Application

19838 - 2024 Roadway Modernization
20434 - Hastings Highway 61 Modernization Project
Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
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Primary Contact

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Name:*

He/him/his (Pronouns) Chris (First Name) Charles (Middle Name) Eitemiller (Last Name)

Title: Finance Manager

Department: Finance

Email: CEitemiller@hastingsmn.gov

Address: 101 4th St East

*
Hastings (City) Minnesota (State/Province) 55033 (Postal Code/Zip)

Phone:* 651-480-2347 (Phone) Ext.

Fax:

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

Organization Information

Name: HASTINGS, CITY OF

Jurisdictional Agency (if different):

Organization Type: City

Organization Website:

Address: 101 4TH ST E

*
HASTINGS (City) Minnesota (State/Province) 55033 (Postal Code/Zip)

County: Dakota

Phone:* 651-437-4127

Ext.

Fax:

PeopleSoft Vendor Number 0000020950A1

Project Information

Project Name Hastings Highway 61 Modernization

Primary County where the Project is Located Dakota

Cities or Townships where the Project is Located: City of Hastings

Jurisdictional Agency (If Different than the Applicant): Minnesota Department of Transportation

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

Highway 61 is a principal arterial in Hastings. The project proposes reconstruction from approximately 4th Street to 36th Street in Hastings. Improvements include multimodal improvements (new trail, new ped bridge over Vermillion River, close sidewalk gaps), new traffic signals, access modification and reduction for safety and simplified intersection movements, and two new roundabouts.

The north end of the project includes the conversion of intersections to median barrier (right-in, right-out) intersections providing a two-stage pedestrian crossing.

The TH 55 intersection is strained for capacity - modifications here include reduction of access, improved turning lanes, and enhanced pedestrian safety made possible in part by reconstruction of the deteriorating Todd Field wall.

The addition of a traffic signal at 18th Street will enable better freight access to Highway 61 while also providing better pedestrian crossing options through this commercial portion of the corridor.

At the County Road 47 intersection, a slight shift of alignment creates more space for the right turn lane from CR 47 to Hwy 61. Similarly, the elimination of on-street parking here (and elsewhere in the corridor) enables greater clarity for motorists to make turning movements with visibility to the newly daylighted intersection. A notable addition in this area is a new pedestrian bridge over the Vermillion River, which will keep bike/ped traffic separated from Highway 61 and encourage greater use of the entire trail system.

The busy Hwy 316 intersection will be rebuilt as a roundabout, creating safer operations for all users in the corridor, including residents, businesses, and interregional freight haulers.

The southern segment of the corridor will be augmented with new multipurpose trails and a gateway roundabout at 36th Street which will signal to motorists they are entering Hastings.

(Limit 2,800 characters; approximately 400 words)

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

US 61 VERMILLION STREET, FROM SOUTH CITY LIMITS TO 4TH ST IN HASTINGS - RECONSTRUCT, SIDEWALK, PED/BIKE IMPROVEMENTS, SIGNALS, ADA

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)

2.3

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)	LRIP, TED
Federal Amount	$7,000,000.00
Match Amount *Minimum of 20% of project total*	$14,408,861.00
Project Total *For transit projects, the total cost for the application is total cost minus fare revenues.*	$21,408,861.00
Match Percentage *Minimum of 20%* *Compute the match percentage by dividing the match amount by the project total*	67.3%

Source of Match Funds City of Hastings, LRIP or TED (as applicable)

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#:

County, City, or Lead Agency City of Hastings

Functional Class of Road Principal Arterial

Road System TH

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

Road/Route No. 61

i.e., 53 for CSAH 53

Name of Road Vermillion Street

Example; 1st ST., MAIN AVE

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

From:
Road System City Street (MSA)

Road/Route No. 137

i.e., 53 for CSAH 53

Name of Road 4th Street

Example; 1st ST., MAIN AVE

To:
Road System City Street (MSA)

DO NOT INCLUDE LEGAL DESCRIPTION

Road/Route No. 139

i.e., 53 for CSAH 53

Name of Road 36th Street

Example; 1st ST., MAIN AVE

In the City/Cities of: Hastings

(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 2.3 miles

(nearest 0.1 miles)

Primary Types of Work (check all the apply)

New Construction

Reconstruction Yes

Resurfacing

Bituminous Pavement

Concrete Pavement

Roundabout Yes

New Bridge Yes

Bridge Replacement

Bridge Rehab

New Signal Yes

Signal Replacement/Revision	Yes
Bike Trail	Yes
Other (do not include incidental items)	Wall reconstruction
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	55033
Approximate Begin Construction Date	04/03/2028
Approximate End Construction Date	10/26/2029
Miles of Trail (nearest 0.1 miles)	1.4
Miles of Sidewalk (nearest 0.1 miles)	0.1
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:

The project is consistent with the goals, objectives, and strategies from the 2040 Transportation Policy Plan. Highlights of the most applicable elements are summarized below:

Goal: A. Transportation System Stewardship

Objectives:

-Preserve and maintain a state of good repair

- Efficiently and cost-effectively move people and freight

Strategies:

A1 - Strategically preserving, maintaining and operating the transportation system

A2 - Regional transportation partners should...incorporate improvements for safety, lower-cost congestion management and mitigation, strategic capacity, bicycle, and pedestrian facilities.

Goal: B. Safety and Security

Objective: Reduce fatal and serious injury crashes and improve safety and security for all modes of passenger travel and freight transport

Strategies:

B1 - Regional transportation partners will incorporate safety and security considerations for all modes and users throughout the processes of planning, funding, construction, and operation.

B6 - Regional transportation partners will use best practices to provide and improve facilities for safe walking and bicycling, since pedestrians and bicyclists are the most vulnerable users of the transportation system.

These goals, objectives, and strategies are found within pages 2.2-2.8 of the 2040 Plan.

Limit 2,800 characters, approximately 400 words

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

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

MnDOT and the City of Hastings are completing a Highway 61 Corridor Study with final documentation including a resolution from the City Council which supports the final recommendations as provided by the project team through extensive public engagement. This Corridor Study builds upon prior City work, including the 2018 Vermillion Street Corridor Study, the 2020 Hastings 2040 Comprehensive Plan, and the 2021 Hastings People Movement Plan. MnDOT currently has a pavement preservation project on this corridor identified in its 2024-2027 State Transportation Improvement Program (STIP).

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: 04/01/2019

Link to plan: https://www.hastingsmn.gov/city-government/city-departments/public-works/ada-transition-plan

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.

Requirements - Roadways Including Multimodal Elements

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$769,300.00
Removals (approx. 5% of total cost)	$492,110.00
Roadway (grading, borrow, etc.)	$500,000.00
Roadway (aggregates and paving)	$3,599,864.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$1,372,433.00
Ponds	$200,000.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$3,341,469.00
Traffic Control	$969,700.00
Striping	$121,250.00
Signing	$121,250.00
Lighting	$505,125.00
Turf - Erosion & Landscaping	$161,700.00
Bridge	$0.00
Retaining Walls	$195,500.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$3,000,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$2,363,200.00
Other Roadway Elements	$1,269,550.00
Totals	**$18,982,451.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost

Path/Trail Construction	$905,800.00
Sidewalk Construction	$810,000.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$210,610.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$0.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$0.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$0.00
Other Bicycle and Pedestrian Elements	$500,000.00
Totals	**$2,426,410.00**

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:

Totals

Total Cost	$21,408,861.00
Construction Cost Total	$21,408,861.00
Transit Operating Cost Total	$0.00

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

Existing Employment within 1 Mile:	5991
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	1360
Existing Post-Secondary Students within 1 Mile:	14
Upload Map	1702263662195_Regional Economy.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:	Yes
Miles:	1.7

(to the nearest 0.1 miles)

Along Tier 2:	
Miles:	0

(to the nearest 0.1 miles)

Along Tier 3:	Yes
Miles:	0.6

(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	South of 8th Street on Hwy 61 (SEQ# 10048)
Current AADT Volume	31000
Existing Transit Routes on the Project	Other

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

Upload Transit Connections Map	1702263969349_Transit Connections.pdf

Please upload attachment in PDF form

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	40300.0

Measure B: 2040 Forecast ADT

Use Metropolitan Council model to determine forecast (2040) ADT volume	No
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	Dakota County Travel Demand Model
Forecast (2040) ADT volume	40000

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 Hastings has a higher white population (90.6%) than the Twin Cities metro region as a whole (73.1%). The BIPOC community in Hastings is ~9.4%. The population with a disability in Hastings (14.8%) is higher than the metro area (11.8%) and low income (below 200% poverty level) is slightly below (19.3%) the metro area (21.2%).

An extensive, multi-step engagement process was used as part of study development: Phase one engagement presented existing conditions, including past studies, and gathered the community?s issues and experiences traveling along or across Hwy 61. Phase two engagement presented what we heard in phase one and gathered feedback on evaluation criteria and design concepts developed using data from phase one. Phase three presented what we heard in phase two and a proposed vision for the corridor for community feedback.

Engagement activities included three public meetings, a pop-up at community event, door-knocking businesses, and online engagement activities. The community was made aware of engagement opportunities by social media, fliering, multiple postcard mailers, and notice in the Hastings newsletter mailed to every property. Through the three rounds of engagement, more than 200 people attended in-person public meetings and more than 350 surveys or online map comments were received including 454 comments on the design concepts during phase two.

After completion of the study but prior to the City of Hastings resolution of support, the project team met individually with businesses and key stakeholders along the corridor to review the vision and consider whether refinements were needed. Some of the notable changes came from discussions with the small businesses to understand their customer movements and access and requirements ? these discussions resulted in modifications to the allowable turning movements and the location of business access that meet business and community needs without impacting the design intent for the corridor as a whole.

Public engagement has continued through and beyond the corridor study, with updates to the project web site https://www.dot.state.mn.us/metro/projects/hwy61hastings/ routinely made.

(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 City of Hastings is neighbors to the Prairie Island Indian Community (PIIC). We have engaged with their leadership and understand the economic and cultural importance regional access of TH 61 provides to Treasure Island Resort and Casino and events such as Pow Wows (see the attached letter of support from Prairie Island Indian Community). This project request would allow the investment in mobility improvements to keep travel times consistent with todays operations rather than allow travel times to delay to the point of gridlock if nothing is done. Furthermore, the safety improvements along the corridor and specific to major intersections will result in less crashes, reduced congestion, and engineered solutions to give more decision-making time to drivers along the corridor. TH 61 carries the majority of visitors to PIICs facilities, and support for these timely safety and mobility improvements is vital to their future success in the region.

The City of Hastings also engaged with THRIVE (a local organization that was created out of the Black Lives Matter movement) to relate these improvements to the BIPOC community. One significant benefit of this project was the commitment to a more walkable corridor. TH 61 is deficient in ADA sidewalk facilities and has several gaps in bike/pedestrian connectivity to places of interest. Further TH 61 acts as a divide of the community with the challenges of crossing a corridor that carries 30,000+ vehicles per day with no pedestrian crossing enhancements. It was stated that the BIPOC community relies on multiple modes of transportation, especially with many families owning one vehicle. Pedestrian and bicycle connectivity along the corridor (and crossing it) opens up the ability for the entirety of the families to work, shop, attend church, and get the services they need (THRIVE is located on the project corridor). There are also key attractions that will benefit the BIPOC population, such as connections to the Downtown Business District, Lake Rebecca fishing (said to be a rite of passage for local indigenous groups), Pavilion located in Levee Park, and the Vermillion Falls Park. A key connection in this list is the pedestrian bridge across the Vermillion River and associated trail/sidewalk replacements and extensions to connect the TH 61 corridor. The Vermillion Falls Park is a key destination that the BIPOC community has requested multi-modal connection to. This would allow for a gathering space with opportunity for events and experiences for the BIPOC community.

We were informed that our BIPOC population owns businesses, such as the Coratel Inn that depends on mobility and safe access to attract business and stay in this market.

(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:

TH 61 Vermillion Street connects residents to retail and service opportunities. The City of Hastings adopted a Fair Housing Plan in 2019 to support providing housing opportunities to those in need. Within a half mile of the corridor there are over 160 subsidized housing units. Guardian Angels, a 30-unit apartment building operated by Common Bond Communities utilizes a historic school building. The Quill, a 90-unit independent living senior housing building was recently opened. A Housing Tax Increment Finance District were established for both Guardian Angels and the Quill to ensure affordable rents. Mississippi Terrace, a 40-unit senior housing facility is operated by the Dakota County Community Development Agency (CDA) with all unit?s income restricted. Approximately 450 affordable housing units are available or under construction within one half mile of the corridor:

- Artspace of Hastings, a 37-unit apartment providing live\work units for artists has implemented caps on rental prices.

- Hastings Terrace containing 65 lots for manufactured homes and travel trailers abuts the corridor.

- Suite Living of Hastings, a 32-unit senior living facility has been granted building approvals with construction anticipated in 2024.

