25	0.04		0.02			
Lane Grp Cap(c), veh/h	360	0	0	0	0	297	1183	0	1180			
V/C Ratio(X)	0.44	0.00	0.00	0.00	0.00	0.17	0.53	0.00	0.48			
Avail Cap(c_a), veh/h	691	0	0	0	0	715	1183	0	1180			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.85	0.00	0.85			
Uniform Delay (d), s/veh	18.2	0.0	0.0	0.0	0.0	16.1	4.5	0.0	4.3			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.3	1.4	0.0	1.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.0	0.0	0.4	2.0	0.0	1.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	0.0	0.0	0.0	0.0	16.4	6.0	0.0	5.5			
LnGrp LOS	B	A	A	A	A	B	A	A	A			
Approach Vol, veh/h		158			51			1189				
Approach Delay, s/veh		19.1			16.4			5.8				
Approach LOS		B			B			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		33.0		12.0				12.0				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		10.3		7.5				3.1				
Green Ext Time (p_c), s		4.5		0.6				0.1				
Intersection Summary												
HCM 6th Ctrl Delay			7.6									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Future Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	189	666	0	0	572	191	91	717	64			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	358	1453	0	0	832	371	762	1411	126			
Arrive On Green	0.09	0.41	0.00	0.00	0.23	0.23	0.43	0.43	0.43			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	3300	294			
Grp Volume(v), veh/h	189	666	0	0	572	191	91	386	395			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1777	1817			
Q Serve(g_s), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Cycle Q Clear(g_c), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.16			
Lane Grp Cap(c), veh/h	358	1453	0	0	832	371	762	760	777			
V/C Ratio(X)	0.53	0.46	0.00	0.00	0.69	0.51	0.12	0.51	0.51			
Avail Cap(c_a), veh/h	358	1783	0	0	1163	519	762	760	777			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	13.7	11.8	0.0	0.0	19.2	18.3	9.5	11.5	11.5			
Incr Delay (d2), s/veh	1.5	0.2	0.0	0.0	1.0	1.1	0.3	2.4	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.6	0.0	0.0	3.1	2.0	0.6	3.4	3.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	12.1	0.0	0.0	20.2	19.4	9.8	13.9	13.9			
LnGrp LOS	B	B	A	A	C	B	A	B	B			
Approach Vol, veh/h		855			763			872				
Approach Delay, s/veh		12.7			20.0			13.5				
Approach LOS		B			C			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		28.0		27.0			9.6	17.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.4		27.6			5.1	18.0				
Max Q Clear Time (g_c+I1), s		10.7		9.5			6.2	10.1				
Green Ext Time (p_c), s		3.1		4.4			0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			15.2									
HCM 6th LOS			B									

1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	12
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.72
NOx Emissions (kg)	0.14
VOC Emissions (kg)	0.17

4: Wabasha & 7th St

Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35

Wabasha

1	Wabasha Ave and 11th St		
	Existing Volume	1732	vehicles
	Existing Delay	9	sec/veh
	Existing Total Delay	15588	seconds
	Future Volume	1732	vehicles
	Future Delay	9	sec/veh
	Future Total Delay	15588	seconds
	Total Delay Reduction	0	seconds

2	Wabasha Ave and 10th St		
	Existing Volume	1625	vehicles
	Existing Delay	11	sec/veh
	Existing Total Delay	17875	seconds
	Future Volume	1625	vehicles
	Future Delay	11	sec/veh
	Future Total Delay	17875	seconds
	Total Delay Reduction	0	seconds

3	Wabasha Ave and Exchange St		
	Existing Volume	1286	vehicles
	Existing Delay	8	sec/veh
	Existing Total Delay	10288	seconds
	Future Volume	1286	vehicles
	Future Delay	8	sec/veh
	Future Total Delay	10288	seconds
	Total Delay Reduction	0	seconds

4	Wabasha Ave and 7th St		
	Existing Volume	2292	vehicles
	Existing Delay	15	sec/veh
	Existing Total Delay	34380	seconds
	Future Volume	2292	vehicles
	Future Delay	15	sec/veh
	Future Total Delay	34380	seconds
	Total Delay Reduction	0	seconds

Total Network Delay Reduction	**0**	**seconds**

Emissions

Existing	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

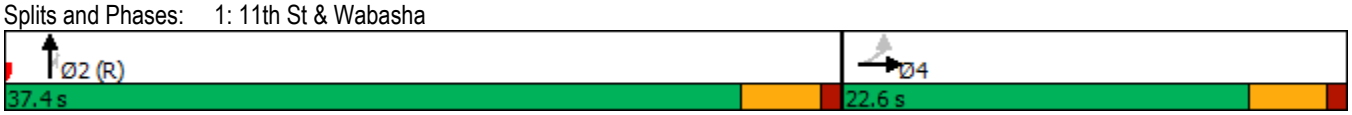
Build	1	2	3	4		Total
CO	0.8	0.88	0.65	1.5		3.83
NO	0.15	0.17	0.13	0.29		0.74
VOC	0.18	0.2	0.15	0.35		0.88
				Network Total		5.45

Reduction	**0**

Lane Group	EBT	NBT	NBR
Lane Configurations			
Traffic Volume (vph)	274	828	602
Future Volume (vph)	274	828	602
Turn Type	NA	NA	Perm
Protected Phases	4	2	
Permitted Phases			2
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.6	37.4	37.4
Total Split (%)	37.7%	62.3%	62.3%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	10.6	40.4	40.4
Actuated g/C Ratio	0.18	0.67	0.67
v/c Ratio	0.51	0.38	0.56
Control Delay	22.8	5.2	5.1
Queue Delay	0.0	0.5	1.3
Total Delay	22.8	5.8	6.4
LOS	C	A	A
Approach Delay	22.8	6.1	
Approach LOS	C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

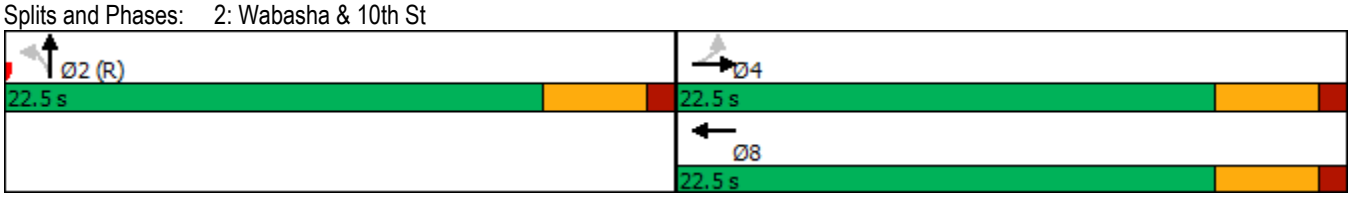
Splits and Phases: 1: 11th St & Wabasha



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	253	102	42	1151
Future Volume (vph)	253	102	42	1151
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		16.0	16.0	20.0
Actuated g/C Ratio		0.36	0.36	0.44
v/c Ratio		0.79	0.12	0.58
Control Delay		26.4	7.9	6.7
Queue Delay		0.0	0.0	0.0
Total Delay		26.4	7.9	6.7
LOS		C	A	A
Approach Delay		26.4	7.9	6.7
Approach LOS		C	A	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

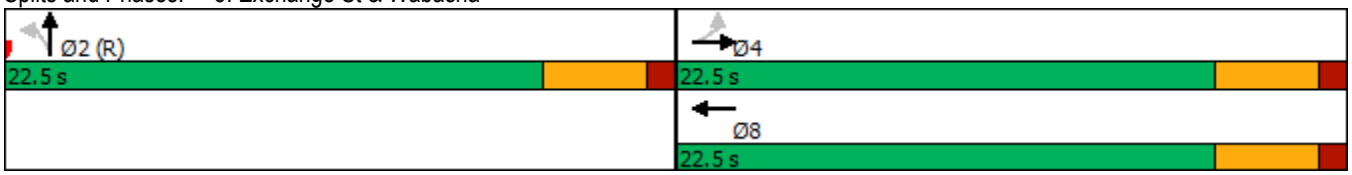
Splits and Phases: 2: Wabasha & 10th St



Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Traffic Volume (vph)	122	23	35	1055
Future Volume (vph)	122	23	35	1055
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5
Total Split (%)	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Max
Act Effct Green (s)		10.4	10.3	28.6
Actuated g/C Ratio		0.23	0.23	0.64
v/c Ratio		0.51	0.12	0.37
Control Delay		20.0	10.2	6.1
Queue Delay		0.0	0.0	0.0
Total Delay		20.0	10.2	6.1
LOS		B	B	A
Approach Delay		20.0	10.2	6.1
Approach LOS		B	B	A

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 43.3%	ICU Level of Service A
Analysis Period (min) 15	

