Application

17063 - 2022 Roadway Modernization

17728 - TH 120 (Century Avenue) Reconstruction and Modernization

Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
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What Grant Programs are you most interested in?	Regional Solicitation - Bicycle and Pedestrian Facilities			

Organization Information

Name:	WASHINGTON CTY
Jurisdictional Agency (if different):	

Organization Type:

Organization Website:

Address: PUBLIC WORKS

11660 MYERON RD

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

County: Washington

Phone:* 651-430-4325

Ext.

Fax:

PeopleSoft Vendor Number 0000028637A10

Project Information

Project Name TH 120 (Century Avenue) Reconstruction and Modernization

Primary County where the Project is Located Washington

Cities or Townships where the Project is Located: White Bear Lake, Mahtomedi

Jurisdictional Agency (If Different than the Applicant):

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

The proposed project is a roadway reconstruction and modernization of TH 120 (Century Avenue) that includes updated intersection control methods and multimodal facility improvements between I-694 and CSAH 12 (Old TH 244/Co Rd E) in the Cities of White Bear Lake and Mahtomedi.

The project area includes Century College, one of the largest, most diverse, and most affordable colleges in Minnesota, as well as several low income and affordable housing communities, FedEx ground distribution and employment center, and two community commercial centers.

TH 120 (Century Avenue) is a state trunk highway with a posted speed of 40 MPH through the project area and an average daily traffic volume of 31,000. It is primarily a one-lane divided roadway and experiences prolonged periods of delay both during peak and off-peak hours due to unique traffic patterns associated with FedEx and Century College. There are five intersections in the project area, one of which has limited stop control. This segment of Century Avenue has a crash rate 80% greater than the average for a similar roadway segment, and every intersection has a crash rate greater than the MnDOT Metro average crash rate for a similar intersection with the limited-control intersection reaching as high as 6 times the average crash rate.

The project area currently has a sidewalk on the west side of Century Ave extending from CSAH 12 to Century College's West Campus and on the east side of Century Ave extending approximately 650 feet south from CSAH 12. No other sidewalk or trail facilities exist along the corridor, and pedestrians traveling along Century Ave must choose to either use a shoulder that fluctuates in width, the grass

boulevard, or choose to not walk at all.

The proposed roadway modernization project features a more pedestrian friendly and traffic calming design, with new ADA accessible multiuse trails extending along both sides of Century Ave; the replacement of one limited-control and one signalized intersection with two roundabouts featuring four-way crossings and pedestrian refuge islands; and raised medians and narrowed lane-width between the roundabouts. The roadway improvements will calm traffic and reduce delay and conflict points throughout the corridor. Bicycle and pedestrian improvements will complete gaps within the existing network, connect to transit stops and Century College's facilities on both sides of Century Avenue, and create a safer environment for non-motorized users to travel along or across Century Avenue.

(Limit 2,800 characters; approximately 400 words)

TRANSPORTATION IMPROVEMENT PROGRAM (TIP) DESCRIPTION - will be used in TIP if the project is selected for funding. See MnDOT's TIP description guidance.

MN 120, FROM N RAMP TERMINALS OF I694/MN120 INTERCHANGE TO JCT CSAH 12 IN WHITE BEAR LAKE AND MAHTOMEDI - MILL AND OVERLAY FROM N RAMP TERMINALS OF I694 TO LONG LAKE RD AND WOODLAND DR TO CSAH 12, RECONSTRUCTION FROM LONG LAKE RD TO WOODLAND DR, CONSTRUCT

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

Project Length (Miles)

1.1

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

$7,000,000.00

Match Amount

$1,972,428.80

Minimum of 20% of project total

Project Total

$8,972,428.80

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

Match Percentage 21.98%

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

Source of Match Funds County Funds

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

Preferred Program Year

Select one: 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 Washington County

Functional Class of Road Minor Arterial

Road System TH

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

Road/Route No. 120

i.e., 53 for CSAH 53

Name of Road Century Avenue

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed 55115

(Approximate) Begin Construction Date 04/01/2027

(Approximate) End Construction Date 10/31/2027

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

From:
(Intersection or Address) I-694

To:
(Intersection or Address) CSAH 12 (Old TH 244/Wildwood Rd/Co Rd E)

DO NOT INCLUDE LEGAL DESCRIPTION

Or At

Miles of Sidewalk (nearest 0.1 miles) 0

Miles of Trail (nearest 0.1 miles) 1.5

Miles of Trail on the Regional Bicycle Transportation Network (nearest 0.1 miles) 0

Primary Types of Work MILL AND OVERLAY, BITUMINOUS RECONSTRUCTION, ROUNDABOUT, PED RAMPS, AND TRAIL CONSTRUCTION

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:

This project is compliant with the following goals, objectives, and strategies in the Metropolitan Council?s 2040 Transportation Policy Plan.

Goal: Transportation System Stewardship. Sustainable investments in the transportation system are protected by strategically preserving, maintaining, and operating system assets.

Objectives A. Efficiently preserve and maintain the regional transportation system in a state of good repair.

B. Operate the regional transportation system to efficiently and cost-effectively connect people and freight to destinations.

Strategies: Regional transportation partners will place the highest priority for transportation investments on strategically preserving, maintaining, and operating the transportation system.

Goal: Safety and Security. The regional transportation system is safe and secure for all users.

Objectives A. Reduce crashes and improve safety and security for all modes of passenger travel and freight transport.

Strategies: Regional transportation partners will incorporate safety and security considerations for all modes and users throughout the processes of planning, funding, construction, and operation.

Goal: Access to Destinations. A reliable, affordable, and efficient multimodal transportation system supports the prosperity of people and businesses

by connecting them to destinations throughout the region and beyond.

Objectives:

D. Increase the number and share of trips taken using transit, carpools, bicycling, and walking.

E. Improve the availability of and quality of multimodal travel options for people of all ages and abilities to connect to jobs and other opportunities, particularly for historically under-represented populations.

Strategies: Regional transportation partners will continue to work together to plan and implement

transportation systems that are multimodal and provide connections between modes.

Local units of government should provide a system of interconnected arterial roads, streets, bicycle facilities, and pedestrian facilities to meet local travel needs using Complete Streets principles.

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.

This project is compliant with the goals, policies, and strategies of the Washington County 2040 Comprehensive Plan.

Goal: Plan, build, and maintain an interconnected and accessible transportation system that considers all users and modes of travel. (Pg 3-8)

Policies: Coordinate transportation mobility and choice to meet a diversity of needs while considering appropriate system levels of service.

Work with partners to identify and coordinate transportation system improvements to accommodate new growth and development.

Pursue federal, state, regional, and local funding opportunities to preserve, maintain, expand, and modernize the transportation network.

Advocate and promote long-term investments in transit including METRO Gold Line, Red Rock Corridor, Rush Line Corridor Extension, and TH 36 Corridor to provide reliable and efficient transit services.

Strategies:
Support levels and types of transit service that match specific needs of the community based on ridership forecasts, development patterns, and mobility needs.

Integrate non-motorized accommodations into the design of roadway and transit facilities to increase access to destinations.

Identify gaps in trail network and prioritize investments to improve non-motorized access to destinations

Implement recommendations from county-led transportation and transit studies.

Goal: Preserve safety and efficiency for all users (Pg 3-10)

Policies: Support ongoing safety review process that promotes both proactive and reactive treatments to reduce crashes.

Use traffic management techniques to improve operations, safety, and useful life of the roadways.

Strategies:
Coordinate with partners to improve safety and usability of county roadways when developing safe, effective, and implementable strategies in key locations like near schools and at non-motorized crossings.

Develop roadway crossings and trail facilities within county roadway corridors to promote safety for all users.

This project is compliant with the related goals, policies, and strategies in the White Bear Lake and Mahtomedi 2040 comprehensive plans that were not included due to character limits.

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: 06/16/2015

Link to plan: https://www.co.washington.mn.us/DocumentCenter/View/8045/Washington-County-Transition-Plan-Draft-20150616?bidId=

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

Date self-evaluation completed:

Link to plan:

Upload plan or self-evaluation if there is no link

Upload as PDF

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

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

11.The owner/operator of the facility must operate and maintain the project year-round for the useful life of the improvement, 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)	$355,000.00
Removals (approx. 5% of total cost)	$211,965.00
Roadway (grading, borrow, etc.)	$342,000.00
Roadway (aggregates and paving)	$2,423,300.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$1,059,825.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$774,000.00
Traffic Control	$423,930.00
Striping	$211,965.00
Signing	$211,965.00
Lighting	$211,965.00
Turf - Erosion & Landscaping	$551,109.00
Bridge	$0.00
Retaining Walls	$0.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$0.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$1,495,404.80
Other Roadway Elements	$0.00
Totals	**$8,272,428.80**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$632,000.00
Sidewalk Construction	$0.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$68,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$0.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$0.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$0.00
Other Bicycle and Pedestrian Elements	$0.00
Totals	**$700,000.00**

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	$8,972,428.80
Construction Cost Total	$8,972,428.80
Transit Operating Cost Total	$0.00

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

Existing Employment within 1 Mile:	4495
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	1301
Existing Post-Secondary Students within 1 Mile:	8203
Upload Map	1649868050214_11 Regional Economy Map - TH120.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:	Yes
Miles:	0.1
(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	TH 120 (Century Ave)
Current AADT Volume	31000
Existing Transit Routes on the Project	219

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

Upload Transit Connections Map 1649868267180_12 Transit Connections Map - TH120.pdf

Please upload attachment in PDF form.

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership 0

Current Daily Person Throughput 40300.0

Measure B: 2040 Forecast ADT

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

If checked, METC Staff will provide Forecast (2040) ADT volume

OR

Identify the approved county or city travel demand model to determine forecast (2040) ADT volume Washington County Model ? 2040 Comprehensive Plan Met Council approved forecasts

Forecast (2040) ADT volume 39000

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:

When compared to the region, the project area has a lower proportion of People of Color, comparable proportions of low-income and youth, and higher proportions of persons with a disability (12%) and older adults over 65 (19%). The regional transportation system should support the mobility of older and disabled populations as the region's population over 65 is set to increase dramatically. This demographic trend will be more pronounced in the project area as Washington County is projected to double its population of 65+ residents from 2015 to 2040.

Response:

The proposed project is directly adjacent to Century College, one of the largest and most affordable colleges in Minnesota with one of the most diverse student bodies. Century College was a key partner in the 2012 MnDOT-led Alternatives Analysis that analyzed Century Avenue between I-694 and CSAH 12 and originated the proposed project. Staff from the college, the adjacent cities, and counties have all played an ongoing role in needs identification and development for the proposed project.

In 2019, MnDOT launched a Planning and Environmental Linkages (PEL) study, a related planning effort that analyzed Century Ave between I-94 and I-694. Staff, community members, and elected officials within the proposed project area ? including the Cities of Mahtomedi and White Bear Lake, Ramsey and Washington Counties, and Century College - were essential in identifying project needs and influencing the broad corridor vision, which extends into the project area.

PEL study community engagement included a preliminary survey, an online qualitative discussion board, Public Advisory Committee meetings, an elected officials briefing, a virtual open house, a

follow-up survey, outreach to businesses in the corridor, and a series of community engagement activities that specifically targeted BIPOC communities and businesses, including virtual listening sessions with BIPOC community members at Century College, questionnaires mailed to lower-income apartment complexes, and phone interviews with BIPOC residents and organizations. Project materials were translated into Spanish and Hmong to increase accessibility to multicultural communities.

Consistent across all engagement were concerns about reckless traffic, unsafe bike/ped conditions, and the lack of bike/ped facilities. Participants envisioned a more complete streets approach in the corridor that calms traffic and makes bike/ped conditions safer. PEL study engagement results influenced the proposed project, which has evolved from a more auto-focused roadway expansion in 2012 to a more pedestrian-focused roadway modernization in 2022 that reflects the complete streets vision.

(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 area includes Century College, one of the largest and most diverse and affordable colleges in Minnesota, as well as several low income and affordable housing communities ? including East Metro Place I and II, two housing communities with 34 multi-bedroom units that provide both transitional and permanent supportive housing for homeless families with an emphasis on homeless families with disabilities and with history of long-term homelessness.

Currently, sidewalk only exists along the west side of Century Avenue from CSAH 12/Co Rd E to Century College?s West Campus. No other sidewalk or trail facilities exist in the project area, and therefore safe travel to and from Century College's campuses and the surrounding communities by bike or foot is severely limited. During targeted community engagement for the Century Ave PEL study, the surrounding community consistently raised concerns about unsafe bike/ped conditions, lack of bike/ped facilities, and reckless traffic conditions.

The addition of multiuse trails as a key feature of this project ensures people of all ages, incomes, and abilities have safe travel options through the corridor by bike, foot, or other personal mobility device. The addition of trails also enhances transit in the corridor by making access to transit stops safer and more comfortable, ensuring that those without access to a personal vehicle have safe, quality options to reach destinations in the area across a variety of modes. The proposed project also converts an intersection with limited stop control and a signalized intersection into roundabouts with raised medians, reduced roadway widths, and pedestrian refuge islands. These changes, combined with the removal of another

existing signalized intersection, help control and slow traffic, and facilitate safer crossing of Century Ave for bike/ped users.

There is minimal delay anticipated in the Century Avenue corridor associated with the construction of the road improvements. The goal is to mitigate these delays by keeping Century Avenue open as much as possible. While construction delays are temporary, the project will result in long-lasting delay reduction through the corridor, among other benefits. There are no other known negative impacts to low-income populations, people of color, children, people with disabilities, or the elderly associated with the proposed roadway reconstruction, roundabouts, or addition of important ADA accessible trails.

(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:

According to the Metropolitan Council?s Socio-Economic Conditions map, there are 1,520 publicly subsidized rental housing units within ½ mile of the project area. Several low income and affordable housing communities are located directly adjacent to the project area along Century Avenue: Woodland Townhomes (LIHTC; HCV accepted; fair housing plan in place) is an affordable housing development with 30 3-BR townhomes affordable at 60% AMI; Century Hill Townhouses (LIHTC; fair housing plan in place) includes 55 units at 30% AMI; Century Commons features low-income student apartments that border Century College; and East Metro Place I and II housing communities offer 34 multi-bedroom units that provide both transitional and permanent supportive housing for homeless families with an emphasis on homeless families with disabilities and with history of long-term homelessness. Additionally, East Shore Place (202/8NC; fair housing plan in place) is located less than a quarter mile from the project area and features 61 units affordable at 30% AMI.

In addition to publicly subsidized units, the ½ mile surrounding the project area also features a housing stock consisting primarily of townhomes, which are often a point of entry into the housing market for lower-income folks and can be characterized as Naturally Occurring Affordable Housing (NOAH).

The project area is also directly adjacent to Century College, one of the largest, most diverse, and most affordable colleges in Minnesota; FedEx, a large ground distribution center and employment hub; and community commercial centers featuring grocery stores, pharmacies, and a variety of other restaurants, businesses, and retail options. Metro Transit Route 219 has multiple stops in the project area, some of which are in the grass boulevard with no connecting sidewalk or pad for boarding or

alighting.

The multiuse trails and reduced crossing distances included as part of the proposed project support safe and affordable alternatives to driving and ensure that affordable housing residents, Century College students, staff, and faculty, and all nearby community members have safe, ADA accessible, equitable, and consistent access to transit and bike/ped travel options in the corridor. It also connects these users to regional trail networks and other important destinations. Auto users ? including freight bound for the adjacent FedEx distribution center - will also experience a safer, more efficient trip through the corridor as this project enhances mobility and safety across all modes by reducing delay at intersections and auto-conflict points.

(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):	
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.	1649872082655_13a SocioEconomic Conditions Map - TH120.pdf

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
1958	1.1	2153.8	1958.0
	1	**2154**	**1958**

Total Project Length

Total Project Length (as entered in "Project Information" form) 1.1

Average Construction Year

Weighted Year 1958

Total Segment Length (Miles)

Total Segment Length 1.1

Measure B: Geometric, Structural, or Infrastructure Improvements

Improved roadway to better accommodate freight movements: Yes

Response:

The addition of the two new roundabouts is anticipated to improve delays due to existing signalized and stop-controlled intersections, which will be a positive to the significant amount of freight traffic along this corridor, specifically coming from the nearby FedEx facility. Per the large percentage of truck traffic along this corridor, the roundabouts will be designed to accommodate large trucks, utilizing truck aprons and conservative turning movements.

(Limit 700 characters; approximately 100 words)

Improved clear zones or sight lines: Yes

Response:

The proposed project will be designed to meet MnDOT State Aid standards, not only for the roadway/intersections, but also the pedestrian facilities and tie-ins to existing transit stops. The improved geometrics will be a net positive for all users of this corridor.

(Limit 700 characters; approximately 100 words)

Improved roadway geometrics: Yes

Response:

The new intersection control choices are designed with a significant emphasis on access management, which reflects projected traffic volumes of the users of this corridor. Not only is this true for vehicles, but the pedestrian facilities at intersections will also accommodate pedestrian access to nearby destinations.

(Limit 700 characters; approximately 100 words)

Access management enhancements:

Response:

(Limit 700 characters; approximately 100 words)

Vertical/horizontal alignment improvements:

Response:

(Limit 700 characters; approximately 100 words)

Improved stormwater mitigation: Yes

Response: The proposed project will mitigate additional pervious pavement along the corridor by adhering to local standards for stormwater management. The stormwater management strategies will have the opportunity to contribute to the experience of the newly-served pedestrians along the new multi-use trails.

(Limit 700 characters; approximately 100 words)

Signals/lighting upgrades:

Response:

(Limit 700 characters; approximately 100 words)

Other Improvements Yes

Response: The proposed reconstruction ? new multiuse trails; construction of roundabouts featuring four-way crossings and pedestrian refuge islands; and raised medians between the roundabouts - dramatically improves multimodal mobility and safety throughout the corridor. The roadway improvements will calm traffic and reduce delay and conflict points throughout the corridor. Bicycle and pedestrian improvements will complete gaps within the existing network, connect to transit stops and Century College?s facilities on both sides of Century Avenue, and create a safer environment for non-motorized users to travel along or across Century Avenue and connect to transit stops.

(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
35.5	12.1	23.4	4726	4726	110588.4	110588.4	N/A	1649874157693_14 Synchro Combined - TH120.pdf
						110588		

Vehicle Delay Reduced

Total Peak Hour Delay Reduced	110588.4
Total Peak Hour Delay Reduced	110588.4

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):
30.85	7.49	23.36
31	**7**	**23**

Total

Total Emissions Reduced:	23.36
Upload Synchro Report	1649874269564_14 Synchro Combined - TH120.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:	Convert Signalized Intersection to Modern Roundabout (CMF = 0.79 for all crash and severity types): TH 120 and Woodland Avenue/ North Century Access Intersection, Install Raised Median (CMF = 0.29 for all crash and severity types): TH 120 and Middle Century Access, Convert Intersection with Minor-Road Stop Control to Modern Roundabout (CMF = 0.56 for all crash and severity types): TH 120 and South Century Access
(Limit 700 Characters; approximately 100 words)	
Rationale for Crash Modification Selected:	The roundabout CMF was selected for the Woodland Avenue/North Century Access intersection and the South Century Access intersection, because roundabouts are proposed at both intersections. The raised median CMF was used for access at the Middle Century Access intersection because would be restricted by using a raised median. This would allow only right-in, right-out movements and would therefore remove many auto-conflict points.
(Limit 1400 Characters; approximately 200 words)	
Project Benefit ($) from B/C Ratio	$6,201,899.00
Total Fatal (K) Crashes:	0
Total Serious Injury (A) Crashes:	0
Total Non-Motorized Fatal and Serious Injury Crashes:	0
Total Crashes:	24
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:	4
Worksheet Attachment	1649874537604_17 Crash Analysis - TH120.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.

Response:

The project area currently has a sidewalk on the west side of TH 120/Century Ave extending from CSAH 12 to Century College?s West Campus and on the east side of Century Ave extending approximately 650 feet south from CSAH 12. Beyond these segments, there are no other sidewalk or trail facilities along the corridor, and pedestrians traveling along Century Ave must choose to either use a shoulder that fluctuates in width, the grass boulevard, or choose to not walk at all. The lack of pedestrian and bicycle facilities also discourages transit use as transit stops are located on the grass boulevard with little protection from vehicular traffic which is uncomfortable and inaccessible for riders.

The proposed project will construct a new multiuse trail on the west side of Century Ave, connecting the southern college entrance to the West Campus and beyond to CSAH 12/Co Rd E. A multiuse trail will also be constructed on the east side of Century Avenue for the entire length of the corridor. These trails will be accessible to all users and designed to meet ADA standards.

FHWA Proven Safety Countermeasures initiative (PSCi) indicates that trails provide a 65-89% reduction in crashes involving pedestrians walking along roadways. Trail construction on the east and west sides of the proposed roadway modernization project will complete gaps within the existing pedestrian and bicycle network and create a safer environment for non-motorized users to travel along the corridor. With Century College?s facilities located on both sides of Century Ave, the additional trail and sidewalk will create a built environment in which all individuals ?children, adults, elderly, and people with disabilities? can feel comfortable and safe to walk and bike along the corridor.

There is currently an intersection with limited stop-control at the southern college entrance and signalized intersections at the central and northern college entrances. The central signalized intersection will be removed, and roundabouts will be constructed at the southern and northern entrance with a raised median in between these two roundabouts, which PSCi indicates provides a 46% reduction in pedestrian crashes. Both roundabouts will feature four-way crossings with pedestrian refuge islands to reduce the crossing distance in all directions and provide a dedicated protected area for individuals who need more time to cross. The PSCi indicate that pedestrian refuge islands support a reduction in pedestrian crashes of 56%. The elimination of the at grade crossing at the central college entrance is mitigated by an existing elevated, covered pedestrian bridge at that location, which connects Century College?s west and east campuses ? the sources of most pedestrians crossing at this location.