- Current 33 a 213-unit market rate apartment building is currently under construction at the south end of the corridor.

- Lake Isabel Flats, a 90-unit market rate apartment is currently under construction in downtown.

Dakota County CDA has purchased additional land near the corridor for further workforce housing construction in the near future. Most of the 2,500 existing single-family housing units located within one half mile of the corridor were constructed prior to 1950 and are considered naturally occurring affordable housing (NOAH). TH 61 serves as a primary commercial and service corridor within the City containing a grocery store, two pharmacies, medical facilities, elementary school, and churches.

Organizations along the corridor serve those with socioeconomic challenges. Hastings Family Service operates a food shelf and provides social service assistance. Rise Up Recovery, a provides peer services and housing for those recovering from substance abuse. Stepping Out provides counseling and assistance for those with Prader-Willi syndrome.

TH 61 bisects the City and serves as both a corridor of opportunity as well as a physical barrier preventing access from one side to the other. The inclusion of improved sidewalks will improve pedestrian access. Controlled intersections and widened median areas will help facilitate crossing of the corridor. Hastings does not have a fixed route mass transit system adding to the importance of non-motorized modal connections.

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

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:

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

Project located in a census tract that is below the regional average for population in poverty or populations of color (Regional Environmental Justice Area): Yes

Upload the ?Socio-Economic Conditions? map used for this measure. 1702268002314_Socio-Econ Conditions.pdf

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
2010	0.1	201.0	87.391
1981	1.2	2377.2	1033.565
1931	1.0	1931.0	839.565
	2	**4509**	**1961**

Total Project Length

Total Project Length (as entered in "Project Information" form) 2.3

Average Construction Year

Weighted Year 1960

Total Segment Length (Miles)

Total Segment Length 2.3

Measure B: Geometric, Structural, or Infrastructure Improvements

Improved roadway to better accommodate freight movements: Yes

Response:

The proposed project will reduce conflict points for freight traffic and improve the overall traffic flow. Specific elements include eliminating several bays of on-street parking, closing 23 accesses, restricting 20 accesses to either ¾-access or right-in/right-out, and adding a new backage road for local land use connections away from the highway. Another key aspect is the realignment of key local road intersection with the highway and additional of a new traffic signal. This local road has heavy freight use by Ardent Mills and other local industry. The improvement will reduce delay for freight turning movements through the intersection.

(Limit 700 characters; approximately 100 words)

Improved clear zones or sight lines: Yes

Response:

As proposed, the project improvements to sight distance include 2 intersection realignments, eliminating on-street parking, and reducing access. One local road intersection realignment will align with the opposing side and reduce the road width to eliminate existing driver confusion on where to turn. The second intersection realignment will provide a 90-degree intersection with a County Road instead of the current skewed connection. Eliminating parking removes those vehicles from driver sight lines. Closing 23 accesses and restricting 20 others will increase the distance between conflict points, minimizing the number of turning movements within a driver?s sight lines.

(Limit 700 characters; approximately 100 words)

Improved roadway geometrics: Yes

Response:

The proposed project includes multiple elements of improved geometry for this busy highway. On-street parking is eliminated to reduce conflicts, provide a boulevard separation for pedestrians, and provide a consistent curb lane along the corridor. Turn lanes will be added to two primary intersections, one with another highway and one with a county road. A roundabout will be constructed at an intersection with another highway to improve traffic flow and safety. Overall reduction in access will reduce conflicts for vehicles and pedestrians. The center median will be reconstructed to separate driving directions and provide space for left turn lanes or a refuge area for crossing pedestrians.

(Limit 700 characters; approximately 100 words)

Access management enhancements: Yes

Response:

The proposed access management of this project impacts a total of 43 intersecting private and public connections over the 2.3-mile corridor. Full access is reduced by approximately 19 accesses per mile. One public intersection is closed along with a reduction to right-in/right-out of 10 intersecting streets. Another 2 public streets will be reduced to ¾-access. 22 private driveways will be closed along the highway. An additional 6 private driveways will become right-in/right-out only and 2 will be reduced to ¾-access.

(Limit 700 characters; approximately 100 words)

Vertical/horizontal alignment improvements: Yes

Response:

This project will improve the horizontal alignment of two intersecting public roads. A local road connection with heavy freight use will be aligned with the opposing side to create a four-legged intersection at 90-degrees. A county road will also be realigned to remove the skew and provide a 90-degree intersection. These realignments will improve turning movements to and from the roads and improve sight lines for drivers.

(Limit 700 characters; approximately 100 words)

Improved stormwater mitigation: Yes

Response:

Stormwater mitigation is expected to improve through the project by reducing the overall amount of impervious pavement and providing new areas for vegetation and landscaping. Pavement is expected to decrease through the elimination of on-street parking, the reduction in access driveways, and the construction of 2 roundabouts in place of multilane traditional intersections. The project also includes several areas of increased center median width, where plantings can be placed instead of concrete. Similarly, 6 spots have been identified for community space making opportunities, which are envisioned as natural areas with City information like historical markers.

(Limit 700 characters; approximately 100 words)

Signals/lighting upgrades: Yes

Response:

The existing 5 signal systems on this corridor will be reconstructed. An additional signal system will also be added at 1 intersection. These signals will be upgraded to include flashing yellow arrow operation. The project is also considering blank-out No Right Turn on Red signs to better control vehicle movements against pedestrian crossings. All signals will have ADA compliant push buttons and crossings with overhead lighting. Street lighting will be added at the 2 proposed roundabout intersections.

(Limit 700 characters; approximately 100 words)

Other Improvements Yes

Response:

This project includes multiple other improvements to provide for a complete corridor that is a part of the community as opposed to a barrier. A retaining wall will be reconstructed to allow space for ADA improvements and a turn lane. Protection will be installed around the adjacent high school stadium to protect against off-tracking vehicles. A pedestrian bridge will improve the connection across a river and include a connection to a regional trail. The existing downtown boulevard brick pattern and color will be included on part of the highway to better recognize its connection to the City and improve the sense of place.

(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
89.0	40.0	49.0	11406	11406	1015134.0	456240.0	558894.0	N/A	1702332117333_Synchro Outputs.pdf
						456240			

Vehicle Delay Reduced

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

1015134.0	456240.0	558894.0

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

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
22.55	18.99	3.56
23	**19**	**4**

Total

Total Emissions Reduced: 3.56

Upload Synchro Report 1702514069066_02 Synchro Outputs.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:

CMFs at various intersections include conversion to right-in right out intersection (9821), raised median for pedestrians (8800), presence of three-leg intersection vs. four-leg intersection (5233), replace direct left turn with right turn/U-turn (351), install traffic signal (7983), provide right turn lane on one major-road approach (286), convert from minor-road stop to roundabout (227), and prohibit on-street parking (154)

(Limit 700 Characters; approximately 100 words)

Rationale for Crash Modification Selected:

These modifications come directly from the Highway 61 Hastings Corridor Study which used extensive public engagement to create a vision for the corridor through Hastings.

The selected CMFs closely match the improvements being proposed for safety and operational benefits, and most closely match the project area, prior conditions, and applicability criteria in the CMF information. No direct CMF was found for converting 14th Street to ¾ access, so CMF 351 (replace direct left turn with right turn/U-turn) was used instead. Although a U-turn is not being encouraged or designed for in this improvement, this CMF most closely represents the safety benefits of eliminating a direct left turn from a minor street approach.

(Limit 1400 Characters; approximately 200 words)

Project Benefit ($) from B/C Ratio	$26,396,962.00
Total Fatal (K) Crashes:	1
Total Serious Injury (A) Crashes:	2
Total Non-Motorized Fatal and Serious Injury Crashes:	1
Total Crashes:	190
Total Fatal (K) Crashes Reduced by Project:	0
Total Serious Injury (A) Crashes Reduced by Project:	0
Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:	0
Total Crashes Reduced by Project:	40
Worksheet Attachment	1702332472850_CMFs for Regional Solicitation.pdf

Please upload attachment in PDF form

Roadway projects that include railroad grade-separation elements:

Current AADT volume:	0
Average daily trains:	0
Crash Risk Exposure eliminated:	0

Measure B: Pedestrian Safety

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

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

Project is primarily a freeway (or transitioning to a freeway) <u>and</u> 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) <u>and</u> 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:

Multiple unsignalized intersections will be converted to signals (one) or roundabouts (two). These changes increase safety by reducing speeds, signaling to motorists that they are entering an urban environment, simplifying pedestrian movements, and in the case of the 18th Street realignment and signalization, the crossing distance for pedestrians is reduced.

One of the busiest intersections in the corridor is at 10th Street. The west leg of 10th Street will be converted to one-way traffic only, thereby simplifying the potential conflicts for pedestrians at this location (adjacent to the high school football stadium)

Gaps in the sidewalk/trail system adjacent to Hwy 61 will be closed with new sidewalks and made safer through the elimination of access points, thereby reducing pedestrian/vehicle conflicts.

Additionally, two unsignalized intersections in the residential land use areas will be converted to right-in/right out movements with a median barrier on Hwy 61, providing a refuge for two-stage crossing of Hwy 61, changing what is currently a five-lane section to two, two-lane crossings. These measures, along with striping lanes to 11-foot width, are anticipated to slow motorist speed and provide a more comfortable pedestrian environment. Two locations in the corridor include a widened or new right turn lane. In both instances, the change creates a safer environment by incorporating other elements such as elimination of parking (better sightlines for all users), wider sidewalks, better defined crossings, and reduced driver confusion.

(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: Yes

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

Response: 2

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

Response:

These locations are at signalized intersections (TH 55 and CR 47 with high demand right turns that are currently inadequately provided. Consequently, they are less safe due to driver confusion and congestion challenges, with changes such as elimination of on-street parking, these locations will have better sightlines and a user experience that is more consistent with typical signalized intersection, thereby increasing safety.

(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:

Roundabouts at critical locations in the southern portion of the corridor serve as gateway features to the corridor to encourage slower speeds, lanes will be striped at 11 feet wide - the narrowest we felt comfortable with for a high use freight corridor. This, combined with addition of median barriers for intersection closures will provide multiple cues to motorists that make the corridor feel tighter and encourage slower speeds.

One of the aspects of this corridor is the high demand left turning movement from Hwy 61 to Hwy 316. The addition of a roundabout at this intersection will help limit the feeling that motorists need to race to the left turn lane knowing that both lanes can access the left turn move through the roundabout. This will further encourage safer driving in the corridor.

(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:

No change in design, operation, and/or posted speeds are anticipated

(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	31000

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

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

☐

Existing road has transit running on or across it with 1+ transit stops in the project area (If flag-stop route with no fixed stops, then 1+ locations in the project area where roadside stops are allowed. Do not count portions of transit routes with no stops, such as non-stop freeway sections of express or limited-stop routes.)	
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)	Yes

If checked, please describe:

More than a dozen quick service and sit-down dining establishments line Hwy 61 with other commercial destinations in between creating a high demand environment for bike and pedestrian mobility. The area between TH 55 and 18th Street is the most dense for pedestrian/bike crashes in the corridor and features amenities such as ice cream shops, convenience stores, pharmacies, and specialty shops.

Hastings historic downtown is immediately adjacent to the Hwy 61 corridor as well, and with the residential neighborhood to its southwest, Hwy 61 is a natural corridor for pedestrian movement to and from downtown.

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

(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 most notable pedestrian generator in the corridor is Todd Field, which is the location for Hastings School District football and soccer events. Located at the intersection of TH 55 and Hwy 61, this is a high traffic area with narrow sidewalks. Parking for events here is dispersed through the community; along with local restaurants and housing complexes on the opposite side of Hwy 61, pedestrian crossings of Hwy 61 are common.

At the intersection of Hwy 61 and 316 is the Hastings Civic Arena (HCA). As an event center for hockey games and associated recreational activities, this destination is directly affected by operations at the intersection. The previous Hwy 316 project (finished in 2021) provided pedestrian and traffic calming features for one major leg of the intersection. This proposed project will finish off needed changes including a roundabout at Hwy 61 and 316 and close existing gaps in the trail network leading to HCA.

Several churches are located along the corridor as well, serving as valuable community resources for the neighborhoods immediately adjacent as well as attendees from beyond, who often depend on on-street parking (and crossing Hwy 61) to access the church facilities.

(Limit 1,400 characters; approximately 200 words)

Measure A: Multimodal Elements and Existing Connections

Response:

This project will improve safety and mobility for all users by reducing conflicts, providing new facilities, and incorporating elements to reduce vehicle speeds.

Transit service is currently limited to The Loop and Transit Link, dial-a-ride transportation services. The Loop has one set stop along Highway 61. Future transit plans include the Red Rock Corridor, which connects Hastings to St. Paul. Existing and future transit use on Highway 61 will benefit from improved traffic flow and a safer corridor. Eliminating on-street parking and adding a boulevard will provide space for future transit stops along Highway 61 if needed.