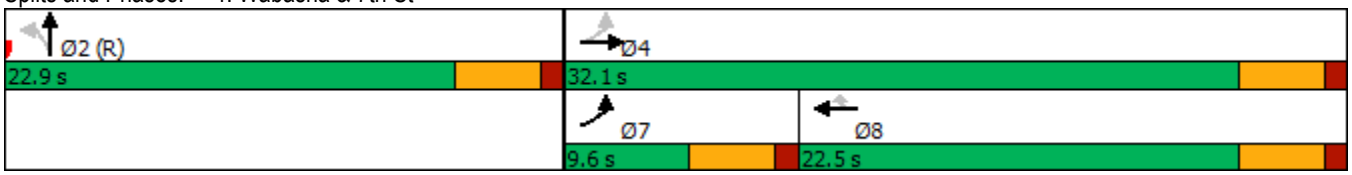
Splits and Phases: 3: Exchange St & Wabasha



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	174	613	526	176	84	660
Future Volume (vph)	174	613	526	176	84	660
Turn Type	pm+pt	NA	NA	Perm	Perm	NA
Protected Phases	7	4	8			2
Permitted Phases	4			8	2	
Detector Phase	7	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	23.0	23.0	15.3	15.3	23.0	23.0
Actuated g/C Ratio	0.42	0.42	0.28	0.28	0.42	0.42
v/c Ratio	0.59	0.45	0.58	0.36	0.12	0.53
Control Delay	16.9	11.8	19.3	8.4	12.9	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	11.8	19.3	8.4	12.9	14.8
LOS	B	B	B	A	B	B
Approach Delay		12.9	16.5			14.6
Approach LOS		B	B			B

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 55.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Wabasha & 7th St



1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

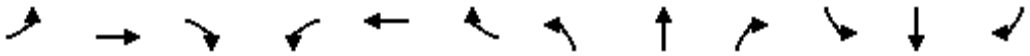
Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	11
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	8
CO Emissions (kg)	0.65
NOx Emissions (kg)	0.13
VOC Emissions (kg)	0.15

4: Wabasha & 7th St

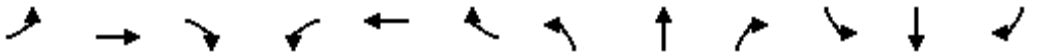
Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35



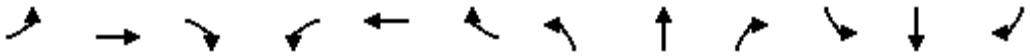
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Future Volume (veh/h)	28	274	0	0	0	0	0	828	602	0	0	0
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Work Zone On Approach		No						No				
Adj Sat Flow, veh/h/ln	1870	1870	0				0	1870	1870			
Adj Flow Rate, veh/h	30	298	0				0	900	654			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	98	475	0				0	2499	1115			
Arrive On Green	0.15	0.15	0.00				0.00	0.70	0.70			
Sat Flow, veh/h	192	3319	0				0	3647	1585			
Grp Volume(v), veh/h	178	150	0				0	900	654			
Grp Sat Flow(s),veh/h/ln	1809	1617	0				0	1777	1585			
Q Serve(g_s), s	2.4	5.2	0.0				0.0	6.0	12.5			
Cycle Q Clear(g_c), s	5.5	5.2	0.0				0.0	6.0	12.5			
Prop In Lane	0.17		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	336	237	0				0	2499	1115			
V/C Ratio(X)	0.53	0.63	0.00				0.00	0.36	0.59			
Avail Cap(c_a), veh/h	611	488	0				0	2499	1115			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	0.79	0.79			
Uniform Delay (d), s/veh	24.2	24.1	0.0				0.0	3.5	4.5			
Incr Delay (d2), s/veh	1.3	2.8	0.0				0.0	0.3	1.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	2.1	0.0				0.0	1.4	2.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	26.9	0.0				0.0	3.9	6.3			
LnGrp LOS	C	C	A				A	A	A			
Approach Vol, veh/h		328						1554				
Approach Delay, s/veh		26.1						4.9				
Approach LOS		C						A				

Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		46.7		13.3								
Change Period (Y+Rc), s		4.5		4.5								
Max Green Setting (Gmax), s		32.9		18.1								
Max Q Clear Time (g_c+I1), s		14.5		7.5								
Green Ext Time (p_c), s		9.0		1.3								

Intersection Summary												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Future Volume (veh/h)	253	102	0	0	42	27	22	1151	28	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	275	111	0	0	46	29	24	1251	30			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	450	139	0	0	358	225	44	2423	60			
Arrive On Green	0.33	0.33	0.00	0.00	0.33	0.33	0.15	0.15	0.15			
Sat Flow, veh/h	938	418	0	0	1073	676	94	5192	129			
Grp Volume(v), veh/h	386	0	0	0	0	75	478	397	431			
Grp Sat Flow(s),veh/h/ln	1355	0	0	0	0	1749	1866	1702	1847			
Q Serve(g_s), s	10.9	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Cycle Q Clear(g_c), s	12.2	0.0	0.0	0.0	0.0	1.3	10.7	9.6	9.6			
Prop In Lane	0.71		0.00	0.00		0.39	0.05		0.07			
Lane Grp Cap(c), veh/h	589	0	0	0	0	583	871	794	862			
V/C Ratio(X)	0.66	0.00	0.00	0.00	0.00	0.13	0.55	0.50	0.50			
Avail Cap(c_a), veh/h	685	0	0	0	0	699	871	794	862			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.83	0.83	0.83			
Uniform Delay (d), s/veh	14.5	0.0	0.0	0.0	0.0	10.4	14.7	14.2	14.2			
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.0	0.0	0.1	2.1	1.9	1.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	0.0	0.4	5.3	4.2	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	0.0	0.0	0.0	0.0	10.5	16.7	16.1	15.9			
LnGrp LOS	B	A	A	A	A	B	B	B	B			
Approach Vol, veh/h		386			75			1305				
Approach Delay, s/veh		16.3			10.5			16.3				
Approach LOS		B			B			B				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.5		19.5				19.5				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		12.7		14.2				3.3				
Green Ext Time (p_c), s		3.5		0.8				0.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Future Volume (veh/h)	122	23	0	0	35	12	26	1055	13	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	133	25	0	0	38	13	28	1147	14			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	316	44	0	0	222	76	53	2280	29			
Arrive On Green	0.17	0.17	0.00	0.00	0.17	0.17	0.63	0.63	0.63			
Sat Flow, veh/h	1016	263	0	0	1332	456	84	3598	46			
Grp Volume(v), veh/h	158	0	0	0	0	51	623	0	566			
Grp Sat Flow(s),veh/h/ln	1280	0	0	0	0	1788	1866	0	1862			
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Cycle Q Clear(g_c), s	5.5	0.0	0.0	0.0	0.0	1.1	8.3	0.0	7.2			
Prop In Lane	0.84		0.00	0.00		0.25	0.04		0.02			
Lane Grp Cap(c), veh/h	360	0	0	0	0	297	1183	0	1180			
V/C Ratio(X)	0.44	0.00	0.00	0.00	0.00	0.17	0.53	0.00	0.48			
Avail Cap(c_a), veh/h	691	0	0	0	0	715	1183	0	1180			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.85	0.00	0.85			
Uniform Delay (d), s/veh	18.2	0.0	0.0	0.0	0.0	16.1	4.5	0.0	4.3			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.3	1.4	0.0	1.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.0	0.0	0.4	2.0	0.0	1.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	0.0	0.0	0.0	0.0	16.4	6.0	0.0	5.5			
LnGrp LOS	B	A	A	A	A	B	A	A	A			
Approach Vol, veh/h		158			51			1189				
Approach Delay, s/veh		19.1			16.4			5.8				
Approach LOS		B			B			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		33.0		12.0				12.0				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		18.0		18.0				18.0				
Max Q Clear Time (g_c+I1), s		10.3		7.5				3.1				
Green Ext Time (p_c), s		4.5		0.6				0.1				
Intersection Summary												
HCM 6th Ctrl Delay			7.6									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Future Volume (veh/h)	174	613	0	0	526	176	84	660	59	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	189	666	0	0	572	191	91	717	64			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	358	1453	0	0	832	371	762	1411	126			
Arrive On Green	0.09	0.41	0.00	0.00	0.23	0.23	0.43	0.43	0.43			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	3300	294			
Grp Volume(v), veh/h	189	666	0	0	572	191	91	386	395			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1777	1817			
Q Serve(g_s), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Cycle Q Clear(g_c), s	4.2	7.5	0.0	0.0	8.1	5.8	1.7	8.7	8.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.16			
Lane Grp Cap(c), veh/h	358	1453	0	0	832	371	762	760	777			
V/C Ratio(X)	0.53	0.46	0.00	0.00	0.69	0.51	0.12	0.51	0.51			
Avail Cap(c_a), veh/h	358	1783	0	0	1163	519	762	760	777			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	13.7	11.8	0.0	0.0	19.2	18.3	9.5	11.5	11.5			
Incr Delay (d2), s/veh	1.5	0.2	0.0	0.0	1.0	1.1	0.3	2.4	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.6	0.0	0.0	3.1	2.0	0.6	3.4	3.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	12.1	0.0	0.0	20.2	19.4	9.8	13.9	13.9			
LnGrp LOS	B	B	A	A	C	B	A	B	B			
Approach Vol, veh/h		855			763			872				
Approach Delay, s/veh		12.7			20.0			13.5				
Approach LOS		B			C			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		28.0		27.0			9.6	17.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.4		27.6			5.1	18.0				
Max Q Clear Time (g_c+I1), s		10.7		9.5			6.2	10.1				
Green Ext Time (p_c), s		3.1		4.4			0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			15.2									
HCM 6th LOS			B									

