Application

19838 - 2024 Roadway Modernization
20242 - TH 47 at BNSF Railroad Crossing
Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
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Primary Contact

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2015 FIRST AVENUE
* ANOKA (City) Minnesota (State/Province) 55303 (Postal Code/Zip)

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

Organization Information

Name: ANOKA, CITY OF
Jurisdictional Agency (if different):
Organization Type: City
Organization Website: www.ci.anoka.mn.us
Address: 2015 1ST AVE N

* ANOKA (City) Minnesota (State/Province) 55303 (Postal Code/Zip)

County: Anoka
Phone:* 763-576-2700 Ext.

Fax:
PeopleSoft Vendor Number 0000020920A2

Project Information

Project Name TH 47 at BNSF Railroad Crossing
Primary County where the Project is Located Anoka
Cities or Townships where the Project is Located: Anoka
Jurisdictional Agency (If Different than the Applicant): MnDOT

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

Trunk Highway 47/Ferry Street is an A-minor connector road located in the city of Anoka that carries 18,300 vehicles, including 450 heavy commercial vehicles, per day.

This project will improve safety and mobility on TH 47 between Pleasant Street and approximately 750 feet south of McKinley Street by grade separating the BNSF railway crossing of TH 47,the most dangerous at-grade railroad crossing in the State of Minnesota. Sept. 26, 2023 marked the 20th anniversary of one of the most tragic train-vehicle crashes in state history that occurred at this railway crossing. A high-speed freight train crossing TH 47 collided with a vehicle carrying four young adults, killing all four.

The project also includes reconstructing and realigning TH 47, improving intersection capacity at TH 47 and Pleasant Street, constructing a new trail connection for the county trail system and supporting ADA improvements along the corridor. The current alignment of TH 47 from Garfield Street to the railway is within 100 feet of the Rum River. Reconstruction along the current TH 47 alignment would be in conflict with Minnesota State Statute 6105.0200, Subpart 3, Item B: with regard to location, avoid new public road construction with 200 feet of wild, scenic, and recreational river. The city of Anoka desires to make the right long-term investment and address the environmental concerns in coordination with the existing safety and mobility issues on this regionally significant transportation corridor. In addition, the city desires to avoid any scenic intrusion to the river but intends to protect the view shed and recreational access to the Wild/Scenic/Recreational Rum River.

The fact that the railway crossing remains at-grade today is highly concerning considering that the TH 47 corridor, in the project area, sees high volumes of vehicles (18,300) and the busiest railway in the state of Minnesota (40-80 trains per day). In addition, trains travel through the crossing at high speeds (75 mph) often carrying crude oil from North Dakota and Montana. On average, two train crossing events occur per hour, activating the crossing gates and leading to delays and significant queues that present additional mobility and safety issues stretching far beyond the crossing itself.

According to the U.S. Department of Transportation Railroad Administration and MnDOT, the TH 47 and BNSF railroad crossing has one of the highest needs for improvements due to the above reasons and that major property damage crashes occur often.

(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 47, CITY OF ANOKA, FROM PLEASANT ST TO 0.1 MI S OF MCKINLEY ST?REALIGN, RECONSTRUCT, GRADE SEPARATE BNSF CROSSING, MULTI-USE TRAIL, SIDEWALK, ADA, RETAINING WALLS

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

Project Length (Miles)

0.7

to the nearest one-tenth of a mile

Project Funding

Are you applying for competitive funds from another source(s) to implement this project?	Yes
If yes, please identify the source(s)	USDOT RAISE. MNHFP
Federal Amount	$7,000,000.00
Match Amount	$12,848,000.00

Minimum of 20% of project total

Project Total	$19,848,000.00
For transit projects, the total cost for the application is total cost minus fare revenues.	
Match Percentage	64.73%
Minimum of 20% *Compute the match percentage by dividing the match amount by the project total*	
Source of Match Funds	City of Anoka; BNSF Railway
A minimum of 20% of the total project cost must come from non-federal sources; additional match funds over the 20% minimum can come from other federal sources	
Preferred Program Year	
Select one:	2028
Select 2026 or 2027 for TDM and Unique projects only. For all other applications, select 2028 or 2029.	
Additional Program Years:	2027
Select all years that are feasible if funding in an earlier year becomes available.	

Project Information-Roadways

NOTE: If your project has already been assigned a State Aid Project # (SAP or SP), please Indicate SAP# here	
SAP#:	na
County, City, or Lead Agency	City of Anoka
Functional Class of Road	A-Minor Connector
Road System	TH
TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET	
Road/Route No.	47
i.e., 53 for CSAH 53	
Name of Road	Ferry Street
Example; 1st ST., MAIN AVE	
TERMINI:(Termini listed must be within 0.3 miles of any work)	
From: **Road System**	Pleasant Street
Road/Route No.	
i.e., 53 for CSAH 53	
Name of Road	
Example; 1st ST., MAIN AVE	
To: **Road System**	0.1 mile south of McKinley Street
DO NOT INCLUDE LEGAL DESCRIPTION	
Road/Route No.	
i.e., 53 for CSAH 53	
Name of Road	
Example; 1st ST., MAIN AVE	
In the City/Cities of:	Anoka
(List all cities within project limits)	
OR:	
At: **Road System**	
(TH, CSAH, MSAS, CO. RD., TWP. RD., City Street)	
Road/Route No.	
i.e., 53 for CSAH 53	
Name of Road	
Example; 1st ST., MAIN AVE	
In the City/Cities of:	
(List all cities within project limits)	
PROJECT LENGTH	
Miles	0.7
(nearest 0.1 miles)	
Primary Types of Work (check all the apply)	
New Construction	Yes
Reconstruction	Yes
Resurfacing	
Bituminous Pavement	
Concrete Pavement	
Roundabout	

New Bridge	Yes
Bridge Replacement	
Bridge Rehab	
New Signal	Yes
Signal Replacement/Revision	Yes
Bike Trail	
Other (do not include incidental items)	BRIDGE, RETAINING WALLS, GRADE, AGG BASE, BIT BASE, BIT SURF, SIDEWALK, LIGHTING, BIKE PATH, PED RAMPS, STORM SEWER, ADA

BRIDGE/CULVERT PROJECTS (IF APPLICABLE)

Old Bridge/Culvert No.:	
New Bridge/Culvert No.:	
Structure is Over/Under (Bridge or culvert name):	

OTHER INFORMATION:

Zip Code where Majority of Work is Being Performed	55303
Approximate Begin Construction Date	04/03/2028
Approximate End Construction Date	11/02/2029
Miles of Trail (nearest 0.1 miles)	0.1
Miles of Sidewalk (nearest 0.1 miles)	0.73
Miles of trail on the Regional Bicycle Transportation Network (nearest 0.1 miles):	0
Is this a new trail?	Yes

Requirements - All Projects

All Projects

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

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

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

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

Goal A: Transportation System Stewardship. Objective B: Strategically operate the regional transportation system efficiently and cost-effectively. Strategy A1. (Pp. 2.2-2.4)

Goal B: Safety & Security. Objective A: Reduce fatal and serious injury crashes and improve safety. Strategies B1, B2, B3, B4, B6. (Pp. 2.5-2.8).

Goal C: Access to Destinations. Objective A: Increase multimodal travel options. Objective B: Increase travel reliability and predictability. Objective D: Increase number/share of trips using transit, carpools, bicycling and walking. Objective E: Improve availability/quality of multimodal options for all ages and abilities. Strategies C1, C2, C3, C8, C9, C10, C15, C16, C17. (Pp. 2.9-2.24)

Goal D: Competitive Economy. Objective B: Invest in multimodal transportation system. Objective C: Support economic competitiveness through efficient freight movement. Strategies D1, D3, D5. (Pp. 2.26-2.29).

Goal E: Healthy & Equitable Communities. Objective A: Reduce transportation-related emissions. Objective C: Increase availability of transit/bicycling/walking. Objective D: Community cohesion for people of all ages and abilities. Strategies E1, E2, E3. (Pp. 2.30-2.34)

Goal F: Leveraging Transportation Investments to Guide Land Use. Objective C: Encourage land use design that integrates highways, streets, transit, walking and bicycling. Strategies F1, F5, F6. (Pp. 2.35-2.38)

Limit 2,800 characters, approximately 400 words

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

List the applicable documents and pages: Unique projects are exempt from this qualifying requirement because of their innovative nature.

Anoka 2040 Comprehensive Plan

Figure T-2: Existing Traffic Volumes (p. 197) shows that TH 47 is at/over capacity (operating at level of service E and F).

References a 2017-2018 study of TH 47 examining safety, mobility, and access concerns along the project corridor. This identified access issues, pedestrian and non-motorized traffic access, and the overall configuration of TH 47 and local street intersections. (P. 206)

The plan indicates that recommendations for this segment of TH 47 are anticipated to be implemented by 2040. (P. 208)

The plan?s transportation safety analysis references the TH 47 project segment, again indicating that the city will advance improvements on TH 47 to from the BNSF rail line to the northern city border. (P. 218)

Limit 2,800 characters, approximately 400 words

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Date plan completed: 05/08/2020

Link to plan: https://www.anokaminnesota.com/DocumentCenter/View/1189/ADA-Transition-Plan-PDF

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

Date self-evaluation completed:

Link to plan:

Upload plan or self-evaluation if there is no link

Upload as PDF

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

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

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

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

12. The project must represent a permanent improvement with independent utility. The term ?independent utility? means the project provides benefits described in the application by itself and does not depend on any construction elements of the project being funded from other sources outside the regional solicitation, excluding the required non-federal match. Projects that include traffic management or transit operating funds as part of a construction project are exempt from this policy.

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

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

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

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

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

Roadways Including Multimodal Elements

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

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

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

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

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

Bridge Rehabilitation/Replacement and Strategic Capacity projects only:

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

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

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

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

Bridge Rehabilitation/Replacement projects only:

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

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

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

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

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

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

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

Requirements - Roadways Including Multimodal Elements

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$696,300.00
Removals (approx. 5% of total cost)	$684,600.00
Roadway (grading, borrow, etc.)	$840,700.00
Roadway (aggregates and paving)	$2,187,900.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$780,000.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$302,400.00
Traffic Control	$696,300.00
Striping	$208,900.00
Signing	$208,900.00
Lighting	$0.00
Turf - Erosion & Landscaping	$1,044,500.00
Bridge	$4,840,000.00
Retaining Walls	$3,725,000.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$480,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$2,712,500.00

Other Roadway Elements	$0.00
Totals	**$19,408,000.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$0.00
Sidewalk Construction	$323,300.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$22,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$22,000.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$0.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$72,700.00
Other Bicycle and Pedestrian Elements	$0.00
Totals	**$440,000.00**

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

PROTECT Funds Eligibility

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

INFORMATION: Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Formula Program Implementation Guidance (dot.gov).

Response:

The proposed project will be realigning a roadway further away from the Rum River than it currently sits today to preserve the eco system of the wild and scenic river way. PROTECT eligible project elements include storm sewer, turf/erosion, and retaining walls with a cost estimate of $3,725,000.

Totals

Total Cost	$19,848,000.00
Construction Cost Total	$19,848,000.00
Transit Operating Cost Total	$0.00

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

Existing Employment within 1 Mile:	12926
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	3606
Existing Post-Secondary Students within 1 Mile:	0
Upload Map	1702663191516_Regional Economy Map.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: 0.7

(to the nearest 0.1 miles)

The project provides a direct and immediate connection (i.e., intersects) with either a Tier 1, Tier 2, or Tier 3 corridor:

None of the tiers:

Measure A: Current Daily Person Throughput

Location TH 47/Ferry Street between Pleasant Street and approximately 750 feet south

Current AADT Volume 18300

Existing Transit Routes on the Project 888-Northstar Commuter Rail

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

Upload Transit Connections Map 1702663279639_Transit Connections Map.pdf

Please upload attachment in PDF form

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership 0

Current Daily Person Throughput 23790.0

Measure B: 2040 Forecast ADT

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

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

OR

Identify the approved county or city travel demand model to determine forecast (2040) ADT volume

Forecast (2040) ADT volume 19500

Measure A: Engagement

i. Describe any Black, Indigenous, and People of Color populations, low-income populations, disabled populations, youth, or older adults within a ½ mile of the proposed project. Describe how these populations relate to regional context. Location of affordable housing will be addressed in Measure C.

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

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

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

Response:

The City of Anoka is committed to understanding communities that will be most affected by the TH 47 Railroad Grade Separation Project, especially communities that disproportionately bear the burden of the existing transportation system. Momentum for this project picked up in 2016 with MnDOT's Railroad Separation at Highway 47 Feasibility Study that recommended grade separating the TH 47 and BNSF railway crossing. The city and several agency stakeholders joined MnDOT at a public open house in June 2016 to review study information and speak with the community, businesses, emergency services and the school district. Approximately 124 people attended and shared their concerns about TH 47, jumpstarting the visioning effort.

Since 2016, partners have been conducting extensive engagement to identify community concerns and desired improvements for the project area to ensure project design is consistent with community needs. This engagement includes individual phone calls, online surveys, public open houses, business and stakeholder meetings and targeted neighborhood meetings. The team held a February 2022 meeting with residents near the Martin and Pleasant Street intersections; a May 2022 open house drawing 300 people; and a November 2022 open house drawing 80 people. Older adults were widely represented at the in-person events. People who are 65 or more years old represent more than 17 percent of the population living within one mile of the railroad crossing and approximately a half-mile from each end of the project, according to 2020 census data.

BIPOC populations make up 22 percent of the people in the same area. In September 2021, the study team launched an online survey targeting community members, specifically those traditionally underrepresented in the engagement process. This format allowed anyone interested in the project to provide feedback at any time of day. It also improved accessibility for equity populations by allowing residents with non-traditional schedules, from single-vehicle or no-vehicle households and with disabilities to participate. Partners collected 1,039 survey responses from residents, commuters, businesses and stakeholders. This input was used to identify the project area's main transportation problems and improvements desired by the community. The public identified the following issues: Driving taking too long (81% of respondents); Driving doesn't feel safe (36%); Can't access nearby areas easily (24%); Walking and biking doesn't feel safe (23%).

More than a dozen stakeholders and 1,000 residents have participated. Hundreds of public comments have shaped a project vision rooted in community needs. The proposed grade separation, highway realignment and pedestrian crossing improvements have been guided by this input.

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

Measure B: Disadvantaged Communities Benefits and Impacts

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

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

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

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

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

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

Response:

The primary goal of the proposed project is to address safety at the at-grade TH 47 and BNSF railway crossing. This goal can only be achieved by considering the transportation needs of the entire community and prioritizing the needs of vulnerable communities that will be impacted by the project. There are nearly 6,000 people living within a one-mile radius of the project area, according to American Community Survey data. 20.4% of these residents are making less than $35,000 a year, compared to 14% countywide. Area residents also are far more likely to not have a vehicle in the household; 0.4% of households have no vehicle compared to 4.4% countywide. Additionally, there is a significant share of residents with disabilities (12.9%) near the project area.