The City?s prior work for pedestrian and bicycle travel includes the People Movement Plan (2021), the Hastings 2040 Comprehensive Plan, and the Vermillion St. Corridor Plan (2018). The Highway 61 Improvements build on that work by providing multiuse trails on both sides from the Vermillion River bridge south to 36th Street. These trails will connect this area with the Vermillion River Greenway Regional Trail and the Mississippi River Trail Bikeway (USBR 45). This work will also indirectly connect to the Point Douglas Regional Trail. The Mississippi River Trail Bikeway and Point Douglas Regional Trail are Regional Bicycle Transportation Network Tier 2 alignments.

Consistent with other plans, bicycle travel between the Vermillion River bridge north to 4th Street will occur on other adjacent corridors with less vehicle traffic. While not providing multiuse trails in this area, Highway 61 will improve the sidewalks on both sides of the road. The proposed plan will provide a consistent sidewalk width for the entire length along with a boulevard to separate pedestrian movements from the vehicle travel lanes. Equally important, the plan provides multiple safe crossings of Highway 61 via existing and proposed traffic signals, two new roundabout controlled intersections, and several identified locations for mid-block crossings. The mid-block crossings will have a wide refuge median to allow people to cross one direction of travel at a time. Vehicle conflicts will be reduced by eliminating multiple driveways and reducing full access movements for others.

A detailed field review of the corridor identified multiple concerns regarding ADA compliance. The entire highway will be updated for full compliance, consistent with MnDOT, Dakota County, and the City of Hastings ADA transition plans.

Elements are proposed to slow vehicle speeds along the corridor, such as striping narrow vehicle lanes, narrowing the corridor through eliminating on-street parking and a wider median in select areas, reducing the corner radius where possible, and adding an outside truck apron for highway-to-highway or highway-to-county road right turn movements.

(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:

An extensive, multi-step engagement process was used as part of study development: Phase one engagement presented existing conditions, including past studies, and gathered the community?s issues and experiences traveling along or across Hwy 61. Phase two engagement presented what we heard in phase one and gathered feedback on evaluation criteria and design concepts developed using data from phase one. Phase three presented what we heard in phase two and a proposed vision for the corridor for community feedback.

Engagement activities included three public meetings, a pop-up at community event, door-knocking businesses, and online engagement activities. The community was made aware of engagement opportunities by social media, fliering, multiple postcard mailers, and notice in the Hastings newsletter mailed to every property. Through the three rounds of engagement, more than 200 people attended in-person public meetings and more than 350 surveys or online map comments were received including 454 comments on the design concepts during phase two.

Community members were also able to obtain project updates through multiple presentations given to the Hastings City Council, the City Council commemorated the conclusion of the study with a resolution of support in June 2023.

All businesses along the Hwy 61 corridor were contacted and given the opportunity to provide input directly to the project team. In addition to meetings with individual businesses, the MnDOT/City of Hastings project team also met with the Chamber of Commerce and Downtown Business Association.

The project has an active web site that is currently maintained by MnDOT: https://www.dot.state.mn.us/metro/projects/hwy61hastings/

(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.

50%

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

25%

Layout has not been started

0%

Attach Layout	1702265450022_Appendix A Project Layout.pdf

Please upload attachment in PDF form

Additional Attachments

Please upload attachment in PDF form

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

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

100%

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

100%

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

80%

Historic/archeological property impacted; determination of ?adverse effect? anticipated

40%

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

0%

Project is located on an identified historic bridge

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

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

100%

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

50%

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

25%

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

0%

5. Railroad Involvement (15 Percent of Points)

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

100%

Signature Page

Please upload attachment in PDF form

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

50%

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

0%

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	$21,408,861.00
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$21,408,861.00
Enter amount of any outside, competitive funding:	$0.00

Attach documentation of award:

Points Awarded in Previous Criteria

Cost Effectiveness	$0.00

Other Attachments

File Name	Description	File Size
01 MetCouncilMaps-ALL.pdf	Make a Map forms	2.1 MB
02a Synchro Outputs part 1.pdf	Congestion and Emissions Data	333 KB
02b Synchro Outputs part 2.pdf	Congestion and Emissions Data	91 KB
03 HSIP Benefit Cost Worksheet-Regional Solicitation.pdf	Benefit Cost worksheet	267 KB
04a CMFs for Regional Solicitation part 1.pdf	Crash Modification Factors	133 KB
04b CMFs for Regional Solicitation part 2.pdf	Crash Modification Factors	38 KB
05 Hwy61 Project Summary.pdf	Project Information and Pictures	1.1 MB
06 Hwy 61 Layout Sheets All.pdf	Project Improvement Layouts	4.1 MB
07 MnDOT Hwy 61 Letter of Support.pdf	MnDOT Letter of Support	208 KB
08 Prairie Island letter of support.pdf	Prairie Island Letter of Support	604 KB

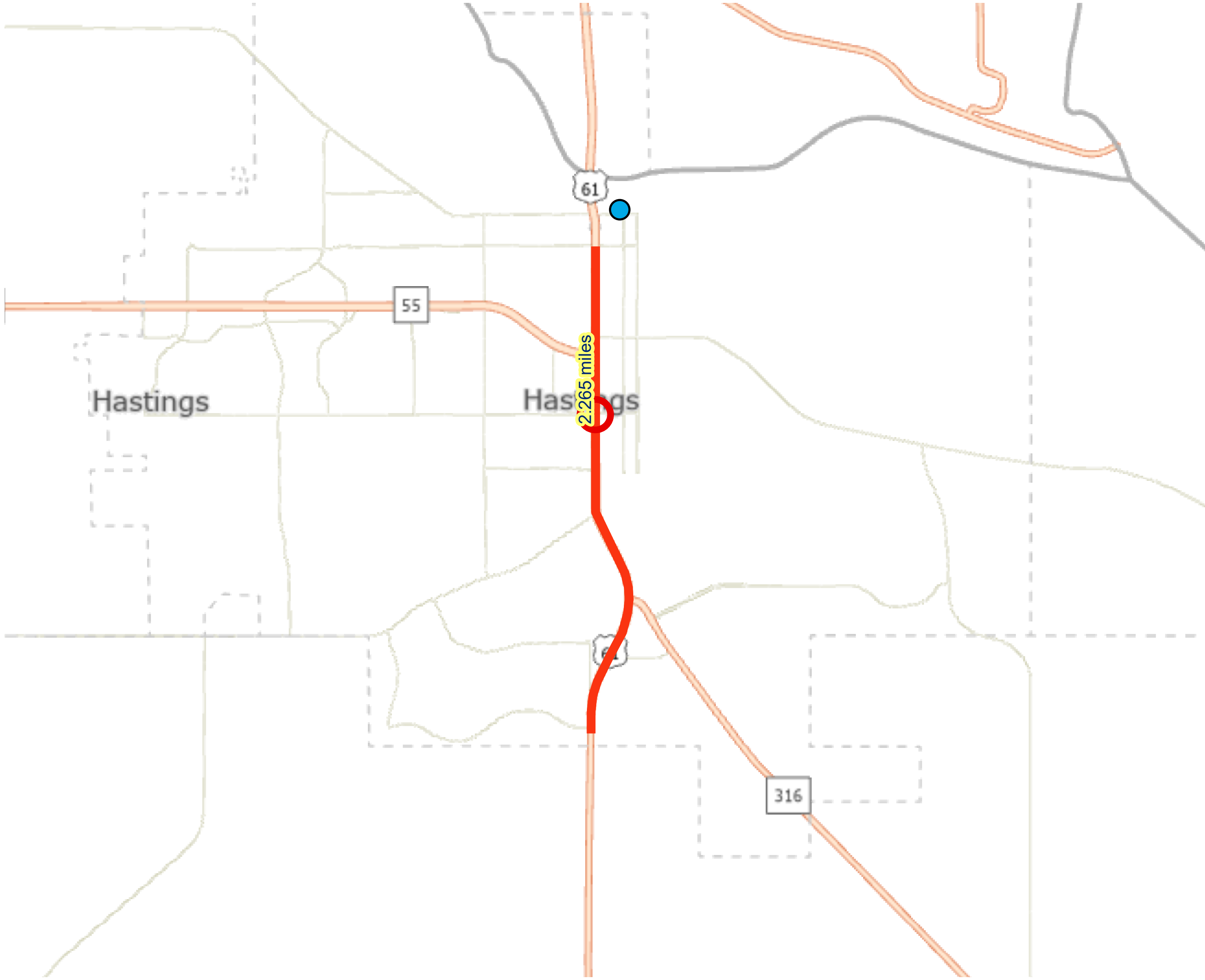
Regional Economy

Roadway Reconstruction/Modernization Project: Hastings Highway 61 Modernization | Map ID: 1699985570934

Results

WITHIN ONE MI of project:
Postsecondary Students: 14

Totals by City:
Hastings
Population: 14288
Employment: 5553
Mfg and Dist Employment: 1359
Marshan Twp.
Population: 1390
Employment: 438
Mfg and Dist Employment: 1



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

0 0.45 0.9 1.8 2.7 3.6 Miles

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LandscapeRSA5

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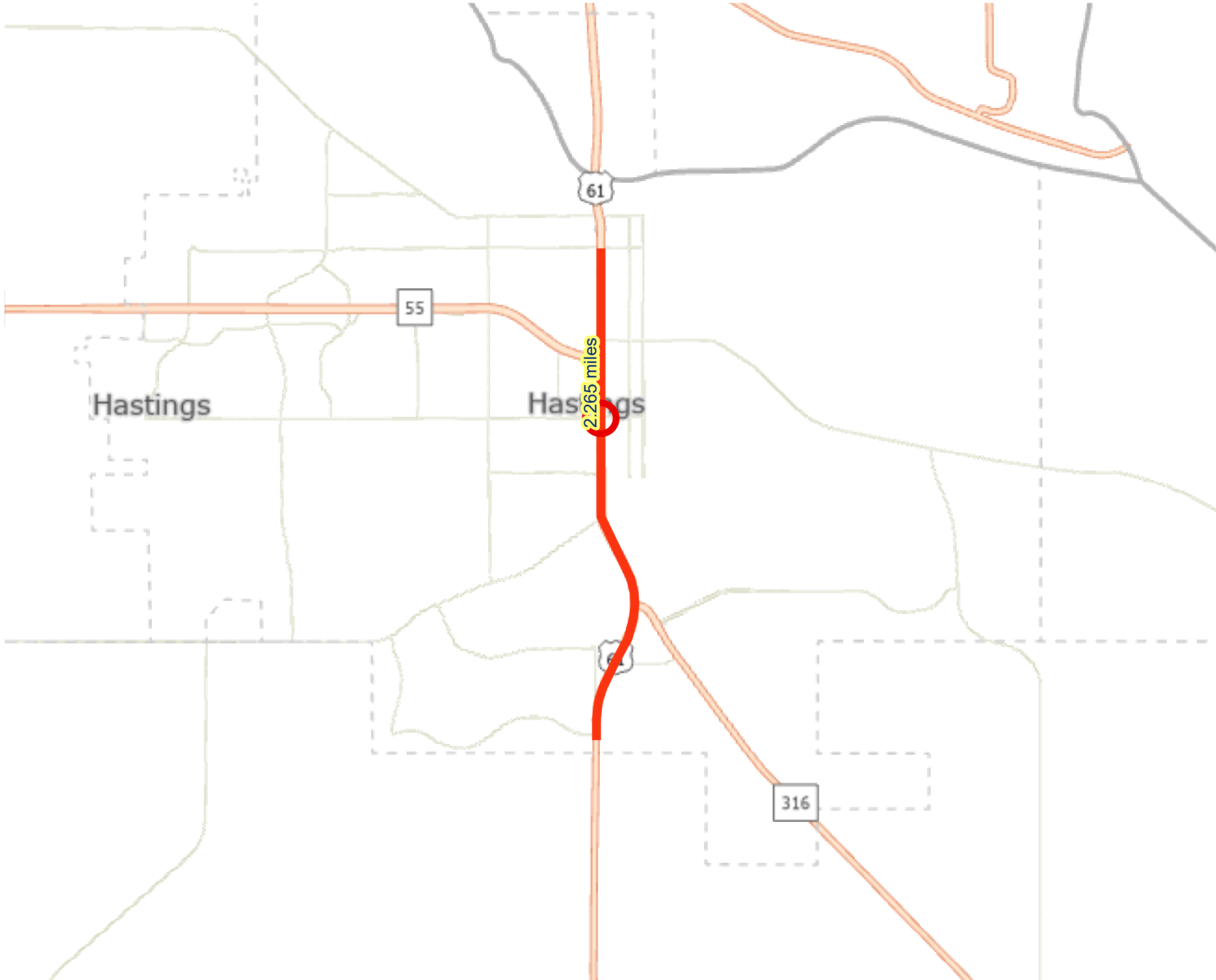
METROPOLITAN COUNCIL