(Limit 2,800 characters; approximately 400 words)

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

Select one: Yes

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

Response:

The central signalized intersection and at-grade crossing will be removed, and roundabouts will be constructed at the southern and northern entrance with a raised median in between these two roundabouts. While the southern entrance, currently an intersection with limited stop control and no pedestrian crossing, will be gaining a roundabout and a four-way pedestrian crossing with pedestrian refuge islands, this does mean that there will be more distance between the removed central signalized intersection and the existing signalized intersection at the northern entrance that is to be replaced by a roundabout. The elimination of the at grade crossing at the central college entrance is mitigated by an existing elevated, covered pedestrian bridge at that location, which connects Century College?s west and east campuses ? the sources of most pedestrians crossing at this location.

(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:

Existing mid-block crossings are restricted by the continued usage of curb & gutter and raised center medians in the proposed condition. These measures will continue to deter pedestrians from crossing the busy trunk highway at unsafe, uncontrolled locations. The new round-abouts, in combination with the existing pedestrian bridge connecting Century College?s east and west campus, will provide ample and safe crossing opportunities at controlled intersections or separated facilities.

(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 proposed roadway modernization project features a more pedestrian friendly and traffic calming design, with new trails on both sides of Century Ave, roundabouts introduced at the southern and northern college entrances, and raised medians and narrowed lane-width between the roundabouts. The replacement of the limited-control and signalized intersections with roundabouts streamlines turning movements throughout the project area while also having the effect of limiting speed, thereby calming the corridor. According to FHWA Proven Safety Countermeasures initiative (PSCi), roundabouts feature channelized, curved approaches that reduce vehicle speed, and counterclockwise flow around a central island that minimizes conflict points, resulting in lower speeds and reduced conflicts. This in contrast to the existing condition in which one can speed through the signaled intersections with green lights. The raised medians and new trails on either side of the roadway not only protect pedestrians throughout the corridor but also effectively reduce lane-width which according to Minnesota?s Best Practices for Pedestrian and Bicycle Safety further calms traffic 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:

Century Avenue currently has a posted speed of 40 MPH. The proposed design does not change the existing posted speed.

(Limit 1,400 characters; approximately 200 words)

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

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

Existing road configuration is a One-way, 3+ through lanes or	
Existing road configuration is a Two-way, 4+ through lanes	
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	Yes

List the AADT	31000

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.)	
Existing road is within 500 of 1+ shopping, dining, or entertainment destinations (e.g., grocery store, restaurant)	Yes
If checked, please describe:	The proposed project area consists of Century Avenue from I-694 to CSAH 12/Co Rd E. To the south, near I-694, there is a commercial node with two restaurants, liquor and tobacco shops, and two gas stations. To the north, at the intersection of Century Ave and CSAH 12/Co Rd E, there is larger pair of commercial/business centers with Festival Foods and ALDI grocery stores, Walgreens and CVS drug stores, several restaurants, and dozens of other businesses and retail options
(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:

The proposed project area connects and is directly adjacent to Century College, one of the largest, most diverse, and most affordable colleges in Minnesota, as well as several multifamily and student housing facilities including Century Commons affordable student housing. The project area also includes several publicly subsidized low income and affordable housing communities including Woodland Townhomes, Century Hill Townhomes, East Shore Place, and East Metro Place I and II - two housing developments with 34 multi-bedroom units that provide both transitional and permanent supportive housing for homeless families with an emphasis on homeless families with disabilities and with history of long-term homelessness.

(Limit 1,400 characters; approximately 200 words)

Measure A: Multimodal Elements and Existing Connections

Response:

The proposed roadway reconstruction and modernization of TH 120 (Century Avenue) between I-694 and CSAH 12 featuring roundabouts and new trails on either side of Century Ave dramatically improves mobility and safety throughout this stretch of road across multiple modes of travel.

The project area currently has a sidewalk on the west side of TH 120/Century Avenue extending from CSAH 12 to Century College?s West Campus and on the east side of Century Ave extending approximately 650 feet south from CSAH 12. Beyond these segments, no other sidewalk or trail facilities currently exist along the corridor, and pedestrians traveling along Century Ave must choose to either use a shoulder that fluctuates in width, the grass boulevard, or choose to not walk at all. The lack of pedestrian and bicycle facilities also discourages transit use as transit stops are located on the grass boulevard with little protection from vehicular traffic which is uncomfortable and inaccessible for many riders.

The proposed project will construct a new multiuse trail on the west side of Century Ave, connecting the southern college entrance to the West Campus and beyond to CSAH 12/Co Rd E. A new multiuse trail will also be constructed on the east side of Century Avenue for the entire length of the corridor. These trails will be accessible to all users and designed to meet ADA standards.

Century Ave is identified as a Planned Bikeway in the Regional Bikeways Inventory, and the completion of this project would bring a significant bike/ped connection online along an important north-south travel corridor and connect two adjacent RBTN Tier 1 Corridors. The trail will

complete gaps within the existing network, connect to Century College?s facilities on both sides of Century Avenue from both north and south, and create a safer environment for non-motorized users to travel the corridor by reducing potential conflicts between pedestrians, bicyclists, and motorists.

The roadway reconstruction and new roundabouts are designed to increase safety across modes and reduce delay at intersections through the corridor, which benefits all users and enhances transit competitiveness. The proposed multiuse trails are crucial to the future success of transit in the corridor, as bike/ped connections to bus stops are an essential component of the transit experience. The project area is currently served by Metro Transit Route 219, and transit opportunities are expected to increase in and near the project area by 2040, including connecting service to the METRO Purple Line, potential future aBRT service along Century Ave, and potential connections to enhanced transit along TH 36.

(Limit 2,800 characters; approximately 400 words)

Transit Projects Not Requiring Construction

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

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment - Construction Projects

1.Public Involvement (20 Percent of Points)

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

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

100%

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

50%

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

50%

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

25%

No outreach has led to the selection of this project.

0%

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

Response:

The proposed project is directly adjacent to Century College, one of the largest and most affordable colleges in Minnesota with one of the most diverse student bodies. Century College was a key partner in the 2012 MnDOT-led Alternatives Analysis that analyzed Century Avenue between I-694 and CSAH 12 and originated the proposed project. Staff from the college, the adjacent cities, and counties have all played an ongoing role in needs identification and development for the proposed project.

In 2019, MnDOT launched a Planning and Environmental Linkages (PEL) study, a related planning effort that analyzed Century Ave between I-94 and I-694. Staff, community members, and elected officials within the proposed project area ? including the Cities of Mahtomedi and White Bear Lake, Ramsey and Washington Counties, and Century College - were essential in identifying project needs and influencing the broad corridor vision, which extends into the project area.

The PEL Study is still underway, but the engagement process has included a preliminary survey (1,328 participants), an online qualitative discussion board (37 participants), Public Advisory Committee (PAC) meetings (16 PAC members), an elected officials briefing (19 participants), a virtual open house (122 participants), a follow-up survey (477 participants), outreach to businesses in the corridor (72 businesses), a bicycling oriented focus group (8 participants), and a series of targeted community engagement activities that specifically targeted BIPOC communities and businesses with informational flyers inviting their participation in questionnaires and other activities, virtual listening sessions with BIPOC community members at Century College (5 participants), questionnaires mailed to lower-income apartment complexes (17 participants), and phone interviews with BIPOC

residents and businesses/organizations (13 participants). Project materials and questionnaires were translated into Spanish and Hmong to increase accessibility to multicultural communities. Consistent across all engagement were concerns about reckless traffic, unsafe bike/ped conditions, and the lack of bike/ped facilities. Participants envisioned a more complete streets approach in the corridor that calms traffic and makes bike/ped conditions safer. PEL study engagement results influenced the proposed project, which has evolved from a more auto-focused roadway expansion in 2012 to a more pedestrian-focused roadway modernization in 2022 that reflects the emerging complete streets vision. http://www.dot.state.mn.us/metro/projects/hwy120study/index.html

(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%

Yes

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

75%

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

50%

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

25%

Layout has not been started

0%

Attach Layout 1649874820123_03 Concept Layout - TH120.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

100%

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

100%

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

80%

Historic/archeological property impacted; determination of adverse effect anticipated

40%

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

0%

Project is located on an identified historic bridge

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

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

100%

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

50%

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

25%

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

0%

5.Railroad Involvement (15 Percent of Points)

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

100%

Signature Page

Please upload attachment in PDF form.

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

50%

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

0%

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	$8,972,428.80
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$8,972,428.80
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
01 Summary Sheet - TH120.pdf	TH 120 Summary Sheet	435 KB
02 Existing Conditions - TH120.pdf	TH 120 Existing Conditions	525 KB
04 County Board Resolution - TH120.pdf	Washington County Board Resolution	239 KB
05 MnDOT LOS - TH120.pdf	TH 120 MnDOT Letter of Support	118 KB
06 Mahtomedi LOS - TH120.pdf	TH 120 Mahtomedi Letter of Support	606 KB
07 White Bear Lake LOS - TH120.pdf	White Bear Lake Letter of Support	599 KB
08 Ramsey County LOS - TH120.pdf	Ramsey County Letter of Support	189 KB
09 Century College LOS - TH120.pdf	TH 120 Century College Letter of Support	146 KB
10 Level of Congestion Map -TH120.pdf	TH 120 Level of Congestion	4.1 MB
13b Affordable Housing Map - TH120.pdf	TH 120 Affordable Housing	1.9 MB
22 MNCompass Demographic Data - TH120.pdf	TH 120 MnCompass Demographics	678 KB

Regional Economy

Roadway Reconstruction/Modernization Project: TH 120 (Century Ave) Reconstruction and Modernization | Map ID: 1

Results

WITHIN ONE MI of project:
Postsecondary Students: 8203

Totals by City:

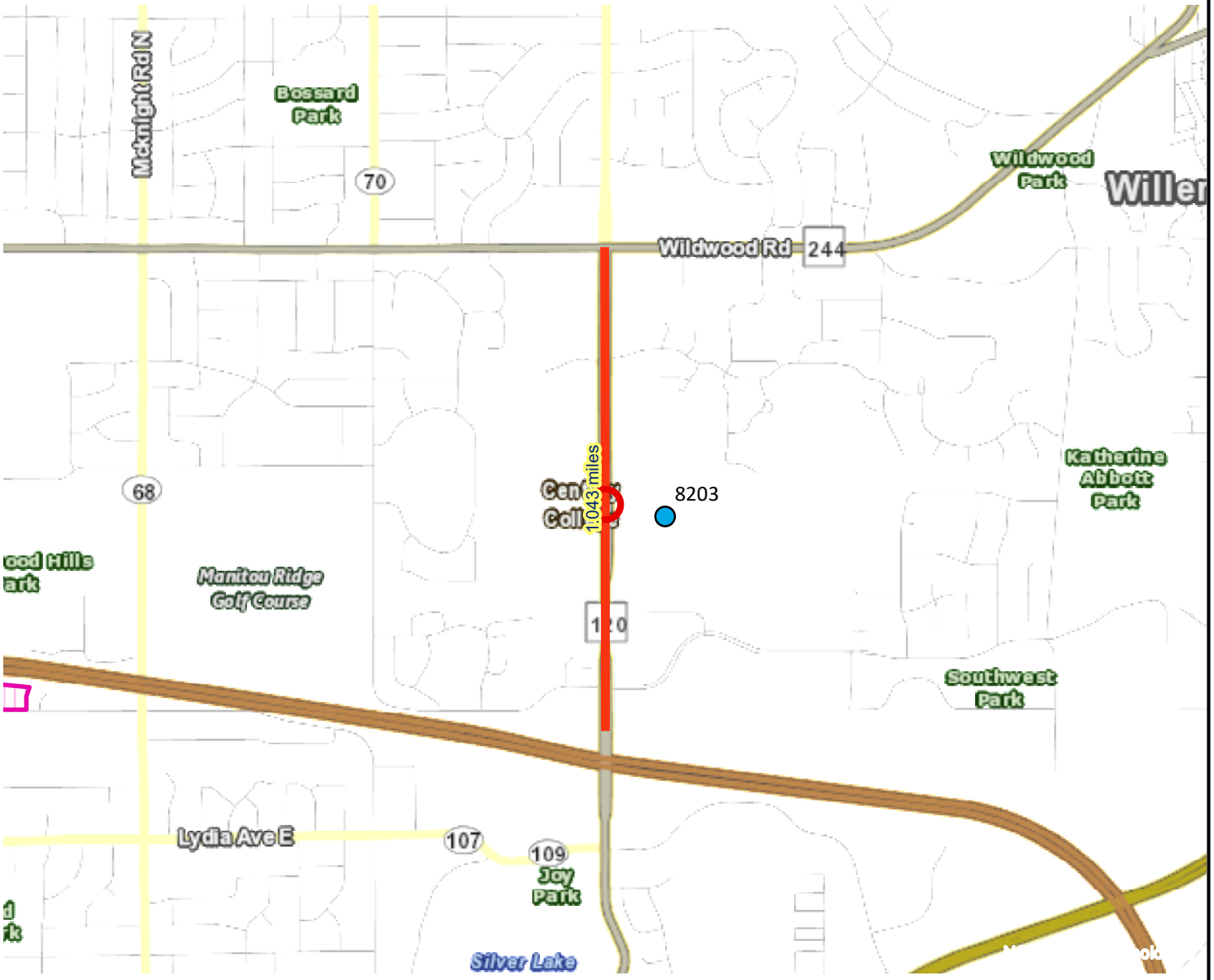
Mahtomedi
Population: 5536
Employment: 1985
Mfg and Dist Employment: 1146

Maplewood
Population: 612
Employment: null
Mfg and Dist Employment: null

North St. Paul
Population: 2265
Employment: 13
Mfg and Dist Employment: 1

Oakdale
Population: 1307
Employment: 545
Mfg and Dist Employment: 138

White Bear Lake
Population: 4632
Employment: 1952
Mfg and Dist Employment: 16



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

0 0.2 0.4 0.8 1.2 1.6 Miles

Created: 4/1/2022
LandscapeRSA5

For complete disclaimer of accuracy, please visit
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METROPOLITAN COUNCIL

Transit Connections

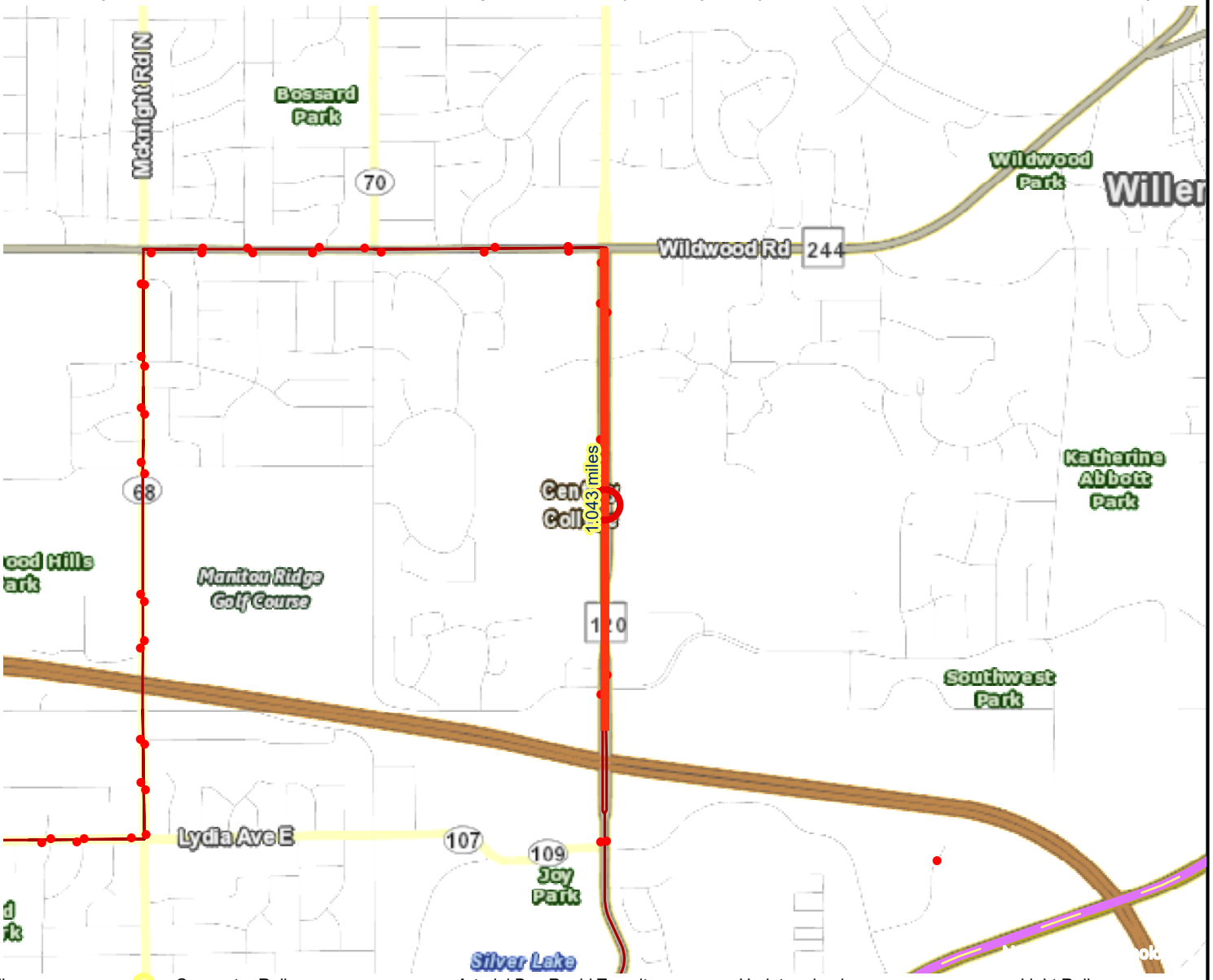
Roadway Reconstruction/Modernization Project: TH 120 (Century Ave) Reconstruction and Modernization | Map ID:

Results

Transit with a Direct Connection to project: 219

**indicates Planned Alignments*

Transit Market areas: 3



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 0.2 0.4 0.8 1.2 1.6 Miles

Created: 4/1/2022
LandscapeRSA3

METROPOLITAN COUNCIL

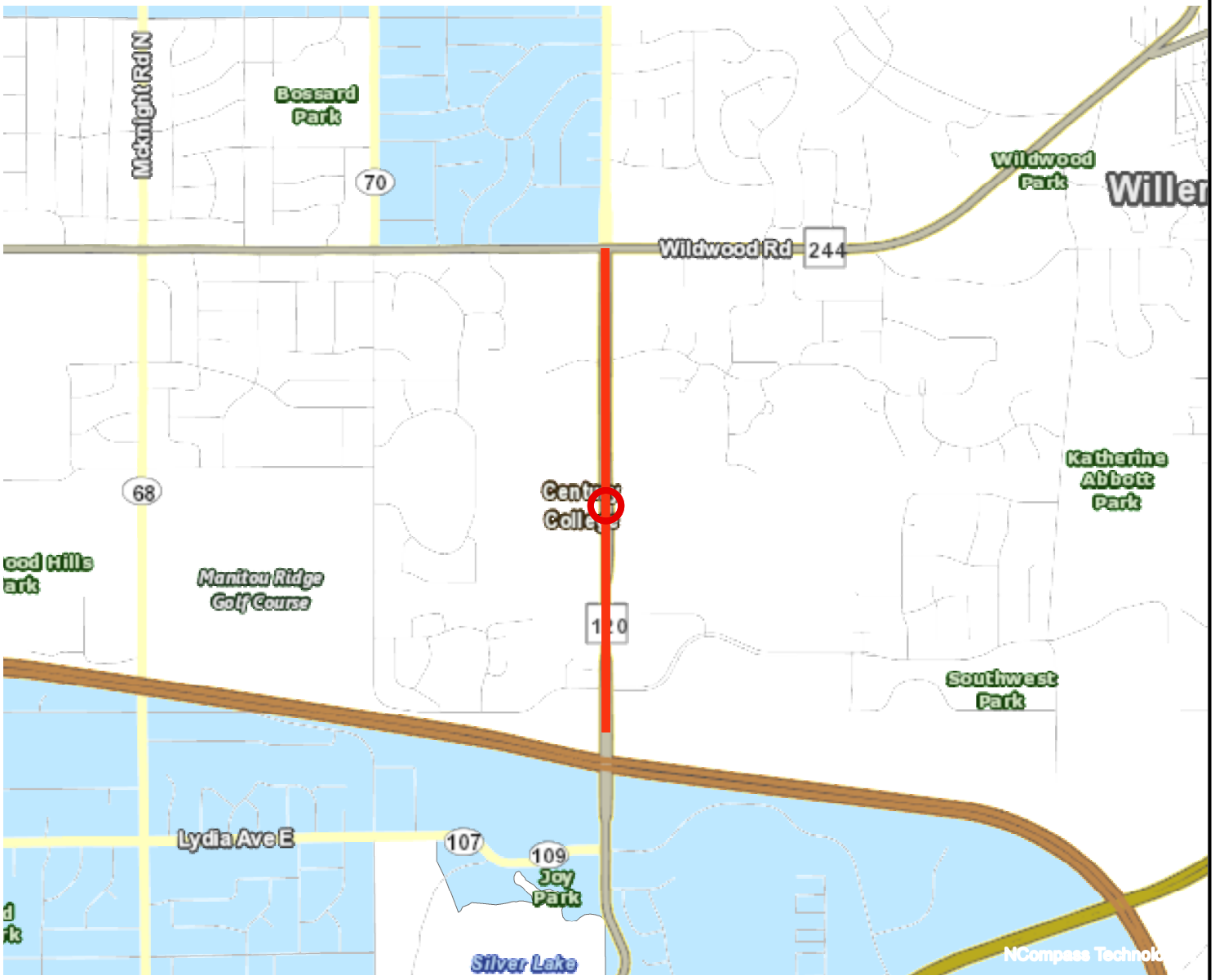
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: TH 120 (Century Ave) Reconstruction and Modernization | Map ID: 16488409

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 1520

Project located in census tracts that are BELOW the regional average for population in poverty or population of color.



Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

0 0.2 0.4 0.8 1.2 1.6 Miles

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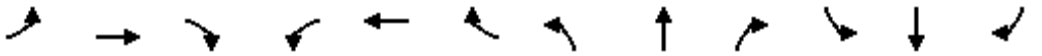
METROPOLITAN COUNCIL

HCM 6th Signalized Intersection Summary
1: TH 120 & North Access/Woodland Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	16	22	1	22	3	668	47	25	379	13
Future Volume (veh/h)	25	0	16	22	1	22	3	668	47	25	379	13
Initial Q (Qb), veh	0	0	0	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	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	0	18	25	1	25	3	768	54	29	436	15
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	0	134	194	5	130	675	1271	1077	595	1319	1117
Arrive On Green	0.08	0.00	0.08	0.08	0.08	0.08	0.01	1.00	1.00	0.03	0.70	0.70
Sat Flow, veh/h	1385	0	1585	1395	61	1533	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	29	0	18	25	0	26	3	768	54	29	436	15
Grp Sat Flow(s),veh/h/ln	1385	0	1585	1395	0	1594	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.6	0.0	0.8	1.4	0.0	1.2	0.0	0.0	0.0	0.4	7.2	0.2
Cycle Q Clear(g_c), s	2.8	0.0	0.8	2.2	0.0	1.2	0.0	0.0	0.0	0.4	7.2	0.2
Prop In Lane	1.00		1.00	1.00		0.96	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	186	0	134	194	0	135	675	1271	1077	595	1319	1117
V/C Ratio(X)	0.16	0.00	0.13	0.13	0.00	0.19	0.00	0.60	0.05	0.05	0.33	0.01
Avail Cap(c_a), veh/h	251	0	208	258	0	209	802	1271	1077	676	1319	1117
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.42	0.42	0.42	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	33.9	34.9	0.0	34.1	4.2	0.0	0.0	3.4	4.5	3.5
Incr Delay (d2), s/veh	0.4	0.0	0.4	0.3	0.0	0.7	0.0	0.9	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.3	0.5	0.0	0.5	0.0	0.3	0.0	0.1	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	34.3	35.2	0.0	34.7	4.2	0.9	0.0	3.5	5.2	3.5
LnGrp LOS	D	A	C	D	A	C	A	A	A	A	A	A
Approach Vol, veh/h		47			51			825			480	
Approach Delay, s/veh		35.2			35.0			0.9			5.1	
Approach LOS		D			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	62.4		12.3	7.4	60.3		12.3				
Change Period (Y+Rc), s	5.0	6.0		5.5	5.0	6.0		5.5				
Max Green Setting (Gmax), s	6.0	47.0		10.5	6.0	47.0		10.5				
Max Q Clear Time (g_c+I1), s	2.0	9.2		4.8	2.4	2.0		4.2				
Green Ext Time (p_c), s	0.0	6.9		0.0	0.0	16.2		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		4.7	
HCM 6th LOS		A	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	16	22	1	22	3	668	47	25	379	13
Future Volume (veh/h)	25	0	16	22	1	22	3	668	47	25	379	13
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q, veh	0	0	0	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	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	0	18	25	1	25	3	768	54	29	436	15
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	186	0	134	194	5	130	675	1271	1077	595	1319	1117
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Prop Arrive On Green	0.08	0.00	0.08	0.08	0.08	0.08	0.01	1.00	1.00	0.03	0.70	0.70
Unsig. Movement Delay												
Ln Grp Delay, s/veh	35.8	0.0	34.3	35.2	0.0	34.7	4.2	0.9	0.0	3.5	5.2	3.5
Ln Grp LOS	D	A	C	D	A	C	A	A	A	A	A	A
Approach Vol, veh/h		47			51			825			480	
Approach Delay, s/veh		35.2			35.0			0.9			5.1	
Approach LOS		D			C			A			A	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Case No	1.1	3.0		6.0	1.1	3.0		6.0
Phs Duration (G+Y+Rc), s	5.3	62.4		12.3	7.4	60.3		12.3
Change Period (Y+Rc), s	5.0	6.0		5.5	5.0	6.0		5.5
Max Green (Gmax), s	6.0	47.0		10.5	6.0	47.0		10.5
Max Allow Headway (MAH), s	4.2	7.6		4.8	4.2	7.5		5.0
Max Q Clear (g_c+I1), s	2.0	9.2		4.8	2.4	2.0		4.2
Green Ext Time (g_e), s	0.0	6.9		0.0	0.0	16.2		0.1
Prob of Phs Call (p_c)	0.06	1.00		0.65	0.48	1.00		0.68
Prob of Max Out (p_x)	1.00	0.00		0.37	1.00	0.00		0.28

Left-Turn Movement Data								
Assigned Mvmt	1			7	5			3
Mvmt Sat Flow, veh/h	1781			1385	1781			1395

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1870		0		1870		61

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1585		1585		1585		1533

Left Lane Group Data								
Assigned Mvmt	1	0	0	7	5	0	0	3
Lane Assignment	L (Pr/Pm)			LL (Pr/Pm)				L

Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	3	0	0	29	29	0	0	25
Grp Sat Flow (s), veh/h/ln	1781	0	0	1385	1781	0	0	1395
Q Serve Time (g_s), s	0.0	0.0	0.0	1.6	0.4	0.0	0.0	1.4
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	2.8	0.4	0.0	0.0	2.2
Perm LT Sat Flow (s_l), veh/h/ln	940	0	0	1385	666	0	0	1395
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	54.3	0.0	0.0	6.8	54.3	0.0	0.0	6.8
Perm LT Serve Time (g_u), s	49.2	0.0	0.0	5.6	54.3	0.0	0.0	5.9
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.4
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	675	0	0	186	595	0	0	194
V/C Ratio (X)	0.00	0.00	0.00	0.16	0.05	0.00	0.00	0.13
Avail Cap (c_a), veh/h	802	0	0	251	676	0	0	258
Upstream Filter (I)	0.42	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	4.2	0.0	0.0	35.4	3.4	0.0	0.0	34.9
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	4.2	0.0	0.0	35.8	3.5	0.0	0.0	35.2
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.5
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.5
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	436	0	0	0	768	0	0
Grp Sat Flow (s), veh/h/ln	0	1870	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1319	0	0	0	1271	0	0
V/C Ratio (X)	0.00	0.33	0.00	0.00	0.00	0.60	0.00	0.00
Avail Cap (c_a), veh/h	0	1319	0	0	0	1271	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.42	0.00	0.00
Uniform Delay (d1), s/veh	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.0	0.0	0.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.2	0.0	0.0	0.0	0.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.1	0.0	0.0	0.0	0.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		T+R		R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	15	0	18	0	54	0	26
Grp Sat Flow (s), veh/h/ln	0	1585	0	1585	0	1585	0	1594
Q Serve Time (g_s), s	0.0	0.2	0.0	0.8	0.0	0.0	0.0	1.2
Cycle Q Clear Time (g_c), s	0.0	0.2	0.0	0.8	0.0	0.0	0.0	1.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.96
Lane Grp Cap (c), veh/h	0	1117	0	134	0	1077	0	135
V/C Ratio (X)	0.00	0.01	0.00	0.13	0.00	0.05	0.00	0.19
Avail Cap (c_a), veh/h	0	1117	0	208	0	1077	0	209
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.42	0.00	1.00
Uniform Delay (d1), s/veh	0.0	3.5	0.0	33.9	0.0	0.0	0.0	34.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	3.5	0.0	34.3	0.0	0.0	0.0	34.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.5
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	4.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	5	193	135	11	36	88	685	22	12	452	2
Future Volume (veh/h)	3	5	193	135	11	36	88	685	22	12	452	2
Initial Q (Qb), veh	0	0	0	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	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	6	222	155	13	41	124	867	0	15	520	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.71	0.79	0.68	0.79	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	146	188	191	16	184	410	859		134	752	
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.46	0.00	0.03	0.54	0.00
Sat Flow, veh/h	613	1226	1585	1650	138	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	9	0	222	168	0	41	124	867	0	15	520	0
Grp Sat Flow(s),veh/h/ln	1840	0	1585	1788	0	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.3	0.0	9.5	7.3	0.0	1.9	3.0	36.8	0.0	0.4	16.4	0.0
Cycle Q Clear(g_c), s	0.3	0.0	9.5	7.3	0.0	1.9	3.0	36.8	0.0	0.4	16.4	0.0
Prop In Lane	0.33		1.00	0.92		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	0	188	207	0	184	410	859		134	752	
V/C Ratio(X)	0.04	0.00	1.18	0.81	0.00	0.22	0.30	1.01		0.11	0.69	
Avail Cap(c_a), veh/h	218	0	188	212	0	188	464	859		290	752	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	31.2	0.0	35.3	34.5	0.0	32.1	12.9	21.6	0.0	19.5	14.9	0.0
Incr Delay (d2), s/veh	0.1	0.0	122.3	20.3	0.0	0.6	0.4	32.9	0.0	0.4	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	10.0	4.3	0.0	0.7	1.1	21.7	0.0	0.2	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	157.5	54.8	0.0	32.7	13.3	54.6	0.0	19.9	19.9	0.0
LnGrp LOS	C	A	F	D	A	C	B	F		B	B	
Approach Vol, veh/h		231			209			991	A		535	A
Approach Delay, s/veh		152.6			50.5			49.4			19.9	
Approach LOS		F			D			D			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	38.7		15.0	7.0	43.3		14.8
Change Period (Y+Rc), s	5.0	6.5		5.5	5.0	6.5		5.5
Max Green Setting (Gmax), s	6.6	29.5		9.5	9.0	29.5		9.5
Max Q Clear Time (g_c+I1), s	5.3	18.4		11.5	2.4	38.8		9.3
Green Ext Time (p_c), s	0.1	2.3		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	5	193	135	11	36	88	685	22	12	452	2
Future Volume (veh/h)	3	5	193	135	11	36	88	685	22	12	452	2
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q, veh	0	0	0	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	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	6	222	155	13	41	124	867	0	15	520	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.71	0.79	0.68	0.79	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	73	146	188	191	16	184	410	859		134	752	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Prop Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.46	0.00	0.03	0.54	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	31.3	0.0	157.5	54.8	0.0	32.7	13.3	54.6	0.0	19.9	19.9	0.0
Ln Grp LOS	C	A	F	D	A	C	B	F		B	B	
Approach Vol, veh/h		231			209			991			535	
Approach Delay, s/veh		152.6			50.5			49.4			19.9	
Approach LOS		F			D			D			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	8	4	5	6		
Case No	1.1	3.0	11.0	11.0	1.1	3.0		
Phs Duration (G+Y+Rc), s	11.6	38.7	14.8	15.0	7.0	43.3		
Change Period (Y+Rc), s	5.0	6.5	5.5	5.5	5.0	6.5		
Max Green (Gmax), s	9.0	29.5	9.5	9.5	9.0	29.5		
Max Allow Headway (MAH), s	3.7	5.0	5.1	4.1	3.7	5.0		
Max Q Clear (g_c+I1), s	5.0	18.4	9.3	11.5	2.4	38.8		
Green Ext Time (g_e), s	0.1	2.3	0.0	0.0	0.0	0.0		
Prob of Phs Call (p_c)	0.94	1.00	0.99	0.99	0.28	1.00		
Prob of Max Out (p_x)	0.74	0.00	1.00	1.00	0.00	0.00		

Left-Turn Movement Data												
Assigned Mvmt		1		3	7	5						
Mvmt Sat Flow, veh/h		1781		1650	613	1781						

Through Movement Data												
Assigned Mvmt			2	8	4		6					
Mvmt Sat Flow, veh/h			1870	138	1226		1870					

Right-Turn Movement Data												
Assigned Mvmt			12	18	14		16					
Mvmt Sat Flow, veh/h			1585	1585	1585		1585					

Left Lane Group Data												
Assigned Mvmt		1	0	3	7	5	0	0	0			
Lane Assignment	L (Pr/Pm)			L+T	L+TL (Pr/Pm)							

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	124	0	168	9	15	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1788	1840	1781	0	0	0
Q Serve Time (g_s), s	3.0	0.0	7.3	0.3	0.4	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.0	0.0	7.3	0.3	0.4	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	882	0	0	0	638	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	33.8	0.0	0.0	0.0	32.2	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	15.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.92	0.33	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	410	0	207	218	134	0	0	0
V/C Ratio (X)	0.30	0.00	0.81	0.04	0.11	0.00	0.00	0.00
Avail Cap (c_a), veh/h	464	0	212	218	290	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.97	0.00	0.00	0.00
Uniform Delay (d1), s/veh	12.9	0.0	34.5	31.2	19.5	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	20.3	0.1	0.4	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	13.3	0.0	54.8	31.3	19.9	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.0	0.0	3.1	0.2	0.1	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.1	0.0	4.3	0.2	0.2	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.06	0.00	0.07	0.00	0.01	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	520	0	0	0	867	0	0
Grp Sat Flow (s), veh/h/ln	0	1870	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	16.4	0.0	0.0	0.0	36.8	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	16.4	0.0	0.0	0.0	36.8	0.0	0.0
Lane Grp Cap (c), veh/h	0	752	0	0	0	859	0	0
V/C Ratio (X)	0.00	0.69	0.00	0.00	0.00	1.01	0.00	0.00
Avail Cap (c_a), veh/h	0	752	0	0	0	859	0	0
Upstream Filter (I)	0.00	0.97	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	14.9	0.0	0.0	0.0	21.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.0	0.0	0.0	0.0	32.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	19.9	0.0	0.0	0.0	54.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.1	0.0	0.0	0.0	13.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.0	0.0	0.0	0.0	7.9	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	6.2	0.0	0.0	0.0	21.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.12	0.00	0.00	0.00	0.51	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		R	R	R		R		
Lanes in Grp	0	1	1	1	0	1	0	0
Grp Vol (v), veh/h	0	0	41	222	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	1585	0	1585	0	0
Q Serve Time (g_s), s	0.0	0.0	1.9	9.5	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	1.9	9.5	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	638	184	188	0	728	0	0
V/C Ratio (X)	0.00	0.00	0.22	1.18	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	638	188	188	0	728	0	0
Upstream Filter (I)	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	32.1	35.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.6	122.3	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	32.7	157.5	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.7	3.6	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	6.4	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.7	10.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.09	2.53	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	8.4	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	39.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	98	21	828	47	6	861
Future Vol, veh/h	98	21	828	47	6	861
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	77	69	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	113	24	1075	68	7	990

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2113	572	0	0	1075	0
Stage 1	1109	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	~ 49	464	-	-	646	-
Stage 1	278	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 48	464	-	-	646	-
Mov Cap-2 Maneuver	~ 48	-	-	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	345	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 658.4	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	48	464	646	-
HCM Lane V/C Ratio	-	-	2.347	0.052	0.011	-
HCM Control Delay (s)	-	-	$ 796.6	13.2	10.6	0
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	11.7	0.2	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Network Totals

Number of Intersections	3
Total Delay (hr)	346
Stops (#)	1455
Average Speed (mph)	3
Total Travel Time (hr)	376
Distance Traveled (mi)	1185
Fuel Consumed (gal)	309
Fuel Economy (mpg)	3.8
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	144
Performance Index	349.7

1: TH 120 & North Access/Woodland Dr

Direction	EB	WB	NB	SB	All
Future Volume (vph)	41	45	718	417	1221
Control Delay / Veh (s/v)	21	24	6	5	7
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	21	24	6	5	7
Total Delay (hr)	0	0	1	1	2
Stops / Veh	0.59	0.69	0.15	0.28	0.23
Stops (#)	24	31	107	116	278
Average Speed (mph)	15	17	32	33	30
Total Travel Time (hr)	0	1	6	3	10
Distance Traveled (mi)	7	12	195	97	311
Fuel Consumed (gal)	1	1	9	5	15
Fuel Economy (mpg)	NA	NA	21.8	19.4	20.1
CO Emissions (kg)	0.04	0.06	0.62	0.35	1.08
NOx Emissions (kg)	0.01	0.01	0.12	0.07	0.21
VOC Emissions (kg)	0.01	0.01	0.14	0.08	0.25
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	49	17	66

2: TH 120 & Middle Access

Direction	EB	WB	NB	SB	All
Future Volume (vph)	201	182	795	466	1644
Control Delay / Veh (s/v)	14	51	28	25	28
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	14	51	28	25	28
Total Delay (hr)	1	3	6	3	13
Stops / Veh	0.21	0.70	0.66	0.65	0.61
Stops (#)	42	128	524	303	997
Average Speed (mph)	19	12	16	20	17
Total Travel Time (hr)	2	4	10	6	23
Distance Traveled (mi)	42	53	173	126	393
Fuel Consumed (gal)	3	5	16	10	33
Fuel Economy (mpg)	16.6	11.0	10.9	12.8	11.9
CO Emissions (kg)	0.18	0.33	1.11	0.69	2.31
NOx Emissions (kg)	0.03	0.06	0.22	0.13	0.45
VOC Emissions (kg)	0.04	0.08	0.26	0.16	0.53
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	39	39	78

3: TH 120 & South Access

Direction	WB	NB	SB	All
Future Volume (vph)	119	875	867	1861
Control Delay / Veh (s/v)	9999	0	0	640
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	9999	0	0	640
Total Delay (hr)	331	0	0	331
Stops / Veh	1.00	0.00	0.07	0.10
Stops (#)	119	0	61	180
Average Speed (mph)	0	40	39	1
Total Travel Time (hr)	331	7	5	343
Distance Traveled (mi)	25	268	188	481
Fuel Consumed (gal)	244	10	7	261
Fuel Economy (mpg)	0.1	27.9	25.4	1.8
CO Emissions (kg)	17.05	0.67	0.52	18.24
NOx Emissions (kg)	3.32	0.13	0.10	3.55
VOC Emissions (kg)	3.95	0.16	0.12	4.23
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	3
Control Delay / Veh (s/v)	263
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	263
Total Delay (hr)	346
Stops / Veh	0.31
Stops (#)	1455
Average Speed (mph)	3
Total Travel Time (hr)	376
Distance Traveled (mi)	1185
Fuel Consumed (gal)	309
Fuel Economy (mpg)	3.8
CO Emissions (kg)	21.62
NOx Emissions (kg)	4.21
VOC Emissions (kg)	5.01
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	144
Performance Index	349.7

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	50	51	935	480
Demand Flow Rate, veh/h	51	53	953	490
Vehicles Circulating, veh/h	500	931	63	145
Vehicles Exiting, veh/h	135	85	488	837
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.0	8.3	14.0	7.3
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	51	53	953	490
Cap Entry Lane, veh/h	829	534	1294	1190
Entry HV Adj Factor	0.980	0.962	0.981	0.980
Flow Entry, veh/h	50	51	935	480
Cap Entry, veh/h	812	514	1269	1167
V/C Ratio	0.062	0.099	0.736	0.412
Control Delay, s/veh	5.0	8.3	14.0	7.3
LOS	A	A	B	A
95th %tile Queue, veh	0	0	7	2

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑	↱		↑	↱
Traffic Vol, veh/h	0	0	198	0	0	47	0	773	22	0	464	2
Future Vol, veh/h	0	0	198	0	0	47	0	773	22	0	464	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	380	-	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	71	79	68	79	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	228	0	0	54	0	978	32	0	533	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	533	-	-	978	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.22	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.318	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	547	0	0	304	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	547	-	-	304	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.2	19.4	0	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	547	304	-	-
HCM Lane V/C Ratio	-	-	0.416	0.178	-	-
HCM Control Delay (s)	-	-	16.2	19.4	-	-
HCM Lane LOS	-	-	C	C	-	-
HCM 95th %tile Q(veh)	-	-	2	0.6	-	-

Intersection	
Intersection Delay, s/veh	20.2
Intersection LOS	C

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	292	1143	860
Demand Flow Rate, veh/h	297	1165	878
Vehicles Circulating, veh/h	1096	27	273
Vehicles Exiting, veh/h	27	1124	1120
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	25.7	16.7	23.0
Approach LOS	D	C	C

Lane	Left	Left	Bypass	Left
Designated Moves	LR	T	R	LT
Assumed Moves	LR	T	R	LT
RT Channelized			Yield	
Lane Util	1.000	1.000		1.000
Follow-Up Headway, s	2.609	2.609		2.609
Critical Headway, s	4.976	4.976	69	4.976
Entry Flow, veh/h	297	1096	1342	878
Cap Entry Lane, veh/h	451	1342	0.980	1045
Entry HV Adj Factor	0.983	0.980	68	0.980
Flow Entry, veh/h	292	1075	1316	860
Cap Entry, veh/h	444	1316	0.052	1023
V/C Ratio	0.658	0.816	3.1	0.841
Control Delay, s/veh	25.7	17.6	A	23.0
LOS	D	C	0	C
95th %tile Queue, veh	5	10		10

Network Totals

Number of Intersections	3
Total Delay (hr)	1
Stops (#)	3441
Average Speed (mph)	37
Total Travel Time (hr)	32
Distance Traveled (mi)	1175
Fuel Consumed (gal)	75
Fuel Economy (mpg)	15.7
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	10.7