Project-area residents currently face significantly higher levels of pollution than the rest of the state, according to the EPA's Environmental Justice Screening and Mapping Tool. This community falls in the 71st percentile statewide for levels of diesel particulate pollution and the 93rd percentile for traffic proximity. The project area population also falls in a very high percentile for flooding risk, illustrating the importance of moving infrastructure investments out of the risk area. Residents also are burdened with disproportionate safety and health risks as result of the built infrastructure and private business operations. Safety risk at the BNSF railroad crossing is understood by the community (see Measure A) and the crossing is therefore acting as a barrier in the community. Safety risk at this crossing discourages alternative modes of transportation and results in vehicles using dangerous routes through neighboring residential communities.

The Anoka-Hennepin School District Educational Service Center directly abuts the project area and faces significant negative impacts from the crossing and the neighboring recycling facility. This is a staff facility that contains a daycare as well. Metal debris and fine metallic dust, originating from the adjacent scrap metal recycler, is often scattered on school property and covering vehicles parked in the school parking lot. The city has had preliminary discussions with the recycler on a possible resolution that would relocate the facility. A relocation would allow for a safer realignment of TH 47 and provide environmental benefits like improved air quality.

Communities also face disproportionate risk due to the hazardous materials, like crude oil, transported via the railway. An increase in crude oil transport from the Bakken oil fields is a major concern for community safety in the region, given the catastrophic effects in the event of a derailment. BNSF reports there are approximately two near-misses annually at rail crossing.

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

Measure C: Affordable Housing Access

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

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

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

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

Response:

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

The project is located in a Regional Environmental Justice Area, as defined by Met Council. There are 1,945 cost-burdened households in the City of Anoka, with 1,083 (56%) having an income at or below 30% of the Area Median Income (AMI); 683 (35%) between 31 and 50% of the AMI and 179 (9%) between 51 and 80% of the AMI, according to Met Council's January 2023 Housing Assessment. The city is small in terms of land area, approximately seven square miles. The proposed project area is located in the physical center of the city, which has 7,846 total housing units, of which 7550 are occupied. Of those units, 42% are affordable to households at or below 50% of the AMI; 33% are affordable to households between 51% to 80% of the AMI. Additionally, there are 438 publicly subsidized rental housing units located in census tracts within a half-mile of the project and 374 within the city limits. This includes 146 that are designated for seniors only.

Many of these affordable and subsidized units are located approximately a half-mile south of the project in downtown Anoka, as shown in the attached Affordable Housing Map. This includes Walker River Methodist apartments at 1906 South Ferry Street, a six-story, affordable living community that features Department of Housing and Urban Development-subsidized housing for low-income residents. It also includes the four-story, affordable Franklin Lane Apartments at 1827 South Ferry Street.

A safer and more efficient TH 47 will provide improved access for all users, including people living in these apartments who rely on TH 47 to access employment centers, childcare, schools, places of worship and recreational destinations in and around the project. This includes the Anoka-Ramsey Business Park, a 1,000-acre, mostly-development industrial park located just west of the project. The park is home to approximately 15,000 jobs, many of which are blue-collar opportunities available to nearby residents. It also includes the Anoka-Hennepin School District Educational Service Center, which is immediately adjacent to the TH 47/BNSF railroad crossing. Anoka-Hennepin ISD #11 employs 1,400 people, accounting for approximately 9 percent of city's total employment, according to the city's 2040 Comprehensive Plan.

Additionally, Anoka High School is located one mile northeast of the project. The school has an enrollment of 2,388 students in grades 9-12, according to the 2023 Anoka-Hennepin District 11 Enrollment Report. More than 35% of these students represent BIPOC populations,more than 13% are Black; 8% multiracial; 7% Hispanic; 6% Asian; and 1% American Indian. Many of these students live in areas south U.S. 10, with TH 47 through the project area providing a primary north-south connection to the high school.

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:	
Project?s census tracts are above the regional average for population in poverty or population of color (Regional Environmental Justice Area):	Yes
Project located in a census tract that is below the regional average for population in poverty or populations of color (Regional Environmental Justice Area):	
Upload the ?Socio-Economic Conditions? map used for this measure.	1702663443770_Socio-Economic Conditions Map.pdf

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
1934	0.7	1353.8	1934.0
	1	**1354**	**1934**

Total Project Length

Total Project Length (as entered in "Project Information" form) 0.7

Average Construction Year

Weighted Year 1934

Total Segment Length (Miles)

Total Segment Length 0.7

Measure B: Geometric, Structural, or Infrastructure Improvements

Improved roadway to better accommodate freight movements:

Response:

The project grade separates the TH 47 and BNSF rail crossing, the busiest railway in the Midwest. Many of these trains transport crude oil from North Dakota and Montana. On average, two train crossing events occur per hour. This activates the crossing gates and leads to delays and significant queues that present additional mobility and safety issues stretching beyond the crossing. TH 47 is a Tier 3 Regional Truck Corridor that directly connects to U.S. 169 and U.S. 10 to the south, both of which are Tier 1 Regional Truck Corridors. TH 47 plays in an integral role in moving people and goods north of U.S.10 and providing access to Anoka's industrial park just west of TH 47.

(Limit 700 characters; approximately 100 words)

Improved clear zones or sight lines:

Response:

The project grade separates the TH 47 and BNSF rail crossing, the most dangerous at-grade railroad crossing in the State of Minnesota. The primary purpose of the project is to address safety at the TH 47 and BNSF railroad crossing. Safety risks will be noticeably reduced for drivers, pedestrians, bicyclists and trains. Grade separation will eliminate conflict between trains and other modes of transportation and eliminate problematic sightlines. Further, this project will advance MnDOT's goal of reducing the number of at-grade crossings in Minnesota.

(Limit 700 characters; approximately 100 words)

Improved roadway geometrics:

Response:

Grade separating the TH 47 and BNSF crossing removes an unsafe, at-grade crossing and geometric barrier. If completed, a crash reduction is anticipated throughout the corridor with minimized delay and queuing along TH 47. Beyond the rail crossing, a realignment of TH 47 will remove crash hot spots at the S curve on TH 47 north of the crossing and allow for a safer curvature with a consistent 35-mph speed limit. The project also will modify the TH 47 and Pleasant Street intersection by adding left-turn only lanes to reduce rear end crashes. Finally, a center median will eliminate the possibility of head on crashes and calm traffic.

(Limit 700 characters; approximately 100 words)

Access management enhancements:

Response:

The current TH 47 intersection with Garfield Street and State Avenue will be moved south and reconfigured into a four-leg intersection. Garfield Street and State Avenue currently run into TH 47 at the S curve. Both local streets are controlled by stop signs at TH 47. The new intersection will enhance safety by eliminating TH 47 access from State Avenue and improving access into the Anoka County Fairgrounds and Rum River South County Park. Additionally, the TH 47 and Martin Street intersection will be modified from full access to restricted access, providing an anticipated crash reduction. With the proposed condition, Martin Street to the east of TH 47 will be right-in only.

(Limit 700 characters; approximately 100 words)

Vertical/horizontal alignment improvements:

Response:

Grade separating the railroad crossing eliminates the currently skewed at-grade intersection of TH 47 and the BNSF crossing. Beyond the rail crossing, a realignment of TH 47 will remove crash hot spots at the S curve on TH 47 north of the crossing and allow for a safer curvature with a consistent 35-mph speed limit.

(Limit 700 characters; approximately 100 words)

Improved stormwater mitigation:

Response:

The project will replace deteriorating, insufficient stormwater infrastructure along TH 47. This includes converting the existing, partially rural roadway to an urban section requiring storm sewer to provide adequate drainage conditions. Limited available right of way will require innovative stormwater best management practices to ensure compliance. The project area is close to the Rum River and Mississippi River, which are listed as impaired per the MPCA's 2018 list of impaired waterways. Realigning TH 47 north of the railway crossing will move the highway away from the Rum River, as reconstruction along the current alignment would be in conflict with Minnesota State Statute 6105.0200.

(Limit 700 characters; approximately 100 words)

Signals/lighting upgrades:

Response:

The corridor currently has very minimal lighting which the city desires to address atleast at key intersections. In addition, there will need to be signal upgrades at the TH 47 and Pleasant street intersection.

(Limit 700 characters; approximately 100 words)

Other Improvements

Yes

Response:

The project will replace the aging, non-ADA-compliant sidewalks along the east side of TH 47 between Pleasant Street and Garfield Street, just north of the railway crossing. Proposed improvements include ADA-compliant curb ramps and concrete sidewalks/trails along TH 47 from the south end of the project up through the railway crossing and leading to a new bituminous trail/bikeway just south of the Anoka County Fairgrounds. This new trail will link to an existing trail along TH 47 that directly connects to the fairgrounds and Rum River South County Park, a large recreational area with access to the wild, scenic Rum River, biking, fishing, hiking and a playground.

(Limit 700 characters; approximately 100 words)

Measure A: Congestion Reduction/Air Quality

Total Peak Hour Delay Per Vehicle Without The Project (Seconds/Vehicle)	Total Peak Hour Delay Per Vehicle With The Project (Seconds/Vehicle)	Total Peak Hour Delay Per Vehicle Reduced by Project (Seconds/Vehicle)	Volume without the Project (Vehicles per hour)	Volume with the Project (Vehicles Per Hour):	Total Peak Hour Delay without the Project:	Total Peak Hour Delay by the Project:	Total Peak hour Delay Reduced by project	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable.	Synchro or HCM Reports

127.9	15.4	112.5	112	2118	14324.8	32617.2	-18292.4	This roadway project includes grade separating the railroad crossing along TH 47 in addition to other roadway improvements along TH 47. To capture all the delay associated with the project, the existing intersections and the railroad crossing were modeled in Synchro. Field observation conducted at the railroad crossing showed that three trains pass through the project area during the peak hour. Each train blocks the crossing for an average of 2.5 minutes. Based on this information a pretimed signal was included to represent the railroad crossing in the existing model that has a 20-minute cycle length giving TH 47 a 17.5-minute phase followed by a 2.5-minute phase for the railroad. This would represent three trains passing through during the peak hour and the crossing being blocked for 2.5 minutes for each train. By simulating the railroad crossing, the delay at the railroad crossing is included in the Synchro output just like it would be for a typical intersection.	1702664037618_Synchro Reports.pdf
						32617			

Vehicle Delay Reduced

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

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

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
17.09	6.48	10.61
17	**6**	**11**

Total

Total Emissions Reduced:	10.61
Upload Synchro Report	1702665221398_Synchro Reports.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
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:

(Limit 700 Characters; approximately 100 words)

Rationale for Crash Modification Selected:

(Limit 1400 Characters; approximately 200 words)

Project Benefit ($) from B/C Ratio	$0.00
Total Fatal (K) Crashes:	
Total Serious Injury (A) Crashes:	
Total Non-Motorized Fatal and Serious Injury Crashes:	
Total Crashes:	
Total Fatal (K) Crashes Reduced by Project:	
Total Serious Injury (A) Crashes Reduced by Project:	
Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:	

Total Crashes Reduced by Project:

Worksheet Attachment

Please upload attachment in PDF form

Roadway projects that include railroad grade-separation elements:

Current AADT volume:	18300.0
Average daily trains:	48.0
Crash Risk Exposure eliminated:	878400.0

Measure B: Pedestrian Safety

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

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

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

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

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

Please answer the following two questions with as much detail as possible based on the known attributes of the proposed design. If any aspect referenced in this section is not yet determined, describe the range of options being considered, to the greatest extent available. If there are project elements that may increase pedestrian risk, describe 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 roadway?s context (e.g., appropriate for the speed, volume, crossing distance, and other location attributes). Refer to the Regional Solicitation Resources web page for guidance links.

Response:

The project will improve safety needs for people crossing the street by adding a center median on TH 47/Ferry Street stretching the length of the project to serve as a pedestrian refuge for those crossing the highway. Unsafe conditions are currently discouraging biking and walking in the project area. The project also will replace the current aging, non-ADA-compliant sidewalks/trail along the east side of TH 47 between Pleasant Street and Garfield Street, just north of the railway crossing. Proposed improvements include ADA-compliant curb ramps and concrete sidewalks/trails along TH 47 from the south end of the project up through the railway crossing and leading to a new bituminous trail/bikeway just south of the Anoka County Fairgrounds. Additional improvements will be made to pedestrian crossings at TH 47 and Martin Street, and TH 47 and Pleasant Avenue. This will include median refuge areas and freshly marked crosswalks. These crossing improvements will equitably serve residents of all mobility levels by complying with ADA design standards.

(Limit 2,800 characters; approximately 400 words)

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

Select one: No

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

Response:

(Limit 1,400 characters; approximately 200 words)

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

Select one: No

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

Response:

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

Response:

(Limit 1,400 characters; approximately 200 words)

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

Response:

(Limit 1,400 characters; approximately 200 words)

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

Response:

(Limit 1,400 characters; approximately 200 words)

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

Response:

The project proposes increasing the roadway alignment radii from approximately 260 feet to 500 feet, which is anticipated to reduce vehicle crashes. The project also proposed adding turn lanes at the intersection of TH 47 and Pleasant Street to help alleviate congestion. Center median treatments will calm traffic. A dedicated and buffered sidewalk system will increase the awareness of pedestrians and further calm traffic.

(Limit 2,800 characters; approximately 400 words)

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

Response:

The current posted speed limit on TH 47 is 35 mph. There is posted speed advisory sign north of the BNSF Crossing and prior to the S curve that recommends 30 mph. The design speed is anticipated to be 35 mph throughout the project as the horizontal alignment is corrected with this project.

(Limit 1,400 characters; approximately 200 words)

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

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

Existing road configuration is a One-way, 3+ through lanes

or

Existing road configuration is a Two-way, 4+ through lanes	Yes
Existing road has a design speed, posted speed limit, or speed study/data showing 85th percentile travel speeds in excess of 30 MPH or more	Yes
Existing road has AADT of greater than 15,000 vehicles per day	Yes
List the AADT	18000

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.)

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.)

Existing road is within 500? of 1+ shopping, dining, or entertainment destinations (e.g., grocery store, restaurant)

If checked, please describe:

(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 Anoka-Hennepin School District Headquarters/Educational Service Center, Anoka Family Place Elementary School, CAPE Child Care Center and Early Childhood/Special Education Services are located within 500 feet of the project corridor.

(Limit 1,400 characters; approximately 200 words)

Measure A: Multimodal Elements and Existing Connections

Response:

The project is located in a expressway barrier crossing are and bisected by the BNSF railway, which is the busiest railway in the Midwest. On average, two train crossing events occur per hour, activating the crossing gates and leading to delays and significant queues that present additional mobility and safety issues far beyond the crossing itself.