1: 11th St & Wabasha

Direction	All
Future Volume (vph)	1732
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.80
NOx Emissions (kg)	0.15
VOC Emissions (kg)	0.18

2: Wabasha & 10th St

Direction	All
Future Volume (vph)	1625
Total Delay / Veh (s/v)	12
CO Emissions (kg)	0.88
NOx Emissions (kg)	0.17
VOC Emissions (kg)	0.20

3: Exchange St & Wabasha

Direction	All
Future Volume (vph)	1286
Total Delay / Veh (s/v)	9
CO Emissions (kg)	0.72
NOx Emissions (kg)	0.14
VOC Emissions (kg)	0.17

4: Wabasha & 7th St

Direction	All
Future Volume (vph)	2292
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.50
NOx Emissions (kg)	0.29
VOC Emissions (kg)	0.35

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route	Wabasha St	**District**	Metro	**County**	Ramsey
Begin RP		**End RP**		**Miles**	
Location	Wabasha St and 7th, Exchange, 10th, and 11th Street				

B. Project Description

Proposed Work	Installation of Bicycle Lanes and Curb Extensions		
Project Cost*	$6,672,000	**Installation Year**	2026
Project Service Life	20 years	**Traffic Growth Factor**	0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

0.24	**Fatal (K) Crashes**	**Reference**	Installation of Bicycle Lanes and Curb Extensions CMFs
0.24	**Serious Injury (A) Crashes**		
0.24	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.24	**Possible Injury (C) Crashes**		
0.24	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

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

E. Crash Data

Begin Date 1/1/2019 **End Date** 12/31/2021 3 years

Data Source

Crash Severity	All	< optional 2nd CMF >
K crashes	0	
A crashes	1	
B crashes	2	
C crashes	6	
PDO crashes	22	

F. Benefit-Cost Calculation

$11,018,393	**Benefit (present value)**	**B/C Ratio = 1.66**
$6,672,000	**Cost**	

Proposed project expected to reduce 8 crashes annually, 1 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,500,000
A crashes	$750,000
B crashes	$230,000
C crashes	$120,000
PDO crashes	$13,000

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

Real Discount Rate	0.7%
Traffic Growth Rate	0.5%
Project Service Life	20 years

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.76	0.25	$190,000
B crashes	1.52	0.51	$116,533
C crashes	4.56	1.52	$182,400
PDO crashes	16.72	5.57	$72,453
			$561,387

H. Amortized Benefit

Year	Crash Benefits	Present Value
2026	$561,387	$561,387
2027	$564,194	$560,272
2028	$567,015	$559,159
2029	$569,850	$558,048
2030	$572,699	$556,940
2031	$575,562	$555,834
2032	$578,440	$554,730
2033	$581,332	$553,628
2034	$584,239	$552,529
2035	$587,160	$551,431
2036	$590,096	$550,336
2037	$593,047	$549,243
2038	$596,012	$548,152
2039	$598,992	$547,064
2040	$601,987	$545,977
2041	$604,997	$544,893
2042	$608,022	$543,810
2043	$611,062	$542,730
2044	$614,117	$541,652
2045	$617,188	$540,577
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $11,018,393

Multiple CMF Calculation 1

CMF (K) = CMF 1 * CMF 2 = 0.435 * 0.55 = 0.2378	0.24	**Fatal (K) Crashes**
CMF (A) = CMF 1 * CMF 2 = 0.435 * 0.55 = 0.2378	0.24	**Serious Injury (A) Crashes**
CMF (B) = CMF 1 * CMF 2 = 0.435 * 0.55 = 0.2378	0.24	**Moderate Injury (B) Crashes**
CMF (C) = CMF 1 * CMF 2 = 0.435 * 0.55 = 0.2378	0.24	**Possible Injury (C) Crashes**
CMF (PDO) = CMF 1 * CMF 2 = 0.435 * 0.55 = 0.2378	0.24	**Property Damage Only Crashes**

Countermeasure: Install bicycle lanes

Compare	CMF	CRF(%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
☐	0.435		★★★★☆	All	All	Urban	, 2021	This CMF is for bicycle ... [READ MORE]
☐	0.51	49	★★★★☆	All	All	Urban	, 2021	This CMF is for bicycle ... [READ MORE]
☐	0.734	26.6	★★★★☆	All	All	Urban	, 2021	This CMF is for bicycle ... [READ MORE]
☐	0.694	30.6	★★★★☆	All	All	Urban	, 2021	This CMF is for bicycle ... [READ MORE]
☐	0.649	35.1	★★★★☆	All	All	Urban	, 2021	This CMF is for bicycle ... [READ MORE]

	Strategy	Pages	Crash Modification Factor (CMF)	Evidence (Proven/Tried/ Experimental)	Candidate Locations	Construction Estimates
General Intersection Elements	**Marked Crosswalks**	4-7	Varies, Marked Crosswalks alone should not be considered a safety treatment	Tried	Signalized intersections, unsignalized locations with AADT below 15,000, school zone crossings, unsignalized locations with high pedestrian activity, and mid-block crossing locations.	$3,000
	Medians and Crossing Islands	8-10	Medians - 0.54 CMF Crossing Islands - 0.46 CMF Source: https://safety.fhwa.dot.gov/provencountermeasures/ped_medians/	Proven	Mid-block crossing locations, high-priority pedestrian crossing location such as transit stop, school and parks, and on roads with four or more, speeds greater than 35 mph and AADT greater the 9,000.	$25,000-$50,000
	Curb Extensions and Curb Radii	11-14	Curb Extensions - 0.55 CMF Source - http://www.dot.state.mn.us/stateaid/trafficsafety/county/CRSPEnhancedCrosswalks.pdf	Proven	Mid-block curb extensions or pinch points, offset curb extensions or chicanes, and bus stops.	$2,000-$3,500/ corner; $10,000-$20,000/corner with storm sewer impacts
	Crosswalk Lighting	15-17	0.55 CMF Source: http://www.cmfclearinghouse.org/detail.cfm?facid=436	Proven/Tried	Isolated intersections with crosswalks that are not along continuously lit roadways, and mid-block crosswalks.	$10,000 per intersection to over $40,000
	Raised Crosswalks	18-21	0.55 CMF Source: https://safety.fhwa.dot.gov/ped_bike/step/docs/TechSheet_RaisedCW_508compliant.pdf	Proven	Along 2-lane or 3-lane roadways with speeds 30 mph or less and with AADT of 9,000 or less, locations with high pedestrian or bicycle activity, roundabout crossing locations, and locations where shared use paths cross commercial driveways or ramps.	$7,000 to $40,000 each
	Intersection Geometric Design	22-24	Varies	Proven	Where on-street parking or bike lanes are present, where channelized right-turn lanes create more conflicts with pedestrians and bicyclists, where left turns are permitted to occur concurrent with bicycle or pedestrian movements, and at locations where the design must still accommodate turning movements by larger vehicles.	Varies depending on the specific treatment

Wabasha St and 11th St

INCIDENTII	RTESYSCOI	RTENUMBI	MEASURE	COUNTY_S	CITY_NAM	TOWNSHIP	MNDOT_DI	STATE_PAT	TRIBAL_GC	LOCALID	ACCIDENT_	CRASH_MC
777136	5	235	2.181	62	Saint Paul		M	24		20002903	2E+08	1
700400	5	235	2.186	62	Saint Paul		M	24		19061775	1.91E+08	3
974703	5	305	0.07	62	2396511			24		21240523	2.13E+08	11
898844	5	305	0.07	62	Saint Paul		M	24		21067309	2.11E+08	4
936911	5	305	0.072	62	Saint Paul		M	24		21178054	2.12E+08	8

Wabasha and 10th St

INCIDENTII	RTESYSCOI	RTENUMBI	MEASURE	COUNTY_S	CITY_NAM	TOWNSHIP	MNDOT_DI	STATE_PAT	TRIBAL_GC	LOCALID	ACCIDENT_	CRASH_MC
756966	5	204	0.18	62	Saint Paul		M	24		19240255	1.93E+08	10
821072	5	204	0.179	62	Saint Paul		M	24		20146659	2.02E+08	7
733028	5	235	2.125	62	Saint Paul		M	24		19152453	1.92E+08	7
797919	5	235	2.127	62	Saint Paul		M	24		20-032389	2E+08	2
899259	5	235	2.129	62	Saint Paul		M	24		21069603	2.11E+08	4