1: TH 120 & North Access/Woodland Dr

Direction	EB	WB	NB	SB	All
Future Volume (vph)	44	44	813	418	1319
Control Delay / Veh (s/v)	0	0	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	0	0	0	0	0
Total Delay (hr)	0	0	0	0	0
Stops / Veh	1.00	1.00	1.00	1.00	1.00
Stops (#)	44	44	813	418	1319
Average Speed (mph)	30	30	40	40	39
Total Travel Time (hr)	0	0	6	2	9
Distance Traveled (mi)	8	11	220	97	337
Fuel Consumed (gal)	1	1	16	8	25
Fuel Economy (mpg)	NA	NA	13.9	12.8	13.6
CO Emissions (kg)	0.04	0.05	1.11	0.53	1.73
NOx Emissions (kg)	0.01	0.01	0.22	0.10	0.34
VOC Emissions (kg)	0.01	0.01	0.26	0.12	0.40
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

2: TH 120 & Middle Access

Direction	EB	WB	NB	SB	All
Future Volume (vph)	198	47	795	466	1506
Control Delay / Veh (s/v)	16	19	0	0	3
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	16	19	0	0	3
Total Delay (hr)	1	0	0	0	1
Stops / Veh	1.00	1.00	0.00	0.00	0.16
Stops (#)	198	47	0	0	245
Average Speed (mph)	18	19	40	40	34
Total Travel Time (hr)	2	1	4	3	10
Distance Traveled (mi)	41	14	173	126	354
Fuel Consumed (gal)	3	1	6	5	15
Fuel Economy (mpg)	12.0	13.5	27.9	27.9	23.3
CO Emissions (kg)	0.24	0.07	0.43	0.32	1.06
NOx Emissions (kg)	0.05	0.01	0.08	0.06	0.21
VOC Emissions (kg)	0.06	0.02	0.10	0.07	0.25
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

3: TH 120 & South Access

Direction	WB	NB	SB	All
Future Volume (vph)	254	875	748	1877
Control Delay / Veh (s/v)	0	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	0	0	0	0
Total Delay (hr)	0	0	0	0
Stops / Veh	1.00	1.00	1.00	1.00
Stops (#)	254	875	748	1877
Average Speed (mph)	30	40	40	39
Total Travel Time (hr)	2	7	4	13
Distance Traveled (mi)	54	268	162	484
Fuel Consumed (gal)	4	18	13	35
Fuel Economy (mpg)	14.9	14.7	12.3	13.8
CO Emissions (kg)	0.25	1.27	0.92	2.45
NOx Emissions (kg)	0.05	0.25	0.18	0.48
VOC Emissions (kg)	0.06	0.29	0.21	0.57
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	3
Control Delay / Veh (s/v)	1
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	1
Total Delay (hr)	1
Stops / Veh	0.73
Stops (#)	3441
Average Speed (mph)	37
Total Travel Time (hr)	32
Distance Traveled (mi)	1175
Fuel Consumed (gal)	75
Fuel Economy (mpg)	15.7
CO Emissions (kg)	5.24
NOx Emissions (kg)	1.02
VOC Emissions (kg)	1.21
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	10.7

Timings
1: TH 120 & North Access/Woodland Dr

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	0	22	1	3	668	47	25	379	13
Future Volume (vph)	25	0	22	1	3	668	47	25	379	13
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	1	6		5	2	
Permitted Phases	4		8		6		6	2		2
Detector Phase	4	4	8	8	1	6	6	5	2	2
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	9.0	9.0	5.0	15.0	15.0
Minimum Split (s)	16.0	16.0	16.0	16.0	11.0	21.0	21.0	11.0	21.0	21.0
Total Split (s)	16.0	16.0	16.0	16.0	11.0	53.0	53.0	11.0	53.0	53.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	13.8%	66.3%	66.3%	13.8%	66.3%	66.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.0	10.0	10.0	10.0	63.6	62.7	62.7	64.8	65.0	65.0
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.80	0.78	0.78	0.81	0.81	0.81
v/c Ratio	0.17	0.03	0.14	0.12	0.00	0.53	0.04	0.06	0.29	0.01
Control Delay	34.0	0.1	33.5	14.9	2.7	6.7	0.6	2.8	4.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	0.1	33.5	14.9	2.7	6.7	0.6	2.8	4.9	0.0
LOS	C	A	C	B	A	A	A	A	A	A
Approach Delay		21.0		24.0		6.3			4.6	
Approach LOS		C		C		A			A	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 6.8	Intersection LOS: A
Intersection Capacity Utilization 53.1%	ICU Level of Service A
Analysis Period (min) 15	

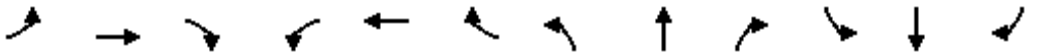
Splits and Phases: 1: TH 120 & North Access/Woodland Dr

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	5	193	11	36	88	685	22	12	452	2
Future Volume (vph)	5	193	11	36	88	685	22	12	452	2
Turn Type	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4		8		1	6		5	2	
Permitted Phases		4		8	6		6	2		2
Detector Phase	4	4	8	8	1	6	6	5	2	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	15.0	15.0	15.0	15.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	18.8%	18.8%	18.8%	18.8%	17.5%	45.0%	45.0%	17.5%	45.0%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	8.4	8.4	9.4	9.4	45.6	42.3	42.3	41.2	34.1	34.1
Actuated g/C Ratio	0.10	0.10	0.12	0.12	0.57	0.53	0.53	0.52	0.43	0.43
v/c Ratio	0.05	0.61	0.80	0.12	0.31	0.88	0.03	0.06	0.65	0.00
Control Delay	32.5	12.9	63.8	0.7	10.1	31.0	0.1	10.7	25.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	12.9	63.8	0.7	10.1	31.0	0.1	10.7	25.5	0.0
LOS	C	B	E	A	B	C	A	B	C	A
Approach Delay	13.7		51.4			27.5			25.0	
Approach LOS	B		D			C			C	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 27.7	Intersection LOS: C
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: TH 120 & Middle Access

HCM 6th Signalized Intersection Summary
1: TH 120 & North Access/Woodland Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	16	22	1	22	3	668	47	25	379	13
Future Volume (veh/h)	25	0	16	22	1	22	3	668	47	25	379	13
Initial Q (Qb), veh	0	0	0	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	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	0	18	25	1	25	3	768	54	29	436	15
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	0	134	194	5	130	675	1271	1077	595	1319	1117
Arrive On Green	0.08	0.00	0.08	0.08	0.08	0.08	0.01	1.00	1.00	0.03	0.70	0.70
Sat Flow, veh/h	1385	0	1585	1395	61	1533	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	29	0	18	25	0	26	3	768	54	29	436	15
Grp Sat Flow(s),veh/h/ln	1385	0	1585	1395	0	1594	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.6	0.0	0.8	1.4	0.0	1.2	0.0	0.0	0.0	0.4	7.2	0.2
Cycle Q Clear(g_c), s	2.8	0.0	0.8	2.2	0.0	1.2	0.0	0.0	0.0	0.4	7.2	0.2
Prop In Lane	1.00		1.00	1.00		0.96	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	186	0	134	194	0	135	675	1271	1077	595	1319	1117
V/C Ratio(X)	0.16	0.00	0.13	0.13	0.00	0.19	0.00	0.60	0.05	0.05	0.33	0.01
Avail Cap(c_a), veh/h	251	0	208	258	0	209	802	1271	1077	676	1319	1117
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.42	0.42	0.42	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	33.9	34.9	0.0	34.1	4.2	0.0	0.0	3.4	4.5	3.5
Incr Delay (d2), s/veh	0.4	0.0	0.4	0.3	0.0	0.7	0.0	0.9	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.3	0.5	0.0	0.5	0.0	0.3	0.0	0.1	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	34.3	35.2	0.0	34.7	4.2	0.9	0.0	3.5	5.2	3.5
LnGrp LOS	D	A	C	D	A	C	A	A	A	A	A	A
Approach Vol, veh/h		47			51			825			480	
Approach Delay, s/veh		35.2			35.0			0.9			5.1	
Approach LOS		D			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	62.4		12.3	7.4	60.3		12.3				
Change Period (Y+Rc), s	5.0	6.0		5.5	5.0	6.0		5.5				
Max Green Setting (Gmax), s	6.0	47.0		10.5	6.0	47.0		10.5				
Max Q Clear Time (g_c+I1), s	2.0	9.2		4.8	2.4	2.0		4.2				
Green Ext Time (p_c), s	0.0	6.9		0.0	0.0	16.2		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		4.7	
HCM 6th LOS		A	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	16	22	1	22	3	668	47	25	379	13
Future Volume (veh/h)	25	0	16	22	1	22	3	668	47	25	379	13
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q, veh	0	0	0	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	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	0	18	25	1	25	3	768	54	29	436	15
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	186	0	134	194	5	130	675	1271	1077	595	1319	1117
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Prop Arrive On Green	0.08	0.00	0.08	0.08	0.08	0.08	0.01	1.00	1.00	0.03	0.70	0.70
Unsig. Movement Delay												
Ln Grp Delay, s/veh	35.8	0.0	34.3	35.2	0.0	34.7	4.2	0.9	0.0	3.5	5.2	3.5
Ln Grp LOS	D	A	C	D	A	C	A	A	A	A	A	A
Approach Vol, veh/h		47			51			825			480	
Approach Delay, s/veh		35.2			35.0			0.9			5.1	
Approach LOS		D			C			A			A	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Case No	1.1	3.0		6.0	1.1	3.0		6.0
Phs Duration (G+Y+Rc), s	5.3	62.4		12.3	7.4	60.3		12.3
Change Period (Y+Rc), s	5.0	6.0		5.5	5.0	6.0		5.5
Max Green (Gmax), s	6.0	47.0		10.5	6.0	47.0		10.5
Max Allow Headway (MAH), s	4.2	7.6		4.8	4.2	7.5		5.0
Max Q Clear (g_c+I1), s	2.0	9.2		4.8	2.4	2.0		4.2
Green Ext Time (g_e), s	0.0	6.9		0.0	0.0	16.2		0.1
Prob of Phs Call (p_c)	0.06	1.00		0.65	0.48	1.00		0.68
Prob of Max Out (p_x)	1.00	0.00		0.37	1.00	0.00		0.28

Left-Turn Movement Data								
Assigned Mvmt	1			7	5			3
Mvmt Sat Flow, veh/h	1781			1385	1781			1395

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1870		0		1870		61

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		1585		1585		1585		1533

Left Lane Group Data								
Assigned Mvmt	1	0	0	7	5	0	0	3
Lane Assignment	L (Pr/Pm)			LL (Pr/Pm)				L

Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	3	0	0	29	29	0	0	25
Grp Sat Flow (s), veh/h/ln	1781	0	0	1385	1781	0	0	1395
Q Serve Time (g_s), s	0.0	0.0	0.0	1.6	0.4	0.0	0.0	1.4
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	2.8	0.4	0.0	0.0	2.2
Perm LT Sat Flow (s_l), veh/h/ln	940	0	0	1385	666	0	0	1395
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	54.3	0.0	0.0	6.8	54.3	0.0	0.0	6.8
Perm LT Serve Time (g_u), s	49.2	0.0	0.0	5.6	54.3	0.0	0.0	5.9
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.4
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	675	0	0	186	595	0	0	194
V/C Ratio (X)	0.00	0.00	0.00	0.16	0.05	0.00	0.00	0.13
Avail Cap (c_a), veh/h	802	0	0	251	676	0	0	258
Upstream Filter (I)	0.42	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	4.2	0.0	0.0	35.4	3.4	0.0	0.0	34.9
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	4.2	0.0	0.0	35.8	3.5	0.0	0.0	35.2
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.5
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.5
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	436	0	0	0	768	0	0
Grp Sat Flow (s), veh/h/ln	0	1870	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1319	0	0	0	1271	0	0
V/C Ratio (X)	0.00	0.33	0.00	0.00	0.00	0.60	0.00	0.00
Avail Cap (c_a), veh/h	0	1319	0	0	0	1271	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.42	0.00	0.00
Uniform Delay (d1), s/veh	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.0	0.0	0.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.2	0.0	0.0	0.0	0.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.1	0.0	0.0	0.0	0.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		T+R		R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	15	0	18	0	54	0	26
Grp Sat Flow (s), veh/h/ln	0	1585	0	1585	0	1585	0	1594
Q Serve Time (g_s), s	0.0	0.2	0.0	0.8	0.0	0.0	0.0	1.2
Cycle Q Clear Time (g_c), s	0.0	0.2	0.0	0.8	0.0	0.0	0.0	1.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.96
Lane Grp Cap (c), veh/h	0	1117	0	134	0	1077	0	135
V/C Ratio (X)	0.00	0.01	0.00	0.13	0.00	0.05	0.00	0.19
Avail Cap (c_a), veh/h	0	1117	0	208	0	1077	0	209
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.42	0.00	1.00
Uniform Delay (d1), s/veh	0.0	3.5	0.0	33.9	0.0	0.0	0.0	34.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	3.5	0.0	34.3	0.0	0.0	0.0	34.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.5
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	4.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	5	193	135	11	36	88	685	22	12	452	2
Future Volume (veh/h)	3	5	193	135	11	36	88	685	22	12	452	2
Initial Q (Qb), veh	0	0	0	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	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	6	222	155	13	41	124	867	0	15	520	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.71	0.79	0.68	0.79	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	146	188	191	16	184	410	859		134	752	
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.46	0.00	0.03	0.54	0.00
Sat Flow, veh/h	613	1226	1585	1650	138	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	9	0	222	168	0	41	124	867	0	15	520	0
Grp Sat Flow(s),veh/h/ln	1840	0	1585	1788	0	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.3	0.0	9.5	7.3	0.0	1.9	3.0	36.8	0.0	0.4	16.4	0.0
Cycle Q Clear(g_c), s	0.3	0.0	9.5	7.3	0.0	1.9	3.0	36.8	0.0	0.4	16.4	0.0
Prop In Lane	0.33		1.00	0.92		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	0	188	207	0	184	410	859		134	752	
V/C Ratio(X)	0.04	0.00	1.18	0.81	0.00	0.22	0.30	1.01		0.11	0.69	
Avail Cap(c_a), veh/h	218	0	188	212	0	188	464	859		290	752	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	31.2	0.0	35.3	34.5	0.0	32.1	12.9	21.6	0.0	19.5	14.9	0.0
Incr Delay (d2), s/veh	0.1	0.0	122.3	20.3	0.0	0.6	0.4	32.9	0.0	0.4	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	10.0	4.3	0.0	0.7	1.1	21.7	0.0	0.2	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	157.5	54.8	0.0	32.7	13.3	54.6	0.0	19.9	19.9	0.0
LnGrp LOS	C	A	F	D	A	C	B	F		B	B	
Approach Vol, veh/h		231			209			991	A		535	A
Approach Delay, s/veh		152.6			50.5			49.4			19.9	
Approach LOS		F			D			D			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	38.7		15.0	7.0	43.3		14.8
Change Period (Y+Rc), s	5.0	6.5		5.5	5.0	6.5		5.5
Max Green Setting (Gmax), s	6.6	29.5		9.5	9.0	29.5		9.5
Max Q Clear Time (g_c+I1), s	5.3	18.4		11.5	2.4	38.8		9.3
Green Ext Time (p_c), s	0.1	2.3		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	5	193	135	11	36	88	685	22	12	452	2
Future Volume (veh/h)	3	5	193	135	11	36	88	685	22	12	452	2
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q, veh	0	0	0	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	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	6	222	155	13	41	124	867	0	15	520	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.71	0.79	0.68	0.79	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	73	146	188	191	16	184	410	859		134	752	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Prop Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.46	0.00	0.03	0.54	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	31.3	0.0	157.5	54.8	0.0	32.7	13.3	54.6	0.0	19.9	19.9	0.0
Ln Grp LOS	C	A	F	D	A	C	B	F		B	B	
Approach Vol, veh/h		231			209			991			535	
Approach Delay, s/veh		152.6			50.5			49.4			19.9	
Approach LOS		F			D			D			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	8	4	5	6		
Case No	1.1	3.0	11.0	11.0	1.1	3.0		
Phs Duration (G+Y+Rc), s	11.6	38.7	14.8	15.0	7.0	43.3		
Change Period (Y+Rc), s	5.0	6.5	5.5	5.5	5.0	6.5		
Max Green (Gmax), s	9.0	29.5	9.5	9.5	9.0	29.5		
Max Allow Headway (MAH), s	3.7	5.0	5.1	4.1	3.7	5.0		
Max Q Clear (g_c+I1), s	5.0	18.4	9.3	11.5	2.4	38.8		
Green Ext Time (g_e), s	0.1	2.3	0.0	0.0	0.0	0.0		
Prob of Phs Call (p_c)	0.94	1.00	0.99	0.99	0.28	1.00		
Prob of Max Out (p_x)	0.74	0.00	1.00	1.00	0.00	0.00		

Left-Turn Movement Data												
Assigned Mvmt		1		3	7	5						
Mvmt Sat Flow, veh/h		1781		1650	613	1781						

Through Movement Data												
Assigned Mvmt			2	8	4		6					
Mvmt Sat Flow, veh/h			1870	138	1226		1870					

Right-Turn Movement Data												
Assigned Mvmt			12	18	14		16					
Mvmt Sat Flow, veh/h			1585	1585	1585		1585					

Left Lane Group Data												
Assigned Mvmt		1	0	3	7	5	0	0	0			
Lane Assignment	L (Pr/Pm)			L+T	L+TL (Pr/Pm)							

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	124	0	168	9	15	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1788	1840	1781	0	0	0
Q Serve Time (g_s), s	3.0	0.0	7.3	0.3	0.4	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.0	0.0	7.3	0.3	0.4	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	882	0	0	0	638	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	33.8	0.0	0.0	0.0	32.2	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	15.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.92	0.33	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	410	0	207	218	134	0	0	0
V/C Ratio (X)	0.30	0.00	0.81	0.04	0.11	0.00	0.00	0.00
Avail Cap (c_a), veh/h	464	0	212	218	290	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.97	0.00	0.00	0.00
Uniform Delay (d1), s/veh	12.9	0.0	34.5	31.2	19.5	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	20.3	0.1	0.4	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	13.3	0.0	54.8	31.3	19.9	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.0	0.0	3.1	0.2	0.1	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.1	0.0	4.3	0.2	0.2	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.06	0.00	0.07	0.00	0.01	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	520	0	0	0	867	0	0
Grp Sat Flow (s), veh/h/ln	0	1870	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	16.4	0.0	0.0	0.0	36.8	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	16.4	0.0	0.0	0.0	36.8	0.0	0.0
Lane Grp Cap (c), veh/h	0	752	0	0	0	859	0	0
V/C Ratio (X)	0.00	0.69	0.00	0.00	0.00	1.01	0.00	0.00
Avail Cap (c_a), veh/h	0	752	0	0	0	859	0	0
Upstream Filter (I)	0.00	0.97	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	14.9	0.0	0.0	0.0	21.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.0	0.0	0.0	0.0	32.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	19.9	0.0	0.0	0.0	54.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.1	0.0	0.0	0.0	13.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.0	0.0	0.0	0.0	7.9	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	6.2	0.0	0.0	0.0	21.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.12	0.00	0.00	0.00	0.51	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		R	R	R		R		
Lanes in Grp	0	1	1	1	0	1	0	0
Grp Vol (v), veh/h	0	0	41	222	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1585	1585	1585	0	1585	0	0
Q Serve Time (g_s), s	0.0	0.0	1.9	9.5	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	1.9	9.5	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	638	184	188	0	728	0	0
V/C Ratio (X)	0.00	0.00	0.22	1.18	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	638	188	188	0	728	0	0
Upstream Filter (I)	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	32.1	35.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.6	122.3	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	32.7	157.5	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.7	3.6	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	6.4	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.7	10.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.09	2.53	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	8.4	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	39.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	98	21	828	47	6	861
Future Vol, veh/h	98	21	828	47	6	861
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	77	69	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	113	24	1075	68	7	990

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2113	572	0	0	1075	0
Stage 1	1109	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	~ 49	464	-	-	646	-
Stage 1	278	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 48	464	-	-	646	-
Mov Cap-2 Maneuver	~ 48	-	-	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	345	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 658.4	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	48	464	646	-
HCM Lane V/C Ratio	-	-	2.347	0.052	0.011	-
HCM Control Delay (s)	-	-	$ 796.6	13.2	10.6	0
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	11.7	0.2	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Network Totals

Number of Intersections	3
Total Delay (hr)	346
Stops (#)	1455
Average Speed (mph)	3
Total Travel Time (hr)	376
Distance Traveled (mi)	1185
Fuel Consumed (gal)	309
Fuel Economy (mpg)	3.8
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	144
Performance Index	349.7

1: TH 120 & North Access/Woodland Dr

Direction	EB	WB	NB	SB	All
Future Volume (vph)	41	45	718	417	1221
Control Delay / Veh (s/v)	21	24	6	5	7
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	21	24	6	5	7
Total Delay (hr)	0	0	1	1	2
Stops / Veh	0.59	0.69	0.15	0.28	0.23
Stops (#)	24	31	107	116	278
Average Speed (mph)	15	17	32	33	30
Total Travel Time (hr)	0	1	6	3	10
Distance Traveled (mi)	7	12	195	97	311
Fuel Consumed (gal)	1	1	9	5	15
Fuel Economy (mpg)	NA	NA	21.8	19.4	20.1
CO Emissions (kg)	0.04	0.06	0.62	0.35	1.08
NOx Emissions (kg)	0.01	0.01	0.12	0.07	0.21
VOC Emissions (kg)	0.01	0.01	0.14	0.08	0.25
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	49	17	66