Transit Connections

Roadway Reconstruction/Modernization Project: Hastings Highway 61 Modernization | Map ID: 1699985570934

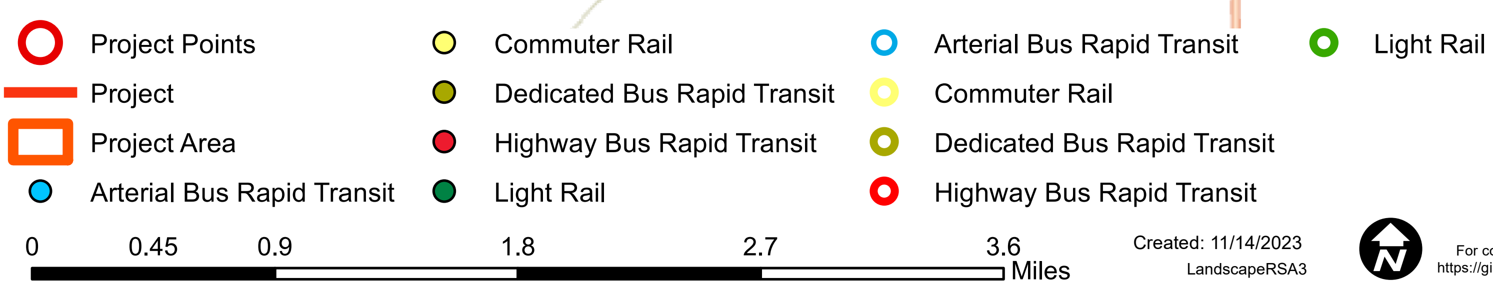


Results

Transit with a Direct Connection to project:
*Red Rock

indicates Planned Alignments

Transit Market areas: 2



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METROPOLITAN COUNCIL

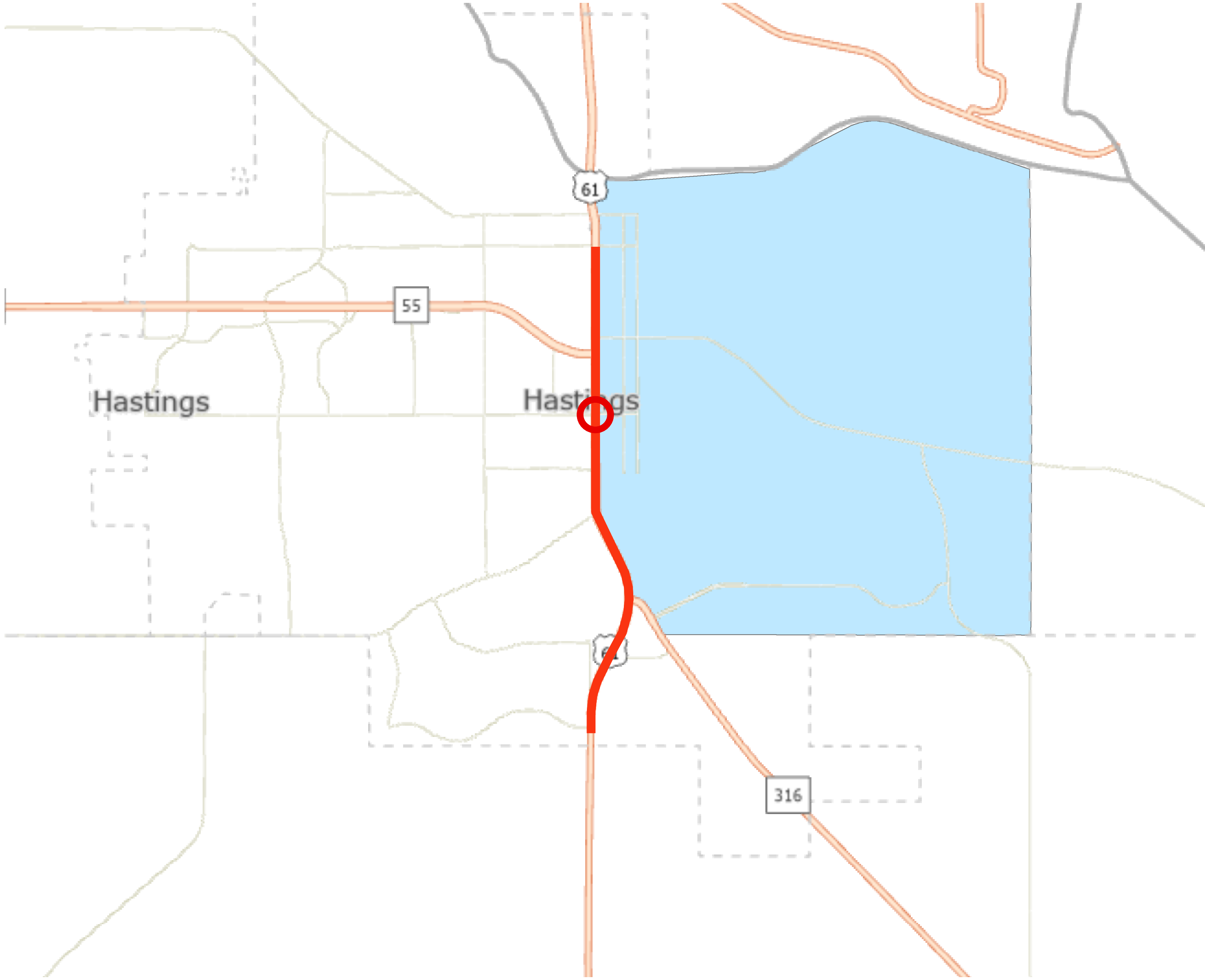
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: Hastings Highway 61 Modernization | Map ID: 1699985570934

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 255

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



Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

0 0.45 0.9 1.8 2.7 3.6 Miles

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LandscapeRSA2

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METROPOLITAN COUNCIL

Hastings Highway 61 Modernization Project					
Congestion Reduction Calculation Table					
	TH 316	CSAH 47	TH 55	10th St	**TOTAL**
Peak Hour Delay/Vehicle without the Project (seconds/vehicle)	47	12	19	11	**89**
Peak Hour Delay/Vehicle with the Project (seconds/vehicle)	6	9	13	12	**40**
Peak Hour Delay/Vehicle Reduced by the Project (seconds/vehicle)	41	3	6	-1	**49**
Volume (vehicles/hour)	2302	2914	3141	3049	**11406**
Total Peak Hour Delay Reduced by the Project (seconds)	94382	8742	18846	-3049	**118921**

Emissions Reduction Calculation Table					
Total Peak Hour Emissions without the Project (kg)	8.05	5.82	4.37	4.31	**22.55**
Total Peak Hour Emissions with the Project (kg)	4.96	5.62	3.81	4.6	**18.99**
Total Peak Hour Emissions Reduced by the Project (kg)	3.09	0.2	0.56	-0.29	3.56

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	760	331	27	726	451
Future Volume (Veh/h)	7	760	331	27	726	451
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	7	784	341	28	748	465
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2070	341			369	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2070	341			369	
tC, single (s)	7.1	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	53	0			37	
cM capacity (veh/h)	15	652			1179	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	784	341	28	748	232	232
Volume Left	7	0	0	0	748	0	0
Volume Right	0	784	0	28	0	0	0
cSH	15	652	1700	1700	1179	1700	1700
Volume to Capacity	0.47	1.20	0.20	0.02	0.63	0.14	0.14
Queue Length 95th (ft)	30	682	0	0	120	0	0
Control Delay (s)	388.4	127.2	0.0	0.0	13.2	0.0	0.0
Lane LOS	F	F			B		
Approach Delay (s)	129.5		0.0		8.1		
Approach LOS	F						

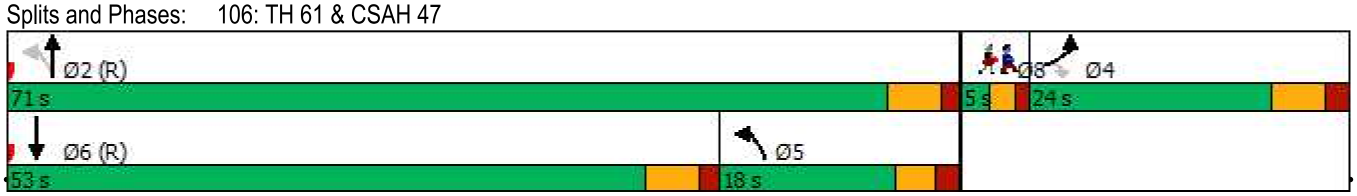
Intersection Summary			
Average Delay	47.3		
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	205	282	193	968	1054	212	
Future Volume (vph)	205	282	193	968	1054	212	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	260	140			0	
Storage Lanes	1	1	1			0	
Taper Length (ft)	100		100				
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	
Frt		0.850			0.975		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1736	1553	1752	3505	3417	0	
Flt Permitted	0.950		0.119				
Satd. Flow (perm)	1736	1553	220	3505	3417	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		288			32		
Link Speed (mph)	35			35	35		
Link Distance (ft)	947			1649	2389		
Travel Time (s)	18.4			32.1	46.5		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	4%	4%	3%	3%	3%	3%	
Adj. Flow (vph)	209	288	197	988	1076	216	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	209	288	197	988	1292	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
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	
Number of Detectors	2	1	1	1	1		
Detector Template							
Leading Detector (ft)	186	5	55	196	126		
Trailing Detector (ft)	5	0	5	190	120		
Detector 1 Position(ft)	5	0	5	190	120		
Detector 1 Size(ft)	20	5	50	6	6		
Detector 1 Type	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		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)	180						
Detector 2 Size(ft)	6						
Detector 2 Type	Cl+Ex						
Detector 2 Channel							
Detector 2 Extend (s)	0.0						
Turn Type	Prot	Perm	pm+pt	NA	NA		
Protected Phases	4		5	2	6		8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Permitted Phases		4	2				
Detector Phase	4	4	5 2	2	6		
Switch Phase							
Minimum Initial (s)	7.0	7.0	5.0	15.0	15.0		1.0
Minimum Split (s)	20.0	20.0	10.0	21.0	27.5		5.0
Total Split (s)	24.0	24.0	18.0	71.0	53.0		5.0
Total Split (%)	24.0%	24.0%	18.0%	71.0%	53.0%		5%
Maximum Green (s)	18.0	18.0	13.0	65.5	47.5		2.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0		2.0
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	5.0	5.5	5.5		
Lead/Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0	2.0	5.0	5.0		0.2
Minimum Gap (s)	0.2	0.2	0.2	2.0	2.0		0.2
Time Before Reduce (s)	0.0	0.0	0.0	20.0	20.0		0.0
Time To Reduce (s)	0.0	0.0	0.0	20.0	20.0		0.0
Recall Mode	None	None	None	C-Max	C-Max		None
Walk Time (s)					7.0		7.0
Flash Dont Walk (s)					15.0		17.0
Pedestrian Calls (#/hr)					0		4
Act Effct Green (s)	16.8	16.8	71.2	70.7	52.7		
Actuated g/C Ratio	0.17	0.17	0.71	0.71	0.53		
v/c Ratio	0.72	0.58	0.55	0.40	0.71		
Control Delay	53.6	9.4	27.7	7.0	7.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	53.6	9.4	27.7	7.0	7.2		
LOS	D	A	C	A	A		
Approach Delay	28.0			10.5	7.2		
Approach LOS	C			B	A		

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 42 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 71.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 106: TH 61 & CSAH 47