Wabasha and Exchange

INCIDENTII	RTESYSCOI	RTENUMBI	MEASURE	COUNTY_S	CITY_NAM	TOWNSHIP	MNDOT_DI	STATE_PAT	TRIBAL_GC	LOCALID	ACCIDENT_	CRASH_MC
907053	5	235	2.054	62	Saint Paul		M	24		21102102	2.11E+08	5
674852	5	235	2.056	62	Saint Paul		M	24		19005827	1.9E+08	1
971830	5	235	2.057	62	Saint Paul		M	24		21231690	2.13E+08	11

Wabasha and 7th St

INCIDENTII	RTESYSCOI	RTENUMBI	MEASURE	COUNTY_S	CITY_NAM	TOWNSHIP	MNDOT_DI	STATE_PAT	TRIBAL_GC	LOCALID	ACCIDENT_	CRASH_MC
702723	3	5	70.083	62	Saint Paul		M	24		19072999	1.91E+08	4
735990	3	5	70.102	62	Saint Paul		M	24		19163813	1.92E+08	7
700999	3	5	70.105	62	Saint Paul		M	24		19065128	1.91E+08	3
982174	3	5	70.106	62	Saint Paul		M	24		21259816	2.14E+08	12
758898	3	5	70.108	62	Saint Paul		M	24		19246412	1.93E+08	11
801590	3	5	70.109	62	Saint Paul		M	24		20043770	2.01E+08	3
890934	3	5	70.111	62	Saint Paul		M	24		21032608	2.1E+08	2
943403	3	5	70.118	62	Saint Paul		M	24		21203043	2.13E+08	9
902280	5	235	1.978	62	Saint Paul		M	24		21082470	2.11E+08	4
898779	5	235	1.985	62	Saint Paul		M	24		21067074	2.11E+08	3

865893	5	235	1.987	62	Saint Paul	M	24	20254504	2.03E+08	11
835058	5	235	1.991	62	Saint Paul	M	24	20166971	2.02E+08	8
749236	5	235	1.994	62	Saint Paul	M	24	19214926	1.93E+08	9
917543	5	235	1.996	62	Saint Paul	M	24	21142133	2.12E+08	7
902710	5	235	1.998	62	Saint Paul	M	24	21084319	2.11E+08	4

CRASH_DA	CRASH_YE	CRASH_DA	CRASH_HO	DIVIDEDRD	CRASHSEVI	NUMBERKI	NUMBERO	MANNERO	FIRSTHARM	RELATIONT	LIGHTCONI	WEATHERP
4	2020	Sat	23	N	5	0	2	13	10	3	4	1
26	2019	Tue	22		5	0	2	10	10	3	4	1
19	2021	Fri	22	98	5	0	2	5	10	10	4	1
2	2021	Fri	17	N	3	0	2	5	10	3	1	1
27	2021	Fri	17	E	5	0	2	5	10	3	1	3

CRASH_DA	CRASH_YE	CRASH_DA	CRASH_HO	DIVIDEDRD	CRASHSEVI	NUMBERKI	NUMBERO	MANNERO	FIRSTHARM	RELATIONT	LIGHTCONI	WEATHERP
24	2019	Thu	17	E	5	0	2	15	10	3	1	1
22	2020	Wed	15		5	0	2	12	10	3	1	1
12	2019	Fri	12	N	4	0	4	12	10	2	1	1
14	2020	Fri	13	N	4	0	3	5	10	3	1	1
5	2021	Mon	15	98	5	0	2	12	10	3	1	1

CRASH_DA	CRASH_YE	CRASH_DA	CRASH_HO	DIVIDEDRD	CRASHSEVI	NUMBERKI	NUMBERO	MANNERO	FIRSTHARM	RELATIONT	LIGHTCONI	WEATHERP
21	2021	Fri	17	N	5	0	2	10	10	3	1	1
7	2019	Mon	23	N	5	0	2	10	10	3	4	1
6	2021	Sat	12		4	0	2	12	10	3	1	1

CRASH_DA	CRASH_YE	CRASH_DA	CRASH_HO	DIVIDEDRD	CRASHSEVI	NUMBERKI	NUMBERO	MANNERO	FIRSTHARM	RELATIONT	LIGHTCONI	WEATHERP
10	2019	Wed	13	98	5	0	2	5	10	3	1	4
25	2019	Thu	13		4	0	2	12	10	10	1	1
31	2019	Sun	12		5	0	2	12	10	3	1	99
20	2021	Mon	20		5	0	2	5	10	3	4	1
1	2019	Fri	17	N	5	0	2	12	10	3	1	1
1	2020	Sun	7	98	5	0	2	90	10	3	1	1
16	2021	Tue	15		5	0	2	13	10	3	1	1
27	2021	Mon	22		4	0	2	5	10	3	4	1
24	2021	Sat	23		5	0	2	12	10	3	4	1
18	2021	Thu	16	98	5	0	2	5	10	3	1	1

30	2020	Mon	11	E		3	0	2	5	10	3	1	1
13	2020	Thu	11		98	5	0	2	5	10	3	1	1
22	2019	Sun	12	W		2	0	2	5	10	3	1	1
11	2021	Sun	23			5	0	2	10	10	3	4	1
27	2021	Tue	20		98	5	0	2	12	10	3	4	1

WEATHERS	RDWYSURF	WORKZON	ROADWAY	INTERSECT	ROUTE_ID	BASIC_TYP	UNITTYPEU	VEHICLETY	DIRECTION	PRECRASHI	AGEU1	SEXU1
	1	98	S WABASHA ST		050002396	10	2	4	3	21	18	F
	1	98	S WABASHA ST		050002396	5	2	2	3	28	31	F
	1	98	W 11TH ST		050002396	10	1		1	21		
	1	98	E 11TH ST		050002396	10	2	2	1	21	23	M
	2	98	E 11TH ST		050002396	10	2	2	3	21	44	M

WEATHERS	RDWYSURF	WORKZON	ROADWAY	INTERSECT	ROUTE_ID	BASIC_TYP	UNITTYPEU	VEHICLETY	DIRECTION	PRECRASHI	AGEU1	SEXU1
	1	6	W 10TH ST		050002396	90	4	48	3	33	26	M
	1	98	W 10TH ST		050002396	7	1		3	21		
	1	98	S WABASHA ST		050002396	7	2	2	1	21	27	M
	1	98	S WABASHA ST		050002396	10	2	5	1	21	23	M
	1	98	S WABASH	W 10TH ST	050002396	7	1	2	1	21		

WEATHERS	RDWYSURF	WORKZON	ROADWAY	INTERSECT	ROUTE_ID	BASIC_TYP	UNITTYPEU	VEHICLETY	DIRECTION	PRECRASHI	AGEU1	SEXU1
	1	98	S WABASHA ST		050002396	5	1	4	1	28		
	2	98	S WABASHA ST		050002396	5	1	4	1	24		
	1	98	S WABASHA ST		050002396	7	2	31	3	21	63	M

WEATHERS	RDWYSURF	WORKZON	ROADWAY	INTERSECT	ROUTE_ID	BASIC_TYP	UNITTYPEU	VEHICLETY	DIRECTION	PRECRASHI	AGEU1	SEXU1
	2	98	W 7TH ST		030000000	10	1	2	4	21		
	1	98	W 7TH ST		030000000	7	2	4	3	21	52	F
	1	98	W 7TH ST		030000000	7	1	4	3	21		
	3	98	W 7TH ST		030000000	10	1	3	3	21		
	1	98	W 7TH ST		030000000	7	2	2	1	21	42	M
	1	98	W 7TH ST	S WABASH	030000000	90	2	2	3	21	34	M
	1	98	E 7TH ST		030000000	7	1	2	4	22	51	M
	1	98	E 7TH ST		030000000	10	2	4	4	21	33	M
	1	98	S WABASHA ST		050002396	7	1		3	21		
	1	98	S WABASHA ST		050002396	10	2	4	3	21	31	F

1	98	S WABASHA ST	050002396	9	2	2	3	24	62	F
1	1	S WABASHA ST	050002396	10	2	2	1	24	47	F
1	98	S WABASHA ST	050002396	10	2	2	4	24	37	F
1	98	S WABASH, W 7TH ST	050002396	5	1		4	23		
1	98	S WABASHA ST	050002396	7	1		99	24		

PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU1	UNITTYPEL	VEHICLETY	DIRECTION
5	99				11	20	30	11	21	2	2	1
5	2				11	20	30	11	21	2	4	3
					11	20	30	11	21	2	2	3
5	99				11	20	20	11	21	2	2	3
5	99				11	20	20	11	21	2	4	1

PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU1	UNITTYPEL	VEHICLETY	DIRECTION
5	11				12	20	20	11	21	2	2	3
					12	20	30	11	21	2	5	3
99	99				11	20	30	11	21	2	2	1
5	74				11	20	30	11	21	2	4	4
					11	99	35	11	21	2	2	1

PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU1	UNITTYPEL	VEHICLETY	DIRECTION
					11	20	20	11	21	2	4	1
					11	20	30	11	21	2	2	1
5	70				12	20	20	11	21	1	2	3

PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU1	UNITTYPEL	VEHICLETY	DIRECTION
					15	20	30	11	21	2	2	1
99	99				15	20	30	11	21	2	5	3
					13	20	30	11	21	2	2	3
					15	20	30	11	21	2	2	1
5	1				12	20	30	11	21	1	2	1
5	99				15	20	30	11	21	1	4	1
99	90				12	20	25			2	4	4
99	67	66			15	20	20	11	21	2	2	1
					15	20		11	21	2	2	3
5	63				13	20	30	11	21	2	2	1

5	2	15	20	30	11	21	2	2	4
5	2	15	20	30	11	21	4	4	4
5	2	15	20	30	11	21	2	31	4
		14	20	30	11	23	2	2	4
		12	20	30		21	2	4	1

PRECRASHI	AGEU2	SEXU2	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU2
21	37	M	5	1				11	20	30	11	21
21	43	F	5	1				11	20		11	21
21	35	M	5	1				11	20	30	11	21
21	26	M	5	99				11	20	20	11	21
21	36	F	5	99				11	20	20	11	21

PRECRASHI	AGEU2	SEXU2	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU2
34	49	F	5	1				12	20	20	11	21
21	22	M	5	1				12	20	30	11	21
21	32	F	99	1				11	20	30	11	21
21	37	F	5	1				12	20	30	11	21
26	57	F	5	99				11	99	35	11	21

PRECRASHI	AGEU2	SEXU2	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU2
21	60	F	5	1				11	20	20	11	21
24	54	M	5	1				11	20	30	11	21
21								12	20	20	11	21

PRECRASHI	AGEU2	SEXU2	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU2
21	69	M	5	1				11	20	30	11	21
34	59	M	5	1				15	20	30	11	21
24	43	F	5	1				13	20	30	11	21
21	49	F	5	1				15	20	30	11	21
21								12	20	30	11	21
21								11	20	30	11	21
21	57	M	5	1				12	20	25	11	21
21	36	F	5	1				15	20	20	11	21
21	30	F	5	99				15	20	30	11	21
21	23	M	5	1				11	20	25	11	21

21	29	M		5	1		15	20	30	11	21
21	54	M		5	1		15	20	30	11	21
21	37	M		5	1		15	20	30	11	21
23	23	F		5	99		14	20	30	11	23
21	27		99	5	1		12	20	30	11	21

UNITTYPEL	VEHICLETY	DIRECTION	PRECRASHI	AGEU3	SEXU3	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO

UNITTYPEL	VEHICLETY	DIRECTION	PRECRASHI	AGEU3	SEXU3	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO
2	2	1	21	60	F	99	1				11	20
3	2	1	20								11	20

UNITTYPEL	VEHICLETY	DIRECTION	PRECRASHI	AGEU3	SEXU3	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO

UNITTYPEL	VEHICLETY	DIRECTION	PRECRASHI	AGEU3	SEXU3	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC	NONMOTC	RDWYDESI	TRAFFICCO

SPEEDLIMI	ALIGNMEN	GRADEU3	UNITTYPEL	VEHICLETY	DIRECTION	PRECRASHI	AGEU4	SEXU4	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC

SPEEDLIMI	ALIGNMEN	GRADEU3	UNITTYPEL	VEHICLETY	DIRECTION	PRECRASHI	AGEU4	SEXU4	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC

30	11	21	3	3	1	20						
30	11	21										

SPEEDLIMI	ALIGNMEN	GRADEU3	UNITTYPEL	VEHICLETY	DIRECTION	PRECRASHI	AGEU4	SEXU4	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC

SPEEDLIMI	ALIGNMEN	GRADEU3	UNITTYPEL	VEHICLETY	DIRECTION	PRECRASHI	AGEU4	SEXU4	PHYSICALC	CONTRIBFA	CONTRIBFA	NONMOTC

NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU4	UTMX	UTMY	LATITUDE	LONGITUDI	CRASH_DA	STATUS	STATUS_NO
						492184.6	4977461	44.95055	-93.0991	########	Accepted	Reportable
						492179.4	4977466	44.9506	-93.0991	########	Accepted	Reportable
						492186.7	4977458	44.95051	-93.099	########	Accepted	Reportable
						492187.1	4977458	44.95052	-93.0991	########	Accepted	Reportable
						492188.9	4977459	44.95053	-93.099	########	Accepted	Reportable

NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU4	UTMX	UTMY	LATITUDE	LONGITUDI	CRASH_DA	STATUS	STATUS_NO
						492223.4	4977381	44.94983	-93.0986	43762.73	Accepted	Reportable
						492222.8	4977381	44.94983	-93.0986	44034.66	Accepted	Reportable
	11	20	30	11	21	492235.8	4977386	44.94988	-93.0984	43658.52	Accepted	Reportable
						492233.9	4977389	44.9499	-93.0985	43875.57	Accepted	Reportable
						492231.8	4977392	44.94993	-93.0985	44291.63	Accepted	Reportable

NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU4	UTMX	UTMY	LATITUDE	LONGITUDI	CRASH_DA	STATUS	STATUS_NO
						492296.7	4977291	44.94902	-93.0977	44337.71	Accepted	Reportable
						492295.7	4977293	44.94903	-93.0977	43472.99	Accepted	Reportable
						492294.3	4977295	44.94905	-93.0977	44506.51	Accepted	Reportable

NONMOTC	RDWYDESI	TRAFFICCO	SPEEDLIMI	ALIGNMEN	GRADEU4	UTMX	UTMY	LATITUDE	LONGITUDI	CRASH_DA	STATUS	STATUS_NO
						492353.9	4977211	44.9483	-93.0969	43565.54	Accepted	Reportable
						492358.2	4977183	44.94804	-93.0969	43671.56	Accepted	Reportable
						492362.4	4977185	44.94807	-93.0968	43555.51	Accepted	Reportable
						492363.7	4977186	44.94808	-93.0968	44550.85	Accepted	Reportable
						492366.1	4977188	44.94809	-93.0968	43770.74	Accepted	Reportable
						492367.8	4977189	44.9481	-93.0968	43891.33	Accepted	Reportable
						492370.5	4977191	44.94812	-93.0967	44243.65	Accepted	Reportable
						492378.7	4977196	44.94817	-93.0966	44466.94	Accepted	Reportable
						492365.3	4977190	44.94811	-93.0968	44310.97	Accepted	Reportable
						492359.4	4977198	44.94818	-93.0969	44273.69	Accepted	Reportable

492357.1	4977201	44.94821	-93.0969	44165.46	Accepted	Reportable
492353.5	4977206	44.94826	-93.0969	44056.47	Accepted	Reportable
492350.8	4977210	44.94829	-93.097	43730.53	Accepted	Reportable
492348.9	4977213	44.94832	-93.097	44388.99	Accepted	Reportable
492346.9	4977216	44.94835	-93.097	44313.86	Accepted	Reportable

AGENCY_O	AGENCY_O	NARRATIVE
MN0620900	Police	On
MN0620900	Police	Driver Unit 2 was E/B 11th Street approaching Wabasha in the left lane. Driver 1 was E/B 11th Street in the middle lane appro
MN0620900	Police	Unit 1 was traveling NB on Wabasha St N when it ran the light and struck Unit 2 which was traveling EB on 11th St. Unit 1 fled
MN0620900	Police	Upon
MN0620900	Police	UNIT 1

AGENCY_O	AGENCY_O	NARRATIVE
MN0620900	Police	UNIT 1 was a work truck backing within a work zone, which was also an open roadway. The rear of UNIT 1 crashed into the pas
MN0620900	Police	Veh #2 was on 10th ST W; west of Wabasha St N. Veh #2 was facing east bound on 10th ST W, towards Wabasha St N. Veh #1 w
MN0620900	Police	Four car accident. Vehicle 1 was northbound Wabasha in the left lane approaching 10th St. Vehicle 1 struck vehicle 2. Vehicle
MN0620900	Police	V1 drove through red light at intersection strucking V2 which ran into light post. V1 caused V2 to strike vehicle 3 which was le
MN0620900	Police	On 04.05.2021 at approximately 1500 hours, Unit 2 was traveling North on Wabasha approaching the intersection with 10th S

AGENCY_O	AGENCY_O	NARRATIVE
MN0620900	Police	UNIT 2 was traveling northbound in the left lane on WABASHA ST N at EXCHANGE ST.UNIT 1 was traveling northbound in the rig
MN0620900	Police	UNIT 2 WAS TRAVELING NB ON WABASHA IN THE WESTERN LANE AND TURNED WB ONTO EXCHANGE. UNIT 1 WAS IN THE EA
MN0620900	Police	Veh #1 is a motorcycle. Veh #1 was behind Veh #2.Veh #1's front struck Veh #2's rear bumper. Veh #1's driver was injured. Veh