The railway's two mainline tracks serve a mix of high-speed freight, passenger and commuter rail traffic carrying up to 80 trains per day. The National Railroad Passenger Corporation operates daily Amtrack and Metro Transit operates four Northstar Commuter Rail trains per day, two trains in the morning peak hour and two in the afternoon peak hour. The Northstar Commuter Rail Anoka Station is east of the project study area at 4th Avenue.

The proposed project will eliminate this rail barrier by grade separating the BNSF Railway and TH 47. The project also will replace the current aging, non-ADA-compliant sidewalks along the east side of TH 47 between Pleasant Street and Garfield Street, just north of the railway crossing. Proposed improvements include ADA-compliant curb ramps and concrete sidewalks/trails along TH 47 from the south end of the project up through the railway crossing and leading to a new bituminous trail/bikeway just south of the Anoka County Fairgrounds. This new trail will link to an existing trail along TH 47 that directly connects to the fairgrounds and Rum River South County Park, a large recreational area with access to the wild, scenic Rum River.

Multiple transit connections near the project include all-day express buses (Route 852) and rush-hour buses (Route 850), and all-day local buses (Route 805), which can be accessed by non-motorized users at Pleasant Street and 4th Avenue, approximately 0.2 miles away from the project. Pleasant Street is one of the few existing Rum River crossings in the city that non-motorized users can use to access transit connections on the east side of the river. The nearest river crossing to the south is across the U.S. 10 barrier and more than a half-mile from the Pleasant Street river bridge; the nearest to the north is Bunker Lake Boulevard, which is approximately 1.5 miles from the project area. The proposed project's multimodal improvements will enhance access from north to the Pleasant Street bridge. Beyond the bus connections, this will improve access to the Anoka Transit Station, which is about 0.3 miles away form the south end of the project area. This will benefit those who use the three-level, 344-space park and ride ramp. The station serves the Northstar Line, which connects passengers to and from Downtown Minneapolis.

The project area is 0.2 miles away from the Rum River Trail, a Tier 2 alignment located just east across the Rum River.

(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:

MnDOT completed the Railroad Separation at Highway 47 Feasibility Study in 2016. The study recommended grade separating the TH 47 and BNSF railway crossing. The city and several agency stakeholders joined MnDOT at a public open house in June 2016 to review study information and speak with the community, businesses, emergency services and the school district. Approximately 124 people attended and shared their concerns about TH 47, jumpstarting a visioning effort for this section of the highway.

Since 2016, partners have been conducting extensive engagement to identify community concerns and desired improvements for the project area to ensure project design is consistent with community needs. This engagement includes individual phone calls, online surveys, public open houses, business and stakeholder meetings and targeted neighborhood meetings.

In September 2021, the study team launched an online survey targeting community members, specifically those traditionally underrepresented in the engagement process. This format allowed anyone interested in the project to provide feedback at any time of day. It also improved accessibility for equity populations by allowing residents with non-traditional schedules, from single-vehicle or no-vehicle households and with disabilities to participate. Partners collected 1,039 survey responses from residents, commuters, businesses and stakeholders. This input was used to identify the project area?s main transportation problems and improvements desired by the community.

From Jan. 13-30, 2022, the team held an open public comment period for the project purpose and need, and evaluation criteria. 36 comments were submitted online. The team then held a February 2022 meeting with residents near the Martin and Pleasant Street intersections; a May 2022 open house drawing 300 people; and a November 2022 open house drawing 80 people. Both open houses were held at the Anoka-Hennepin Education Service Center.

Partners promoted all engagement events and activities heavily through a variety of channels. This included news releases, project email blasts to subscribers, targeted emails to stakeholders, paid and organic social media through MnDOT and partner channels targeting affected communities and frequent updates on the project webpage.

To date, more than a dozen stakeholder agencies and 1,000 residents have participated. Hundreds of public comments have been used to develop a project vision rooted in community needs. The city is committed to continuing this engagement with communities that will be most affected by the project, especially communities that disproportionately bear the burden of the existing transportation system.

Project meetings webpage: www.dot.state.mn.us/metro/projects/hwy47rr-anoka/meetings.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 project?s termini does not suffice and will be awarded zero points. *If applicable*

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

100%

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

100%	
For projects where MnDOT trunk highways are impacted and a MnDOT Staff Approved layout is required. Layout approved by the applicant and all impacted local jurisdictions (i.e., cities/counties), and layout review and approval by MnDOT is pending. A PDF of the layout must be attached along with letters from each jurisdiction to receive points.	
75%	
Layout completed but not approved by all jurisdictions. A PDF of the layout must be attached to receive points.	Yes
50%	
Layout has been started but is not complete. A PDF of the layout must be attached to receive points.	
25%	
Layout has not been started	
0%	
Attach Layout	
Please upload attachment in PDF form	
Additional Attachments	
Please upload attachment in PDF form	
3. Review of Section 106 Historic Resources (15 Percent of Points)	
No known historic properties eligible for or listed in the National Register of Historic Places are located in the project area, and project is not located on an identified historic bridge	Yes
100%	
There are historical/archeological properties present but determination of ?no historic properties affected? is anticipated.	
100%	
Historic/archeological property impacted; determination of ?no adverse effect? anticipated	
80%	
Historic/archeological property impacted; determination of ?adverse effect? anticipated	
40%	
Unsure if there are any historic/archaeological properties in the project area.	
0%	
Project is located on an identified historic bridge	
4. Right-of-Way (25 Percent of Points)	
Right-of-way, permanent or temporary easements, and MnDOT agreement/limited-use permit either not required or all have been acquired	
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)	
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.	Yes
0%	

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	$19,848,000.00
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$19,848,000.00
Enter amount of any outside, competitive funding:	$0.00

Attach documentation of award:		
Points Awarded in Previous Criteria		
Cost Effectiveness	$0.00	

Other Attachments

Existing Conditions Photo
1.8 MB

File Name	Description	File Size
(23-11-17) TH 47 RR Grade Separation AC LOS (City of Anoka).pdf	County Support	159 KB
Affordable_Housing.pdf	Affordable Housing Map	4.8 MB
Met C Generated Maps.pdf	Met C Maps	8.9 MB
One Page Description-TH 47-RR Crossing.pdf	Project One Pager	570 KB
Project Location and Layout-TH47-MHFP.pdf	Project Location and Layout	1.1 MB

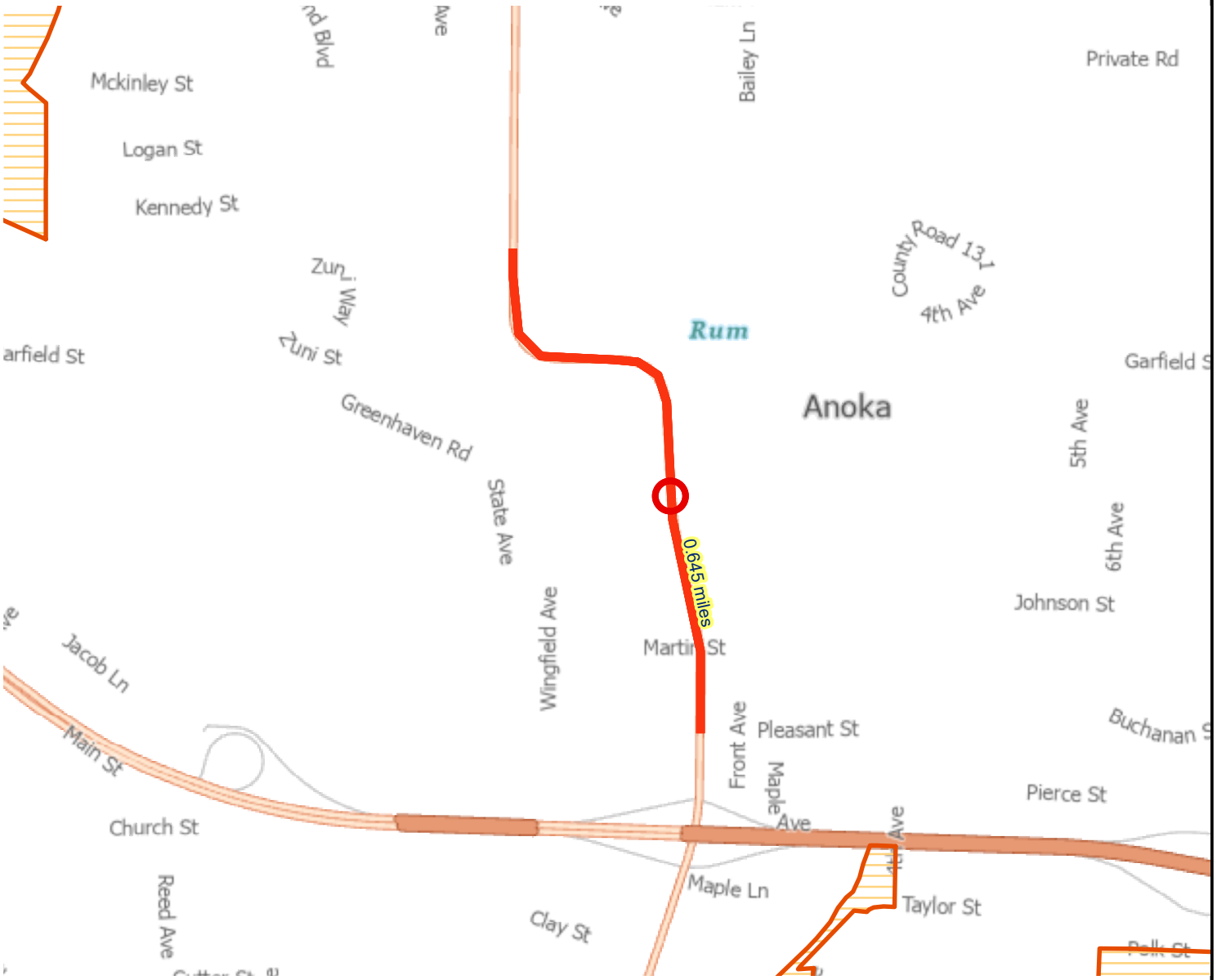
Regional Economy

Roadway Reconstruction/Modernization Project: TH 47 Corridor Improvements | Map ID: 1701469453320

Results

WITHIN ONE MI of project:
Postsecondary Students: 0

Totals by City:
Anoka
Population: 15656
Employment: 12926
Mfg and Dist Employment: 3606



Project Points
Project
Manfacturing/Distribution Centers
Job Concentration Centers

0 0.1 0.2 0.4 0.6 0.8 Miles

Created: 12/1/2023
LandscapeRSA5

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

METROPOLITAN COUNCIL

Transit Connections

Roadway Reconstruction/Modernization Project: TH 47 Corridor Improvements | Map ID: 1701469453320

Results

Transit with a Direct Connection to project: 888

**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 0.1 0.2 0.4 0.6 0.8 Miles

Created: 12/1/2023
LandscapeRSA3

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METROPOLITAN COUNCIL

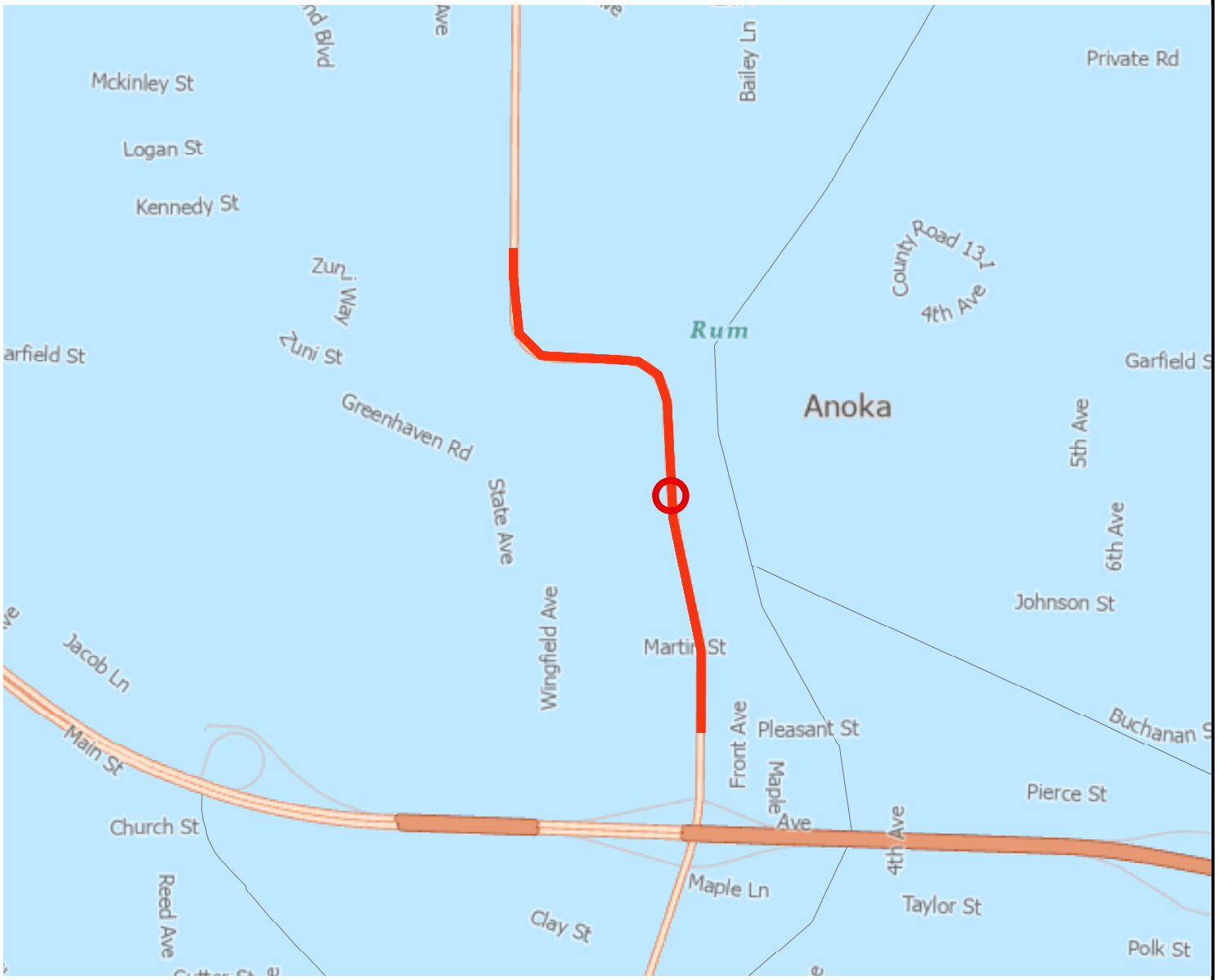
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: TH 47 Corridor Improvements | Map ID: 1701469453320