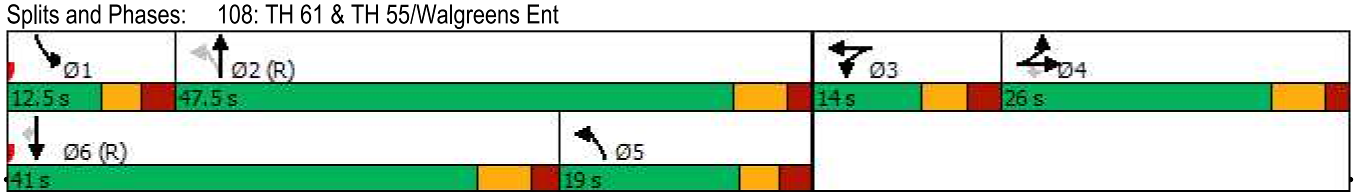
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	36	343	22	26	16	223	838	28	6	876	345
Future Volume (vph)	356	36	343	22	26	16	223	838	28	6	876	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		0	0		0	150		0	100		25
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	100			100			100			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.942			0.995				0.850
Flt Protected	0.950	0.961		0.950			0.950			0.950		
Satd. Flow (prot)	1649	1680	1599	1805	1790	0	1752	3491	0	1805	3471	1599
Flt Permitted	0.950	0.961		0.950			0.218			0.950		
Satd. Flow (perm)	1649	1680	1599	1805	1790	0	402	3491	0	1805	3471	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			357		17			4				164
Link Speed (mph)		35			15			35			35	
Link Distance (ft)		874			846			1453			382	
Travel Time (s)		17.0			38.5			28.3			7.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	3%	3%	0%	0%	4%	1%
Adj. Flow (vph)	371	38	357	23	27	17	232	873	29	6	913	359
Shared Lane Traffic (%)	45%											
Lane Group Flow (vph)	204	205	357	23	44	0	232	902	0	6	913	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	L NA	Right	L NA	Left	Right	Left	Left	L NA
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	2	2	1	1	1		1	1		1	1	0
Detector Template			Right									
Leading Detector (ft)	103	103	20	45	45		50	117		65	126	0
Trailing Detector (ft)	0	0	0	5	5		0	111		15	120	0
Detector 1 Position(ft)	0	0	0	5	5		0	111		15	120	0
Detector 1 Size(ft)	20	6	20	40	40		50	6		50	6	20
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)	97	97										
Detector 2 Size(ft)	6	6										
Detector 2 Type	Cl+Ex	Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0										
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4				2					6
Detector Phase	4	4	4	3	3		5 2	2		1 6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	5.0		7.0	15.0		7.0	15.0	15.0
Minimum Split (s)	26.0	26.0	26.0	14.0	14.0		12.5	34.5		12.5	41.0	41.0
Total Split (s)	26.0	26.0	26.0	14.0	14.0		19.0	47.5		12.5	41.0	41.0
Total Split (%)	26.0%	26.0%	26.0%	14.0%	14.0%		19.0%	47.5%		12.5%	41.0%	41.0%
Maximum Green (s)	20.0	20.0	20.0	8.0	8.0		13.5	41.5		7.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5	2.5		2.5	2.0		2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		5.5	6.0		5.5	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	2.5		0.2	2.5	2.5
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			9.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	22.0	22.0			19.0			21.0	21.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	17.2	17.2	17.2	6.7	6.7		58.3	57.8		7.0	41.3	41.3
Actuated g/C Ratio	0.17	0.17	0.17	0.07	0.07		0.58	0.58		0.07	0.41	0.41
v/c Ratio	0.72	0.71	0.63	0.19	0.32		0.56	0.45		0.05	0.64	0.47
Control Delay	53.4	52.5	9.2	47.2	37.1		19.1	9.0		54.7	18.8	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.3	0.3
Total Delay	53.4	52.5	9.2	47.2	37.1		19.1	9.0		54.7	19.1	7.1
LOS	D	D	A	D	D		B	A		D	B	A
Approach Delay		32.5			40.6			11.1			15.9	
Approach LOS		C			D			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 86 (86%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 18.7 Intersection LOS: B
Intersection Capacity Utilization 68.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 108: TH 61 & TH 55/Walgreens Ent



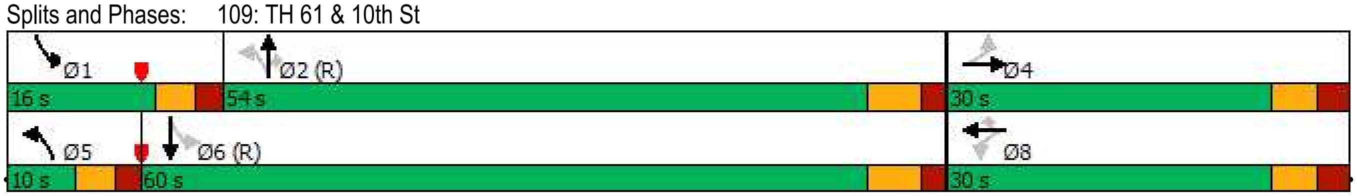
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	36	2	93	69	201	7	1113	90	161	1132	17
Future Volume (vph)	31	36	2	93	69	201	7	1113	90	161	1132	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	25		0	0		250	95		170	280		0
Storage Lanes	1		1	0		1	1		1	1		0
Taper Length (ft)	100			100			50			100		
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		0.992				0.850			0.850		0.998	
Flt Protected	0.950				0.972		0.950			0.950		
Satd. Flow (prot)	1805	1833	0	0	1785	1599	1805	3471	1615	1805	3499	0
Flt Permitted	0.550				0.800		0.210			0.166		
Satd. Flow (perm)	1045	1833	0	0	1469	1599	399	3471	1615	315	3499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				159			142		2	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		747			1138			382			2197	
Travel Time (s)		17.0			25.9			7.4			42.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	6%	0%	1%	0%	4%	0%	0%	3%	0%
Adj. Flow (vph)	32	38	2	97	72	209	7	1159	94	168	1179	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	40	0	0	169	209	7	1159	94	168	1197	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			16			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	2	1	1	1	0	1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	106		20	126	25	55	126	0	55	126	
Trailing Detector (ft)	0	5		0	5	5	5	120	0	5	120	
Detector 1 Position(ft)	0	5		0	5	5	5	120	0	5	120	
Detector 1 Size(ft)	20	20		20	20	20	50	6	20	50	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)		100			120							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5 2	2	2	1 6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	5.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	10.0	31.0	31.0	10.0	23.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	10.0	54.0	54.0	16.0	60.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%	30.0%	10.0%	54.0%	54.0%	16.0%	60.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	5.0	48.0	48.0	11.0	54.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0	6.0	5.0	6.0	6.0	5.0	6.0	
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	2.0	3.5	3.5	2.0	3.5	
Minimum Gap (s)	0.2	0.2		0.2	0.2	0.2	0.2	2.5	2.5	0.2	2.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	23.0	23.0		20.0	20.0	20.0		18.0	18.0		10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0		0	
Act Effct Green (s)	16.9	16.9			16.9	16.9	64.5	58.5	58.5	72.1	69.1	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	0.64	0.58	0.58	0.72	0.69	
v/c Ratio	0.18	0.13			0.68	0.52	0.02	0.57	0.09	0.49	0.50	
Control Delay	35.5	32.3			52.1	14.7	5.4	10.7	1.4	11.6	4.9	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.1	0.0	0.0	0.0	
Total Delay	35.5	32.3			52.1	14.7	5.4	10.9	1.4	11.6	4.9	
LOS	D	C			D	B	A	B	A	B	A	
Approach Delay		33.7			31.4			10.1			5.7	
Approach LOS		C			C			B			A	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 80 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 69.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 109: TH 61 & 10th St



Intersection	
Intersection Delay, s/veh	6.4
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	2
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	791	369	1213
Demand Flow Rate, veh/h	816	373	1254
Vehicles Circulating, veh/h	344	770	8
Vehicles Exiting, veh/h	799	492	344
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	16.8	7.4
Approach LOS	A	C	A

Lane	Left	Bypass	Left	Left	Right
Designated Moves	L	R	TR	L	TR
Assumed Moves	L	R	TR	L	TR
RT Channelized		Free			
Lane Util	1.000		1.000	0.614	0.386
Follow-Up Headway, s	2.609		2.609	2.535	2.535
Critical Headway, s	4.976	808	4.976	4.544	4.544
Entry Flow, veh/h	8	1957	373	770	484
Cap Entry Lane, veh/h	972	0.971	629	1410	1410
Entry HV Adj Factor	0.875	784	0.988	0.971	0.962
Flow Entry, veh/h	7	1900	369	748	465
Cap Entry, veh/h	850	0.413	622	1370	1356
V/C Ratio	0.008	0.0	0.593	0.546	0.343
Control Delay, s/veh	4.3	A	16.8	8.5	5.8
LOS	A	2	C	A	A
95th %tile Queue, veh	0		4	3	2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	205	282	193	968	1054	212	
Future Volume (vph)	205	282	193	968	1054	212	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	300	300	140			200	
Storage Lanes	1	1	1			1	
Taper Length (ft)	100		100				
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	3367	1553	1752	3505	3505	1568	
Flt Permitted	0.950		0.193				
Satd. Flow (perm)	3367	1553	356	3505	3505	1568	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		288				216	
Link Speed (mph)	35			35	35		
Link Distance (ft)	947			888	1039		
Travel Time (s)	18.4			17.3	20.2		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	4%	4%	3%	3%	3%	3%	
Adj. Flow (vph)	209	288	197	988	1076	216	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	209	288	197	988	1076	216	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	24			12	12		
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	
Number of Detectors	2	1	1	1	1	1	
Detector Template						Right	
Leading Detector (ft)	186	5	55	196	126	20	
Trailing Detector (ft)	5	0	5	190	120	0	
Detector 1 Position(ft)	5	0	5	190	120	0	
Detector 1 Size(ft)	20	5	50	6	6	20	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(ft)	180						
Detector 2 Size(ft)	6						
Detector 2 Type	Cl+Ex						
Detector 2 Channel							
Detector 2 Extend (s)	0.0						
Turn Type	Prot	Perm	pm+pt	NA	NA	pm+ov	
Protected Phases	4		5	2	6	4	8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Permitted Phases		4	2			6	
Detector Phase	4	4	5 2	2	6	4	
Switch Phase							
Minimum Initial (s)	7.0	7.0	5.0	15.0	15.0	7.0	1.0
Minimum Split (s)	13.0	13.0	10.0	21.0	27.5	13.0	5.0
Total Split (s)	25.0	25.0	18.0	70.0	52.0	25.0	5.0
Total Split (%)	25.0%	25.0%	18.0%	70.0%	52.0%	25.0%	5%
Maximum Green (s)	19.0	19.0	13.0	64.5	46.5	19.0	2.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	2.0
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	5.0	5.5	5.5	6.0	
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0	5.0	5.0	3.0	0.2
Minimum Gap (s)	0.2	0.2	0.2	2.0	2.0	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	20.0	20.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	20.0	20.0	0.0	0.0
Recall Mode	None	None	None	C-Max	C-Max	None	None
Walk Time (s)					7.0		7.0
Flash Dont Walk (s)					15.0		17.0
Pedestrian Calls (#/hr)					0		4
Act Effct Green (s)	14.1	14.1	73.9	73.4	55.4	73.8	
Actuated g/C Ratio	0.14	0.14	0.74	0.73	0.55	0.74	
v/c Ratio	0.44	0.62	0.44	0.38	0.55	0.18	
Control Delay	41.3	10.7	15.6	6.1	6.3	0.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.3	10.7	15.6	6.1	6.3	0.3	
LOS	D	B	B	A	A	A	
Approach Delay	23.6			7.7	5.3		
Approach LOS	C			A	A		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 8 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

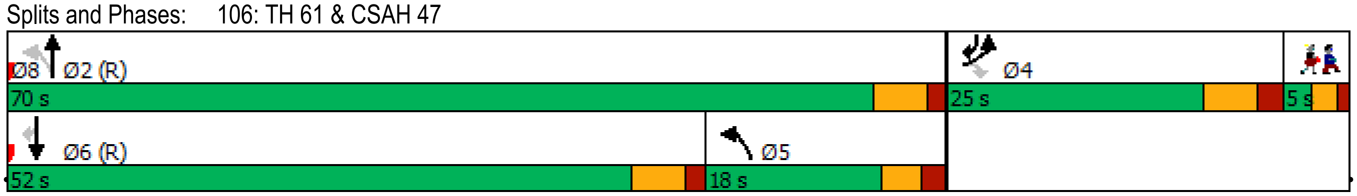
Maximum v/c Ratio: 0.62

Intersection Signal Delay: 9.3 Intersection LOS: A

Intersection Capacity Utilization 59.4% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 106: TH 61 & CSAH 47