AGENCY_O	AGENCY_O	NARRATIVE
MN0620900	Police	Vehicle #2 was travelling n/b Wabasha through 7th St, green lite. Vehicle #1 was w/b 7th, red lite. Driver #2 said he saw driver
MN0620900	Police	Unit # 2 was EB 7th St. at Wabasha stopped for the red lightUnit #1 was also EB 7th St. and rear ended Unit #2Driver of unit #1
MN0620900	Police	On 03/31/2019 at approximately 1214 hours, driver of vehicle 1 was attempting to turn north onto Wabasha from east bound
MN0620900	Police	Veh #2 was traveling N/B on Wabasha St onto 7th St. Veh #2 had the right of way. Veh #1 was traveling E/B on 7th St W onto W
MN0620900	Police	NO ICC SQD #1665. BWC was activated and available for the responding Officer.On 11/01/2019 at approximately 1934 hours, S
MN0620900	Police	Unit 1 was traveling east bound on 7th Street at Wabasha. Unit 2 was traveling northbound on Wabasha and struck Unit 1 as
MN0620900	Police	On 02/16/2021 at 1531 hours, Officers responded to the area of WABASHA ST N/7TH ST E for an accident hit and run. Unit 2 st
MN0620900	Police	Veh #1 was pursued by police. Veh #1 drove WB in the EB lane of 7th St E into Wabasha St. Veh #2 was traveling NB on Wabash
MN0620900	Police	The driver of UNIT 2 was traveling eastbound on W 7th St. As UNIT 2 approached Wabasha St, she looked in her rearview mirr
MN0620900	Police	Driver of unit 2 said she was traveling NB on Wabasha St N crossing the intersection for 7th St W and Wabasha St N on a green

MN062090	Police	Driver unit#1 and witness both stated that unit#1 clipped unit#2 on the drivers side while turner left from e/b 7th to n/b Waba
MN062090	Police	Driver of vehicle 1 was e/b on 7th St and attempted to make a n/b turn onto Wabasha but failed to yield the right of way to tra
MN062090	Police	Vehicle 1, MN LIC 909RYJ,was making a left turn from EB 7th St to NB Wabasha and didn't see vehicle 2, MN lic 30241MJ, a mo
MN062090	Police	On 07/11/2021 at approximately 2342 hours, Police responded to the area of 7th St/ Wabasha St for a AHR.On arrival I spoke w
MN062090	Police	I Officer P. AGBARA (Squad 533) responded to the area of 7TH ST/WABASHA ST for an accident hit and run. Upon arrival I spoke

aching Wabasha. Driver Unit 1 said she attempted to change lanes to turn left to N/B Wabasha when she struck Unit 2. Driver Unit 1 said she did not
the scene. No injuries reported.

ssenger side rear of UNIT 2.UNIT 2 was stopped at the red light on eastbound 10TH ST E at WABASHA ST N. UNIT 2 was in a valid lane, and not in any w
as behind Veh #2. Veh #1's front struck Veh #2's rear. Veh #1's driver left the area without providing proper information. Veh #2's driver stated the driv
e 2 then struck vehicle 3 and 4. St. Paul Medic 8 arrived and cleared as all medical treatment was denied, no medical report written as they were canc
gally parked. V1 caused damage to V2, which struck light post at NW corner of intersection. V1/V2 caused damage to V3 as a result of being struck by
t. Unit 2 saw two boys crossing the street in front of her and started to slow down. While Unit 2 was slowing, Unit 1 impacted the rear of Unit 2. Unit 2

ght lane on WABASHA ST N at EXCHANGE ST.UNIT 1 swerved into the left lane and crashed into the front passenger side of UNIT 2.UNIT 1 kept driving r
ASTERN LANE AND ATTEMPTED TO TURN WB AS WELL. UNIT 1 CRASHED INTO UNIT 2'S PASSENGER SIDE FRONT BUMPER. UNIT 1 FLED NB ON WABAS
#2's driver drove away from the area without providing proper information. Veh #1's driver was transported to Regions Hospital to be treated for non-

#1 inching out into the intersection. Driver #2 said as he proceeded through the intersection on a green lite, Driver #1 went through the red lite and str
was issued citationUnit #1 was towed to the city lot
7th Street.Vehicle 1 was yielding to vehicles who were traveling west on 7th Street when her vehicle was rear ended by vehicle 2.Driver of vehicle 2 fle
abasha St. Veh #1 had the red light, thus not the right of way to enter the intersection. Veh #1's front struck Veh #2's rear driver side bumper. Veh #1's
quad 273 responded to 367 Grove St (Police Headquarter)for an accident property damage hit and run.Upon arrival I met and spoke with the complai
it passed through the intersection. Unit 2 then fled the scene. A witness was able to obtain a plate for the striking vehicle, MN tag 168 REM. Unit 1 w
ated that his vehicle was struck by Unit 1 vehicle. The driver of Unit #2 stated that He was driving east bound on 7th St from the intersection of St. Pete
ia St into 7th St E.Veh #1's front struck Veh #2's passenger side. Veh #1's driver was taken into custody by Stillwater PD (SW21010729). Veh #1 struck a
or and observed the headlights of UNIT 1 approaching the rear of her vehicle at a high rate of speed. UNIT 1 struck UNIT 2 at the rear bumper then fl
light. Driver of unit 2 said as he entered the intersection unit 1 was traveling EB on 7th St and entered the intersection on a red light striking unit 2.Driv

asha Street causing unit#2 to rollover landing on its roof. the driver of unit#2 was transported to regions hospital with apparent minor injuries. driver
affic heading w/b on 7th St. Driver 1 collided with driver 2 (fully marked police vehicle) at the driver's side rear wheel. Vehicle 1 sustained minor dama
otorcycle, which was WB 7th St going through the intersection of Wabasha. Veh 1 struck the driver side of the motorcycle/left leg of the driver of Veh 2
with the comp who identified herself via MN DL as ANNIKA CHANDA DUCH (DOB: 06/27/1998, 1679 Thornhill LN, Woodbury MN 55125, C/P: 651-387-
to the comp, MARPLE, who stated that his vehicle was struck by an unknown suspect vehicle. MARPLE stated He was driving north on WABASHA ST c

: see Unit 2 in the lane adjacent to her.

work zone.There was minor, non-disabling damage to UNIT 2. There did not appear to be any damage to UNIT 1.There were no injuries.No arrests were
ver was a "heavy set black male, in his twenties". Veh #1's driver could not describe Veh #1's license plate with certainty. See Original Report. No furthe
:eled, no run number per Medic 8. Vehicle 4 was parked in far left lane which is dedicated curbside parking.
/ V1.
2 put their hazards on and pulled over, while Unit 2 was going to exit the vehicle. Unit 2 saw Unit 1 make no attempt to stop and drove away. There w

northbound on WABASHA ST N and fled eastbound on 11TH ST E toward entrances to 35E northbound and 94 westbound. It was unknown which high
SHA AFTER THE CRASH. NO VEHICLE DESCRIPTION ON UNIT 1
life threatening injuries. Veh #1 was cited for Misdemeanor Failure to Drive with Due Care, Misdemeanor No Proof of Insurance (Driver), and Misdeme

ruck the passenger side near the rear door.Driver #1 fled the scene. Driver #2 was able to provide the license plate for vehicle #1.Investigative Notes:O

ed the scene without exchanging information. There were no reported injuries. No vehicles were towed.Investigative Notes:On 04-01-2019, I mailed a
driver drove away from the area without providing proper information. Officers were able to locate the suspect's vehicle in the area of 7th St E and Pa
nant at in front HQ.Complainant is an employee of the Ecolab (1 Ecolab PI, St Paul, MN 55102. Complainant was driving the company vehicle MN/LIC (
vas able to be driven away from the scene but it had extensive front end damage. Driver of Unit 1 stated he had a green light.
er St. The driver of Unit #2 stated he observed a vehicle driving directly towards him, the wrong way, west on 7th St. The driver of Unit #2 stated he w
St. Paul City owned light poleVeh #2's driver and passenger were transported to the hospital to be treated for non-life threaten injuries. See Original R
ed eastbound on W 7th St. The impact of the collision caused UNIT 2's airbags to deploy and UNIT 2's vehicle then struck the traffic control device on
ver of unit 2 said he exchanged information with the driver/RO of unit 1 at the time of the accident. Driver of unit 2 said he has not been able to make

· unit#1 was issued citation number 620907112080. see packetwriter report for further information.
ge and vehicle 2 also sustained minor damage. Driver 1 cited for unsafe change of course.
2. Vehicle 2 ended up crashing and the driver sustained severe injury to the left leg. St Paul Fire Medic 8, Run number 36740, transported the driver of
3478). DUCH stated that she was driving WB on 7th St attempting a RH turn onto NB Wabasha St when her vehicle was struck by another vehicle. DUC
rossing 7th ST in the inside lane. MARPLE said when he crossed 7TH ST the suspect vehicle that was in the right lane made a left turn and crashed into

e made or citations given as a result of this crash.END OF REPORT.
er information.