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 438

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



Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

0 0.1 0.2 0.4 0.6 0.8 Miles

Created: 12/1/2023
LandscapeRSA2

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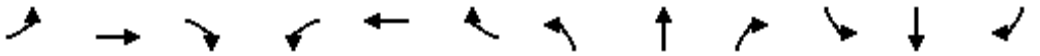
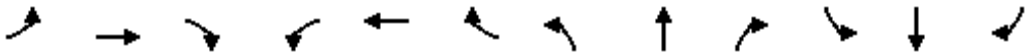
METROPOLITAN COUNCIL



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	31	89	148	156	348	109	1101	211	74	588	0
Future Volume (vph)	4	31	89	148	156	348	109	1101	211	74	588	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	115		115	125		125	200		50	225		225
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	0
Flt Permitted	0.650			0.735			0.323			0.198		
Satd. Flow (perm)	1211	1863	1583	1369	1863	1583	602	3539	1583	369	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			213			109			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		680			635			437			468	
Travel Time (s)		15.5			14.4			8.5			10.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	34	97	161	170	378	118	1197	229	80	639	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	34	97	161	170	378	118	1197	229	80	639	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		

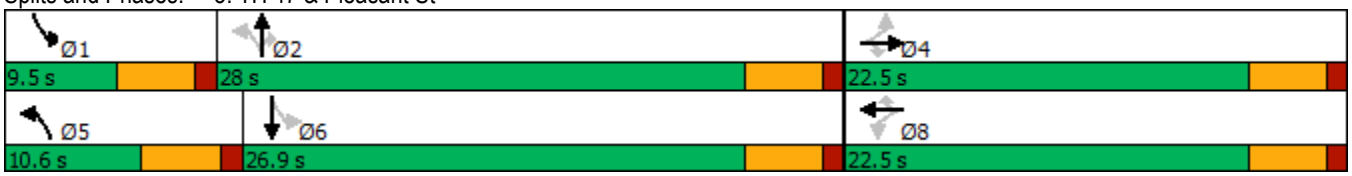


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	
Total Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	10.6	28.0	28.0	9.5	26.9	
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%	17.7%	46.7%	46.7%	15.8%	44.8%	
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0	18.0	6.1	23.5	23.5	5.0	22.4	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	
Act Effct Green (s)	12.7	12.7	12.7	12.7	12.7	12.7	25.4	22.3	22.3	22.9	19.2	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.26	0.51	0.45	0.45	0.46	0.39	
v/c Ratio	0.01	0.07	0.20	0.46	0.36	0.67	0.26	0.75	0.30	0.25	0.47	
Control Delay	15.2	15.7	4.6	21.6	18.7	14.6	7.6	17.7	7.7	8.3	14.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.2	15.7	4.6	21.6	18.7	14.6	7.6	17.7	7.7	8.3	14.1	
LOS	B	B	A	C	B	B	A	B	A	A	B	
Approach Delay		7.7			17.2			15.5			13.4	
Approach LOS		A			B			B			B	
90th %ile Green (s)	18.0	18.0	18.0	18.0	18.0	18.0	6.1	23.5	23.5	5.0	22.4	
90th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Max	Max	Max	Max	Hold	
70th %ile Green (s)	18.0	18.0	18.0	18.0	18.0	18.0	6.1	23.5	23.5	5.0	22.4	
70th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Max	Max	Max	Max	Hold	
50th %ile Green (s)	13.5	13.5	13.5	13.5	13.5	13.5	6.1	23.5	23.5	5.0	22.4	
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap	Gap	Max	Max	Max	Max	Hold	
30th %ile Green (s)	9.5	9.5	9.5	9.5	9.5	9.5	6.1	22.8	22.8	0.0	12.2	
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap	Gap	Max	Hold	Hold	Skip	Gap	
10th %ile Green (s)	6.3	6.3	6.3	6.3	6.3	6.3	0.0	15.1	15.1	0.0	15.1	
10th %ile Term Code	Hold	Hold	Hold	Gap	Gap	Gap	Skip	Gap	Gap	Skip	Hold	
Stops (vph)	6	25	15	113	113	141	47	809	74	35	402	
Fuel Used(gal)	0	0	1	2	2	4	1	14	2	1	6	
CO Emissions (g/hr)	5	28	45	140	139	247	61	946	108	41	423	
NOx Emissions (g/hr)	1	5	9	27	27	48	12	184	21	8	82	
VOC Emissions (g/hr)	1	7	10	33	32	57	14	219	25	10	98	
Dilemma Vehicles (#)	0	0	0	0	0	0	0	97	0	0	0	
Queue Length 50th (ft)	1	9	0	46	47	46	15	172	23	10	77	
Queue Length 95th (ft)	7	26	24	92	90	122	39	#320	70	28	132	
Internal Link Dist (ft)		600			555			357			388	
Turn Bay Length (ft)	115		115	125		125	200		50	225		
Base Capacity (vph)	472	727	684	534	727	748	463	1804	860	323	1719	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.01	0.05	0.14	0.30	0.23	0.51	0.25	0.66	0.27	0.25	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 49.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 60			
70th %ile Actuated Cycle: 60			
50th %ile Actuated Cycle: 55.5			
30th %ile Actuated Cycle: 41.3			
10th %ile Actuated Cycle: 30.4			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: TH 47 & Pleasant St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	4	20	0	1453	0	0	641	4
Future Volume (vph)	0	0	0	0	4	20	0	1453	0	0	641	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		140	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt					0.886						0.999	
Flt Protected												
Satd. Flow (prot)	0	1863	0	0	1650	0	0	3539	1863	0	1861	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	1650	0	0	3539	1863	0	1861	0
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		476			707			468			297	
Travel Time (s)		10.8			16.1			10.6			5.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	4	22	0	1579	0	0	697	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	26	0	0	1579	0	0	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

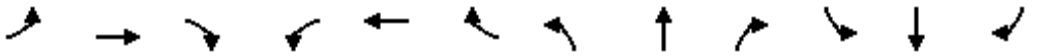
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	4	20	0	1453	0	0	641	4
Future Vol, veh/h	0	0	0	0	4	20	0	1453	0	0	641	4
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	-	-	-	-	-	-	-	-	140	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	4	22	0	1579	0	0	697	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1491	2278	699	2278	2280	790	-	0	0	1579	0	0
Stage 1	699	699	-	1579	1579	-	-	-	-	-	-	-
Stage 2	792	1579	-	699	701	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	-	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	-	-	-	2.219	-	-
Pot Cap-1 Maneuver	93	40	439	25	40	334	0	-	-	415	-	-
Stage 1	429	441	-	115	169	-	0	-	-	-	-	-
Stage 2	349	169	-	429	440	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	80	40	439	25	40	334	-	-	-	415	-	-
Mov Cap-2 Maneuver	80	40	-	25	40	-	-	-	-	-	-	-
Stage 1	429	441	-	115	169	-	-	-	-	-	-	-
Stage 2	318	169	-	429	440	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	34	0	0
HCM LOS	A	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	150	415	-	-
HCM Lane V/C Ratio	-	-	-	0.174	-	-	-
HCM Control Delay (s)	-	-	0	34	0	-	-
HCM Lane LOS	-	-	A	D	A	-	-
HCM 95th %tile Q(veh)	-	-	-	0.6	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	2	0	0	0	1490	0	0	622	15
Future Volume (vph)	0	0	7	2	0	0	0	1490	0	0	622	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865								0.997	
Flt Protected					0.950							
Satd. Flow (prot)	0	0	1611	0	0	1863	0	1863	1863	0	1857	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	0	1611	0	0	1863	0	1863	1863	0	1857	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		437			466			1251			459	
Travel Time (s)		9.9			10.6			24.4			8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	8	2	0	0	0	1620	0	0	676	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	8	0	2	0	0	1620	0	0	692	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	7	2	0	0	0	1490	0	0	622	15
Future Vol, veh/h	0	0	7	2	0	0	0	1490	0	0	622	15
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	-	-	75	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	8	2	0	0	0	1620	0	0	676	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	684	2308	-	1620	-	0	0	-	-	0
Stage 1	-	-	-	1620	-	-	-	-	-	-	-	-
Stage 2	-	-	-	688	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	7.12	-	6.22	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	3.518	-	3.318	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	449	27	0	127	0	-	-	0	-	-
Stage 1	0	0	-	130	0	-	0	-	-	0	-	-
Stage 2	0	0	-	436	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	449	27	-	127	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	27	-	-	-	-	-	-	-	-
Stage 1	-	-	-	130	-	-	-	-	-	-	-	-
Stage 2	-	-	-	429	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	0	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	449	-	-	-
HCM Lane V/C Ratio	-	-	0.017	-	-	-
HCM Control Delay (s)	-	-	13.2	0	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	-	-	-

Network Totals

Number of Intersections	3
Control Delay / Veh (s/v)	6
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	6
Total Delay (hr)	12
Stops / Veh	0.25
Stops (#)	1813
Average Speed (mph)	25
Total Travel Time (hr)	46
Distance Traveled (mi)	1138
Fuel Consumed (gal)	65
Fuel Economy (mpg)	17.5
CO Emissions (kg)	4.55
NOx Emissions (kg)	0.88
VOC Emissions (kg)	1.05
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	97
Performance Index	17.3

3: TH 47 & Pleasant St

Direction	EB	WB	NB	SB	All
Future Volume (vph)	124	652	1421	662	2859
Control Delay / Veh (s/v)	8	17	15	13	15
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	8	17	15	13	15
Total Delay (hr)	0	3	6	2	12
Stops / Veh	0.37	0.56	0.65	0.66	0.62
Stops (#)	46	367	930	437	1780
Average Speed (mph)	20	14	12	13	13
Total Travel Time (hr)	1	6	9	4	20
Distance Traveled (mi)	16	78	118	59	271
Fuel Consumed (gal)	1	8	16	7	31
Fuel Economy (mpg)	14.4	10.4	7.4	8.8	8.7
CO Emissions (kg)	0.08	0.53	1.11	0.46	2.18
NOx Emissions (kg)	0.02	0.10	0.22	0.09	0.42
VOC Emissions (kg)	0.02	0.12	0.26	0.11	0.51
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	97	0	97

6: Martin St & TH 47

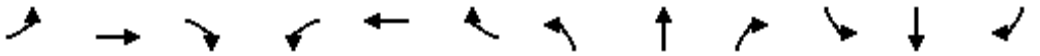
Direction	WB	NB	SB	All
Future Volume (vph)	24	1453	645	2122
Control Delay / Veh (s/v)	24	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	24	0	0	0
Total Delay (hr)	0	0	0	0
Stops / Veh	1.00	0.00	0.00	0.01
Stops (#)	24	0	0	24
Average Speed (mph)	12	30	35	32
Total Travel Time (hr)	0	4	5	10
Distance Traveled (mi)	3	129	189	321
Fuel Consumed (gal)	0	5	7	13
Fuel Economy (mpg)	NA	24.3	26.2	24.9
CO Emissions (kg)	0.03	0.37	0.50	0.90
NOx Emissions (kg)	0.01	0.07	0.10	0.18
VOC Emissions (kg)	0.01	0.09	0.12	0.21
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

12: TH 47 & Garfield St/County Park Access

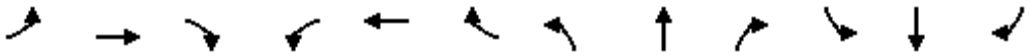
Direction	EB	WB	NB	SB	All
Future Volume (vph)	7	2	1490	637	2136
Control Delay / Veh (s/v)	13	154	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	13	154	0	0	0
Total Delay (hr)	0	0	0	0	0
Stops / Veh	1.00	1.00	0.00	0.00	0.00
Stops (#)	7	2	0	0	9
Average Speed (mph)	13	2	35	35	35
Total Travel Time (hr)	0	0	12	3	16
Distance Traveled (mi)	1	0	437	108	546
Fuel Consumed (gal)	0	0	17	4	21
Fuel Economy (mpg)	NA	NA	26.2	26.2	26.1
CO Emissions (kg)	0.01	0.01	1.16	0.29	1.46
NOx Emissions (kg)	0.00	0.00	0.23	0.06	0.28
VOC Emissions (kg)	0.00	0.00	0.27	0.07	0.34
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

Network Totals

Number of Intersections	3
Control Delay / Veh (s/v)	6
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	6
Total Delay (hr)	12
Stops / Veh	0.25
Stops (#)	1813
Average Speed (mph)	25
Total Travel Time (hr)	46
Distance Traveled (mi)	1138
Fuel Consumed (gal)	65
Fuel Economy (mpg)	17.5
CO Emissions (kg)	4.55
NOx Emissions (kg)	0.88
VOC Emissions (kg)	1.05
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	97
Performance Index	17.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	26	45	148	156	348	31	1156	211	77	632	0
Future Volume (vph)	2	26	45	148	156	348	31	1156	211	77	632	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		115	0		125	0		0	150		0
Storage Lanes	0		1	0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Frt			0.850			0.850		0.977				
Flt Protected		0.997			0.976			0.999		0.950	0.999	
Satd. Flow (prot)	0	1857	1583	0	1818	1583	0	3454	0	1681	1768	0
Flt Permitted		0.979			0.830			0.927		0.111	0.951	
Satd. Flow (perm)	0	1824	1583	0	1546	1583	0	3205	0	196	1683	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94			94		45				
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		680			635			437			294	
Travel Time (s)		15.5			14.4			8.5			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	28	49	161	170	378	34	1257	229	84	687	0
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	0	30	49	0	331	378	0	1520	0	76	695	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		