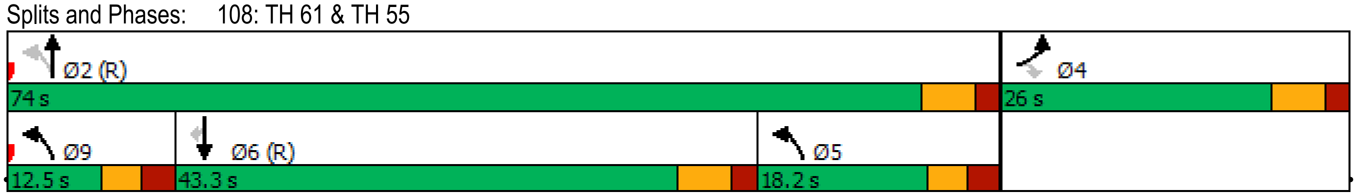


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø5	Ø9
Lane Configurations								
Traffic Volume (vph)	459	345	230	838	898	371		
Future Volume (vph)	459	345	230	838	898	371		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	400	0	150			150		
Storage Lanes	2	1	1			1		
Taper Length (ft)	100		100					
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00		
Frt		0.850				0.850		
Flt Protected	0.950		0.950					
Satd. Flow (prot)	3367	1599	1752	3505	3471	1599		
Flt Permitted	0.950		0.239					
Satd. Flow (perm)	3367	1599	441	3505	3471	1599		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		359				315		
Link Speed (mph)	35			35	35			
Link Distance (ft)	989			1453	382			
Travel Time (s)	19.3			28.3	7.4			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Heavy Vehicles (%)	4%	1%	3%	3%	4%	1%		
Adj. Flow (vph)	478	359	240	873	935	386		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	478	359	240	873	935	386		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	L NA	Left	Left	L NA		
Median Width(ft)	24			12	12			
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		
Number of Detectors	2	1	1	1	1	0		
Detector Template		Right						
Leading Detector (ft)	103	20	50	117	126	0		
Trailing Detector (ft)	0	0	0	111	120	0		
Detector 1 Position(ft)	0	0	0	111	120	0		
Detector 1 Size(ft)	20	20	50	6	6	20		
Detector 1 Type	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		
Detector 1 Queue (s)	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		
Detector 2 Position(ft)	97							
Detector 2 Size(ft)	6							
Detector 2 Type	Cl+Ex							
Detector 2 Channel								
Detector 2 Extend (s)	0.0							
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm		
Protected Phases	4		5 9	2	6		5	9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø5	Ø9
Permitted Phases		4	2			6		
Detector Phase	4	4	5 2	2	6	6		
Switch Phase								
Minimum Initial (s)	7.0	7.0		15.0	15.0	15.0	7.0	7.0
Minimum Split (s)	26.0	26.0		34.5	41.0	41.0	12.5	12.5
Total Split (s)	26.0	26.0		74.0	43.3	43.3	18.2	12.5
Total Split (%)	26.0%	26.0%		74.0%	43.3%	43.3%	18%	13%
Maximum Green (s)	20.0	20.0		68.0	37.3	37.3	12.7	7.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		
Lead/Lag					Lag	Lag		Lead
Lead-Lag Optimize?					Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		4.0	4.0	4.0	3.0	3.0
Minimum Gap (s)	0.2	0.2		2.5	2.5	2.5	0.2	3.0
Time Before Reduce (s)	0.0	0.0		15.0	15.0	15.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		15.0	15.0	15.0	0.0	0.0
Recall Mode	None	None		C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0		9.0	7.0	7.0		
Flash Dont Walk (s)	19.0	19.0		19.0	21.0	21.0		
Pedestrian Calls (#/hr)	0	0		0	0	0		
Act Effct Green (s)	18.9	18.9	69.6	69.1	50.9	50.9		
Actuated g/C Ratio	0.19	0.19	0.70	0.69	0.51	0.51		
v/c Ratio	0.75	0.61	0.51	0.36	0.53	0.40		
Control Delay	46.5	8.6	12.2	4.3	10.2	1.4		
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.3		
Total Delay	46.5	8.6	12.2	4.4	10.5	1.7		
LOS	D	A	B	A	B	A		
Approach Delay	30.2			6.1	7.9			
Approach LOS	C			A	A			

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 48 (48%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 108: TH 61 & TH 55



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	141	69	217	0	1144	162	167	1132	17
Future Volume (vph)	0	0	0	141	69	217	0	1144	162	167	1132	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		150	225		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	100			100			50			100		
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		0.998	
Flt Protected					0.968					0.950		
Satd. Flow (prot)	0	0	0	0	1768	1599	0	3471	1615	1805	3499	0
Flt Permitted					0.968					0.152		
Satd. Flow (perm)	0	0	0	0	1768	1599	0	3471	1615	289	3499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						226			133		3	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		713			848			382			2197	
Travel Time (s)		16.2			19.3			7.4			42.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	6%	0%	1%	0%	4%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	0	147	72	226	0	1192	169	174	1179	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	219	226	0	1192	169	174	1197	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			16			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		2	1	1	2	
Detector Template				Left	Thru	Right		Thru	Right	Left	Thru	
Leading Detector (ft)				20	100	20		100	20	20	100	
Trailing Detector (ft)				0	0	0		0	0	0	0	
Detector 1 Position(ft)				0	0	0		0	0	0	0	
Detector 1 Size(ft)				20	6	20		6	20	20	6	
Detector 1 Type				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	
Detector 1 Queue (s)				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	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Split	NA	Perm		NA	Perm	pm+pt	NA	
Protected Phases				8	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						8			2	6		
Detector Phase				8	8	8		2	2	1	6	
Switch Phase												
Minimum Initial (s)				6.5	6.5	6.5		15.0	15.0	5.0	15.0	
Minimum Split (s)				12.5	12.5	12.5		22.0	22.0	10.0	22.0	
Total Split (s)				29.0	29.0	29.0		55.0	55.0	16.0	71.0	
Total Split (%)				29.0%	29.0%	29.0%		55.0%	55.0%	16.0%	71.0%	
Maximum Green (s)				23.0	23.0	23.0		49.0	49.0	11.0	65.0	
Yellow Time (s)				3.5	3.5	3.5		4.0	4.0	3.0	4.0	
All-Red Time (s)				2.5	2.5	2.5		2.0	2.0	2.0	2.0	
Lost Time Adjust (s)					0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)					6.0	6.0		6.0	6.0	5.0	6.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)				3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode				None	None	None		C-Max	C-Max	None	C-Max	
Act Effct Green (s)					17.6	17.6		56.8	56.8	71.4	70.4	
Actuated g/C Ratio					0.18	0.18		0.57	0.57	0.71	0.70	
v/c Ratio					0.71	0.48		0.61	0.17	0.52	0.49	
Control Delay					50.7	8.2		14.7	4.4	10.0	4.7	
Queue Delay					0.0	0.0		0.5	0.0	0.0	0.0	
Total Delay					50.7	8.2		15.3	4.4	10.0	4.7	
LOS					D	A		B	A	B	A	
Approach Delay					29.1			13.9			5.4	
Approach LOS					C			B			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 66.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 109: TH 61 & 10th St

5: TH 61 & TH 316

Direction	All
Future Volume (vph)	2302
Total Delay / Veh (s/v)	47
CO Emissions (kg)	5.64
NOx Emissions (kg)	1.10
VOC Emissions (kg)	1.31

106: TH 61 & CSAH 47

Direction	All
Future Volume (vph)	2914
Total Delay / Veh (s/v)	12
CO Emissions (kg)	4.08
NOx Emissions (kg)	0.79
VOC Emissions (kg)	0.95

108: TH 61 & TH 55/Walgreens Ent

Direction	All
Future Volume (vph)	3116
Total Delay / Veh (s/v)	19
CO Emissions (kg)	3.06
NOx Emissions (kg)	0.60
VOC Emissions (kg)	0.71

109: TH 61 & 10th St

Direction	All
Future Volume (vph)	2952
Total Delay / Veh (s/v)	11
CO Emissions (kg)	3.02
NOx Emissions (kg)	0.59
VOC Emissions (kg)	0.70

9: TH 61 & TH 316

Direction	All
Future Volume (vph)	2302
Total Delay / Veh (s/v)	0
CO Emissions (kg)	3.47
NOx Emissions (kg)	0.68
VOC Emissions (kg)	0.81

106: TH 61 & CSAH 47

Direction	All
Future Volume (vph)	2914
Total Delay / Veh (s/v)	9
CO Emissions (kg)	3.94
NOx Emissions (kg)	0.77
VOC Emissions (kg)	0.91

108: TH 61 & TH 55

Direction	All
Future Volume (vph)	3141
Total Delay / Veh (s/v)	13
CO Emissions (kg)	2.67
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

109: TH 61 & 10th St

Direction	All
Future Volume (vph)	3049
Total Delay / Veh (s/v)	12
CO Emissions (kg)	3.22
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

Hastings Highway 61 Modernization Project					
Congestion Reduction Calculation Table					
	TH 316	CSAH 47	TH 55	10th St	**TOTAL**
Peak Hour Delay/Vehicle without the Project (seconds/vehicle)	47	12	19	11	**89**
Peak Hour Delay/Vehicle with the Project (seconds/vehicle)	6	9	13	12	**40**
Peak Hour Delay/Vehicle Reduced by the Project (seconds/vehicle)	41	3	6	-1	**49**
Volume (vehicles/hour)	2302	2914	3141	3049	**11406**
Total Peak Hour Delay Reduced by the Project (seconds)	94382	8742	18846	-3049	**118921**
Emissions Reduction Calculation Table					
Total Peak Hour Emissions without the Project (kg)	8.05	5.82	4.37	4.31	**22.55**
Total Peak Hour Emissions with the Project (kg)	4.96	5.62	3.81	4.6	**18.99**
Total Peak Hour Emissions Reduced by the Project (kg)	3.09	0.2	0.56	-0.29	3.56

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	760	331	27	726	451
Future Volume (Veh/h)	7	760	331	27	726	451
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	7	784	341	28	748	465
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2070	341			369	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2070	341			369	
tC, single (s)	7.1	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	53	0			37	
cM capacity (veh/h)	15	652			1179	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	784	341	28	748	232	232
Volume Left	7	0	0	0	748	0	0
Volume Right	0	784	0	28	0	0	0
cSH	15	652	1700	1700	1179	1700	1700
Volume to Capacity	0.47	1.20	0.20	0.02	0.63	0.14	0.14
Queue Length 95th (ft)	30	682	0	0	120	0	0
Control Delay (s)	388.4	127.2	0.0	0.0	13.2	0.0	0.0
Lane LOS	F	F			B		
Approach Delay (s)	129.5		0.0		8.1		
Approach LOS	F						

Intersection Summary			
Average Delay	47.3		
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	205	282	193	968	1054	212	
Future Volume (vph)	205	282	193	968	1054	212	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	260	140			0	
Storage Lanes	1	1	1			0	
Taper Length (ft)	100		100				
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	
Frt		0.850			0.975		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1736	1553	1752	3505	3417	0	
Flt Permitted	0.950		0.119				
Satd. Flow (perm)	1736	1553	220	3505	3417	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		288			32		
Link Speed (mph)	35			35	35		
Link Distance (ft)	947			1649	2389		
Travel Time (s)	18.4			32.1	46.5		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	4%	4%	3%	3%	3%	3%	
Adj. Flow (vph)	209	288	197	988	1076	216	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	209	288	197	988	1292	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
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	
Number of Detectors	2	1	1	1	1		
Detector Template							
Leading Detector (ft)	186	5	55	196	126		
Trailing Detector (ft)	5	0	5	190	120		
Detector 1 Position(ft)	5	0	5	190	120		
Detector 1 Size(ft)	20	5	50	6	6		
Detector 1 Type	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		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)	180						
Detector 2 Size(ft)	6						
Detector 2 Type	Cl+Ex						
Detector 2 Channel							
Detector 2 Extend (s)	0.0						
Turn Type	Prot	Perm	pm+pt	NA	NA		
Protected Phases	4		5	2	6		8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Permitted Phases		4	2				
Detector Phase	4	4	5 2	2	6		
Switch Phase							
Minimum Initial (s)	7.0	7.0	5.0	15.0	15.0		1.0
Minimum Split (s)	20.0	20.0	10.0	21.0	27.5		5.0
Total Split (s)	24.0	24.0	18.0	71.0	53.0		5.0
Total Split (%)	24.0%	24.0%	18.0%	71.0%	53.0%		5%
Maximum Green (s)	18.0	18.0	13.0	65.5	47.5		2.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0		2.0
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	5.0	5.5	5.5		
Lead/Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0	2.0	5.0	5.0		0.2
Minimum Gap (s)	0.2	0.2	0.2	2.0	2.0		0.2
Time Before Reduce (s)	0.0	0.0	0.0	20.0	20.0		0.0
Time To Reduce (s)	0.0	0.0	0.0	20.0	20.0		0.0
Recall Mode	None	None	None	C-Max	C-Max		None
Walk Time (s)					7.0		7.0
Flash Dont Walk (s)					15.0		17.0
Pedestrian Calls (#/hr)					0		4
Act Effct Green (s)	16.8	16.8	71.2	70.7	52.7		
Actuated g/C Ratio	0.17	0.17	0.71	0.71	0.53		
v/c Ratio	0.72	0.58	0.55	0.40	0.71		
Control Delay	53.6	9.4	27.7	7.0	7.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	53.6	9.4	27.7	7.0	7.2		
LOS	D	A	C	A	A		
Approach Delay	28.0			10.5	7.2		
Approach LOS	C			B	A		

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 42 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

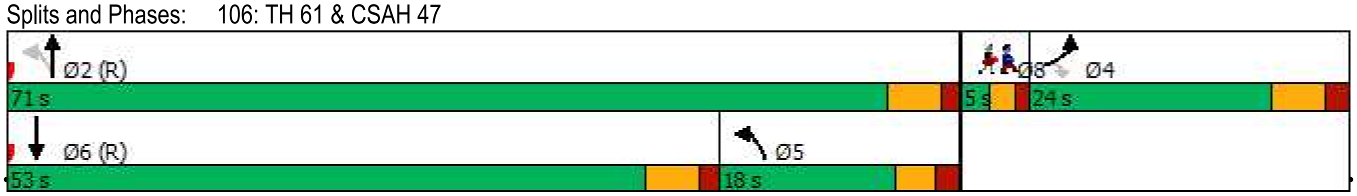
Maximum v/c Ratio: 0.72

Intersection Signal Delay: 12.0 Intersection LOS: B

Intersection Capacity Utilization 71.7% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 106: TH 61 & CSAH 47