as minor damage to the rear bumper of Unit 2. No injuries.

way UNIT 1 fled onto.UNIT 2 followed UNIT 1 for a few blocks until it pulled over on 11TH ST E.A witness told the driver of UNIT 2 he saw the license pl

eanor Driving After Revocation. Citation #620905474112. See Original Report.

n 04-11-2019, I mailed a ten day letter to the RO, Andrew Brehm, requesting insurance information. On 04-12-2019, I received an email between Ame

ten day letter to the RO, Lisa Enlow, requesting insurance information. The letter was returned by the USPS stamped Attempted-Not Known-Unable tc
ayne Ave.See original report.
CKR385 Silver 2019 Ford Escape Northbound on Wabasha St near 7th St W when his vehicle was rear ended by another vehicle. Unit two which was th

wasn't able to avoid this vehicle and they hit head on/side swiped. The driver of Unit #2 stated Unit #1 then continued through the intersection and car
eport.
the south-east corner of the intersection. There was no damage to the traffic control device. Two passengers from UNIT 1 stated the following: They
contact with the RO of unit 1. Driver of unit 2 wanted a report made and a case number for his insurance. At the time of this report there were no inju

: veh 2 to Regions Hospital. Both vehicles were towed. No citation at this time was issued to the driver of Vehicle on for failing to yield during a left tur
:H stated the right turn lane was clear when she attempted to make the RH turn however a vehicle behind her turned quickly behind her into the turn l
his vehicle. MARPLE stated the suspect vehicle fled west bound on 7th ST, he stated the suspect vehicle was a small white car.I observed the damage o

late and type of vehicle of UNIT 1 and gave the driver of UNIT 2 the information for police. Officers later called the witness and verified he indeed had

rican Family and Andrew Brehm. It provided the claim #01-001-436764.

› Forward. I cited Enlow for No Proof of Insurance and forwarded the citation to the TVB.

ıe suspect's vehicle fled the scene.Complainant's vehicle sustained minor damage to the rear end bumper. The complainant's vehicle was also insured l

ne to a stop on 7th St, in the west bound traffic lanes. The driver of Unit #2 stated that Unit #1 drove off prior to police arrival. The driver of Unit #2 a

/ got into UNIT 1 at Truck Park Bar on W 7th St. They described the vehicle as a newer white BMW sedan. The driver of unit 1 was a bald black male v
ıries reported. I spoke to the RO of unit 1 via telephone. The RO of unit 1 said she was traveling EB on 7th St and stopped at a red light at the intersecti

rn, no insurance or violation of an instructional permit as Traffic and Accident will review it for further charges.
lane.DUCH stated she was partially in the right turn lane when her vehicle was struck. The suspect vehicle is described only as a black sedan, no suspec
n MARPLE's vehicle and saw white pieces possibly belonging to the suspect vehicle lodged into the side of MARPLE's vehicle. MARPLE's vehicle sustain

the correct license plate for the vehicle he saw. The witness also said the driver was a black male, mid-20s YO, small to medium build, with short hair.

by the National Union Fire Ins Insurance company (policy #CA9767380). Good Samaritan witnessed the accident and then provided the complainant w

ılso stated, it appeared the driver of Unit #1 may have been under the influence, just based on his observations. He stated the driver had a very sleepy

vith an English accent wearing glasses and a red flannel shirt with flowers on it. They stated there were 9 people total in the vehicle and the driver of
on of 7th St and Wabasha St. RO of unit 1 said she believed the light turned green and she accelerated through the intersection striking unit 2. RO of u

:t description no make/model/year.DUCH'S vehicle sustained minor damage to the passenger side of the vehicle and passenger side view mirror.There ıed moderate passenger side damage.No injuries were reported from the incident.

No injuries. No arrests made or citations given.END OF REPORT.

vith the suspect's vehicle license plate (MN/LIC CUX394, A gray Honda Insight, registered to HAMMOND, DAVID GEORGE/dob04/12/1958, 780 SHERW

r/impaired look about him and was swerving all over the roadway as they drove towards each other. We checked the area and wer

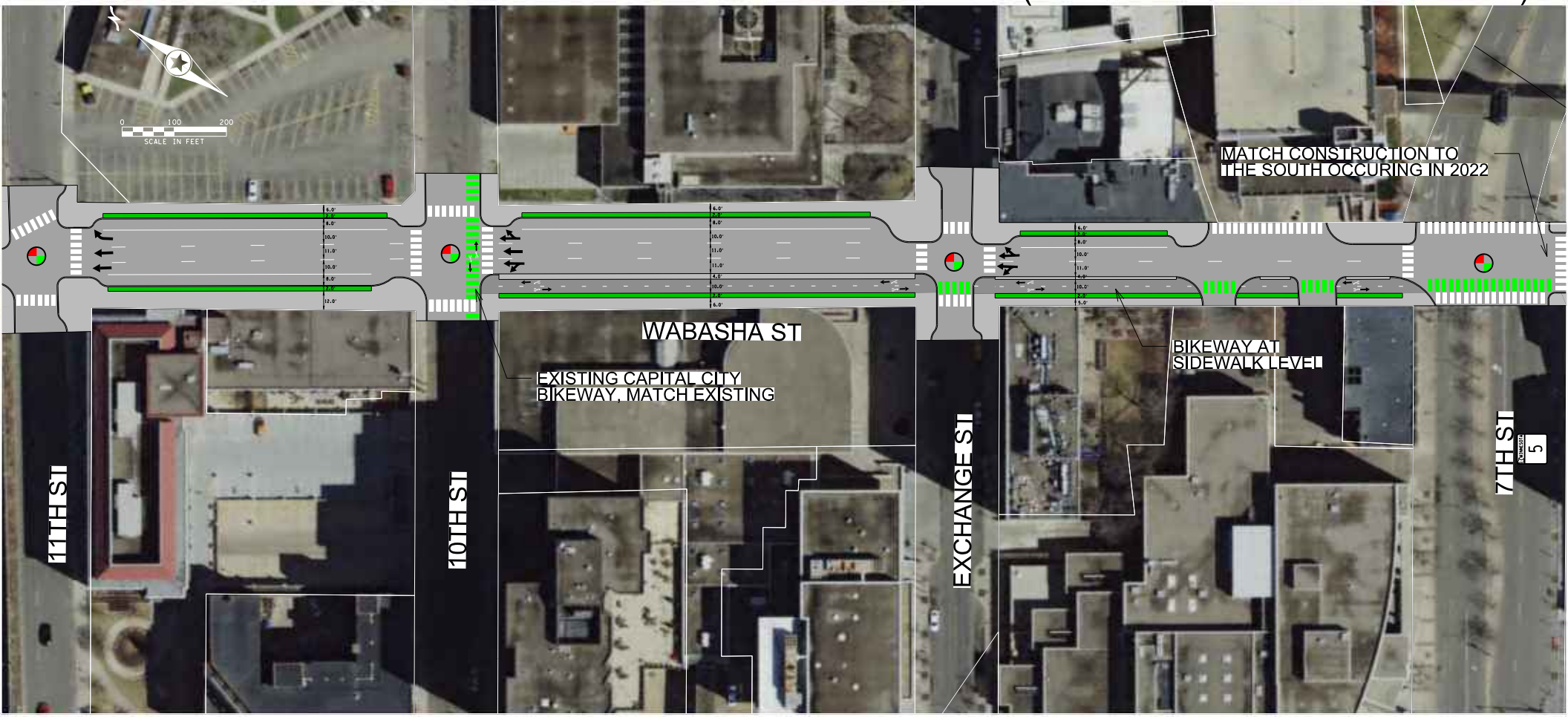
UNIT 1 was driving way to fast (approximately 50-60 mph). Driver of UNIT 1 was swerving and changing lanes, but they were unsure how the acciden
nit 2 said she attempted to exchange information with the driver of unit 2 but he was on the phone. RO of unit 1 said she

were no witnesses in the area and it is unknown if the crash was captured on CCTV cameras.DUCH was provided a business card with CN.

'OOD AVE, St Paul, MN 55106)

t

CITY OF ST. PAUL - WABASHA STREET RECONSTRUCTION (7TH STREET TO 11TH STREET)



PROJECT SUMMARY

Project Name: Wabasha Street Reconstruction (7th Street to 11th Street)

Applicant: City of Saint Paul

Project Location: Wabasha Street between 7th Street and 11th Street

Total Project Cost: $ 6,672,000

Requested Federal Dollars: $5,337,600

Before Photo: Northbound Wabasha Street south of 11th Street

Project Description:

The Wabasha Street Reconstruction project will replace aging street infrastructure and reallocate space in the corridor to accommodate an off-road two-way bikeway facility between 7th Street and 11th Street, while improving safety for all modes of travel.