2: TH 120 & Middle Access

Direction	EB	WB	NB	SB	All
Future Volume (vph)	201	182	795	466	1644
Control Delay / Veh (s/v)	14	51	28	25	28
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	14	51	28	25	28
Total Delay (hr)	1	3	6	3	13
Stops / Veh	0.21	0.70	0.66	0.65	0.61
Stops (#)	42	128	524	303	997
Average Speed (mph)	19	12	16	20	17
Total Travel Time (hr)	2	4	10	6	23
Distance Traveled (mi)	42	53	173	126	393
Fuel Consumed (gal)	3	5	16	10	33
Fuel Economy (mpg)	16.6	11.0	10.9	12.8	11.9
CO Emissions (kg)	0.18	0.33	1.11	0.69	2.31
NOx Emissions (kg)	0.03	0.06	0.22	0.13	0.45
VOC Emissions (kg)	0.04	0.08	0.26	0.16	0.53
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	39	39	78

3: TH 120 & South Access

Direction	WB	NB	SB	All
Future Volume (vph)	119	875	867	1861
Control Delay / Veh (s/v)	9999	0	0	640
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	9999	0	0	640
Total Delay (hr)	331	0	0	331
Stops / Veh	1.00	0.00	0.07	0.10
Stops (#)	119	0	61	180
Average Speed (mph)	0	40	39	1
Total Travel Time (hr)	331	7	5	343
Distance Traveled (mi)	25	268	188	481
Fuel Consumed (gal)	244	10	7	261
Fuel Economy (mpg)	0.1	27.9	25.4	1.8
CO Emissions (kg)	17.05	0.67	0.52	18.24
NOx Emissions (kg)	3.32	0.13	0.10	3.55
VOC Emissions (kg)	3.95	0.16	0.12	4.23
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	3
Control Delay / Veh (s/v)	263
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	263
Total Delay (hr)	346
Stops / Veh	0.31
Stops (#)	1455
Average Speed (mph)	3
Total Travel Time (hr)	376
Distance Traveled (mi)	1185
Fuel Consumed (gal)	309
Fuel Economy (mpg)	3.8
CO Emissions (kg)	21.62
NOx Emissions (kg)	4.21
VOC Emissions (kg)	5.01
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	144
Performance Index	349.7

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	50	51	935	480
Demand Flow Rate, veh/h	51	53	953	490
Vehicles Circulating, veh/h	500	931	63	145
Vehicles Exiting, veh/h	135	85	488	837
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.0	8.3	14.0	7.3
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	51	53	953	490
Cap Entry Lane, veh/h	829	534	1294	1190
Entry HV Adj Factor	0.980	0.962	0.981	0.980
Flow Entry, veh/h	50	51	935	480
Cap Entry, veh/h	812	514	1269	1167
V/C Ratio	0.062	0.099	0.736	0.412
Control Delay, s/veh	5.0	8.3	14.0	7.3
LOS	A	A	B	A
95th %tile Queue, veh	0	0	7	2

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑	↱		↑	↱
Traffic Vol, veh/h	0	0	198	0	0	47	0	773	22	0	464	2
Future Vol, veh/h	0	0	198	0	0	47	0	773	22	0	464	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	380	-	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	71	79	68	79	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	228	0	0	54	0	978	32	0	533	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	533	-	-	978	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.22	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.318	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	547	0	0	304	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	547	-	-	304	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.2	19.4	0	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	547	304	-	-
HCM Lane V/C Ratio	-	-	0.416	0.178	-	-
HCM Control Delay (s)	-	-	16.2	19.4	-	-
HCM Lane LOS	-	-	C	C	-	-
HCM 95th %tile Q(veh)	-	-	2	0.6	-	-

Intersection	
Intersection Delay, s/veh	20.2
Intersection LOS	C

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	292	1143	860
Demand Flow Rate, veh/h	297	1165	878
Vehicles Circulating, veh/h	1096	27	273
Vehicles Exiting, veh/h	27	1124	1120
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	25.7	16.7	23.0
Approach LOS	D	C	C

Lane	Left	Left	Bypass	Left
Designated Moves	LR	T	R	LT
Assumed Moves	LR	T	R	LT
RT Channelized			Yield	
Lane Util	1.000	1.000		1.000
Follow-Up Headway, s	2.609	2.609		2.609
Critical Headway, s	4.976	4.976	69	4.976
Entry Flow, veh/h	297	1096	1342	878
Cap Entry Lane, veh/h	451	1342	0.980	1045
Entry HV Adj Factor	0.983	0.980	68	0.980
Flow Entry, veh/h	292	1075	1316	860
Cap Entry, veh/h	444	1316	0.052	1023
V/C Ratio	0.658	0.816	3.1	0.841
Control Delay, s/veh	25.7	17.6	A	23.0
LOS	D	C	0	C
95th %tile Queue, veh	5	10		10

Network Totals

Number of Intersections	3
Total Delay (hr)	1
Stops (#)	3441
Average Speed (mph)	37
Total Travel Time (hr)	32
Distance Traveled (mi)	1175
Fuel Consumed (gal)	75
Fuel Economy (mpg)	15.7
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	10.7

1: TH 120 & North Access/Woodland Dr

Direction	EB	WB	NB	SB	All
Future Volume (vph)	44	44	813	418	1319
Control Delay / Veh (s/v)	0	0	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	0	0	0	0	0
Total Delay (hr)	0	0	0	0	0
Stops / Veh	1.00	1.00	1.00	1.00	1.00
Stops (#)	44	44	813	418	1319
Average Speed (mph)	30	30	40	40	39
Total Travel Time (hr)	0	0	6	2	9
Distance Traveled (mi)	8	11	220	97	337
Fuel Consumed (gal)	1	1	16	8	25
Fuel Economy (mpg)	NA	NA	13.9	12.8	13.6
CO Emissions (kg)	0.04	0.05	1.11	0.53	1.73
NOx Emissions (kg)	0.01	0.01	0.22	0.10	0.34
VOC Emissions (kg)	0.01	0.01	0.26	0.12	0.40
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

2: TH 120 & Middle Access

Direction	EB	WB	NB	SB	All
Future Volume (vph)	198	47	795	466	1506
Control Delay / Veh (s/v)	16	19	0	0	3
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	16	19	0	0	3
Total Delay (hr)	1	0	0	0	1
Stops / Veh	1.00	1.00	0.00	0.00	0.16
Stops (#)	198	47	0	0	245
Average Speed (mph)	18	19	40	40	34
Total Travel Time (hr)	2	1	4	3	10
Distance Traveled (mi)	41	14	173	126	354
Fuel Consumed (gal)	3	1	6	5	15
Fuel Economy (mpg)	12.0	13.5	27.9	27.9	23.3
CO Emissions (kg)	0.24	0.07	0.43	0.32	1.06
NOx Emissions (kg)	0.05	0.01	0.08	0.06	0.21
VOC Emissions (kg)	0.06	0.02	0.10	0.07	0.25
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

3: TH 120 & South Access

Direction	WB	NB	SB	All
Future Volume (vph)	254	875	748	1877
Control Delay / Veh (s/v)	0	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	0	0	0	0
Total Delay (hr)	0	0	0	0
Stops / Veh	1.00	1.00	1.00	1.00
Stops (#)	254	875	748	1877
Average Speed (mph)	30	40	40	39
Total Travel Time (hr)	2	7	4	13
Distance Traveled (mi)	54	268	162	484
Fuel Consumed (gal)	4	18	13	35
Fuel Economy (mpg)	14.9	14.7	12.3	13.8
CO Emissions (kg)	0.25	1.27	0.92	2.45
NOx Emissions (kg)	0.05	0.25	0.18	0.48
VOC Emissions (kg)	0.06	0.29	0.21	0.57
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	3
Control Delay / Veh (s/v)	1
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	1
Total Delay (hr)	1
Stops / Veh	0.73
Stops (#)	3441
Average Speed (mph)	37
Total Travel Time (hr)	32
Distance Traveled (mi)	1175
Fuel Consumed (gal)	75
Fuel Economy (mpg)	15.7
CO Emissions (kg)	5.24
NOx Emissions (kg)	1.02
VOC Emissions (kg)	1.21
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	10.7

Timings
1: TH 120 & North Access/Woodland Dr

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	0	22	1	3	668	47	25	379	13
Future Volume (vph)	25	0	22	1	3	668	47	25	379	13
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		8	1	6		5	2	
Permitted Phases	4		8		6		6	2		2
Detector Phase	4	4	8	8	1	6	6	5	2	2
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	9.0	9.0	5.0	15.0	15.0
Minimum Split (s)	16.0	16.0	16.0	16.0	11.0	21.0	21.0	11.0	21.0	21.0
Total Split (s)	16.0	16.0	16.0	16.0	11.0	53.0	53.0	11.0	53.0	53.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	13.8%	66.3%	66.3%	13.8%	66.3%	66.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.0	10.0	10.0	10.0	63.6	62.7	62.7	64.8	65.0	65.0
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.80	0.78	0.78	0.81	0.81	0.81
v/c Ratio	0.17	0.03	0.14	0.12	0.00	0.53	0.04	0.06	0.29	0.01
Control Delay	34.0	0.1	33.5	14.9	2.7	6.7	0.6	2.8	4.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	0.1	33.5	14.9	2.7	6.7	0.6	2.8	4.9	0.0
LOS	C	A	C	B	A	A	A	A	A	A
Approach Delay		21.0		24.0		6.3			4.6	
Approach LOS		C		C		A			A	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 6.8	Intersection LOS: A
Intersection Capacity Utilization 53.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: TH 120 & North Access/Woodland Dr

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	5	193	11	36	88	685	22	12	452	2
Future Volume (vph)	5	193	11	36	88	685	22	12	452	2
Turn Type	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4		8		1	6		5	2	
Permitted Phases		4		8	6		6	2		2
Detector Phase	4	4	8	8	1	6	6	5	2	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	15.0	15.0	15.0	15.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	18.8%	18.8%	18.8%	18.8%	17.5%	45.0%	45.0%	17.5%	45.0%	45.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	8.4	8.4	9.4	9.4	45.6	42.3	42.3	41.2	34.1	34.1
Actuated g/C Ratio	0.10	0.10	0.12	0.12	0.57	0.53	0.53	0.52	0.43	0.43
v/c Ratio	0.05	0.61	0.80	0.12	0.31	0.88	0.03	0.06	0.65	0.00
Control Delay	32.5	12.9	63.8	0.7	10.1	31.0	0.1	10.7	25.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	12.9	63.8	0.7	10.1	31.0	0.1	10.7	25.5	0.0
LOS	C	B	E	A	B	C	A	B	C	A
Approach Delay	13.7		51.4			27.5			25.0	
Approach LOS	B		D			C			C	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of 1st Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 27.7	Intersection LOS: C
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: TH 120 & Middle Access

Major Roadway: TH 120
Years: 2019-2021
Ending Year: 2020
City: Mahtomedi/ WBL

IF INTERSECTION:
Minor Roadway: Woodland Dr

IF SEGMENT:
Segment Begin:
Segment End:

Incident	Sys	Route	Ref_Point	Co	City	Township	Dist	State Patrol	Trib	Crash_Num		Month	Day	Year	DyWk	Time	Rd_Dir	Sev	NumKilled	NumVeh	Diag	FirstHarr	Relatior	LIT	Wthr1	Wthr2	Surf	WZ	Roadway	Intersection	RouteID	Basic Type	Desc
744685	3	120	9.051	62	2397299			24		19018936	192460078	9	3	2019	Tue	12	S	3	0	2	12	10	2	1	1		1	98	N CENTURY AVE		03000000	7	Unit #1 was southbound Century Avenue from the north college entrance. Driver of unit #1 stated he looked down at his speedometer, then looked up to see that southbound traffic in front of him was stopped. Unit #1 proceeded to rear end unit #2, as he couldnt stop in time. The driver of unit #2 confirmed she was stopped in traffic (vehicles in front of her) when unit #1 rear ended her. Driver of unit #2 complained of minor shoulder pain, but ultimately declined medical attention at the scene.
838552	3	120	9.056	82	Mahtomedi		M	24		20405172	202390192	8	26	2020	Wed	14	N	5	0	2	12	10	2	1	1		1	98	DIVISION ST N		03000000	7	Both vehicles were privately towed. No citations were issued. V1 N.B. HWY 120 STOPPED IN TRAFFIC. V2 DIRECTLY BEHIND V1. V2 DRIVER DID NOT STOP IN TIME. V2 INTO REAR OF V1. NO INJURIES. V2 TOWED BY T.C. TOWING. V1, V2, and V3 were stopped in traffic s/b Century Ave No just south of Woodland Dr. V4 then rear ended V3 which causes V3 to move forward and rear ended V2. V2 then moved forward and rear ended V1. D4 stated she looked down at her GPS and then looked up to find V3 stopped in traffic. D1 stated she then rear ended V3. D3 stated she was stopped in traffic when V4 rear ended her vehicle and caused her vehicle to move forward and rear ended V2. D2 stated she was stopped in traffic when V3 rear ended her vehicle and caused her vehicle to move forward and rear ended V1. D1 stated she was stopped in traffic when V2 rear ended her vehicle.
746029	3	120	9.081	82	2395818			24		19019385	192520046	9	9	2019	Mon	12		5	0	4	12	10	2	1	3		2	98	N CENTURY AVE		03000000	7	No Injuries. THE MOTORCYCLE WAS NORTHBOUND ON MNTH 120 NEAR WOODLAND DR. AND HIT A DEER. THE DRIVER WAS TRANSPORTED FOR ROAD RASH AND PRECAUTION FOR
749240	3	120	9.09	62	2397299			24		19408370	192630245	9	20	2019	Fri	19	N	4	0	1		16	2	4	1		1	98	N CENTURY AVE		03000000	4	POSSIBLE HEAD INJURY. Veh 2 was stopped at left turn arrow which was red, waiting to turn from NB Century Ave. N into the parking lot access for Century College at the intersection of Woodland Dr. Veh 1 was approaching Veh 2 in the same lane to turn left, but couldn't stop in time due to icy/snowy road conditions, tried to veer to the right, but still hit Veh 2.
683659	3	120	9.101	62	White Bear Lake		M	24		19002518	190360091	2	5	2019	Tue	11	N	5	0	2	12	10	3	1	4		5	98	N CENTUI	WOODLAND [	03000000	7	No injuries reported, no citations issued. Cloudy day with dry road conditions, light traffic.Units 1 & 2 both south on Hwy 120 stopped for the red light at the intersection of Woodland Dr. Unit 2 in front of Unit 1. The light turned green, and Unit 1 moved forward, without seeing Unit 2 had not started moving yet. Unit 1 hit Unit 2 front to rear. Driver of Unit 1 stated he had zoned out, and had a lot on his mind, and took responsibility for the crash. Both Units had minor
818378	3	120	9.107	62	2397299			24		20404004	201890094	7	7	2020	Tue	16	S	5	0	2	12	10	3	1	2		1	98	N CENTURY AVE		03000000	7	damage. No vehicles were towed. Unit 1 was traveling SB MNTH 120 approaching Woodland Dr. Driver stated he was going to make a right onto Woodland Dr. in order to turn around. The front of unit 1 crashed into the right front of unit 2 in the intersection. Unit 2 was traveling NB MNTH 120 and making a left turn onto Woodland Dr. Driver stated that the NB traffic light and left turn arrow were both green. Driver stated she made the left turn and observed unit 1 coming through the intersection. The front of unit 2 crashed into the right front of unit 1. A witness walking at the intersection stated that the light for unit 1 was red and that unit 1 ran the red light and crashed into unit 2. Driver of unit 1 was cited for the red light violation.
768825	3	120	9.122	82	2395818			24		19410788	193370266	12	3	2019	Tue	8	S	5	0	2	5	10	3	1	1		1	98	CENTURY AVE		03000000	9	No injuries were reported on scene. Unit 1 was towed from the scene. Unit 2 was driven from the scene. ALL VEHICLES WERE TRAVELING NORTH ON MNTH 120. VEHICLE 1 BEGAN SLOWING FOR TRAFFIC AHEAD. THE DRIVER OF VEHICLE 1 STATED SHE HEARD A CRASH BEHIND HER AND THEN WAS HIT ON THE REAR RIGHT QUARTER PANEL. THE DRIVER OF VEHICLE 2 HAD HIT A THIRD UNKNOWN VEHICLE THAT DID NOT STAY ON SCENE. VEHICLE 2 ATTEMPTED TO PULL OVER BUT THEN HIT VEHICLE 1 DUE TO NOT KEEPING EYES ON THE ROAD. NO INJURIES WERE REPORTED AND NO VEHICLES WERE
813597	3	120	9.151	62	White Bear Lake		M	24		20403155	201420148	5	21	2020	Thu	15	N	5	0	2	12	10	2	1	1		1	98	DIVISION ST N		03000000	7	TOWED. V1 was traveling w/b on Woodland Dr @ Century Ave No. V2 was traveling n/b Century Ave No @ Woodland Dr. V2 then collided into V1. D1 stated she was traveling w/b on Woodland Dr and was turning to go s/b on Century Ave No on a green light. D1 stated V2 then struck her vehicle. D2 stated he was traveling n/b on Century Ave No approaching Woodland Dr. D2 stated that V1 ran a red light and he was unable to stop and collided into V1. P1 had a small bump on her head and EMS responded to the scene. P1 was treated and released at the scene by medics. Based on the damage done to V1, it appeared that V1 was almost cleared the intersection before V2 struck V1. This gives the impression that V1 had a green light before getting struck by V2. Side Note: D1 called on 05/22/19 and asked officer to add P2 & P3 in this report. Officer then added them. Officer didn't add P2 & P3 to the original crash report because they didn't appeared to have any injuries at
678765	5	114	0.003	82	Mahtomedi		M	24		19001757	190240236	1	24	2019	Thu	10		4	0	2	5	10	10	1	1		2	98	WOODLA	N CENTURY A	05000239	10	that time.

Major Roadway: TH 120
Years: 2019-2021
Ending Year: 2021
City: Mahtomedi/ WBL

IF INTERSECTION:
Minor Roadway: Century Middle Access

IF SEGMENT:
Segment Begin:
Segment End:

Incident	Sys	Route	Ref_Point	Co	City	Township	Dist	State Patrol	Trib	Crash_Num		Month	Day	Year	DyWk	Time	Rd_Dir	Sev	NumKilled	NumVeh	Diag	FirstHarm	Relatior	LIT	Wthr1	Wthr2	Surf	WZ	Roadway	Intersection	RouteID	Basic Type	Desc
719246	3	120	9.058	82	2395818			24		19404399	191260189	5	6	2019	Mon	14	N	4	0	2		11	4	1	1		1	98	N CENTURY AVE		03000000	1	The crash happened on Minnesota Trunk Highway 120 (MNTH 120) near the Century College Campus. The parties of Unit 1 (Subaru) stated they were at a red light north on MNTH 120 when their vehicle stalled. They stated that they got out of the vehicle went to the front of the vehicle and lifted the hood and looked at the engine compartment. The driver of Unit 2 stated was traveling northbound on MNTH 120 with other traffic, stated that she used to go to the college so might have been looking at the scenery. The front of Unit 2 made contact with the rear of Unit 1, which pushed Unit 1 into the parties of Unit 1 now pedestrians (Morrison and Josephene). All parties were checked by medics. No parties were transported from the scene by ambulance. Both vehicles were towed by Twin Cities Towing.
679440	3	120	8.66	62	White Bear Lake		M	24		19400669	190240372	1	24	2019	Thu	14		5	0	2	12	10	2	1	1		1	98	N CENTURY AVE		03000000	7	VEHS S/B HWY 120 SOUTH OF CENTURY COLLEGE. V1 SLOWED IN TRAFFIC. V2 WAS BEHIND V1 AND COULD NOT STOP IN TIME. V2 REAR ENDED V1. NO REPORT OF INJURY. Unit 1 was traveling SB MNTH 120 south of the west entrance to Century College. Driver stated he observed unit 2 slow in front of him but he was unable to stop in time. The front of unit 1 crashed into the rear of unit 2. Unit 2 was traveling SB MNTH 120 south of the west entrance to Century College directly in front of unit 1. Driver stated she observed unit 3 slowing for traffic and she also slowed. The front of unit 1 crashed into the rear of unit 2. The force of the crash caused the front of unit 2 to hit the rear of unit 3. Unit 3 was traveling SB MNTH 120 south of the west entrance to Century College directly in front of unit 2. Driver stated she slowed for traffic and the front of unit 2 hit the rear of unit 3. Driver of unit 1 complained of injuries and was transported to the hospital for treatment (Mahtomedi EMS run # 1900736). Driver of unit 2 requested an evaluation and was not transported to the hospital. No other injuries were reported on scene. Unit 1 was towed from the scene by Twin Cities Towing. Unit 2 and unit 3 were both driven from the scene.
751340	3	120	8.781	62	2397299			24		19408648	192730233	9	30	2019	Mon	14		3	0	3	12	10	2	1	2		1	98	N CENTURY AVE		03000000	7	Witness stated he was directly behind unit 1. Stated he observed the traffic and slow and unit 1 rear-end unit 2. Veh 1 was NB on Century Ave. N in left turn lane Veh 2 was NB on Century Ave. N in through lane, then realized he needed to be in left turn lane. D2 moved into left turn lane before Veh 1 passed. The left front quarter panel/corner of Veh 2 hit the rear passenger quarter panel of Veh 1.
743936	3	120	8.836	82	2395818			24		19018618	192420075	8	30	2019	Fri	12	N	5	0	2	10	10	3	1	1		1	98	N CENTUI	113	03000000	5	Veh 1 is a "loaner" car from dealership V1 was traveling s/b on Century Ave No approaching the west campus entrance roadway into the college. V2 turned left in front of V1 causing a crash. D1 stated she was traveling s/b on Century Ave No approaching the west campus entrance roadway into the college. D1 stated that the semaphore lights were changing from yellow to red. D1 stated V2 then turned left in front of her vehicle causing a crash. D2 stated he was stopped in the left turn lane n/b on Century Ave No, trying to turn left into the west campus entrance roadway. D2 stated that the semaphore lights were changing from yellow to red. D2 stated he thought he had enough 'room' to turn and proceeded to make his left turn. D2 stated that V1 then struck his vehicle. D1 complained of legs and back pain. EMS was declined by D1.
783749	3	120	8.842	62	2397299			24		20001582	200270066	1	27	2020	Mon	9		3	0	2	90	10	10	1	2		5	98	N CENTUI	113	03000000	90	W1 stated that both V1 and V2 were going through the yellow lights. W1 stated that both V1 and V2 proceeded into the intersection and collided into each other. V1, V2 AND V3 AT THE INTERSECTION FOR CENTURY COLLEGE ON HWY 120. V1 TURNING LEFT FROM NB HWY 120, V2 TRAVELING HWY 120 SB AND V3 WAITING AT THE RED LEFT FROM WEST CAMPUS. D1 STATES THAT HE WAS TURNING LEFT ON THE FLASHING YELLOW LIGHT. D1 STATES HE DIDN'T SEE V2 UNTIL IT WAS TOO LATE AND ATTEMPTED TO AVOID V2 BY ACCELERATING. AN INVESTIGATION SHOWS THAT V2 STRUCK V1 IN THE PASSENGER'S SIDE REAR CAUSING V1 TO STRIKE V3. NO INJURIES. V2 AND V3 TOWED.
691610	3	120	8.811	62	White Bear Lake		M	24		19402417	190560088	2	25	2019	Mon	9	S	5	0	3	5	10	3	1	1		1	98	N CENTURY AVE		03000000	9	ALL THREE VEHICLES WERE NORTHBOUND ON MNTH 120 AT THE CENTURY COLLEGE CAMPUS ENTRANCE. VEHICLE 1 HAD STOPPED FOR TRAFFIC AHEAD. VEHICLE 3 DID NOT HAVE TIME TO REACT AND REAR ENDED VEHICLE 2 WHICH THEN REAR ENDED VEHICLE 1.
752198	3	120	8.863	62	2397299			24		19408742	192760227	10	3	2019	Thu	14	N	4	0	3	12	10	3	1	2		1	98	N CENTURY AVE		03000000	7	VEHICLES WERE TRAVELING NB ON MNTH 120 NEAR CENTURY COLLEGE ENTRANCE/EXIT . DRIVER OF VEHICLE #1 KEENAN SAID THE LIGHT WAS GREEN BUT TRAFFIC AHEAD OF HER STOPPED SHE THEN STOPPED AND VEHICLE #2 REAR ENDED HER VEHICLE. DRIVER OF VEHICLE #2 MAXWELL SAID THE LIGHT WAS GREEN AND TRAFFIC JUST STOPPED SUDDENLY. MAXWELL WAS UNABLE TO STOP IN TIME. NO INJURIES, VEHICLE #2 TOWED BY
746841	3	120	8.882	82	2395818			24		19408041	192540237	9	11	2019	Wed	11	N	5	0	2	12	10	3	1	3		2	98	N CENTURY AVE		03000000	7	TWIN CITIES. On 09-10-19, I, Officer Allen #62 was dispatched to a crash on HWY 120 (Century Ave)at the entrance to Century College (west campus). On arrival I spoke with two drivers. Both stated that they were southbound and stopped at the red light. Driver of Unit #2 stated that he was suddenly struck from behind by Unit #1. Driver of Unit #1 stated that his foot "slipped" off the brake due to his inattention eating food.
748042	3	120	8.845	62	2397299			24		19019464	192530292	9	10	2019	Tue	15	S	5	0	2	12	10	3	1	1		1	98	N CENTURY AVE		03000000	7	Unit #1 drove into Unit #2. No injuries reported. No tows. KA #62 Unit 1 was traveling SB MNTH 120 in front of Century College. Driver stated he observed unit 2 in front of him and he attempted to slow but he brakes did not work. The front of unit 1 crashed into the rear of unit 2. The force of the crash caused unit 2 to go into the snow bank on the right shoulder. Unit 1 continued and crashed into the back of unit 3.
768826	3	120	8.975	82	2395818			24		19410790	193370268	12	3	2019	Tue	9		5	0	3	12	10	2	1	1		1	98	N CENTURY AVE		03000000	7	No injuries were reported on scene. Unit 1 was driven into the college parking lot and arranged for a private tow. Unit 2 was pulled out of the snow and driven from the scene. Unit 3 was driven from the scene.

779924	21	6123	0.019	62	White Bear Lake	M	24	20000967	200150274	1	15	2020	Wed	20	98	3	0	1		8	4	4	1		1	98	113	21000065	1	Vehicle 1 was turning right (southbound) on Century Avenue from the private road leading from Century College (West Campus) at a red light. Pedestrian 1 was jogging (running) southbound on Century Avenue and had a green light to cross the private road where vehicle 1 was turning right on a red. Vehicle 1 sideswiped pedestrian one, striking him on the right side. The pedestrian fell to the ground (landing on left side - shoulder) and called 911 as he anticipated vehicle 1 may try to leave the scene. Driver 1 negative signs of impairment. Insurance information collected by officer. Pedestrian 1 complained of stiffness in his left shoulder area, but declined medics. There were no visible injuries. He was wearing reflective clothing and a head lamp. No signs of careless/reckless/impaired driving and no PC for a traffic violation citation. On 01-16-2020, pedestrian 1 called to report a fracture in his humerus with a followup appointment at Summit Orthopedic on 01-21-2020.
898087	3	120	8.792	82	Mahtomedi	M	24	21401935	210860139	3	27	2021	Sat	21	N	5	0	2	12	10	2	4	3		2	98	NB MN 120 AT UPPER 44	03000000	7	Pedestrian advised of civil options. UNITS 1 AND 2 WERE BOTH TRAVELING NORTHBOUND. UNIT 1 WAS STATIONARY WITH ITS LEFT BLINKER ON WAITING FOR TRAFFIC TO CLEAR BEFORE TURNING LEFT INTO A DRIVEWAY. UNIT 2 ATTEMPTED TO PASS UNIT 1 ON THE RIGHT, AND STRUCK UNIT 1. THE UNIT 1 DRIVER STATED SHE WAS STATIONARY WAITING TO TURN LEFT AND WAS REAR-ENDED. SHE CLAIMED HER BLINKER WAS ON. THE UNIT 2 DRIVER ADMITTED ON SCENE THAT SHE WAS TRYING TO PASS UNIT 1 BECAUSE SHE (THE UNIT 2 DRIVER) WAS IN A HURRY. NO INJURIES REPORTED.

Major Roadway: TH 120
Years: 2019-2021
Ending Year: 2021
City: Mahtomedi/ WBL

IF INTERSECTION:
Minor Roadway: Century South Access

IF SEGMENT:
Segment Begin:
Segment End:

Incident	Sys	Route	Ref_Point	Co	City	Township	Dist	State Patrol	Trib	Crash_Num		Month	Day	Year	DyWk	Time	Rd_Dir	Sev	NumKilled	NumVeh	Diag	FirstHarm	Relatior	LIT	Wthr1	Wthr2	Surf	WZ	Roadway	Intersection	RouteID	Basic Type	Desc
676882		3	120	9.032	62	White Bear Lake		M		24	19400334	190150232	1	15	2019	Tue	11	S	4	0	3	12	10	4	1	2		2	98	N CENTURY AVE		03000000	7	The crash happened on Minnesota Trunk Highway 120 (MNTH 120) near Century College. Unit 1 (Dodge), Unit 2 (Jeep), and Unit 3 (Chevrolet) were traveling southbound on MNTH 120. The driver of Unit 1 stated a vehicle in front of him stopped suddenly so he stopped and then was hit from behind. The driver of Unit 2 stated that a vehicle in front of Unit 1 stopped to let someone turn (from Century College East Campus road). The driver of Unit 2 stated she stopped behind Unit 1 but then was hit from behind and pushed forward into Unit 1. The driver of Unit 3 stated a vehicle in front of Unit 1 stopped and others stopped but stated she drove over some ice and could not stop in time. At my on-scene investigation, there was no information on the vehicle in front of Unit 1. With that stated, it is still the responsibility for all drivers to be aware of their forward field of vision and have enough distance to make an evasive movement. The driver of Unit 2 and Unit 3 stated injuries but refused medics on scene. Unit 3 was moved to local gas station and was going to be towed by party.
744926		3	120	8.703	62	2397299				24	19407712	192420318	8	30	2019	Fri	13		5	0	2	12	10	2	1	1		1	98	N CENTURY AVE		03000000	7	Unit 1 was traveling SB MNTH 120 south of the Century College entrance intersection. Driver stated he stopped for traffic and the front of unit 2 crashed into the rear of unit 1. Unit 2 was traveling SB MNTH 120 directly behind unit 1. Driver stated she observed unit 1 stop for traffic but was unable to stop in time. The front of unit 2 crashed into the rear of unit 1. No injuries were reported on scene. Both units were driven from the scene.
721055		3	120	8.481	62	2397299				24	19404150	191160277	4	26	2019	Fri	12	S	5	0	2	12	10	2	1	2		1	98	SB CENTURY AVE NOR		03000000	7	Vehicle #1 and vehicle #2 were traveling south bound on Highway 120 north of County D turning left into the parking lot of Quinny's Sports Pub And Grill. Vehicle #1 stopped at the entrance into the restaurant and backed out and struck vehicle #2. Driver of vehicle #1 stated that he turned into the parking lot entrance and noticed that he was supposed to go north bound on Highway 120. He stopped in the entrance to the parking lot and backed up and struck vehicle #2. Driver of vehicle #2 stated that she was turning into the parking lot behind vehicle #1. Vehicle #1 stopped at the entrance and backed up and struck her car. No injuries were reported on scene. No airbags deployed. Neither vehicles were towed.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route	TH 120	**District**	Metro	**County**	Washington
Begin RP	008+00.184	**End RP**	009+00.233	**Miles**	1.049
Location	TH 120 & South Century Access Intersection				

B. Project Description

Proposed Work	Convert traffic signal to roundabout		
Project Cost*	$8,972,429	**Installation Year**	2027
Project Service Life	20 years	**Traffic Growth Factor**	1.0%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

0.56	**Fatal (K) Crashes**	**Reference**	Convert Intersection with Minor-Road Stop Control to Mod
0.56	**Serious Injury (A) Crashes**		
0.56	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.56	**Possible Injury (C) Crashes**		
0.56	**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	MnCMAT2			

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

F. Benefit-Cost Calculation

$440,607	**Benefit (present value)**	**B/C Ratio = 0.05**
$8,972,429	**Cost**	

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

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,500,000
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%	**Revised**
Traffic Growth Rate:	1.0%	**Revised**
Project Service Life:	20 years	**Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.00	0.00	$0
C crashes	0.44	0.15	$17,600
PDO crashes	0.88	0.29	$3,813
			$21,413

H. Amortized Benefit

Year	Crash Benefits	Present Value
2027	$21,413	$21,413
2028	$21,627	$21,477
2029	$21,844	$21,541
2030	$22,062	$21,605
2031	$22,283	$21,670
2032	$22,506	$21,734
2033	$22,731	$21,799
2034	$22,958	$21,864
2035	$23,188	$21,929
2036	$23,419	$21,994
2037	$23,654	$22,060
2038	$23,890	$22,126
2039	$24,129	$22,192
2040	$24,370	$22,258
2041	$24,614	$22,324
2042	$24,860	$22,390
2043	$25,109	$22,457
2044	$25,360	$22,524
2045	$25,614	$22,591
2046	$25,870	$22,658
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 = $440,607

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

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route	TH 120	**District**	Metro	**County**	Washington
Begin RP	008+00.184	**End RP**	009+00.233	**Miles**	1.049
Location	TH 120 & Middle Century Access Intersection				

B. Project Description

Proposed Work	Install median on TH 120, restricting movements to right-in, right-out		
Project Cost*	$8,972,429	**Installation Year**	2027
Project Service Life	20 years	**Traffic Growth Factor**	1.0%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

0.29	**Fatal (K) Crashes**	**Reference**	Install raised median
0.29	**Serious Injury (A) Crashes**		
0.29	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.29	**Possible Injury (C) Crashes**		
0.29	**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	MnCMAT2			

Crash Severity	All	< optional 2nd CMF >
K crashes	0	
A crashes	0	
B crashes	3	
C crashes	2	
PDO crashes	7	

F. Benefit-Cost Calculation

$4,971,985	**Benefit (present value)**	**B/C Ratio = 0.56**
$8,972,429	**Cost**	

Proposed project expected to reduce 3 crashes annually, 0 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%	**Revised**
Traffic Growth Rate:	1.0%	**Revised**
Project Service Life:	20 years	**Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	2.13	0.71	$163,300
C crashes	1.42	0.47	$56,800
PDO crashes	4.97	1.66	$21,537
			$241,637

H. Amortized Benefit

Year	Crash Benefits	Present Value
2027	$241,637	$241,637
2028	$244,053	$242,357
2029	$246,494	$243,079
2030	$248,958	$243,803
2031	$251,448	$244,529
2032	$253,963	$245,258
2033	$256,502	$245,988
2034	$259,067	$246,721
2035	$261,658	$247,456
2036	$264,274	$248,193
2037	$266,917	$248,933
2038	$269,586	$249,674
2039	$272,282	$250,418
2040	$275,005	$251,164
2041	$277,755	$251,912
2042	$280,533	$252,663
2043	$283,338	$253,416
2044	$286,171	$254,171
2045	$289,033	$254,928
2046	$291,923	$255,687
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 = $4,971,985

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

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route	TH 120	**District**	Metro	**County**	Washington
Begin RP	008+00.184	**End RP**	009+00.233	**Miles**	1.049
Location	TH 120 & Woodland Drive/ North Century Access Intersection				

B. Project Description

Proposed Work	Convert traffic signal to roundabout		
Project Cost*	$8,972,429	**Installation Year**	2027
Project Service Life	20 years	**Traffic Growth Factor**	1.0%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

0.79	**Fatal (K) Crashes**	**Reference**	Convert Signalized Intersection to Modern Roundabout
0.79	**Serious Injury (A) Crashes**		
0.79	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.79	**Possible Injury (C) Crashes**		
0.79	**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	MnCMAT2			

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

F. Benefit-Cost Calculation

$789,307	**Benefit (present value)**	**B/C Ratio = 0.09**
$8,972,429	**Cost**	

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

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,500,000
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%	**Revised**
Traffic Growth Rate:	1.0%	**Revised**
Project Service Life:	20 years	**Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.21	0.07	$16,100
C crashes	0.42	0.14	$16,800
PDO crashes	1.26	0.42	$5,460
			$38,360

H. Amortized Benefit

Year	Crash Benefits	Present Value
2027	$38,360	$38,360
2028	$38,744	$38,474
2029	$39,131	$38,589
2030	$39,522	$38,704
2031	$39,918	$38,819
2032	$40,317	$38,935
2033	$40,720	$39,051
2034	$41,127	$39,167
2035	$41,538	$39,284
2036	$41,954	$39,401
2037	$42,373	$39,518
2038	$42,797	$39,636
2039	$43,225	$39,754
2040	$43,657	$39,872
2041	$44,094	$39,991
2042	$44,535	$40,110
2043	$44,980	$40,230
2044	$45,430	$40,350
2045	$45,884	$40,470
2046	$46,343	$40,591
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 = $789,307

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

CMF / CRF Details

CMF ID: 227

Convert intersection with minor-road stop control to modern roundabout

Description:

Prior Condition: ***No Prior Condition(s)***

Category: Intersection geometry

Study: ***NCHRP Report 572: Applying Roundabouts in the United States,*** **Rodegerdts et al., 2007**

Star Quality Rating:	

Crash Modification Factor (CMF)	
Value:	0.56
Adjusted Standard Error:	0.05
Unadjusted Standard Error:	0.04

Crash Reduction Factor (CRF)	
Value:	44 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	5
Unadjusted Standard Error:	4

Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Not Specified
Number of Lanes:	1 or 2
Road Division Type:	
Speed Limit:	
Area Type:	All
Traffic Volume:	
Time of Day:	

If countermeasure is intersection-based

Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	4-leg
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	2

Sample Size Used:	

Other Details

Included in Highway Safety Manual?	Yes. HSM lists this CMF in **bold** font to indicate that it has the highest reliability since it has an adjusted standard error of 0.1 or less.
Date Added to Clearinghouse:	Dec-01-2009
Comments:	Countermeasure name changed from "convert two-way stop-controlled intersection to roundabout" to match HSM

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

CMF / CRF Details

CMF ID: 2219

Install raised median

Description:

Prior Condition: ***No Prior Condition(s)***

Category: Access management

Study: ***Correlating Access Management to Crash Rate, Severity, and Collision Type*, Schultz et al., 2008**

Star Quality Rating:	

Crash Modification Factor (CMF)	
Value:	0.29
Adjusted Standard Error:	
Unadjusted Standard Error:	0.184

Crash Reduction Factor (CRF)	
Value:	70.77 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	18.37

Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Principal Arterial Other
Number of Lanes:	
Road Division Type:	
Speed Limit:	
Area Type:	Urban
Traffic Volume:	1390 to 51200 *Average Daily Traffic (ADT)*
Time of Day:	All

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	2002 to 2004
Municipality:	
State:	UT
Country:	
Type of Methodology Used:	7

Sample Size Used:	525

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec-01-2009
Comments:	

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

CMF / CRF Details

CMF ID: 4252

Convert signalized intersection to modern roundabout

Description:

Prior Condition: Signalized intersection

Category: Intersection geometry

Study: *Evaluation of Safety Strategies at Signalized Intersections*, Srinivasan, et al., 2011

Star Quality Rating:	[View score details]

Crash Modification Factor (CMF)	
Value:	0.792
Adjusted Standard Error:	
Unadjusted Standard Error:	0.05

Crash Reduction Factor (CRF)	
Value:	20.8 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	5

Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Number of Lanes:	1 to 2
Road Division Type:	
Speed Limit:	
Area Type:	Urban and suburban
Traffic Volume:	
Time of Day:	Not specified

If countermeasure is intersection-based

Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	3-leg,4-leg
Traffic Control:	Roundabout
Major Road Traffic Volume:	5322 to 43123 Annual Average Daily Traffic (AADT)
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	1999 to 2009
Municipality:	
State:	CO, FL, IN, MD, MI, NY, NC, SC, VT, WA
Country:	USA
Type of Methodology Used:	2

Sample Size Used:	Sites
Before Sample Size Used:	28 Sites
After Sample Size Used:	28 Sites

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec-06-2012
Comments:	Countermeasure name has been slightly modified for consistency across Clearinghouse

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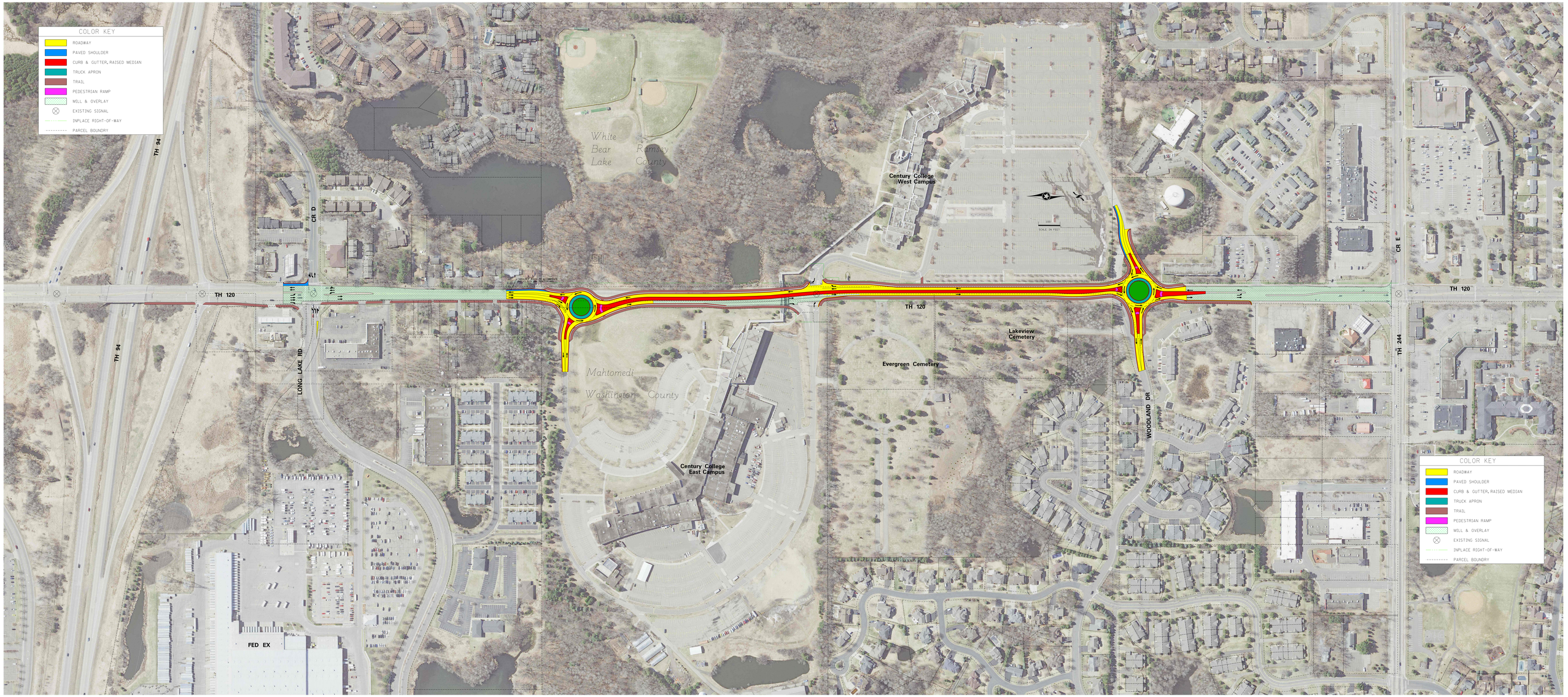
This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center


COLOR KEY
ROADWAY
PAVED SHOULDER
CURB & GUTTER, RAISED MEDIAN
TRUCK APRON
TRAIL
PEDESTRIAN RAMP
MILL & OVERLAY
EXISTING SIGNAL
INPLACE RIGHT-OF-WAY
PARCEL BOUNDRY
TH 94
CR D
TH 120
LONG LAKE RD
White Bear Lake
Ramsey County
Century College West Campus
Lakeview Cemetery
Evergreen Cemetery
Mahtomedi
Washington County
Century College East Campus
WOODLAND DR
CR E
TH 244
FED EX
4Lt
LT
SCALE IN FEET

TH 120 (Century Avenue) | Roadway Reconstruction & Modernization

Project Location

TH 120 (Century Ave) between I-694 and CSAH 12 (Old TH 244/Co Rd E) in the cities of White Bear Lake and Mahtomedi.