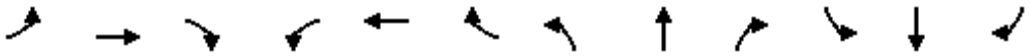


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	9.5	37.5		9.5	37.5	
Total Split (%)	32.9%	32.9%	32.9%	32.9%	32.9%	32.9%	13.6%	53.6%		13.6%	53.6%	
Maximum Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	5.0	33.0		5.0	33.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.5	4.5		4.5	4.5		4.5		4.5	4.5	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		17.2	17.2		17.2	17.2		31.6		38.7	38.7	
Actuated g/C Ratio		0.26	0.26		0.26	0.26		0.48		0.59	0.59	
v/c Ratio		0.06	0.10		0.81	0.78		0.96		0.33	0.69	
Control Delay		19.8	1.8		41.8	30.6		34.3		9.5	13.6	
Queue Delay		0.0	0.0		0.0	0.0		0.0		0.0	0.0	
Total Delay		19.8	1.8		41.8	30.6		34.3		9.5	13.6	
LOS		B	A		D	C		C		A	B	
Approach Delay		8.6			35.8			34.3			13.2	
Approach LOS		A			D			C			B	
90th %ile Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	0.0	33.0		5.0	42.5	
90th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Skip	Max		Max	Hold	
70th %ile Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	0.0	33.0		5.0	42.5	
70th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Skip	Max		Max	Hold	
50th %ile Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	0.0	33.0		5.0	42.5	
50th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Skip	Max		Max	Hold	
30th %ile Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	0.0	33.0		5.0	42.5	
30th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Skip	Max		Max	Hold	
10th %ile Green (s)	12.1	12.1	12.1	12.1	12.1	12.1	0.0	24.7		0.0	24.7	
10th %ile Term Code	Hold	Hold	Hold	Gap	Gap	Gap	Skip	Gap		Skip	Hold	
Stops (vph)		22	3		254	225		1097		27	394	
Fuel Used(gal)		0	0		6	5		22		1	6	
CO Emissions (g/hr)		27	19		385	359		1567		39	454	
NOx Emissions (g/hr)		5	4		75	70		305		8	88	
VOC Emissions (g/hr)		6	4		89	83		363		9	105	
Dilemma Vehicles (#)		0	0		0	0		95		0	0	
Queue Length 50th (ft)		10	0		133	113		315		12	181	
Queue Length 95th (ft)		29	8		#263	#245		#487		28	292	
Internal Link Dist (ft)		600			555			357			214	
Turn Bay Length (ft)			115			125				150		
Base Capacity (vph)		533	529		451	529		1691		233	1064	
Starvation Cap Reductn		0	0		0	0		0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0	0		0	0		0		0	0	
Storage Cap Reductn		0	0		0	0		0		0	0	
Reduced v/c Ratio		0.06	0.09		0.73	0.71		0.90		0.33	0.65	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 65.2			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 28.7		Intersection LOS: C	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 70			
70th %ile Actuated Cycle: 70			
50th %ile Actuated Cycle: 70			
30th %ile Actuated Cycle: 70			
10th %ile Actuated Cycle: 45.8			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: TH 47 & Pleasant St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	49	0	4	20	78	1451	0	2	639	4
Future Volume (vph)	2	0	49	0	4	20	78	1451	0	2	639	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.870			0.886						0.999	
Flt Protected		0.998						0.997				
Satd. Flow (prot)	0	1617	0	0	1650	0	0	1857	0	0	1861	0
Flt Permitted		0.998						0.997				
Satd. Flow (perm)	0	1617	0	0	1650	0	0	1857	0	0	1861	0
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		476			707			174			669	
Travel Time (s)		10.8			16.1			4.0			13.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	53	0	4	22	85	1577	0	2	695	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	26	0	0	1662	0	0	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 129.6%		ICU Level of Service H	
Analysis Period (min) 15			

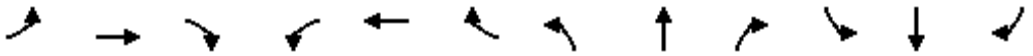
Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	49	0	4	20	78	1451	0	2	639	4
Future Vol, veh/h	2	0	49	0	4	20	78	1451	0	2	639	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	53	0	4	22	85	1577	0	2	695	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2461	2448	697	2475	2450	1577	699	0	0	1577	0	0
Stage 1	701	701	-	1747	1747	-	-	-	-	-	-	-
Stage 2	1760	1747	-	728	703	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	21	31	441	20	31	135	898	-	-	417	-	-
Stage 1	429	441	-	109	140	-	-	-	-	-	-	-
Stage 2	108	140	-	415	440	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	4	7	441	7	7	135	898	-	-	417	-	-
Mov Cap-2 Maneuver	4	7	-	7	7	-	-	-	-	-	-	-
Stage 1	101	437	-	26	33	-	-	-	-	-	-	-
Stage 2	18	33	-	362	436	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	110.1	269.5	0.5	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	898	-	-	83	33	417	-	-
HCM Lane V/C Ratio	0.094	-	-	0.668	0.791	0.005	-	-
HCM Control Delay (s)	9.4	0	-	110.1	269.5	13.7	0	-
HCM Lane LOS	A	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.3	-	-	3.2	2.7	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	1473	0	0	645	0
Future Volume (vph)	0	0	0	0	0	0	0	1473	0	0	645	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	1863	0	0	1863	0	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	1863	0	0	1863	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1752			1605			669			928	
Travel Time (s)		39.8			36.5			13.0			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	1601	0	0	701	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	1601	0	0	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type								NA			NA	
Protected Phases					8			2			6	
Permitted Phases												
Minimum Split (s)					22.5			22.5			22.5	
Total Split (s)					150.0			1050.0			1050.0	
Total Split (%)					12.5%			87.5%			87.5%	
Maximum Green (s)					145.5			1045.5			1045.5	
Yellow Time (s)					3.5			3.5			3.5	
All-Red Time (s)					1.0			1.0			1.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					7.0			7.0			7.0	
Flash Dont Walk (s)					11.0			11.0			11.0	
Pedestrian Calls (#/hr)					0			0			0	
Act Effct Green (s)								1045.5			1045.5	
Actuated g/C Ratio								0.87			0.87	
v/c Ratio								0.99			0.43	
Control Delay								87.5			16.8	
Queue Delay								39.3			0.0	
Total Delay								126.9			16.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS								F			B	
Approach Delay								126.9			16.8	
Approach LOS								F			B	
Stops (vph)								1265			131	
Fuel Used(gal)								43			8	
CO Emissions (g/hr)								2997			525	
NOx Emissions (g/hr)								583			102	
VOC Emissions (g/hr)								695			122	
Dilemma Vehicles (#)								6			3	
Queue Length 50th (ft)								11742			1159	
Queue Length 95th (ft)								9300			1152	
Internal Link Dist (ft)		1672			1525			589			848	
Turn Bay Length (ft)												
Base Capacity (vph)								1623			1623	
Starvation Cap Reductn								187			0	
Spillback Cap Reductn								0			0	
Storage Cap Reductn								0			0	
Reduced v/c Ratio								1.11			0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 1200			
Actuated Cycle Length: 1200			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Pretimed			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 93.4		Intersection LOS: F	
Intersection Capacity Utilization 81.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 9: TH 47 & BNSF RR Crossing

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	0	1490	0	0	622
Future Volume (vph)	2	0	1490	0	0	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	1863	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	1863	0	0	1863
Link Speed (mph)	30		35			35
Link Distance (ft)	466		928			731
Travel Time (s)	10.6		18.1			14.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	1620	0	0	676
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	1620	0	0	676
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 88.4%		ICU Level of Service E	
Analysis Period (min) 15			

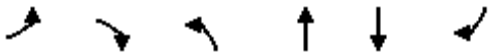
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	0	1490	0	0	622
Future Vol, veh/h	2	0	1490	0	0	622
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	1620	0	0	676

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2296	1620	0	0	1620	0
Stage 1	1620	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	43	127	-	-	402	-
Stage 1	178	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	43	127	-	-	402	-
Mov Cap-2 Maneuver	43	-	-	-	-	-
Stage 1	178	-	-	-	-	-
Stage 2	505	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	93.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	43	402	-
HCM Lane V/C Ratio	-	-	0.051	-	-
HCM Control Delay (s)	-	-	93.1	0	-
HCM Lane LOS	-	-	F	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	7	8	1482	615	15
Future Volume (vph)	0	7	8	1482	615	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected						
Satd. Flow (prot)	1611	0	0	1863	1857	0
Flt Permitted						
Satd. Flow (perm)	1611	0	0	1863	1857	0
Link Speed (mph)	30			35	35	
Link Distance (ft)	362			731	440	
Travel Time (s)	8.2			14.2	8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	8	9	1611	668	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	1620	684	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 94.4%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	7	8	1482	615	15
Future Vol, veh/h	0	7	8	1482	615	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	9	1611	668	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2305	676	684	0	-	0
Stage 1	676	-	-	-	-	-
Stage 2	1629	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	42	453	909	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	38	453	909	-	-	-
Mov Cap-2 Maneuver	38	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	176	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	909	-	453	-	-
HCM Lane V/C Ratio	0.01	-	0.017	-	-
HCM Control Delay (s)	9	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Network Totals

Number of Intersections	5
Control Delay / Veh (s/v)	25
Queue Delay / Veh (s/v)	5
Total Delay / Veh (s/v)	30
Total Delay (hr)	94
Stops / Veh	0.61
Stops (#)	6998
Average Speed (mph)	10
Total Travel Time (hr)	135
Distance Traveled (mi)	1399
Fuel Consumed (gal)	171
Fuel Economy (mpg)	8.2
CO Emissions (kg)	11.98
NOx Emissions (kg)	2.33
VOC Emissions (kg)	2.78
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	104
Performance Index	113.7

3: TH 47 & Pleasant St

Direction	EB	WB	NB	SB	All
Future Volume (vph)	73	653	1398	709	2833
Control Delay / Veh (s/v)	9	36	34	13	29
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	9	36	34	13	29
Total Delay (hr)	0	7	13	3	23
Stops / Veh	0.34	0.73	0.78	0.59	0.71
Stops (#)	25	479	1097	421	2022
Average Speed (mph)	19	9	7	14	9
Total Travel Time (hr)	0	9	17	5	31
Distance Traveled (mi)	9	79	116	63	266
Fuel Consumed (gal)	1	11	22	7	41
Fuel Economy (mpg)	NA	7.4	5.2	8.9	6.5
CO Emissions (kg)	0.05	0.74	1.57	0.49	2.85
NOx Emissions (kg)	0.01	0.14	0.30	0.10	0.55
VOC Emissions (kg)	0.01	0.17	0.36	0.11	0.66
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	95	0	95

6: Martin St & TH 47

Direction	EB	WB	NB	SB	All
Future Volume (vph)	51	24	1529	645	2249
Control Delay / Veh (s/v)	304	299	10	0	17
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	304	299	10	0	17
Total Delay (hr)	4	2	4	0	10
Stops / Veh	1.00	1.00	1.91	0.09	1.36
Stops (#)	51	24	2919	58	3052
Average Speed (mph)	1	2	17	34	13
Total Travel Time (hr)	4	2	8	2	17
Distance Traveled (mi)	5	3	136	82	225
Fuel Consumed (gal)	4	2	28	4	37
Fuel Economy (mpg)	1.3	1.9	4.9	22.6	6.1
CO Emissions (kg)	0.25	0.12	1.94	0.25	2.57
NOx Emissions (kg)	0.05	0.02	0.38	0.05	0.50
VOC Emissions (kg)	0.06	0.03	0.45	0.06	0.60
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

9: TH 47 & BNSF RR Crossing

Direction	NB	SB	All
Future Volume (vph)	1473	645	2118
Control Delay / Veh (s/v)	88	17	66
Queue Delay / Veh (s/v)	39	0	27
Total Delay / Veh (s/v)	127	17	93
Total Delay (hr)	52	3	55
Stops / Veh	0.86	0.20	0.66
Stops (#)	1265	131	1396
Average Speed (mph)	3	18	5
Total Travel Time (hr)	57	6	63
Distance Traveled (mi)	187	113	300
Fuel Consumed (gal)	55	8	62
Fuel Economy (mpg)	3.4	15.1	4.8
CO Emissions (kg)	3.82	0.53	4.35
NOx Emissions (kg)	0.74	0.10	0.85
VOC Emissions (kg)	0.89	0.12	1.01
Unserved Vehicles (#)	0	0	0
Vehicles in dilemma zone (#)	6	3	9

12: TH 47 & County Park Access

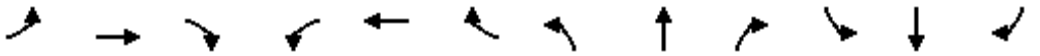
Direction	WB	NB	SB	All
Future Volume (vph)	2	1490	622	2114
Control Delay / Veh (s/v)	9999	0	0	9
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	9999	0	0	9
Total Delay (hr)	6	0	0	6
Stops / Veh	1.00	0.00	0.00	0.00
Stops (#)	2	0	0	2
Average Speed (mph)	0	35	35	22
Total Travel Time (hr)	6	7	2	16
Distance Traveled (mi)	0	262	86	348
Fuel Consumed (gal)	4	10	3	17
Fuel Economy (mpg)	0.0	26.2	26.2	20.1
CO Emissions (kg)	0.29	0.70	0.23	1.21
NOx Emissions (kg)	0.06	0.14	0.04	0.24
VOC Emissions (kg)	0.07	0.16	0.05	0.28
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

14: TH 47 & Garfield St

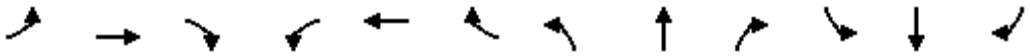
Direction	EB	NB	SB	All
Future Volume (vph)	7	1490	629	2126
Control Delay / Veh (s/v)	13	2	0	1
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	13	2	0	1
Total Delay (hr)	0	1	0	1
Stops / Veh	1.00	0.35	0.00	0.25
Stops (#)	7	519	0	526
Average Speed (mph)	12	31	35	32
Total Travel Time (hr)	0	7	2	8
Distance Traveled (mi)	0	206	52	259
Fuel Consumed (gal)	0	12	2	14
Fuel Economy (mpg)	NA	16.8	26.2	18.0
CO Emissions (kg)	0.01	0.86	0.14	1.00
NOx Emissions (kg)	0.00	0.17	0.03	0.20
VOC Emissions (kg)	0.00	0.20	0.03	0.23
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	5
Control Delay / Veh (s/v)	25
Queue Delay / Veh (s/v)	5
Total Delay / Veh (s/v)	30
Total Delay (hr)	94
Stops / Veh	0.61
Stops (#)	6998
Average Speed (mph)	10
Total Travel Time (hr)	135
Distance Traveled (mi)	1399
Fuel Consumed (gal)	171
Fuel Economy (mpg)	8.2
CO Emissions (kg)	11.98
NOx Emissions (kg)	2.33
VOC Emissions (kg)	2.78
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	104
Performance Index	113.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	31	89	148	156	348	109	1101	211	74	588	0
Future Volume (vph)	4	31	89	148	156	348	109	1101	211	74	588	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	115		115	125		125	200		50	225		225
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	0
Flt Permitted	0.650			0.735			0.323			0.198		
Satd. Flow (perm)	1211	1863	1583	1369	1863	1583	602	3539	1583	369	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			213			109			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		680			635			437			468	
Travel Time (s)		15.5			14.4			8.5			10.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	34	97	161	170	378	118	1197	229	80	639	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	34	97	161	170	378	118	1197	229	80	639	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		