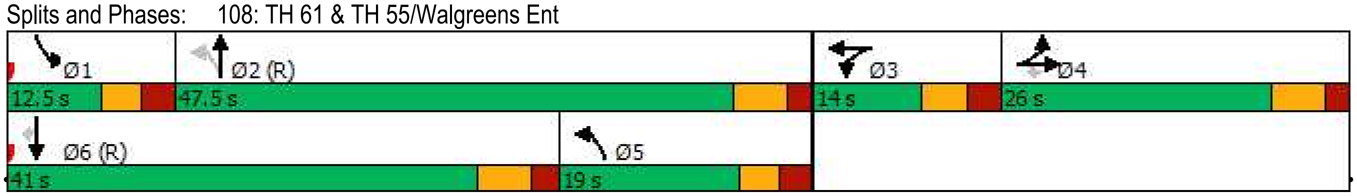


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	36	343	22	26	16	223	838	28	6	876	345
Future Volume (vph)	356	36	343	22	26	16	223	838	28	6	876	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		0	0		0	150		0	100		25
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	100			100			100			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.942			0.995				0.850
Flt Protected	0.950	0.961		0.950			0.950			0.950		
Satd. Flow (prot)	1649	1680	1599	1805	1790	0	1752	3491	0	1805	3471	1599
Flt Permitted	0.950	0.961		0.950			0.218			0.950		
Satd. Flow (perm)	1649	1680	1599	1805	1790	0	402	3491	0	1805	3471	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			357		17			4				164
Link Speed (mph)		35			15			35			35	
Link Distance (ft)		874			846			1453			382	
Travel Time (s)		17.0			38.5			28.3			7.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	3%	3%	0%	0%	4%	1%
Adj. Flow (vph)	371	38	357	23	27	17	232	873	29	6	913	359
Shared Lane Traffic (%)	45%											
Lane Group Flow (vph)	204	205	357	23	44	0	232	902	0	6	913	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	L NA	Right	L NA	Left	Right	Left	Left	L NA
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	2	2	1	1	1		1	1		1	1	0
Detector Template			Right									
Leading Detector (ft)	103	103	20	45	45		50	117		65	126	0
Trailing Detector (ft)	0	0	0	5	5		0	111		15	120	0
Detector 1 Position(ft)	0	0	0	5	5		0	111		15	120	0
Detector 1 Size(ft)	20	6	20	40	40		50	6		50	6	20
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)	97	97										
Detector 2 Size(ft)	6	6										
Detector 2 Type	Cl+Ex	Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0										
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4				2					6
Detector Phase	4	4	4	3	3		5 2	2		1 6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	5.0		7.0	15.0		7.0	15.0	15.0
Minimum Split (s)	26.0	26.0	26.0	14.0	14.0		12.5	34.5		12.5	41.0	41.0
Total Split (s)	26.0	26.0	26.0	14.0	14.0		19.0	47.5		12.5	41.0	41.0
Total Split (%)	26.0%	26.0%	26.0%	14.0%	14.0%		19.0%	47.5%		12.5%	41.0%	41.0%
Maximum Green (s)	20.0	20.0	20.0	8.0	8.0		13.5	41.5		7.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5	2.5		2.5	2.0		2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		5.5	6.0		5.5	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	2.5		0.2	2.5	2.5
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			9.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	22.0	22.0			19.0			21.0	21.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	17.2	17.2	17.2	6.7	6.7		58.3	57.8		7.0	41.3	41.3
Actuated g/C Ratio	0.17	0.17	0.17	0.07	0.07		0.58	0.58		0.07	0.41	0.41
v/c Ratio	0.72	0.71	0.63	0.19	0.32		0.56	0.45		0.05	0.64	0.47
Control Delay	53.4	52.5	9.2	47.2	37.1		19.1	9.0		54.7	18.8	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.3	0.3
Total Delay	53.4	52.5	9.2	47.2	37.1		19.1	9.0		54.7	19.1	7.1
LOS	D	D	A	D	D		B	A		D	B	A
Approach Delay		32.5			40.6			11.1			15.9	
Approach LOS		C			D			B			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 86 (86%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 18.7	Intersection LOS: B
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 108: TH 61 & TH 55/Walgreens Ent

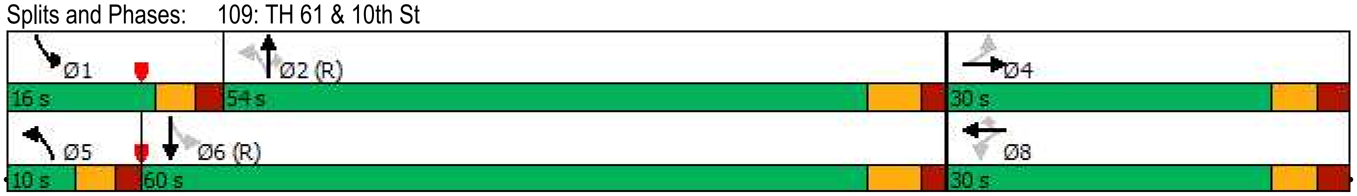


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	36	2	93	69	201	7	1113	90	161	1132	17
Future Volume (vph)	31	36	2	93	69	201	7	1113	90	161	1132	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	25		0	0		250	95		170	280		0
Storage Lanes	1		1	0		1	1		1	1		0
Taper Length (ft)	100			100			50			100		
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		0.992				0.850			0.850		0.998	
Flt Protected	0.950				0.972		0.950			0.950		
Satd. Flow (prot)	1805	1833	0	0	1785	1599	1805	3471	1615	1805	3499	0
Flt Permitted	0.550				0.800		0.210			0.166		
Satd. Flow (perm)	1045	1833	0	0	1469	1599	399	3471	1615	315	3499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				159			142		2	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		747			1138			382			2197	
Travel Time (s)		17.0			25.9			7.4			42.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	6%	0%	1%	0%	4%	0%	0%	3%	0%
Adj. Flow (vph)	32	38	2	97	72	209	7	1159	94	168	1179	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	40	0	0	169	209	7	1159	94	168	1197	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			16			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	2	1	1	1	0	1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	106		20	126	25	55	126	0	55	126	
Trailing Detector (ft)	0	5		0	5	5	5	120	0	5	120	
Detector 1 Position(ft)	0	5		0	5	5	5	120	0	5	120	
Detector 1 Size(ft)	20	20		20	20	20	50	6	20	50	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)		100			120							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5 2	2	2	1 6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	5.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	10.0	31.0	31.0	10.0	23.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	10.0	54.0	54.0	16.0	60.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%	30.0%	10.0%	54.0%	54.0%	16.0%	60.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	5.0	48.0	48.0	11.0	54.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0	6.0	5.0	6.0	6.0	5.0	6.0	
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	2.0	3.5	3.5	2.0	3.5	
Minimum Gap (s)	0.2	0.2		0.2	0.2	0.2	0.2	2.5	2.5	0.2	2.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	23.0	23.0		20.0	20.0	20.0		18.0	18.0		10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0		0	
Act Effct Green (s)	16.9	16.9			16.9	16.9	64.5	58.5	58.5	72.1	69.1	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	0.64	0.58	0.58	0.72	0.69	
v/c Ratio	0.18	0.13			0.68	0.52	0.02	0.57	0.09	0.49	0.50	
Control Delay	35.5	32.3			52.1	14.7	5.4	10.7	1.4	11.6	4.9	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.1	0.0	0.0	0.0	
Total Delay	35.5	32.3			52.1	14.7	5.4	10.9	1.4	11.6	4.9	
LOS	D	C			D	B	A	B	A	B	A	
Approach Delay		33.7			31.4			10.1			5.7	
Approach LOS		C			C			B			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 80 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 109: TH 61 & 10th St



Intersection	
Intersection Delay, s/veh	6.4
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	2
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	791	369	1213
Demand Flow Rate, veh/h	816	373	1254
Vehicles Circulating, veh/h	344	770	8
Vehicles Exiting, veh/h	799	492	344
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	16.8	7.4
Approach LOS	A	C	A

Lane	Left	Bypass	Left	Left	Right
Designated Moves	L	R	TR	L	TR
Assumed Moves	L	R	TR	L	TR
RT Channelized		Free			
Lane Util	1.000		1.000	0.614	0.386
Follow-Up Headway, s	2.609		2.609	2.535	2.535
Critical Headway, s	4.976	808	4.976	4.544	4.544
Entry Flow, veh/h	8	1957	373	770	484
Cap Entry Lane, veh/h	972	0.971	629	1410	1410
Entry HV Adj Factor	0.875	784	0.988	0.971	0.962
Flow Entry, veh/h	7	1900	369	748	465
Cap Entry, veh/h	850	0.413	622	1370	1356
V/C Ratio	0.008	0.0	0.593	0.546	0.343
Control Delay, s/veh	4.3	A	16.8	8.5	5.8
LOS	A	2	C	A	A
95th %tile Queue, veh	0		4	3	2

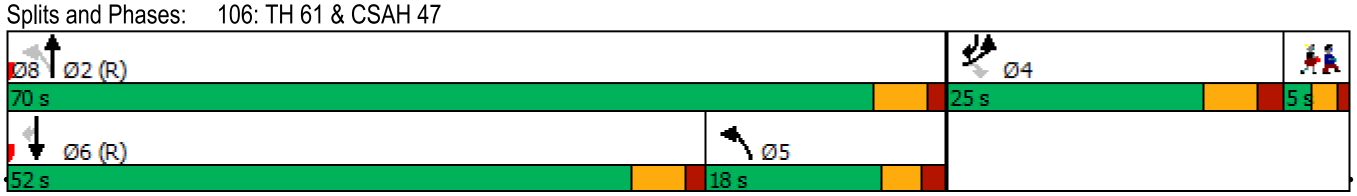
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	205	282	193	968	1054	212	
Future Volume (vph)	205	282	193	968	1054	212	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	300	300	140			200	
Storage Lanes	1	1	1			1	
Taper Length (ft)	100		100				
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	3367	1553	1752	3505	3505	1568	
Flt Permitted	0.950		0.193				
Satd. Flow (perm)	3367	1553	356	3505	3505	1568	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		288				216	
Link Speed (mph)	35			35	35		
Link Distance (ft)	947			888	1039		
Travel Time (s)	18.4			17.3	20.2		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	4%	4%	3%	3%	3%	3%	
Adj. Flow (vph)	209	288	197	988	1076	216	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	209	288	197	988	1076	216	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	24			12	12		
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	
Number of Detectors	2	1	1	1	1	1	
Detector Template						Right	
Leading Detector (ft)	186	5	55	196	126	20	
Trailing Detector (ft)	5	0	5	190	120	0	
Detector 1 Position(ft)	5	0	5	190	120	0	
Detector 1 Size(ft)	20	5	50	6	6	20	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(ft)	180						
Detector 2 Size(ft)	6						
Detector 2 Type	Cl+Ex						
Detector 2 Channel							
Detector 2 Extend (s)	0.0						
Turn Type	Prot	Perm	pm+pt	NA	NA	pm+ov	
Protected Phases	4		5	2	6	4	8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Permitted Phases		4	2			6	
Detector Phase	4	4	5 2	2	6	4	
Switch Phase							
Minimum Initial (s)	7.0	7.0	5.0	15.0	15.0	7.0	1.0
Minimum Split (s)	13.0	13.0	10.0	21.0	27.5	13.0	5.0
Total Split (s)	25.0	25.0	18.0	70.0	52.0	25.0	5.0
Total Split (%)	25.0%	25.0%	18.0%	70.0%	52.0%	25.0%	5%
Maximum Green (s)	19.0	19.0	13.0	64.5	46.5	19.0	2.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	2.0
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	5.0	5.5	5.5	6.0	
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0	5.0	5.0	3.0	0.2
Minimum Gap (s)	0.2	0.2	0.2	2.0	2.0	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	20.0	20.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	20.0	20.0	0.0	0.0
Recall Mode	None	None	None	C-Max	C-Max	None	None
Walk Time (s)					7.0		7.0
Flash Dont Walk (s)					15.0		17.0
Pedestrian Calls (#/hr)					0		4
Act Effct Green (s)	14.1	14.1	73.9	73.4	55.4	73.8	
Actuated g/C Ratio	0.14	0.14	0.74	0.73	0.55	0.74	
v/c Ratio	0.44	0.62	0.44	0.38	0.55	0.18	
Control Delay	41.3	10.7	15.6	6.1	6.3	0.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.3	10.7	15.6	6.1	6.3	0.3	
LOS	D	B	B	A	A	A	
Approach Delay	23.6			7.7	5.3		
Approach LOS	C			A	A		

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 8 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 59.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 106: TH 61 & CSAH 47