Funding Request

Federal: $ 7,000,000

Local Match: $ 1,972,428 (22%)

Project Total: $ 8,972,428

Project Goals

- Traffic calming and crash reduction
- Reduce traffic delay through corridor
- Fill gaps in bike/ped network
- Improve safety for non-motorized users
- Make multimodal connections to transit and regional destinations

Project Summary

TH 120 (Century Avenue) currently experiences extended periods of delay and above average crash rates compared to similar roads. Bike/ped facilities in the project area are limited to non-existent, leading to unsafe conditions and discouraging healthy and affordable travel modes like walking, biking, and transit.

The proposed project features a more pedestrian friendly and traffic calming design, with new ADA accessible multiuse trails extending along both sides of Century Ave; the replacement of one limited-control and one signalized intersection with two roundabouts featuring four-way crossings and pedestrian refuge islands; and raised medians and narrowed lane-width between the roundabouts.

Summary of Project Benefits

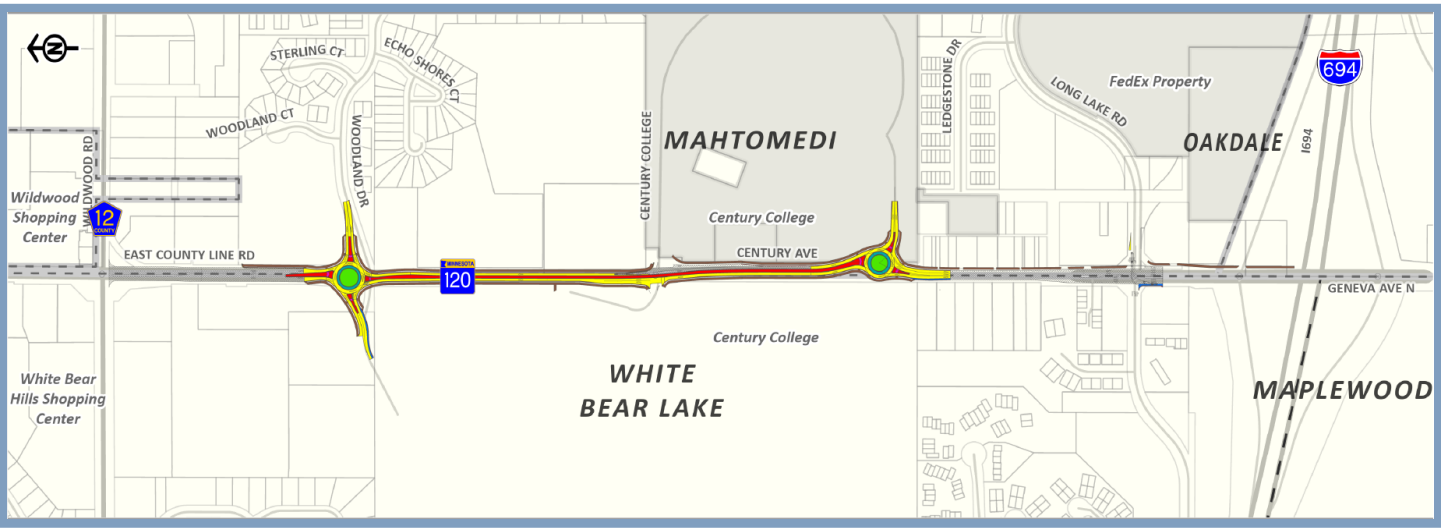
⇒ Calms traffic and reduces delay and conflict points throughout the corridor

⇒ Creates safer environment for non-motorized users to travel along or across Century Avenue

⇒ Completes gaps within the existing bike/ped network

⇒ Improve bike/ped connections to Century College, transit stops, and other community destinations

⇒ Responds to a community-identified need



Washington County

TH 120 (Century Avenue)

Roadway Reconstruction & Modernization

Existing Conditions Photographs

Image 1. Northbound Century Avenue at Woodland Dr.

- Future roundabout
- No pedestrian facilities

Image 2. Northbound Century Avenue at South Century College Entrance.

- Future roundabout
- No pedestrian facilities

Image 3. Northbound Century Avenue at Long Lake Road

- No pedestrian facilities
- Bus Stop in boulevard

Image 4. Northbound Century Avenue at I-694

- No pedestrian facilities
- Goat path from heavy pedestrian use

BOARD OF COUNTY COMMISSIONERS
WASHINGTON COUNTY, MINNESOTA **RESOLUTION NO. 2022-023**

DATE March 15, 2022 **DEPARTMENT** Public Works

MOTION BY COMMISSIONER Karwoski **SECONDED BY COMMISSIONER** Miron

RESOLUTION AUTHORIZING SUBMITTAL OF APPLICATIONS TO THE METROPOLITAN COUNCIL FOR FUNDING UNDER THE 2022 REGIONAL SOLICITATION PROGRAM

WHEREAS, the Regional Solicitation process started with the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991; and

WHEREAS, as authorized by the most recent federal surface transportation funding act, FAST ACT, projects will be selected for funding as part of three federal programs: Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement (CMAQ) Program, and Transportation Alternatives Program (TAP); and

WHEREAS, pursuant to the Regional Solicitation and the regulations promulgated thereunder, eligible project sponsors wishing to receive federal grants for a project shall submit an application first with the appropriate metropolitan planning organization (MPO) for review and inclusion in the MPO's Transportation Improvement Program (TIP); and

WHEREAS, the Metropolitan Council and the Transportation Advisory Board (TAB) act as the MPO for the seven county Twin Cities region and have released the Regional Solicitation for federal transportation funds for 2026 and 2027; and

WHEREAS, Washington County is an eligible project sponsor for Regional Solicitation funds; and

WHEREAS, Washington County is proposing to submit grant applications to Metropolitan Council as part of the 2022 Regional Solicitation for the following projects:

1. Reconstruction of Trunk Highway (TH) 120 with multimodal improvements between Interstate 694 and TH 244 in the City of Mahtomedi.

2. County Road 19A/100th Street realignment between Innovation Road and Jamaica Avenue in the City of Cottage Grove.

3. Hardwood Creek Regional Trail Extension from Falcon Court to 130th Street in the City of Hugo.

4. County State Aid Highway (CSAH) 5 Pedestrian Facility: Addition of a pedestrian facility along CSAH 5 between Owens Avenue and Pine Tree Trail in the City of Stillwater.

5. I-494 Park and Ride Parking Structure: Construction of shared parking structure west of the Woodbury Theatre in the City of Woodbury.

WHEREAS, the projects will be of mutual benefit to the Metropolitan Council, Washington County, Ramsey County, and the cities of Cottage Grove, Hugo, Mahtomedi, Stillwater, and Woodbury; and

WHEREAS, Washington County is committed to providing the county share of the costs if the projects are selected as part of the 2022 Regional Solicitation; and

WHEREAS, Washington County is committed to completing the project, if selected, and funding is provided as part of the 2022 Regional Solicitation.

NOW, THEREFORE, BE IT RESOLVED, that Washington County is requesting funding from the federal government through the Metropolitan Council's 2022 Regional Solicitation and the county is committed to completing the projects identified above and providing the county share of funding.

ATTEST:

Kevin Corbid

COUNTY ADMINISTRATOR

Wayne A. Johnson

COUNTY BOARD CHAIR

	YES	NO
MIRON	X	
KARWOSKI	X	
KRIESEL	X	
JOHNSON	X	
WEIK	X	

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

April 12, 2022

Joe Ayers-Johnson
Washington County Public Works
11660 Myeron Road North
Stillwater, MN 55082

Re: MnDOT Letter for Washington County
Metropolitan Council/Transportation Advisory Board 2020 Regional Solicitation Funding Request for TH 120 between I-694 and TH 244

Joe Ayers-Johnson,

This letter documents MnDOT Metro District's recognition for Washington County to pursue funding for the Metropolitan Council/Transportation Advisory Board's (TAB) 2022 Regional Solicitation for TH 120 between I-694 and TH 244.

As proposed, this project impacts MnDOT right-of-way on TH 120. As the agency with jurisdiction over 120 and I-694, MnDOT will allow Washington County to seek improvements proposed in the application for reconstruction and modernization including updated intersection control elements and multimodal facility improvements. If funded, details of any future maintenance agreement with Washington County will need to be determined during project development to define how the improvements will be maintained for the project's useful life.

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

MnDOT Metro District looks forward to continued cooperation with Washington County 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 Adam Josephson, East Area Manager, at adam.josephson@state.mn.us or 651-234-7719.

Sincerely,

Michael Barnes Digitally signed by Michael Barnes
Date: 2022.04.12 10:02:22 -05'00'

Michael Barnes, PE Metro District Engineer

CC: Adam Josephson, Metro District East Area Manager Molly McCartney, Metro Program Director Dan Erickson, Metro State Aid Engineer

March 15, 2022

Wayne Sandberg
Public Works Director/County Engineer
Washington County Public Works
11660 Myeron Road
Stillwater, MN 55082

RE: **Support for Washington County's Regional Solicitation application for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Ave) in the City of Mahtomedi.**

Dear Mr. Sandberg,

The purpose of this letter is to express the City of Mahtomedi's support for Washington County's 2022 solicitation of Federal funds through the Metropolitan Council's Regional Solicitation program for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Avenue) in the City of Mahtomedi.

The proposed project is a reconstruction of Century Avenue between TH 244 (County Road E) and I-694, including updated intersection control elements and multimodal facility improvements. These improvements will enhance safety and mobility along Century Avenue for all users and add important bike and pedestrian connections along the corridor. The proposed project was identified during MnDOT's 2012 Century Avenue Alternatives Analysis as well as subsequent community engagement, and is consistent with both the City's and the County's 2040 comprehensive plans.

The City of Mahtomedi will continue to support Washington County's efforts to improve the County transportation system as identified in the 2040 Washington County Comprehensive Plan.

Thank you for your consideration. If you have any questions, please contact me at 651-426-3344 or sneilson@ci.mahtomedi.mn.us.

Sincerely,

Scott Neilson
City Administrator

600 Stillwater Road • Mahtomedi, MN 55115
Phone: 651-426-3344 • Fax: 651-426-1786
www.ci.mahtomedi.mn.us

City of White Bear Lake

4701 Highway 61 • White Bear Lake, Minnesota 55110
Phone (651) 429-8526 • Fax (651) 429-8500
www.whitebearlake.org

March 23, 2022

Wayne Sandberg
Public Works Director/County Engineer
Washington County Public Works
11660 Myeron Road
Stillwater, MN 55082

RE: Support for Washington County's Regional Solicitation application for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Ave) in the City of White Bear Lake.

Dear Mr. Sandberg,

The purpose of this letter is to express the City of White Bear Lake's support for Washington County's 2022 solicitation of Federal funds through the Metropolitan Council's Regional Solicitation program for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Avenue) in the City of White Bear Lake.

The proposed project is a reconstruction of Century Avenue between TH 244 (County Road E) and I-694, including updated intersection control elements and multimodal facility improvements. These improvements will enhance safety and mobility along Century Avenue for all users and add important bike and pedestrian connections along the corridor. The proposed project was identified during MnDOT's 2012 Century Avenue Alternatives Analysis as well as subsequent community engagement, and is consistent with both the City's and the County's 2040 comprehensive plans.

Thank you for your consideration. If you have any questions, please contact me at lcrawford@whitebearlake.org, or call 651-429-8516.

Sincerely,

Lindy Crawford, City Manager
City of White Bear Lake

RESOLUTION NO. 12953

RESOLUTION AUTHORIZING THE CITY MANAGER TO SUBMIT A LETTER OF SUPPORT FOR THE WASHINGTON COUNTY REGIONAL SOLICITATION FUNDING APPLICATION FOR TRUNK HIGHWAY 120 IN THE CITY OF WHITE BEAR LAKE, MINNESOTA

WHEREAS, Washington County has requested a letter of support for its Regional Solicitation Funding application for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Avenue); and

WHEREAS, the proposed project is a reconstruction of Century Avenue between TH 244 (County Road E) and I-694, including updated intersection control elements and multimodal facility improvements; and

WHEREAS, these improvements will enhance safety and mobility along Century Avenue for all users and add important bike and pedestrian connections along the corridor; and

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of White Bear Lake hereby authorizes the City Manager to submit a letter of support to Washington County for its 2022 Regional Solicitation Application for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Avenue.

The foregoing resolution, offered by Councilmember **Walsh** and supported by Councilmember **Hughes**, was declared carried on the following vote:

Ayes:	Edberg, Hughes, Jones, Walsh
Absent:	Engstran
Nays:	None
Passed:	March 22, 2022

Dan Louismet, Mayor

ATTEST:

Kara Coustry, City Clerk

RAMSEY COUNTY
Public Works

March 14, 2022

Wayne Sandberg
Public Works Director/County Engineer
Washington County Public Works
11660 Myeron Road
Stillwater, MN 55082

RE: **Support for Washington County's Regional Solicitation application for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Ave) in the Cities of White Bear Lake and Mahtomedi.**

Dear Mr. Sandberg,

The purpose of this letter is to express Ramsey County's support for Washington County's 2022 solicitation of Federal funds through the Metropolitan Council's Regional Solicitation program for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Avenue) in the Cities of White Bear Lake and Mahtomedi.

The proposed project is a reconstruction of Century Avenue between TH 244 (County Road E) and I-694, including updated intersection control elements and multimodal facility improvements. These improvements will enhance safety and mobility along Century Avenue for all users and add important bike and pedestrian connections along the corridor. The proposed project was identified during MnDOT's 2012 Century Avenue Alternatives Analysis as well as subsequent community engagement, and is consistent with the 2040 comprehensive plans of the cities of White Bear Lake and Mahtomedi as well as both Ramsey and Washington Counties.

Thank you for your consideration. If you have any questions, please contact me at 651-266-7116 or at Ted.Schoenecker@ramseycounty.us.

Sincerely,

Ted Schoenecker
Ramsey County Public Works Director / County Engineer

1425 Paul Kirkwold Drive
Arden Hills, MN 55112
651-266-7100
www.ramseycounty.us

CENTURY COLLEGE

A MEMBER OF MINNESOTA STATE

AN AFFIRMATIVE ACTION AND
EQUAL OPPORTUNITY EMPLOYER/EDUCATOR

Office of the President

T 651.779.3368 E Angelia.Millender@century.edu

March 16, 2022

Wayne Sandberg
County Engineer
Washington County Public Works
11660 Myeron Road, Stillwater, MN 55082

RE: **Support for Washington County's Regional Solicitation application for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Ave) in the Cities of White Bear Lake and Mahtomedi**

Dear Mr. Sandberg,

The purpose of this letter is to express Century College's support for Washington County's 2022 solicitation of Federal funds through the Metropolitan Council's Regional Solicitation program for roadway reconstruction and modernization on Trunk Highway (TH) 120 (Century Avenue) in the Cities of White Bear Lake and Mahtomedi.

The proposed project is a reconstruction of Century Avenue between TH 244 (County Road E) and I-694, including updated intersection control elements and multimodal facility improvements. These improvements will enhance safety and mobility along Century Avenue for all users and add important bike and pedestrian connections along the corridor. The proposed project was identified during MnDOT's 2012 Century Avenue Alternatives Analysis as well as subsequent community engagement and is consistent with the 2040 comprehensive plans of the cities of White Bear Lake and Mahtomedi as well as both Ramsey and Washington Counties. Century College shares these values and has been an active partner in the planning for these improvements.

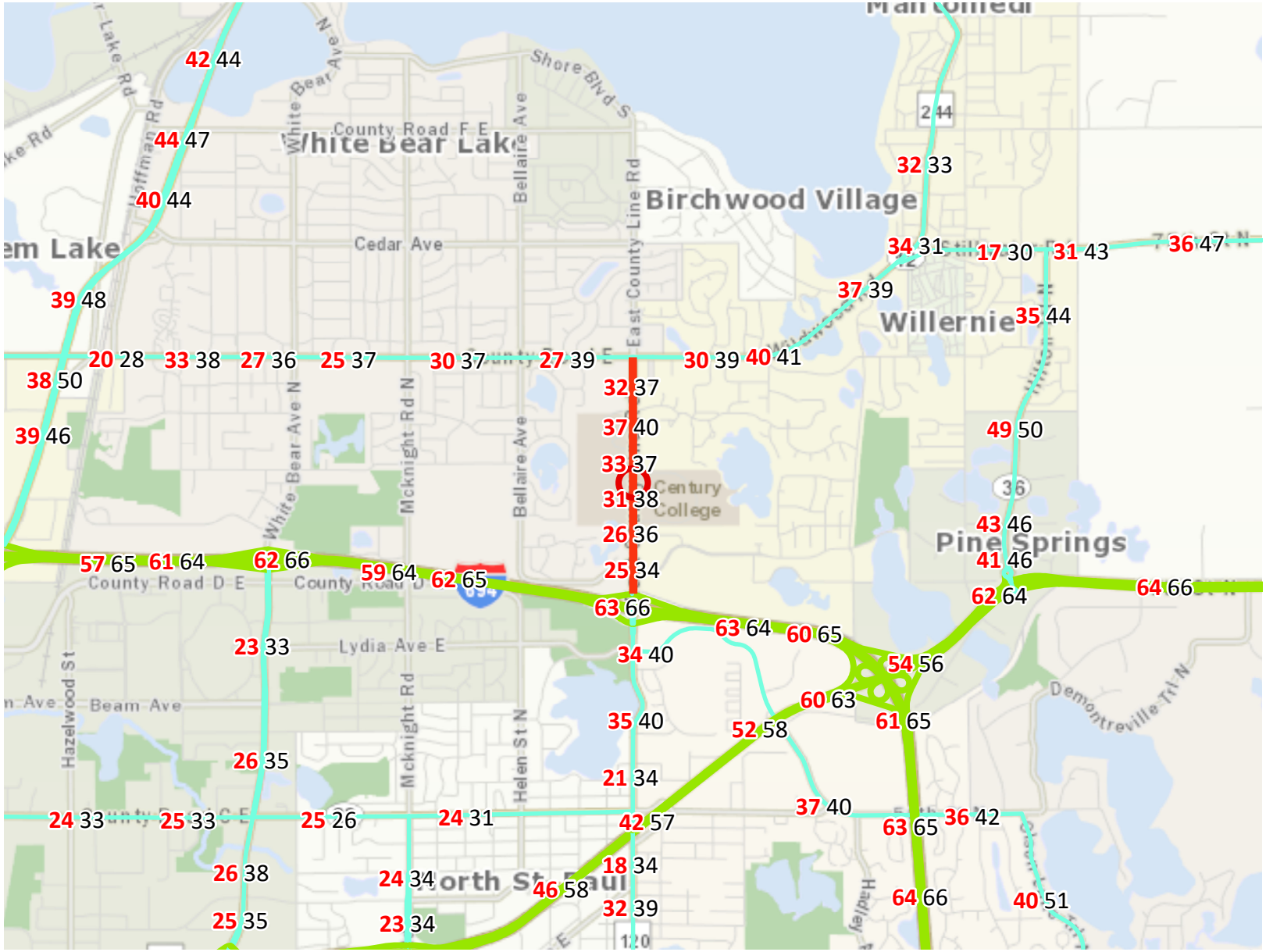
Thank you for your consideration. If you have any questions, please contact me at angelia.millender@century.edu.