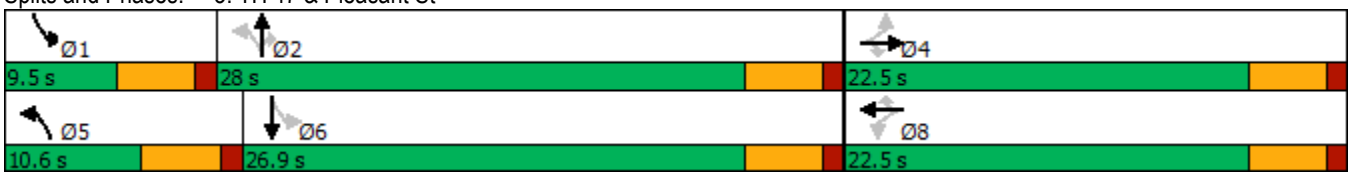


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	
Total Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	10.6	28.0	28.0	9.5	26.9	
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%	17.7%	46.7%	46.7%	15.8%	44.8%	
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0	18.0	6.1	23.5	23.5	5.0	22.4	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	
Act Effct Green (s)	12.7	12.7	12.7	12.7	12.7	12.7	25.4	22.3	22.3	22.9	19.2	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.26	0.51	0.45	0.45	0.46	0.39	
v/c Ratio	0.01	0.07	0.20	0.46	0.36	0.67	0.26	0.75	0.30	0.25	0.47	
Control Delay	15.2	15.7	4.6	21.6	18.7	14.6	7.6	17.7	7.7	8.3	14.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.2	15.7	4.6	21.6	18.7	14.6	7.6	17.7	7.7	8.3	14.1	
LOS	B	B	A	C	B	B	A	B	A	A	B	
Approach Delay		7.7			17.2			15.5			13.4	
Approach LOS		A			B			B			B	
90th %ile Green (s)	18.0	18.0	18.0	18.0	18.0	18.0	6.1	23.5	23.5	5.0	22.4	
90th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Max	Max	Max	Max	Hold	
70th %ile Green (s)	18.0	18.0	18.0	18.0	18.0	18.0	6.1	23.5	23.5	5.0	22.4	
70th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Max	Max	Max	Max	Hold	
50th %ile Green (s)	13.5	13.5	13.5	13.5	13.5	13.5	6.1	23.5	23.5	5.0	22.4	
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap	Gap	Max	Max	Max	Max	Hold	
30th %ile Green (s)	9.5	9.5	9.5	9.5	9.5	9.5	6.1	22.8	22.8	0.0	12.2	
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap	Gap	Max	Hold	Hold	Skip	Gap	
10th %ile Green (s)	6.3	6.3	6.3	6.3	6.3	6.3	0.0	15.1	15.1	0.0	15.1	
10th %ile Term Code	Hold	Hold	Hold	Gap	Gap	Gap	Skip	Gap	Gap	Skip	Hold	
Stops (vph)	6	25	15	113	113	141	47	809	74	35	402	
Fuel Used(gal)	0	0	1	2	2	4	1	14	2	1	6	
CO Emissions (g/hr)	5	28	45	140	139	247	61	946	108	41	423	
NOx Emissions (g/hr)	1	5	9	27	27	48	12	184	21	8	82	
VOC Emissions (g/hr)	1	7	10	33	32	57	14	219	25	10	98	
Dilemma Vehicles (#)	0	0	0	0	0	0	0	97	0	0	0	
Queue Length 50th (ft)	1	9	0	46	47	46	15	172	23	10	77	
Queue Length 95th (ft)	7	26	24	92	90	122	39	#320	70	28	132	
Internal Link Dist (ft)		600			555			357			388	
Turn Bay Length (ft)	115		115	125		125	200		50	225		
Base Capacity (vph)	472	727	684	534	727	748	463	1804	860	323	1719	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.01	0.05	0.14	0.30	0.23	0.51	0.25	0.66	0.27	0.25	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 49.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 60			
70th %ile Actuated Cycle: 60			
50th %ile Actuated Cycle: 55.5			
30th %ile Actuated Cycle: 41.3			
10th %ile Actuated Cycle: 30.4			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: TH 47 & Pleasant St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	4	20	0	1453	0	0	641	4
Future Volume (vph)	0	0	0	0	4	20	0	1453	0	0	641	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		140	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt					0.886						0.999	
Flt Protected												
Satd. Flow (prot)	0	1863	0	0	1650	0	0	3539	1863	0	1861	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	1650	0	0	3539	1863	0	1861	0
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		476			707			468			297	
Travel Time (s)		10.8			16.1			10.6			5.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	4	22	0	1579	0	0	697	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	26	0	0	1579	0	0	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

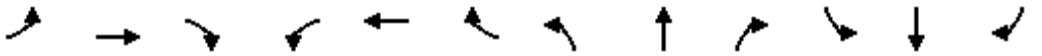
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	4	20	0	1453	0	0	641	4
Future Vol, veh/h	0	0	0	0	4	20	0	1453	0	0	641	4
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	-	-	-	-	-	-	-	-	140	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	4	22	0	1579	0	0	697	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1491	2278	699	2278	2280	790	-	0	0	1579	0	0
Stage 1	699	699	-	1579	1579	-	-	-	-	-	-	-
Stage 2	792	1579	-	699	701	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	-	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	-	-	-	2.219	-	-
Pot Cap-1 Maneuver	93	40	439	25	40	334	0	-	-	415	-	-
Stage 1	429	441	-	115	169	-	0	-	-	-	-	-
Stage 2	349	169	-	429	440	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	80	40	439	25	40	334	-	-	-	415	-	-
Mov Cap-2 Maneuver	80	40	-	25	40	-	-	-	-	-	-	-
Stage 1	429	441	-	115	169	-	-	-	-	-	-	-
Stage 2	318	169	-	429	440	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	34	0	0
HCM LOS	A	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	150	415	-	-
HCM Lane V/C Ratio	-	-	-	0.174	-	-	-
HCM Control Delay (s)	-	-	0	34	0	-	-
HCM Lane LOS	-	-	A	D	A	-	-
HCM 95th %tile Q(veh)	-	-	-	0.6	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	2	0	0	0	1490	0	0	622	15
Future Volume (vph)	0	0	7	2	0	0	0	1490	0	0	622	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865								0.997	
Flt Protected					0.950							
Satd. Flow (prot)	0	0	1611	0	0	1863	0	1863	1863	0	1857	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	0	1611	0	0	1863	0	1863	1863	0	1857	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		437			466			1251			459	
Travel Time (s)		9.9			10.6			24.4			8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	8	2	0	0	0	1620	0	0	676	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	8	0	2	0	0	1620	0	0	692	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	7	2	0	0	0	1490	0	0	622	15
Future Vol, veh/h	0	0	7	2	0	0	0	1490	0	0	622	15
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	-	-	75	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	8	2	0	0	0	1620	0	0	676	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	684	2308	-	1620	-	0	0	-	-	0
Stage 1	-	-	-	1620	-	-	-	-	-	-	-	-
Stage 2	-	-	-	688	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	7.12	-	6.22	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	3.518	-	3.318	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	449	27	0	127	0	-	-	0	-	-
Stage 1	0	0	-	130	0	-	0	-	-	0	-	-
Stage 2	0	0	-	436	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	449	27	-	127	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	27	-	-	-	-	-	-	-	-
Stage 1	-	-	-	130	-	-	-	-	-	-	-	-
Stage 2	-	-	-	429	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	0	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	449	-	-	-
HCM Lane V/C Ratio	-	-	0.017	-	-	-
HCM Control Delay (s)	-	-	13.2	0	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	-	-	-

Network Totals

Number of Intersections	3
Control Delay / Veh (s/v)	6
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	6
Total Delay (hr)	12
Stops / Veh	0.25
Stops (#)	1813
Average Speed (mph)	25
Total Travel Time (hr)	46
Distance Traveled (mi)	1138
Fuel Consumed (gal)	65
Fuel Economy (mpg)	17.5
CO Emissions (kg)	4.55
NOx Emissions (kg)	0.88
VOC Emissions (kg)	1.05
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	97
Performance Index	17.3

3: TH 47 & Pleasant St

Direction	EB	WB	NB	SB	All
Future Volume (vph)	124	652	1421	662	2859
Control Delay / Veh (s/v)	8	17	15	13	15
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	8	17	15	13	15
Total Delay (hr)	0	3	6	2	12
Stops / Veh	0.37	0.56	0.65	0.66	0.62
Stops (#)	46	367	930	437	1780
Average Speed (mph)	20	14	12	13	13
Total Travel Time (hr)	1	6	9	4	20
Distance Traveled (mi)	16	78	118	59	271
Fuel Consumed (gal)	1	8	16	7	31
Fuel Economy (mpg)	14.4	10.4	7.4	8.8	8.7
CO Emissions (kg)	0.08	0.53	1.11	0.46	2.18
NOx Emissions (kg)	0.02	0.10	0.22	0.09	0.42
VOC Emissions (kg)	0.02	0.12	0.26	0.11	0.51
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	97	0	97

6: Martin St & TH 47

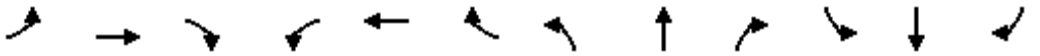
Direction	WB	NB	SB	All
Future Volume (vph)	24	1453	645	2122
Control Delay / Veh (s/v)	24	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	24	0	0	0
Total Delay (hr)	0	0	0	0
Stops / Veh	1.00	0.00	0.00	0.01
Stops (#)	24	0	0	24
Average Speed (mph)	12	30	35	32
Total Travel Time (hr)	0	4	5	10
Distance Traveled (mi)	3	129	189	321
Fuel Consumed (gal)	0	5	7	13
Fuel Economy (mpg)	NA	24.3	26.2	24.9
CO Emissions (kg)	0.03	0.37	0.50	0.90
NOx Emissions (kg)	0.01	0.07	0.10	0.18
VOC Emissions (kg)	0.01	0.09	0.12	0.21
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

12: TH 47 & Garfield St/County Park Access

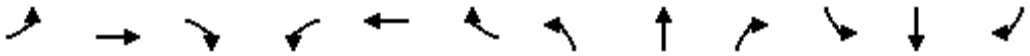
Direction	EB	WB	NB	SB	All
Future Volume (vph)	7	2	1490	637	2136
Control Delay / Veh (s/v)	13	154	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	13	154	0	0	0
Total Delay (hr)	0	0	0	0	0
Stops / Veh	1.00	1.00	0.00	0.00	0.00
Stops (#)	7	2	0	0	9
Average Speed (mph)	13	2	35	35	35
Total Travel Time (hr)	0	0	12	3	16
Distance Traveled (mi)	1	0	437	108	546
Fuel Consumed (gal)	0	0	17	4	21
Fuel Economy (mpg)	NA	NA	26.2	26.2	26.1
CO Emissions (kg)	0.01	0.01	1.16	0.29	1.46
NOx Emissions (kg)	0.00	0.00	0.23	0.06	0.28
VOC Emissions (kg)	0.00	0.00	0.27	0.07	0.34
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

Network Totals

Number of Intersections	3
Control Delay / Veh (s/v)	6
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	6
Total Delay (hr)	12
Stops / Veh	0.25
Stops (#)	1813
Average Speed (mph)	25
Total Travel Time (hr)	46
Distance Traveled (mi)	1138
Fuel Consumed (gal)	65
Fuel Economy (mpg)	17.5
CO Emissions (kg)	4.55
NOx Emissions (kg)	0.88
VOC Emissions (kg)	1.05
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	97
Performance Index	17.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	26	45	148	156	348	31	1156	211	77	632	0
Future Volume (vph)	2	26	45	148	156	348	31	1156	211	77	632	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		115	0		125	0		0	150		0
Storage Lanes	0		1	0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Frt			0.850			0.850		0.977				
Flt Protected		0.997			0.976			0.999		0.950	0.999	
Satd. Flow (prot)	0	1857	1583	0	1818	1583	0	3454	0	1681	1768	0
Flt Permitted		0.979			0.830			0.927		0.111	0.951	
Satd. Flow (perm)	0	1824	1583	0	1546	1583	0	3205	0	196	1683	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94			94		45				
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		680			635			437			294	
Travel Time (s)		15.5			14.4			8.5			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	28	49	161	170	378	34	1257	229	84	687	0
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	0	30	49	0	331	378	0	1520	0	76	695	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		

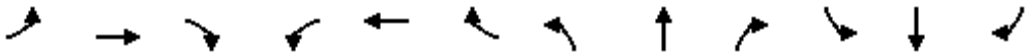


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	9.5	37.5		9.5	37.5	
Total Split (%)	32.9%	32.9%	32.9%	32.9%	32.9%	32.9%	13.6%	53.6%		13.6%	53.6%	
Maximum Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	5.0	33.0		5.0	33.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		4.5	4.5		4.5	4.5		4.5		4.5	4.5	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)		17.2	17.2		17.2	17.2		31.6		38.7	38.7	
Actuated g/C Ratio		0.26	0.26		0.26	0.26		0.48		0.59	0.59	
v/c Ratio		0.06	0.10		0.81	0.78		0.96		0.33	0.69	
Control Delay		19.8	1.8		41.8	30.6		34.3		9.5	13.6	
Queue Delay		0.0	0.0		0.0	0.0		0.0		0.0	0.0	
Total Delay		19.8	1.8		41.8	30.6		34.3		9.5	13.6	
LOS		B	A		D	C		C		A	B	
Approach Delay		8.6			35.8			34.3			13.2	
Approach LOS		A			D			C			B	
90th %ile Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	0.0	33.0		5.0	42.5	
90th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Skip	Max		Max	Hold	
70th %ile Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	0.0	33.0		5.0	42.5	
70th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Skip	Max		Max	Hold	
50th %ile Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	0.0	33.0		5.0	42.5	
50th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Skip	Max		Max	Hold	
30th %ile Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	0.0	33.0		5.0	42.5	
30th %ile Term Code	Hold	Hold	Hold	Max	Max	Max	Skip	Max		Max	Hold	
10th %ile Green (s)	12.1	12.1	12.1	12.1	12.1	12.1	0.0	24.7		0.0	24.7	
10th %ile Term Code	Hold	Hold	Hold	Gap	Gap	Gap	Skip	Gap		Skip	Hold	
Stops (vph)		22	3		254	225		1097		27	394	
Fuel Used(gal)		0	0		6	5		22		1	6	
CO Emissions (g/hr)		27	19		385	359		1567		39	454	
NOx Emissions (g/hr)		5	4		75	70		305		8	88	
VOC Emissions (g/hr)		6	4		89	83		363		9	105	
Dilemma Vehicles (#)		0	0		0	0		95		0	0	
Queue Length 50th (ft)		10	0		133	113		315		12	181	
Queue Length 95th (ft)		29	8		#263	#245		#487		28	292	
Internal Link Dist (ft)		600			555			357			214	
Turn Bay Length (ft)			115			125				150		
Base Capacity (vph)		533	529		451	529		1691		233	1064	
Starvation Cap Reductn		0	0		0	0		0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0	0		0	0		0		0	0	
Storage Cap Reductn		0	0		0	0		0		0	0	
Reduced v/c Ratio		0.06	0.09		0.73	0.71		0.90		0.33	0.65	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 65.2			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 28.7		Intersection LOS: C	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 70			
70th %ile Actuated Cycle: 70			
50th %ile Actuated Cycle: 70			
30th %ile Actuated Cycle: 70			
10th %ile Actuated Cycle: 45.8			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: TH 47 & Pleasant St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	49	0	4	20	78	1451	0	2	639	4
Future Volume (vph)	2	0	49	0	4	20	78	1451	0	2	639	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.870			0.886						0.999	
Flt Protected		0.998						0.997				
Satd. Flow (prot)	0	1617	0	0	1650	0	0	1857	0	0	1861	0
Flt Permitted		0.998						0.997				
Satd. Flow (perm)	0	1617	0	0	1650	0	0	1857	0	0	1861	0
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		476			707			174			669	
Travel Time (s)		10.8			16.1			4.0			13.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	53	0	4	22	85	1577	0	2	695	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	26	0	0	1662	0	0	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 129.6%		ICU Level of Service H	
Analysis Period (min) 15			