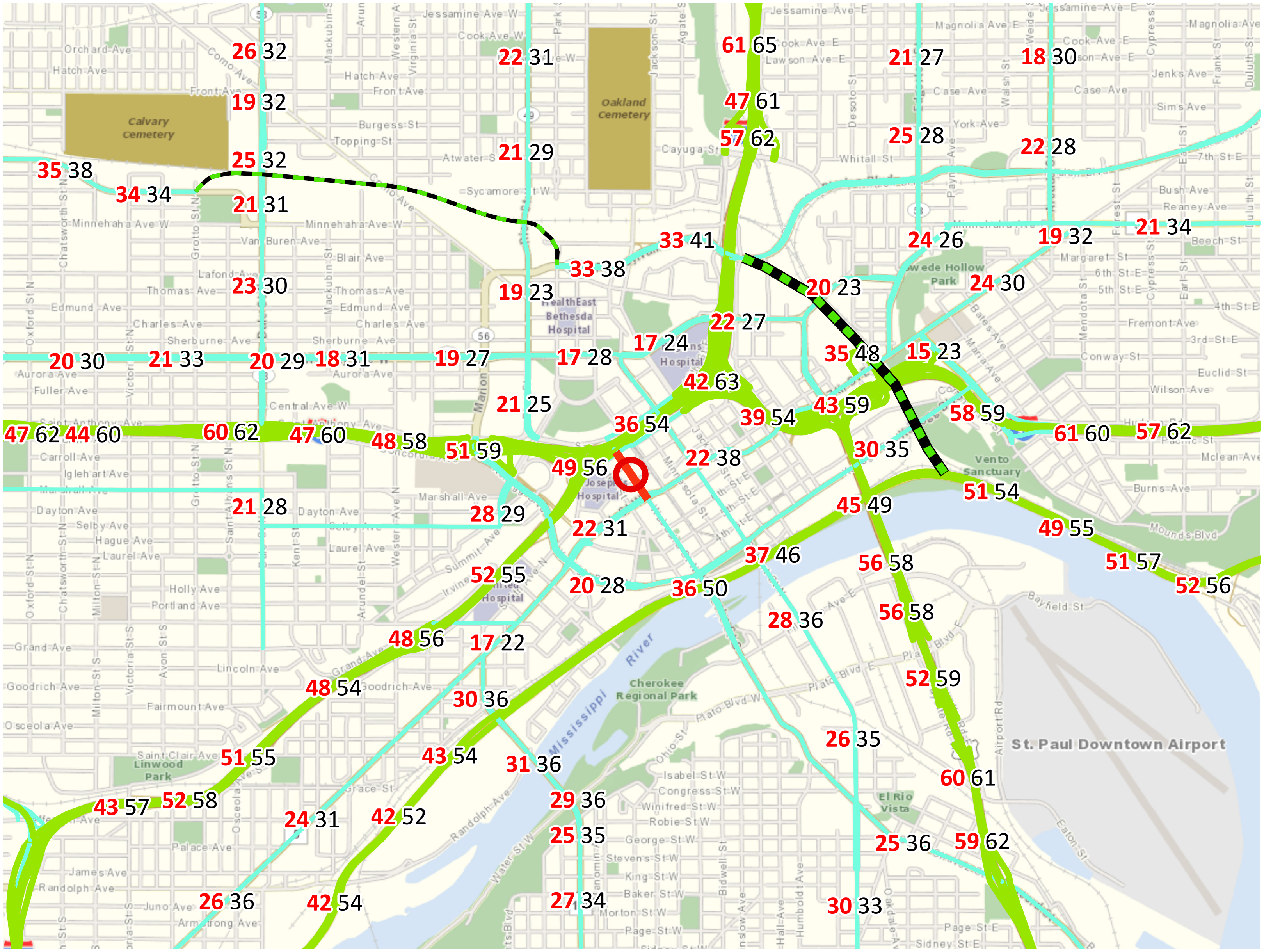
The project will include the reconsruction of deteriorating sidewalk with a landscaped boulevard between the sidewalk and bikeway to provide a more comfortable pedestrian space along both sides of the corridor. New traffic signals will be installed at the 11th Street, 10th Street, Exchange Street, and 7th Street (TH 5) intersections. Pedestrian improvements including ADA compliant ramps and sidewalks (free of obstructions), Accessible Pedestrian Signals (APS), high visibility crosswalk markings, curb extensions, and countdown timers.

Project Benefits:

- Implements the Capital City Bikeway and complete a gap in the St. Paul bicycle network
- Improves safety along the corridor for all users and abilities
- Provides improved access to the many downtown St. Paul destinations
- Enhances pedestrian travel with ADA compliant sidewalks, pedestrian-scaled lighting, and streetscaping
- Encourages biking as an alternative mode of transportation for commuting or recreational activity

Level of Congestion

Roadway Reconstruction/Modernization Project: Wabasha Street | Map ID: 1648301685072



Project Points | Principal Arterials | Principal Arterials Planned

Project | A Minor Arterials | A Minor Arterials Planned

0 | 0.35 | 0.7 | 1.4 | 2.1 | 2.8 Miles

Created: 3/26/2022
LandscapeRSA1

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

METROPOLITAN COUNCIL

Wabasha Street Reconstruction (7th Street to 11th Street) (Photos)

Wabasha Street Reconstruction (7th Street to 11th Street) (Photos)


Wabasha St
ONE WAY

City of Saint Paul

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

Signature Copy

Resolution: RES 22-334

File Number: RES 22-334

Authorizing the Departments of Public Works and Parks and Recreation to submit project applications for federal funding into the 2022 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 Departments of Public Works and Parks and Recreation are proposing to submit twelve project applications for federal funding into the 2022 Metropolitan Council Regional Solicitation Program for funding in years 2026 and 2027; 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:

- Wabasha Street Reconstruct - 7th to 11th (Roadways)
- Minnehaha Avenue Reconstruct - Payne to 7th (Roadways)
- Fairview Avenue Reconstruct - Edgcumbe to Ford (Roadways)
- Cretin Avenue Reconstruct - I94 to Marshall (Roadways)
- Maryland Avenue Traffic Signal Modernization - Dale to White Bear (Traffic Management)
- Capital City Bikeway - Kellogg from W. 7th to John Ireland (Multiuse Trails)
- Capital City Bikeway - St. Peter/12th from 10th to John Ireland (Multiuse Trails)
- Point Douglas Regional Trail Phase 1 Construction (Multiuse Trails)
- Payne Avenue - Phalen Blvd to Maryland (Pedestrian Facilities)
- Arlington Avenue Sidewalk Infill - I35E to Edgerton (Pedestrian Facilities)
- Chelsea Heights Safe Routes to School (Safe Routes to School)
- Evie Carshare Expansion (Unique Projects 2024/2025 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 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 22-334PassedMayor's OfficepassedSigned4/8/20224/6/2022Signed|DAYTHAt a meeting of the on , this Resolution was Signed.

Yea: 4 Councilmember Noecker, Councilmember Prince, Councilmember Jalali, and Councilmember Yang

Nay: 0

Absent: 3 Councilmember Brendmoen, Councilmember Thao, and Councilmember Tolbert

Vote Attested by Council Secretary Shari Moore **Date** 4/6/2022

Approved by the Mayor Melvin Carter III **Date** 4/8/2022

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

April 12, 2022

Don Pflaum
Department of Public Works
City of Saint Paul

Re: MnDOT Letter for City of Saint Paul's Metropolitan Council/Transportation Advisory Board 2022 Regional Solicitation Funding Request for projects on Wabasha Street and Minnehaha Avenue

Don Pflaum,

This letter documents MnDOT Metro District's recognition for City of Saint Paul to pursue funding for the Metropolitan Council/Transportation Advisory Board's (TAB) 2022 Regional Solicitation for the following improvements that have impacts to MnDOT right of way.

- **Wabasha Street from 7th Street and 11th Street**, including a portion of 7th Street (Hwy 5) intersection.
- **Minnehaha Avenue from Payne to E 7th St (Hwy 5)**

As proposed, these projects impact MnDOT right of way as described above. As the agency with jurisdiction over this system, MnDOT will allow the City to seek improvements proposed in the application. Details of any future maintenance agreement will need to be determined during project development to define how the improvements will be maintained for the project's useful life if the project receives funding.

There is no funding from MnDOT currently planned or programmed for this improvement. If your project receives funding, continue to work with MnDOT Area staff to coordinate needs and opportunities for cooperation.

MnDOT Metro District looks forward to continued cooperation with 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 North Area Manager Melissa Barnes at melissa.barnes@state.mn.us.

Sincerely,

Michael Barnes

Digitally signed by Michael Barnes
Date: 2022.04.12 09:59:41 -05'00'

Michael Barnes, PE
Metro District Engineer

CC: Melissa Barnes, Metro District Area Manager; Dan Erickson, Metro State Aid Engineer; Molly McCartney, Metro Program Director