Sincerely,

Angelia Millender, President

Level of Congestion

Roadway Reconstruction/Modernization Project: TH 120 (Century Ave) Reconstruction and Modernization | Map ID: 1648840909404



Project Points — Principal Arterials — Principal Arterials Planned

Project — A Minor Arterials — A Minor Arterials Planned

0 0.4 0.8 1.6 2.4 3.2 Miles

Created: 4/1/2022
LandscapeRSA1

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

METROPOLITAN COUNCIL

HousingLink

Streams

Return to main site

Property Detail

About Streams

Woodland Townhomes

Multiple addresses listed at bottom of page

Funding Categories

Subsidized-Other
Tax Credit (LIHTC 4%)
Tax Credit (LIHTC 9%)

Property Information

Year Built:
Building Type: Townhome
Groups Served:
Total Units: 30
Affordable Units: 30

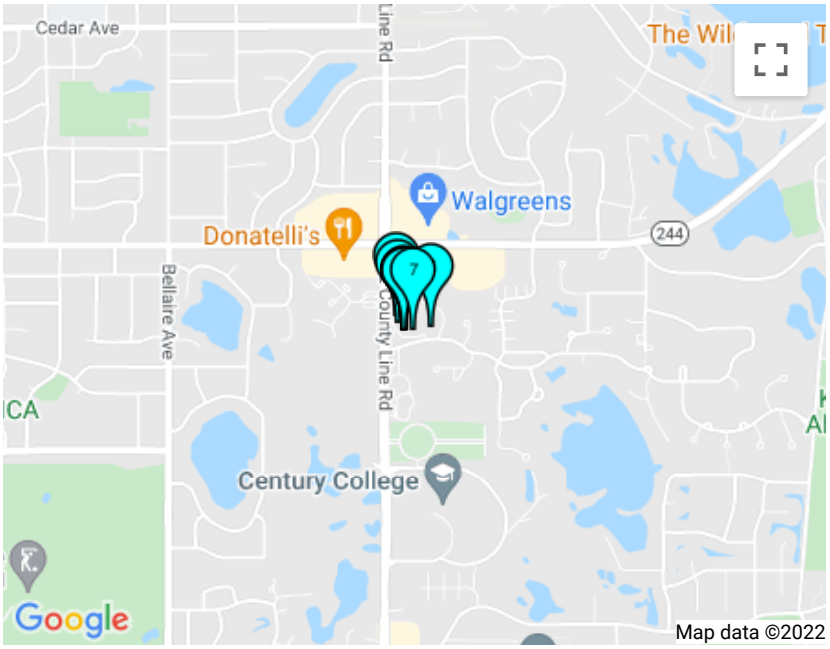
Affordable Units by Bedroom

3 BR: 30

Units by Area Median Income *

60%: 30

* AMI units are estimated because they were not provided, and have been set to the least restrictive AMI for the largest number of units



Housing+Transit Cost Walk Score®: 64 Send us feedback

Listing Summary

BR Size	1st Listing	Last Listing	Low Rent	High Rent	Last Rent
3	12/14/2010	02/03/2014	$964	$1,183	$964

Known Property Addresses

1	845 Woodland Ct	Mahtomedi
2	855 Woodland Dr	Mahtomedi
3	857 Woodland Dr	Mahtomedi
4	867 Woodland Dr	Mahtomedi
5	869 Woodland Dr	Mahtomedi
6	879 Woodland Dr	Mahtomedi
7	951 Woodland Dr	Mahtomedi
8	971 Woodland Dr	Mahtomedi
9	975 Woodland Dr	Mahtomedi
10	995 Woodland Dr	Mahtomedi

Funding Dates & Programs

First known closing: 1/1/1998
Most recent closing: 4/13/1999
Earliest expiration: 1/1/2020
Last Activity: New Construction

MHFA: Housing Tax Credits 9%

Private: HPET
Close Date: 4/13/1999
Expiration: 1/1/2020

MHFA: Housing Tax Credits 4%
Close Date: 1/1/1998
Expiration: 1/1/2028

MHFA: ARIF
Close Date: 4/13/1999
Expiration: 4/13/2029

Known Property Identifiers

HousingLink: 4907
MHFA: D2472
HUDLIHTC9: MNB19989005
HUDLIHTC4: MNB19989005

HousingLink

Streams

Return to main site

Property Detail

About Streams

Century Hills

Multiple addresses listed at bottom of page

Funding Categories

Subsidized-Other

Tax Credit (LIHTC 4%)

Property Information

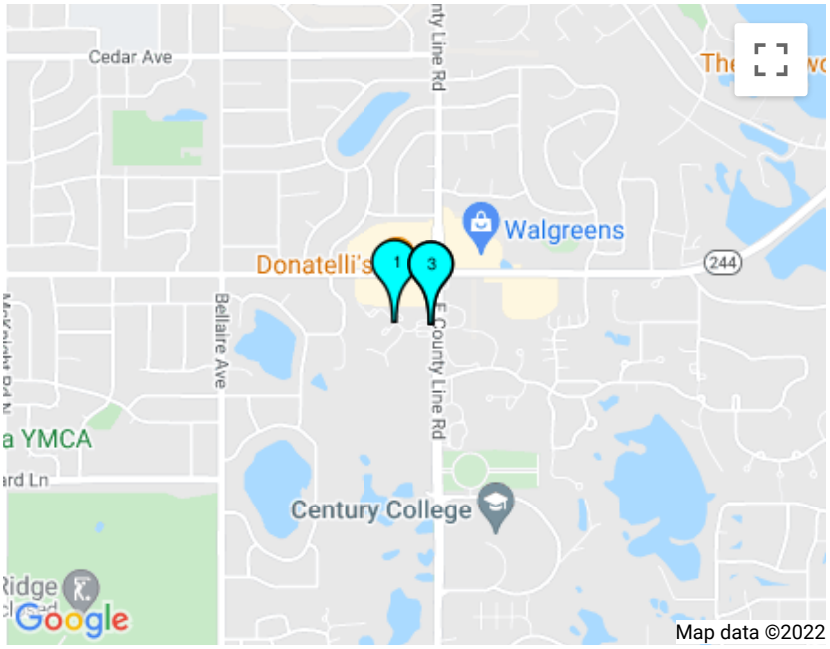
Year Built:
Building Type:
Groups Served:
Total Units: 55
Affordable Units: 54

Affordable Units by Bedroom

2 BR: 29
3 BR: 23
4 BR: 2

Units by Area Median Income

60%: 54



Housing+Transit Cost Walk Score®: 65 Send us feedback

Listing Summary

BR Size	1st Listing	Last Listing	Low Rent	High Rent	Last Rent
1	01/01/2015	02/01/2017	Subsidized	Subsidized	Subsidized
2	03/12/2012	02/01/2017	Subsidized	Subsidized	Subsidized
3	03/12/2012	01/29/2018	Subsidized	Subsidized	Subsidized
4	01/01/2008	01/29/2018	Subsidized	Subsidized	Subsidized

Known Property Addresses

1	3525 Century Ave N	White Bear Lake
2	3535 Century Ave N	White Bear Lake
3	3545 Century Ave N	White Bear Lake

Funding Dates & Programs

First known closing: 1/1/2020
Most recent closing: 11/25/2020
Earliest expiration: 1/1/2050
Last Activity: Preservation

MHFA: Housing Tax Credits 4%
Close Date: 1/1/2020
Estimated Expiration: 1/1/2050

MHFA: ARIF

Close Date: 11/25/2020
Expiration: 11/25/2050

Known Property Identifiers

HousingLink: 14633
MHFA: D1753

HousingLink

Streams

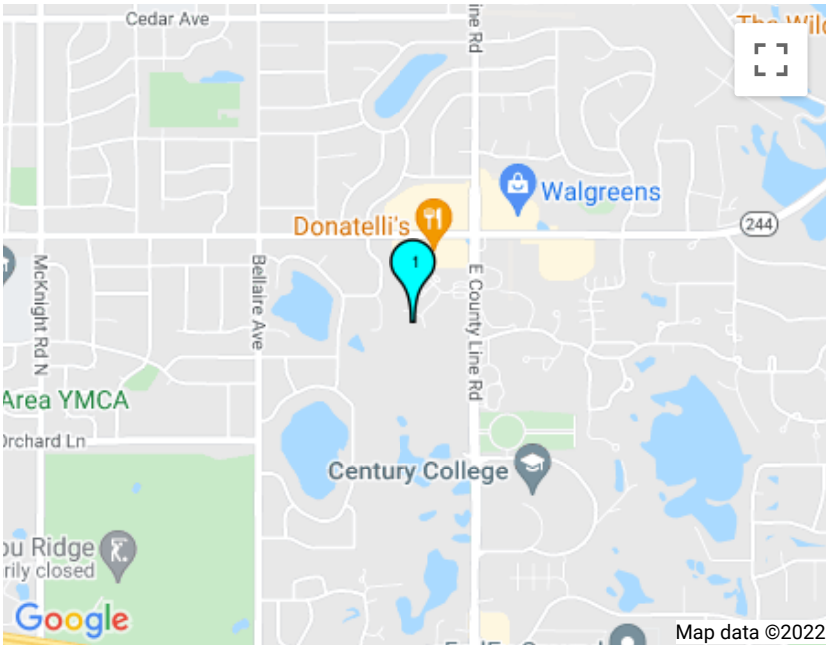
Return to main site

Property Detail

About Streams

East Metro Place Ii & Stabilization Of East Metro

3521 Century Ave N
White Bear Lake, MN 55110



Housing+Transit Cost Walk Score®: 61 Send us feedback

Funding Categories

Project-Based Subsidy
Tax Credit
Subsidized-Other
Tax Credit (LIHTC 4%)
Tax Credit (LIHTC 9%)

Property Information

Year Built:
Building Type:
Groups Served: Family
Total Units: 35
Affordable Units: 35

Affordable Units by Bedroom

1 BR: 1
2 BR: 16
3 BR: 16
4 BR: 3

Units by Area Median Income

60%: 35

Known Property Addresses

1	3521 Century Ave N	White Bear Lake

Funding Dates & Programs

First known closing: 1/1/2003
Most recent closing: 1/1/2013
Earliest expiration: 1/1/2020
Last Activity: New Construction

FHF: FHF
Close Date: 4/20/2005

MHFA: Housing Tax Credits

HUDPBV: HUDPBV

County: County

Expiration: 1/1/2020

MHFA: HTF
Close Date: 4/20/2005
Expiration: 10/6/2023

MHFA: Housing Tax Credits 9%
Close Date: 1/1/2003
Estimated Expiration: 1/1/2033

MHFA: Housing Tax Credits
Close Date: 1/1/2003
Estimated Expiration: 1/1/2033

MHFA: ARIF
Close Date: 4/20/2005
Expiration: 4/18/2035

MHFA: Housing Tax Credits 4%
Close Date: 1/1/2013
Expiration: 1/1/2043

Known Property Identifiers

HousingLink: 5261
MHFA: D3661
HUDLIHTC4: MNA2013003
HUDLIHTC9: MNA2013003
HUDPBV: 1058179

HousingLink

Streams

Return to main site

Property Detail

About Streams

East Shore Place
805 Wildwood Rd
Mahtomedi, MN 55115

Funding Categories
Project-Based Subsidy
Tax Credit (LIHTC 4%)

Property Information
Year Built: 1984
Building Type: Apartment
Groups Served: Elderly
Total Units: 61
Affordable Units: 61

Affordable Units by Bedroom
1 BR: 61

Units by Area Median Income
60%: 61

Housing+Transit Cost Walk Score®: 58 Send us feedback

Listing Summary

BR Size	1st Listing	Last Listing	Low Rent	High Rent	Last Rent
1	07/17/2017	12/11/2020	Subsidized	Subsidized	Subsidized

Known Property Addresses

1	805 Wildwood Rd	Mahtomedi

Funding Dates & Programs
First known closing: 1/1/2005
Most recent closing: 4/1/2010
Earliest expiration: 3/31/2030
Last Activity: Preservation

HUD: Section 202
Close Date: 4/1/2010
Expiration: 3/31/2030

MHFA: Housing Tax Credits 4%
Close Date: 1/1/2005
Estimated Expiration: 1/1/2035

Known Property Identifiers
HousingLink: 9577
HUD: 800010884

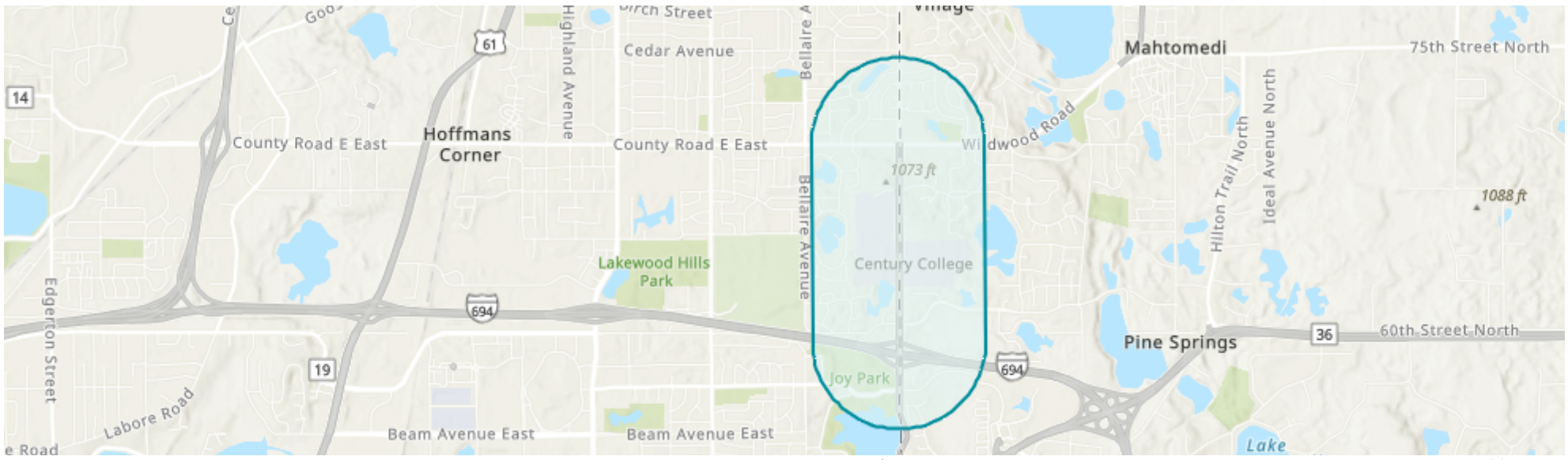
HUDLIHTC4: MNA2005038
MHFATC4: D3347

Saved Profile

Custom Geographic Profile

At-a-glance facts about residents, households, and workforce. Data are largely derived from the U.S. Census Bureau. When a data point is missing or considered unreliable, it will not display or be labeled suppressed. See information about geographic profile sources.

Selected Geography (Custom): Custom area



Collapse sections Show margins

Age

Age (2015-2019)	Custom area	
Total population	4,839	100.0%
Under 5 years	309	6.4%
5-9 years	338	7.0%
10-14 years	321	6.6%
15-17 years	217	4.5%
18-24 years	207	4.3%
25-34 years	583	12.0%
35-44 years	459	9.5%
45-54 years	565	11.7%
55-64 years	910	18.8%
65-74 years	544	11.2%
75-84 years	264	5.5%
85 years and older	120	2.5%

Sex

Sex (2015-2019)	Custom area	
Male	2,333	48.2%
Female	2,505	51.8%

Race & Ethnicity

Race & Ethnicity (2015-2019)	Custom area	
White	4,130	85.3%
Of Color	581	12.0%
Black or African American alone	suppressed	
American Indian and Alaskan Native alone	suppressed	
Asian or Pacific Islander alone	164	3.4%
Other alone	suppressed	
Two or more races alone	suppressed	
Hispanic or Latino (of any race)	suppressed	

Language

Language spoken (2015-2019)	Custom area	
Population (5 years and older)	4,529	100.0%
English only	4,165	91.9%
Language other than English	suppressed	
Speaks English less than "very well"	suppressed	

Disability

Disability status (2015-2019)	Custom area	
Total population for whom disability status is determined	4,838	100.0%
Population with a disability	566	11.7%

Nativity

Nativity (2015-2019)	Custom area	
Foreign-born residents	293	6.1%

Residency

Residence one year ago (2015-2019)	Custom area	
Population (1 year and over in US)	4,773	100.0%
Same residence	4,238	88.8%
Different residence in the U.S.	530	11.1%
Different residence outside the U.S.	suppressed	

Income & Poverty

Household income (2019 dollars) (2015-2019)	Custom area	
Total households	1,967	100.0%
Less than $35,000	338	17.2%
$35,000-$49,999	218	11.1%
$50,000-$74,999	299	15.2%
$75,000-$99,999	220	11.2%
$100,000 or more	892	45.4%
Median household income (2019 dollars)	$ 62,352	100.0%

Poverty (2015-2019)	Custom area	
All people for whom poverty status is determined	4,825	100.0%
With income below poverty	suppressed	
With income 100-149 of poverty	suppressed	
With income 150-199 of poverty	259	5.4%
With income 200 of poverty or higher	3,989	82.7%
17 years and younger (percent of people under age 18)	suppressed	
18-24 (percent of people age 18-24)	suppressed	
25-34 (percent of people age 25-34)	suppressed	
35-44 (percent of people age 35-44)	suppressed	
45-54 (percent of people age 45-54)	suppressed	
55-64 (percent of people age 55-64)	suppressed	
18-64 (percent of people 18-64)	120	4.4%
65 years and older (percent of people age 65+)	suppressed	

Health Coverage

Health coverage (2015-2019)	Custom area	
Total population age 65 and under for whom health insurance coverage status is determined	3,910	80.8%
Population 65 and under without health insurance coverage	suppressed	

Housing

Total housing units (2015-2019)	**Custom area**	
Total housing units	2,026	100.0%

Owned and Rental Housing (2015-2019)	**Custom area**	
Vacant housing units (seasonal units included)	suppressed	
Occupied housing units	1,967	97.1%
Average household size	2.4	100.0%
Owner-occupied	1,503	74.2%
Average household size	2.6	100.0%
Renter-occupied	464	22.9%
Average household size	2.0	100.0%

Year built (2015-2019)	**Custom area**	
2000 or later	240	11.9%
1970-1999	1,172	57.8%
1940-1969	536	26.5%
1939 or earlier	78	3.8%

Households (2015-2019)	**Custom area**	
Total households	1,967	100.0%

Households by type (2015-2019)	**Custom area**	
Family households	1,371	69.7%
With children under 18 years	572	29.1%
Married-couple family households	1,117	56.8%
With children under 18 years	413	21.0%
Single-person family households	254	12.9%
With children under 18 years	159	8.1%
Nonfamily households	596	30.3%
Householder living alone	525	26.7%
65 years and over	317	16.1%
Households with one or more children under 18 years	577	29.3%
Households with one or more people 65 years and over	690	35.1%

Year householder moved into unit (2015-2019)	**Custom area**	
Moved in 2010 or later	816	41.5%

Moved in 2000-2009	360	18.3%
Moved in 1990-1999	355	18.0%
Moved in 1989 or earlier	437	22.2%

Cost-burdened households (2015-2019)	**Custom area**	
All households for which cost burden is calculated	1,957	100.0%
Cost-burdened households	470	24.0%
Owner households for which cost burden is calculated	1,503	100.0%
Cost-burdened owner households	211	14.1%
Renter households for which cost burden is calculated	454	100.0%
Cost-burdened renter households	259	57.1%

Rent paid (2015-2019)	**Custom area**	
Households paying rent	455	100.0%
Median rent paid (2019 dollars)	$ 954	100.0%

Transportation

Vehicles per household (2015-2019)	**Custom area**	
No vehicles	107	5.4%
1 vehicle available	555	28.2%
2 vehicles available	917	46.6%
3 or more vehicles available	388	19.7%

Transportation to work (2015-2019)	**Custom area**	
Workers (16 years and older)	2,380	100.0%
Car, truck, or van (including passengers)	2,154	90.5%
Public transportation	suppressed	
Walked, biked, worked at home, or other	179	7.5%

Travel time to work (2015-2019)	**Custom area**	
Total workers age 16+ (not home based)	2,264	100.0%
Less than 10 minutes	187	8.3%
10-19 minutes	587	25.9%
20-29 minutes	635	28.1%
30 minutes or longer	855	37.7%

Workforce

Educational attainment (2015-2019)	**Custom area**	
Population (25 years and older)	3,446	100.0%
Less than high school	suppressed	
High school diploma or GED	638	18.5%
Some college or associate's degree	1,092	31.7%
Bachelor's Degree	967	28.1%
Graduate or professional degree	627	18.2%
High school graduate or higher	3,324	96.5%
Bachelor's degree or higher	1,594	46.3%

Working Adults (2015-2019)	**Custom area**	
Total civilian non-institutionalized population, age 18-64	2,724	100.0%
Working age adults who are employed	2,195	80.6%
Civilian labor force	2,283	100.0%
Unemployed	89	3.9%

Total employed workers (LEHD) (2018)	**Custom area**	
Total employed workers	2,055	100.0%

Worker age (2018)	**Custom area**	
Age 29 or younger	483	23.5%
Age 30 to 54	1,012	49.2%
Age 55 or older	561	27.3%

Workers by earnings (2018)	**Custom area**	
$15,000 per year or less	373	18.1%
$15,001 to $39,999 per year	476	23.2%
$40,000 or more per year	1,206	58.7%

Workers by industry of employment (2018)	**Custom area**	
Accommodation and food services	164	8.0%
Administration & support, waste management, and remediation	suppressed	
Agriculture, forestry, fishing and hunting	110	5.3%
Arts, entertainment, and recreation	29	1.4%
Construction	91	4.4%
Educational services	61	3.0%
Finance and insurance	126	6.1%
Health care and social assistance	352	17.1%
Information	50	2.4%

Management of companies and enterprises	147	7.2%
Manufacturing	225	10.9%
Mining, quarrying, and oil and gas extraction	suppressed	
Other services (excluding public administration)	81	3.9%
Professional, scientific, and technical services	167	8.1%
Public administration	suppressed	
Real estate and rental and leasing	29	1.4%
Retail trade	224	10.9%
Transportation and warehousing	61	3.0%
Utilities	suppressed	
Wholesale trade	120	5.8%

Workers by race (2018)	**Custom area**	
White alone	1,803	87.7%
Black or African American alone	105	5.1%
American Indian or Alaska Native alone	suppressed	
Asian alone	105	5.1%
Native Hawaiian or Other Pacific Islander alone	suppressed	
Two or more race groups	35	1.7%
Hispanic or Latino (of any race)	65	3.2%

Workers by educational attainment (2018)	**Custom area**	
Less than high school	115	5.6%
High school or equivalent, no college	382	18.6%
Some college or associate degree	532	25.9%
Bachelor's degree or advanced degree	543	26.4%