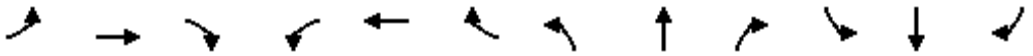
Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	49	0	4	20	78	1451	0	2	639	4
Future Vol, veh/h	2	0	49	0	4	20	78	1451	0	2	639	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	53	0	4	22	85	1577	0	2	695	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2461	2448	697	2475	2450	1577	699	0	0	1577	0	0
Stage 1	701	701	-	1747	1747	-	-	-	-	-	-	-
Stage 2	1760	1747	-	728	703	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	21	31	441	20	31	135	898	-	-	417	-	-
Stage 1	429	441	-	109	140	-	-	-	-	-	-	-
Stage 2	108	140	-	415	440	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	4	7	441	7	7	135	898	-	-	417	-	-
Mov Cap-2 Maneuver	4	7	-	7	7	-	-	-	-	-	-	-
Stage 1	101	437	-	26	33	-	-	-	-	-	-	-
Stage 2	18	33	-	362	436	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	110.1	269.5	0.5	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	898	-	-	83	33	417	-	-
HCM Lane V/C Ratio	0.094	-	-	0.668	0.791	0.005	-	-
HCM Control Delay (s)	9.4	0	-	110.1	269.5	13.7	0	-
HCM Lane LOS	A	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.3	-	-	3.2	2.7	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	1473	0	0	645	0
Future Volume (vph)	0	0	0	0	0	0	0	1473	0	0	645	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	1863	0	0	1863	0	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	1863	0	0	1863	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1752			1605			669			928	
Travel Time (s)		39.8			36.5			13.0			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	1601	0	0	701	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	1601	0	0	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type								NA			NA	
Protected Phases					8			2			6	
Permitted Phases												
Minimum Split (s)					22.5			22.5			22.5	
Total Split (s)					150.0			1050.0			1050.0	
Total Split (%)					12.5%			87.5%			87.5%	
Maximum Green (s)					145.5			1045.5			1045.5	
Yellow Time (s)					3.5			3.5			3.5	
All-Red Time (s)					1.0			1.0			1.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					7.0			7.0			7.0	
Flash Dont Walk (s)					11.0			11.0			11.0	
Pedestrian Calls (#/hr)					0			0			0	
Act Effct Green (s)								1045.5			1045.5	
Actuated g/C Ratio								0.87			0.87	
v/c Ratio								0.99			0.43	
Control Delay								87.5			16.8	
Queue Delay								39.3			0.0	
Total Delay								126.9			16.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS								F			B	
Approach Delay								126.9			16.8	
Approach LOS								F			B	
Stops (vph)								1265			131	
Fuel Used(gal)								43			8	
CO Emissions (g/hr)								2997			525	
NOx Emissions (g/hr)								583			102	
VOC Emissions (g/hr)								695			122	
Dilemma Vehicles (#)								6			3	
Queue Length 50th (ft)								11742			1159	
Queue Length 95th (ft)								9300			1152	
Internal Link Dist (ft)		1672			1525			589			848	
Turn Bay Length (ft)												
Base Capacity (vph)								1623			1623	
Starvation Cap Reductn								187			0	
Spillback Cap Reductn								0			0	
Storage Cap Reductn								0			0	
Reduced v/c Ratio								1.11			0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 1200			
Actuated Cycle Length: 1200			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Pretimed			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 93.4		Intersection LOS: F	
Intersection Capacity Utilization 81.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 9: TH 47 & BNSF RR Crossing

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	0	1490	0	0	622
Future Volume (vph)	2	0	1490	0	0	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	1863	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	1863	0	0	1863
Link Speed (mph)	30		35			35
Link Distance (ft)	466		928			731
Travel Time (s)	10.6		18.1			14.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	1620	0	0	676
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	1620	0	0	676
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 88.4%		ICU Level of Service E	
Analysis Period (min) 15			

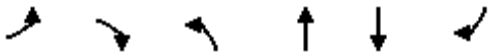
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	0	1490	0	0	622
Future Vol, veh/h	2	0	1490	0	0	622
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	1620	0	0	676

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2296	1620	0	0	1620	0
Stage 1	1620	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	43	127	-	-	402	-
Stage 1	178	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	43	127	-	-	402	-
Mov Cap-2 Maneuver	43	-	-	-	-	-
Stage 1	178	-	-	-	-	-
Stage 2	505	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	93.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	43	402	-
HCM Lane V/C Ratio	-	-	0.051	-	-
HCM Control Delay (s)	-	-	93.1	0	-
HCM Lane LOS	-	-	F	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	7	8	1482	615	15
Future Volume (vph)	0	7	8	1482	615	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected						
Satd. Flow (prot)	1611	0	0	1863	1857	0
Flt Permitted						
Satd. Flow (perm)	1611	0	0	1863	1857	0
Link Speed (mph)	30			35	35	
Link Distance (ft)	362			731	440	
Travel Time (s)	8.2			14.2	8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	8	9	1611	668	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	1620	684	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 94.4%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	7	8	1482	615	15
Future Vol, veh/h	0	7	8	1482	615	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	9	1611	668	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2305	676	684	0	-	0
Stage 1	676	-	-	-	-	-
Stage 2	1629	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	42	453	909	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	38	453	909	-	-	-
Mov Cap-2 Maneuver	38	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	176	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	909	-	453	-	-
HCM Lane V/C Ratio	0.01	-	0.017	-	-
HCM Control Delay (s)	9	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Network Totals

Number of Intersections	5
Control Delay / Veh (s/v)	25
Queue Delay / Veh (s/v)	5
Total Delay / Veh (s/v)	30
Total Delay (hr)	94
Stops / Veh	0.61
Stops (#)	6998
Average Speed (mph)	10
Total Travel Time (hr)	135
Distance Traveled (mi)	1399
Fuel Consumed (gal)	171
Fuel Economy (mpg)	8.2
CO Emissions (kg)	11.98
NOx Emissions (kg)	2.33
VOC Emissions (kg)	2.78
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	104
Performance Index	113.7

3: TH 47 & Pleasant St

Direction	EB	WB	NB	SB	All
Future Volume (vph)	73	653	1398	709	2833
Control Delay / Veh (s/v)	9	36	34	13	29
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	9	36	34	13	29
Total Delay (hr)	0	7	13	3	23
Stops / Veh	0.34	0.73	0.78	0.59	0.71
Stops (#)	25	479	1097	421	2022
Average Speed (mph)	19	9	7	14	9
Total Travel Time (hr)	0	9	17	5	31
Distance Traveled (mi)	9	79	116	63	266
Fuel Consumed (gal)	1	11	22	7	41
Fuel Economy (mpg)	NA	7.4	5.2	8.9	6.5
CO Emissions (kg)	0.05	0.74	1.57	0.49	2.85
NOx Emissions (kg)	0.01	0.14	0.30	0.10	0.55
VOC Emissions (kg)	0.01	0.17	0.36	0.11	0.66
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	95	0	95

6: Martin St & TH 47

Direction	EB	WB	NB	SB	All
Future Volume (vph)	51	24	1529	645	2249
Control Delay / Veh (s/v)	304	299	10	0	17
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	304	299	10	0	17
Total Delay (hr)	4	2	4	0	10
Stops / Veh	1.00	1.00	1.91	0.09	1.36
Stops (#)	51	24	2919	58	3052
Average Speed (mph)	1	2	17	34	13
Total Travel Time (hr)	4	2	8	2	17
Distance Traveled (mi)	5	3	136	82	225
Fuel Consumed (gal)	4	2	28	4	37
Fuel Economy (mpg)	1.3	1.9	4.9	22.6	6.1
CO Emissions (kg)	0.25	0.12	1.94	0.25	2.57
NOx Emissions (kg)	0.05	0.02	0.38	0.05	0.50
VOC Emissions (kg)	0.06	0.03	0.45	0.06	0.60
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

9: TH 47 & BNSF RR Crossing

Direction	NB	SB	All
Future Volume (vph)	1473	645	2118
Control Delay / Veh (s/v)	88	17	66
Queue Delay / Veh (s/v)	39	0	27
Total Delay / Veh (s/v)	127	17	93
Total Delay (hr)	52	3	55
Stops / Veh	0.86	0.20	0.66
Stops (#)	1265	131	1396
Average Speed (mph)	3	18	5
Total Travel Time (hr)	57	6	63
Distance Traveled (mi)	187	113	300
Fuel Consumed (gal)	55	8	62
Fuel Economy (mpg)	3.4	15.1	4.8
CO Emissions (kg)	3.82	0.53	4.35
NOx Emissions (kg)	0.74	0.10	0.85
VOC Emissions (kg)	0.89	0.12	1.01
Unserved Vehicles (#)	0	0	0
Vehicles in dilemma zone (#)	6	3	9

12: TH 47 & County Park Access

Direction	WB	NB	SB	All
Future Volume (vph)	2	1490	622	2114
Control Delay / Veh (s/v)	9999	0	0	9
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	9999	0	0	9
Total Delay (hr)	6	0	0	6
Stops / Veh	1.00	0.00	0.00	0.00
Stops (#)	2	0	0	2
Average Speed (mph)	0	35	35	22
Total Travel Time (hr)	6	7	2	16
Distance Traveled (mi)	0	262	86	348
Fuel Consumed (gal)	4	10	3	17
Fuel Economy (mpg)	0.0	26.2	26.2	20.1
CO Emissions (kg)	0.29	0.70	0.23	1.21
NOx Emissions (kg)	0.06	0.14	0.04	0.24
VOC Emissions (kg)	0.07	0.16	0.05	0.28
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

14: TH 47 & Garfield St

Direction	EB	NB	SB	All
Future Volume (vph)	7	1490	629	2126
Control Delay / Veh (s/v)	13	2	0	1
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	13	2	0	1
Total Delay (hr)	0	1	0	1
Stops / Veh	1.00	0.35	0.00	0.25
Stops (#)	7	519	0	526
Average Speed (mph)	12	31	35	32
Total Travel Time (hr)	0	7	2	8
Distance Traveled (mi)	0	206	52	259
Fuel Consumed (gal)	0	12	2	14
Fuel Economy (mpg)	NA	16.8	26.2	18.0
CO Emissions (kg)	0.01	0.86	0.14	1.00
NOx Emissions (kg)	0.00	0.17	0.03	0.20
VOC Emissions (kg)	0.00	0.20	0.03	0.23
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	5
Control Delay / Veh (s/v)	25
Queue Delay / Veh (s/v)	5
Total Delay / Veh (s/v)	30
Total Delay (hr)	94
Stops / Veh	0.61
Stops (#)	6998
Average Speed (mph)	10
Total Travel Time (hr)	135
Distance Traveled (mi)	1399
Fuel Consumed (gal)	171
Fuel Economy (mpg)	8.2
CO Emissions (kg)	11.98
NOx Emissions (kg)	2.33
VOC Emissions (kg)	2.78
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	104
Performance Index	113.7

Anoka County
TRANSPORTATION DIVISION
Highway

Joseph J. MacPherson, P.E.
County Engineer

November 17, 2023

Ben Nelson, Assistant City Engineer
City of Anoka
2015 First Avenue North
Anoka, MN 55303

RE: 2024 Met Council Regional Solicitation
TH 47 Railroad Grade Separation

Dear Mr. Nelson:

On behalf of the Anoka County Highway Department, we would like to extend our support for the construction of a grade separated crossing on TH 47 over the BNSF railroad.

We feel strongly that the proposed project is not only an enhancement to the local and regional transportation system, but an essential safety project for the well-being of our residents, businesses, and visitors.

More than 18,000 vehicles, 450 heavy trucks and 40-80 trains utilize this crossing each day. In fact, the railway through the project area is the busiest in the state. Crossing events lead to delays and significant queues on TH 47 that present additional mobility and safety issues extending far beyond the crossing area. The proposed project will grade-separate the TH 47 and BNSF railroad crossing and realign the S-curved section of TH 47 just north of the rail crossing.

Anoka County appreciates the opportunity to participate in this very exciting program.

Sincerely,

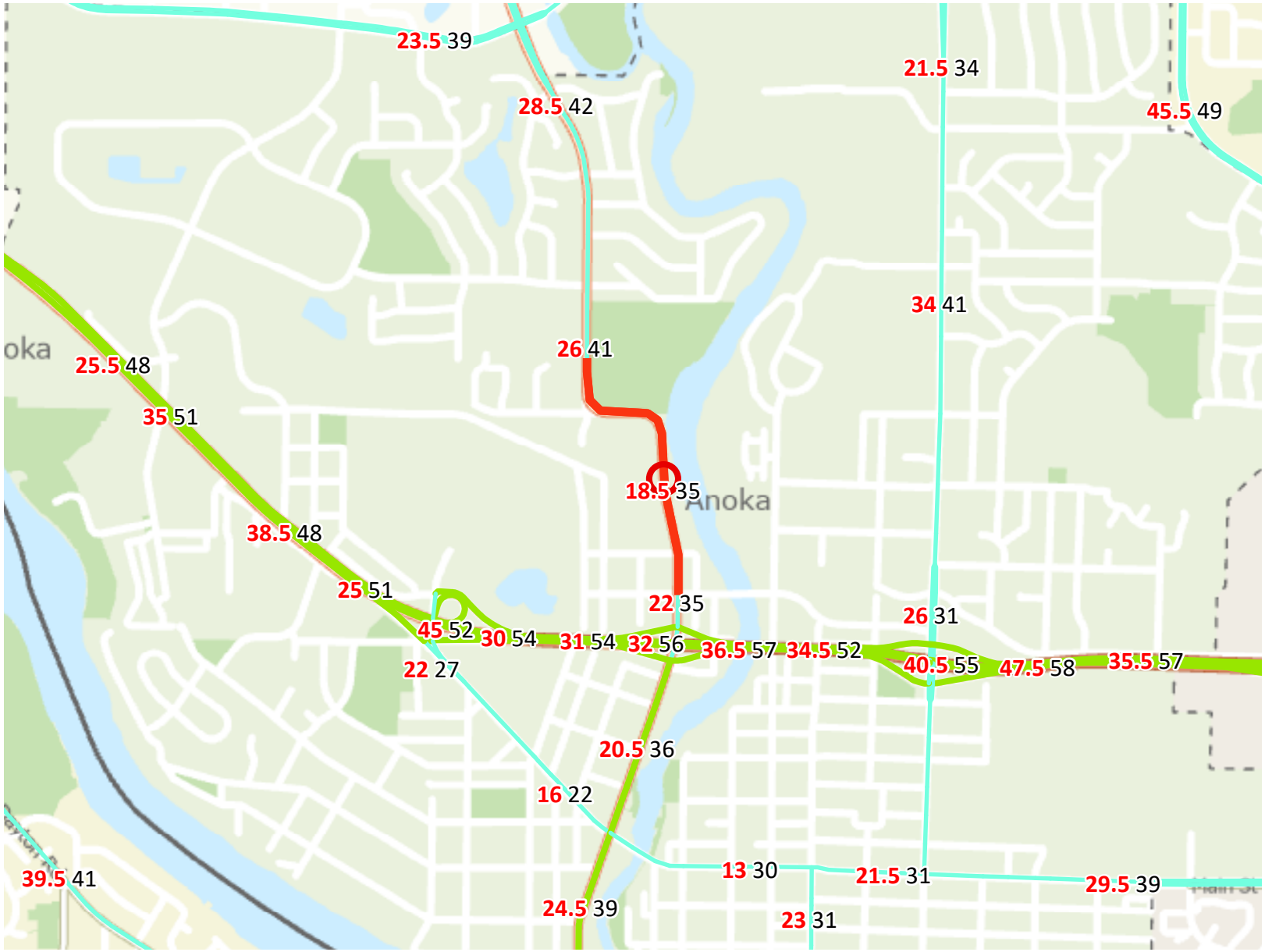
Joseph MacPherson

Joe MacPherson, P.E.
County Engineer

Map Document: \\arcserver1\GIS\ANOK_Basemap\ESRIPro\2023\TH_47_RR_Grade_Separation_Improvements\TH_47_RR_Grade_Sep_Improvements.aprx | Affordable Housing | Username: brita.dawson | Date Saved: 12/11/2023 11:23 AM

Level of Congestion

Roadway Reconstruction/Modernization Project: TH 47 Corridor Improvements | Map ID: 1701469453320



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

0 0.2 0.4 0.8 1.2 1.6 Miles

Created: 12/1/2023
LandscapeRSA1

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METROPOLITAN COUNCIL

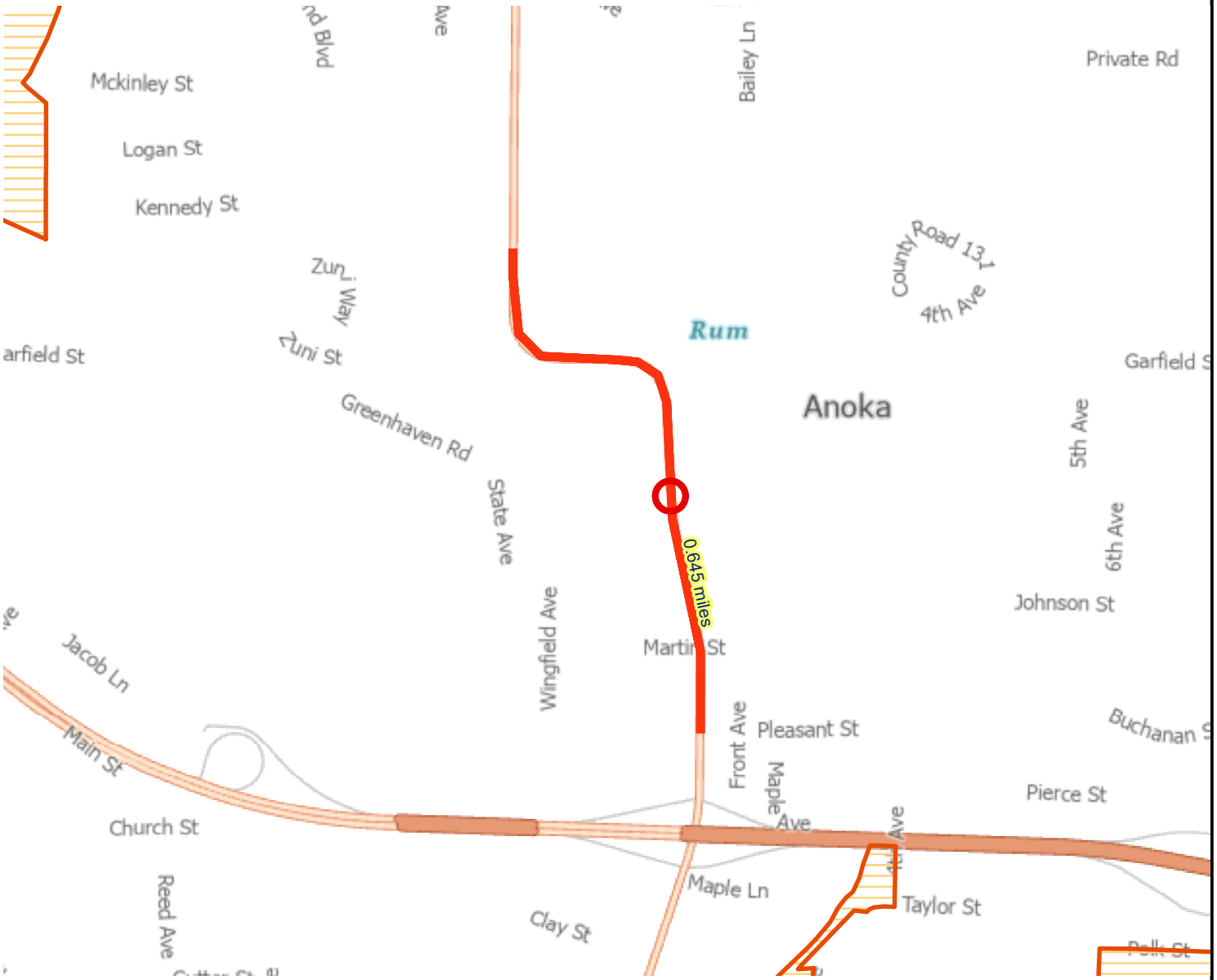
Regional Economy

Roadway Reconstruction/Modernization Project: TH 47 Corridor Improvements | Map ID: 1701469453320

Results

WITHIN ONE MI of project:
Postsecondary Students: 0

Totals by City:
Anoka
Population: 15656
Employment: 12926
Mfg and Dist Employment: 3606



Project Points
Project
Manfacturing/Distribution Centers
Job Concentration Centers

0 0.1 0.2 0.4 0.6 0.8 Miles

Created: 12/1/2023
LandscapeRSA5

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METROPOLITAN COUNCIL

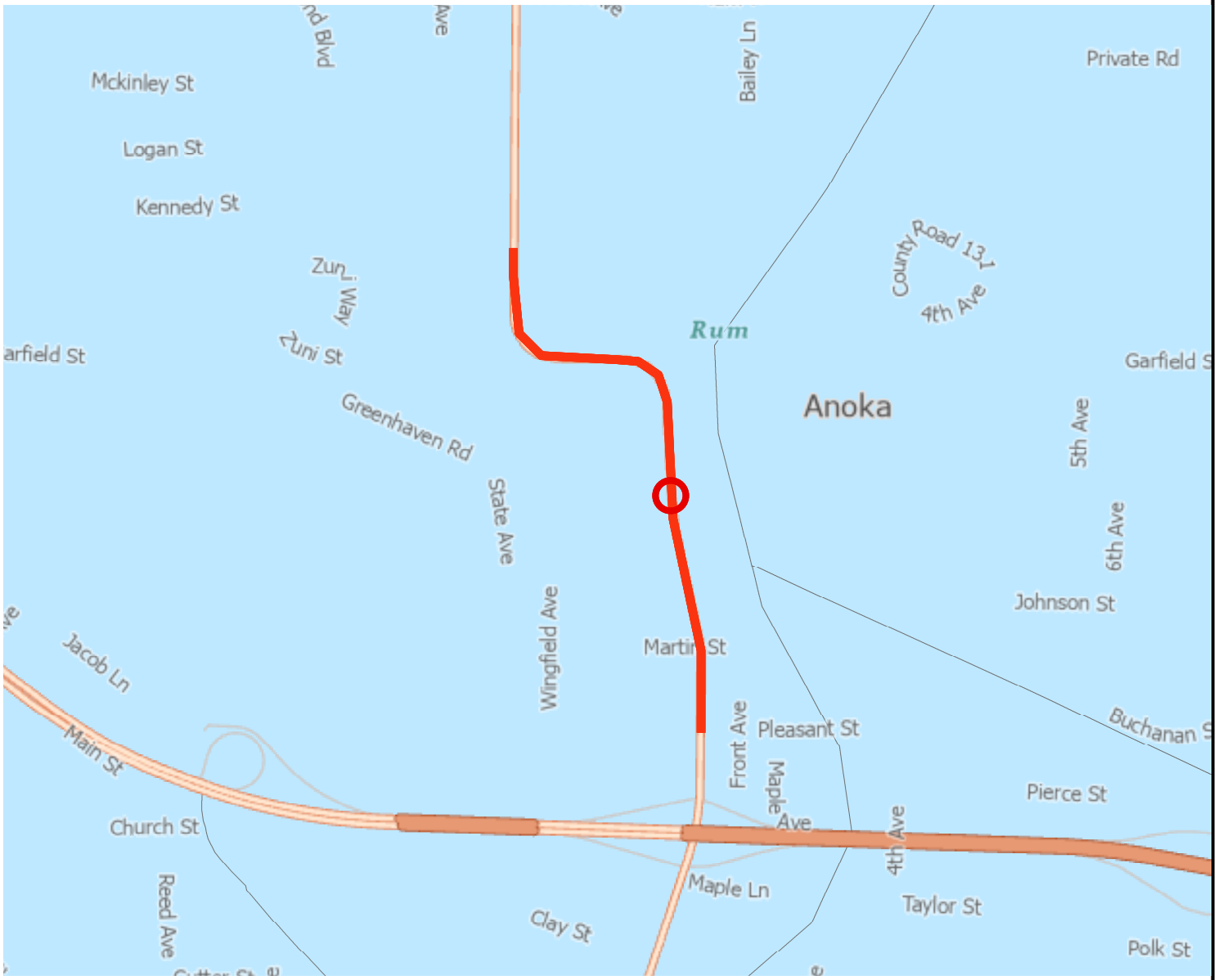
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: TH 47 Corridor Improvements | Map ID: 1701469453320

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 438

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



Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

0 0.1 0.2 0.4 0.6 0.8 Miles

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LandscapeRSA2

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METROPOLITAN COUNCIL

Transit Connections

Roadway Reconstruction/Modernization Project: TH 47 Corridor Improvements | Map ID: 1701469453320

Results

Transit with a Direct Connection to project: 888

**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 0.1 0.2 0.4 0.6 0.8 Miles

Created: 12/1/2023
LandscapeRSA3

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METROPOLITAN COUNCIL

Hwy 47 at BNSF Railroad Grade Separation (City of Anoka)

Project Name: Hwy 47 at BNSF Railroad Grade Separation
Applicant: City of Anoka
Primary Contact:

Ben Nelson
Assistant City Engineer
2015 1st Avenue, Anoka, MN 55303
763-576-2785
bnelson@ci.anoka.mn.us

Location & Route:

Pleasant Street to approximately 750 feet south of McKinley Street in Anoka

Application Category:

Roadway Reconstruction/Modernization

Funding Information:

Requested Award Amount: $7,000,000
Local Match: $12,848,000
Project Total: $19,848,000

Hwy 47/BNSF Railway Crossing Fast Facts:

- Approximately 5,400 freight loads per day on BNSF rail
- 18,300 AADT
- Approximately 4,000 combined HCAADT
- Current crash rate of 4.47 per one million VMT
- Projected crash rate of 1.07 per one million VMT
- Texas Priority Index score at this railroad crossing of 10,330
- TH 47 is a Tier 3 Regional Truck Corridor
- **Project area crash rate is five times the expected crash rate of similar intersections**

2024 *Award* → 2021-24 *Design* → 2024-26 *Construction*

Contact: bnelson@ci.anoka.mn.us

Project Description

The City of Anoka is requesting $32.5 million in Regional Solicitation funding to support construction of a grade separation on Highway 47 at the BNSF railroad crossing. According to the U.S. Department of Transportation Railroad Administration and MnDOT, the TH 47 and BNSF railroad crossing has one of the highest needs for improvements due to long-standing safety and accessibility issues.

The proposed project will address these issues by:

- Eliminating conflicts with trains and motorists, bicyclists and pedestrians, as well as reducing delays for TH 47 users
- Realigning the existing S-curved section of TH 47 just north of the rail crossing adjacent to the Anoka County Fair Grounds
- Improving intersection capacity and safety at TH 47/Pleasant Street
- Providing a new trailway connection for the county trail system and supporting ADA improvements along the corridor

Project Benefits/Regional Significance

The TH 47 at BNSF Railroad Crossing Project aims to identify an agreed-upon solution that will lead to the redesign and construction of a grade-separated crossing at the Trunk Highway (TH) 47 and BNSF railroad crossing, and the potential realignment of TH 47 in the City of Anoka to address serious, long-standing safety and mobility issues associated with the at-grade crossing that affect TH 47 and the surrounding system. This intersection has been rated as the most dangerous at-grade rail crossing in the state.

The project area sees high volumes of vehicles (18,300) and is on the busiest railway in the State of Minnesota (40-80 trains per day). In addition, trains travel through the crossing at high speeds (75 mph) often carrying crude oil from North Dakota and Montana.

The primary benefit of adding grade separation is that the railway can continue to function at capacity while eliminating risk to motorists, pedestrians, and bicyclists. Additionally, this intersection provides additional capacity for increased traffic because motorist delays will be eliminated. This project would also reduce impacts of the road along the Wild/Scenic/Recreational Rum River, minimize filling in the floodplain, reduce environmental impacts from contaminated sites, and minimize land takings in the Anoka County Fairgrounds and Anoka County Park.

Existing Conditions


Project Location
City of Anoka
Anoka County, MN
McKinley St
Anoka
County
Fairgrounds
Rum River
Garfield St W
BNSF Railroad
47
Greenhaven Golf Course
and Event Center
Ferry St
N 4th Ave
Fairoak Ave
W Main St
Pleasant St
10
Anoka
N
Clay St
169
N Ferry St
Hwy 47 at BNSF Crossing
Project Area

ALTERNATIVE 2

N

0 100 200
SCALE IN FEET

ANOKA COUNTY FAIRGROUNDS

GARFIELD ST

B

B

A

A

ALTER METALS

A-1 RECYCLING

ANOKA-HENNEPIN
EDUCATION SERVICE
CENTER

ANOKA TODAY ALANO

MARTIN ST

STATE AVE

WINGFIELD AVE

BRANCH AVE

FRONT AVE

PLEASANT ST

TH 47

US 10

Alignment Alternative 2