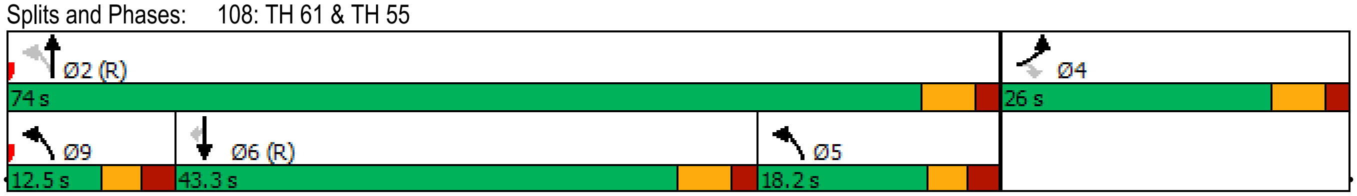


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø5	Ø9
Lane Configurations								
Traffic Volume (vph)	459	345	230	838	898	371		
Future Volume (vph)	459	345	230	838	898	371		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	400	0	150			150		
Storage Lanes	2	1	1			1		
Taper Length (ft)	100		100					
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00		
Frt		0.850				0.850		
Flt Protected	0.950		0.950					
Satd. Flow (prot)	3367	1599	1752	3505	3471	1599		
Flt Permitted	0.950		0.239					
Satd. Flow (perm)	3367	1599	441	3505	3471	1599		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		359				315		
Link Speed (mph)	35			35	35			
Link Distance (ft)	989			1453	382			
Travel Time (s)	19.3			28.3	7.4			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Heavy Vehicles (%)	4%	1%	3%	3%	4%	1%		
Adj. Flow (vph)	478	359	240	873	935	386		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	478	359	240	873	935	386		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	L NA	Left	Left	L NA		
Median Width(ft)	24			12	12			
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		
Number of Detectors	2	1	1	1	1	0		
Detector Template		Right						
Leading Detector (ft)	103	20	50	117	126	0		
Trailing Detector (ft)	0	0	0	111	120	0		
Detector 1 Position(ft)	0	0	0	111	120	0		
Detector 1 Size(ft)	20	20	50	6	6	20		
Detector 1 Type	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		
Detector 1 Queue (s)	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		
Detector 2 Position(ft)	97							
Detector 2 Size(ft)	6							
Detector 2 Type	Cl+Ex							
Detector 2 Channel								
Detector 2 Extend (s)	0.0							
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm		
Protected Phases	4		5 9	2	6		5	9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø5	Ø9
Permitted Phases		4	2			6		
Detector Phase	4	4	5 2	2	6	6		
Switch Phase								
Minimum Initial (s)	7.0	7.0		15.0	15.0	15.0	7.0	7.0
Minimum Split (s)	26.0	26.0		34.5	41.0	41.0	12.5	12.5
Total Split (s)	26.0	26.0		74.0	43.3	43.3	18.2	12.5
Total Split (%)	26.0%	26.0%		74.0%	43.3%	43.3%	18%	13%
Maximum Green (s)	20.0	20.0		68.0	37.3	37.3	12.7	7.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		
Lead/Lag					Lag	Lag		Lead
Lead-Lag Optimize?					Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		4.0	4.0	4.0	3.0	3.0
Minimum Gap (s)	0.2	0.2		2.5	2.5	2.5	0.2	3.0
Time Before Reduce (s)	0.0	0.0		15.0	15.0	15.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		15.0	15.0	15.0	0.0	0.0
Recall Mode	None	None		C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0		9.0	7.0	7.0		
Flash Dont Walk (s)	19.0	19.0		19.0	21.0	21.0		
Pedestrian Calls (#/hr)	0	0		0	0	0		
Act Effct Green (s)	18.9	18.9	69.6	69.1	50.9	50.9		
Actuated g/C Ratio	0.19	0.19	0.70	0.69	0.51	0.51		
v/c Ratio	0.75	0.61	0.51	0.36	0.53	0.40		
Control Delay	46.5	8.6	12.2	4.3	10.2	1.4		
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.3		
Total Delay	46.5	8.6	12.2	4.4	10.5	1.7		
LOS	D	A	B	A	B	A		
Approach Delay	30.2			6.1	7.9			
Approach LOS	C			A	A			

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 48 (48%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 108: TH 61 & TH 55



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	141	69	217	0	1144	162	167	1132	17
Future Volume (vph)	0	0	0	141	69	217	0	1144	162	167	1132	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		150	225		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	100			100			50			100		
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		0.998	
Flt Protected					0.968					0.950		
Satd. Flow (prot)	0	0	0	0	1768	1599	0	3471	1615	1805	3499	0
Flt Permitted					0.968					0.152		
Satd. Flow (perm)	0	0	0	0	1768	1599	0	3471	1615	289	3499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						226			133		3	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		713			848			382			2197	
Travel Time (s)		16.2			19.3			7.4			42.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	6%	0%	1%	0%	4%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	0	147	72	226	0	1192	169	174	1179	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	219	226	0	1192	169	174	1197	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			16			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		2	1	1	2	
Detector Template				Left	Thru	Right		Thru	Right	Left	Thru	
Leading Detector (ft)				20	100	20		100	20	20	100	
Trailing Detector (ft)				0	0	0		0	0	0	0	
Detector 1 Position(ft)				0	0	0		0	0	0	0	
Detector 1 Size(ft)				20	6	20		6	20	20	6	
Detector 1 Type				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	
Detector 1 Queue (s)				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	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Split	NA	Perm		NA	Perm	pm+pt	NA	
Protected Phases				8	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						8			2	6		
Detector Phase				8	8	8		2	2	1	6	
Switch Phase												
Minimum Initial (s)				6.5	6.5	6.5		15.0	15.0	5.0	15.0	
Minimum Split (s)				12.5	12.5	12.5		22.0	22.0	10.0	22.0	
Total Split (s)				29.0	29.0	29.0		55.0	55.0	16.0	71.0	
Total Split (%)				29.0%	29.0%	29.0%		55.0%	55.0%	16.0%	71.0%	
Maximum Green (s)				23.0	23.0	23.0		49.0	49.0	11.0	65.0	
Yellow Time (s)				3.5	3.5	3.5		4.0	4.0	3.0	4.0	
All-Red Time (s)				2.5	2.5	2.5		2.0	2.0	2.0	2.0	
Lost Time Adjust (s)					0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)					6.0	6.0		6.0	6.0	5.0	6.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)				3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode				None	None	None		C-Max	C-Max	None	C-Max	
Act Effct Green (s)					17.6	17.6		56.8	56.8	71.4	70.4	
Actuated g/C Ratio					0.18	0.18		0.57	0.57	0.71	0.70	
v/c Ratio					0.71	0.48		0.61	0.17	0.52	0.49	
Control Delay					50.7	8.2		14.7	4.4	10.0	4.7	
Queue Delay					0.0	0.0		0.5	0.0	0.0	0.0	
Total Delay					50.7	8.2		15.3	4.4	10.0	4.7	
LOS					D	A		B	A	B	A	
Approach Delay					29.1			13.9			5.4	
Approach LOS					C			B			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 66.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 109: TH 61 & 10th St

5: TH 61 & TH 316

Direction	All
Future Volume (vph)	2302
Total Delay / Veh (s/v)	47
CO Emissions (kg)	5.64
NOx Emissions (kg)	1.10
VOC Emissions (kg)	1.31

106: TH 61 & CSAH 47

Direction	All
Future Volume (vph)	2914
Total Delay / Veh (s/v)	12
CO Emissions (kg)	4.08
NOx Emissions (kg)	0.79
VOC Emissions (kg)	0.95

108: TH 61 & TH 55/Walgreens Ent

Direction	All
Future Volume (vph)	3116
Total Delay / Veh (s/v)	19
CO Emissions (kg)	3.06
NOx Emissions (kg)	0.60
VOC Emissions (kg)	0.71

109: TH 61 & 10th St

Direction	All
Future Volume (vph)	2952
Total Delay / Veh (s/v)	11
CO Emissions (kg)	3.02
NOx Emissions (kg)	0.59
VOC Emissions (kg)	0.70

9: TH 61 & TH 316

Direction	All
Future Volume (vph)	2302
Total Delay / Veh (s/v)	0
CO Emissions (kg)	3.47
NOx Emissions (kg)	0.68
VOC Emissions (kg)	0.81

106: TH 61 & CSAH 47

Direction	All
Future Volume (vph)	2914
Total Delay / Veh (s/v)	9
CO Emissions (kg)	3.94
NOx Emissions (kg)	0.77
VOC Emissions (kg)	0.91

108: TH 61 & TH 55

Direction	All
Future Volume (vph)	3141
Total Delay / Veh (s/v)	13
CO Emissions (kg)	2.67
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

109: TH 61 & 10th St

Direction	All
Future Volume (vph)	3049
Total Delay / Veh (s/v)	12
CO Emissions (kg)	3.22
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

Table 1 - Total Crashes Observed and Crash Reduction Factors

Intersection	*Crashes Observed, 2020-2022*					*Proposed Improvement*	*CMF ID*	*Crash Reduction Factor*
	K	*A*	*B*	*C*	*O*			
5th Street	0.0	0.0	2.0	0.0	4.0	Right-in, Right-out with pedestrian median island	9821, 8800 *	0.5919
7th Street	0.0	0.0	0.0	0.0	0.0	Right-in, Right-out with pedestrian median island	9821, 8800*	0.5919
10th Street	0.0	0.0	1.0	7.0	17.0	Close EB Approach	5233	0.25
Trunk Hwy 55	0.0	0.0	1.0	3.0	12.0	Close East Leg	5233	0.25
12th Street	0.0	0.0	0.0	1.0	11.0	Right-in, Right-out	9821	0.45
14th Street	0.0	0.0	0.0	2.0	6.0	Replace direct left-turn with right-turn/U-turn	351	0.2
18th Street	0.0	0.0	1.0	1.0	8.0	Add Signal	7983	0.361
County Hwy 47	0.0	0.0	1.0	1.0	16.0	Add Right Turn Lane	286	0.04
21st Street	0.0	0.0	1.0	0.0	8.0	Right-in, Right-out	9821	0.45
24th Street	0.0	0.0	0.0	0.0	2.0	Right-in, Right-out	9821	0.45
Trunk Hwy 316	0.0	0.0	0.0	4.0	6.0	Roundabout	227	0.44
Cannon	0.0	0.0	1.0	0.0	2.0	Close Intersection		1
36th Street	0.0	0.0	1.0	1.0	2.0	Roundabout	227	0.44
Corridor	0.0	1.0	1.0	0.0	1.0	Remove on-street parking	154	0.27
Corridor Total (All intersections and segments)	**1.0**	**2.0**	**12.0**	**30.0**	**145.0**			

* Crash modification factors multiplied together to determine the combined CMF/CRF

Table 2 - Total Expected Crashes Eliminated by Improvements

Intersection	*Crashes Eliminated*				
	K	*A*	*B*	*C*	*O*
5th Street	0.00	0.00	1.18	0.00	2.37
7th Street	0.00	0.00	0.00	0.00	0.00
10th Street	0.00	0.00	0.25	1.75	4.25
Trunk Hwy 55	0.00	0.00	0.25	0.75	3.00
12th Street	0.00	0.00	0.00	0.45	4.95
14th Street	0.00	0.00	0.00	0.40	1.20
18th Street	0.00	0.00	0.36	0.36	2.89
County Hwy 47	0.00	0.00	0.04	0.04	0.64
21st Street	0.00	0.00	0.45	0.00	3.60
24th Street	0.00	0.00	0.00	0.00	0.90
Trunk Hwy 316	0.00	0.00	0.00	1.76	2.64
Cannon	0.00	0.00	1.00	0.00	2.00
36th Street	0.00	0.00	0.44	0.44	0.88
Corridor	0.00	0.27	0.27	0.00	0.27
Corridor Total (All intersections and segments)	**0.00**	**0.27**	**4.24**	**5.95**	**29.59**

Product of Crashes Observed and CRF (**Table 1**).

Effective CMF (1 - Crashes Eliminated/Crashes Observed)	**1.000**	**0.865**	**0.646**	**0.802**	**0.796**

CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 9821

CMF Name: Install right-in-right-out (RIRO) operations at stop-controlled interse

Description:

Prior Condition: No Prior Condition(s)

Category: Access management

Study ID: *Safety Effects of Turning Movement Restrictions at Stop-Controlled Intersections*, Le et al. 2018

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.55
Adjusted Standard Error:	
Unadjusted Standard Error:	0.09

Crash Reduction Factor	
Value:	45
Adjusted Standard Error:	
Unadjusted Standard Error:	9

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Minimum Number of Lanes:	4
Maximum Number of Lanes:	6
Number of Lanes Direction:	
Number of Lanes Comment:	4 and 6 Lanes
Road Division Type:	Divided by Median
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	All
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	3-leg
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	Minimum of 13433 to Maximum of 75000 Annual Average Daily Traffic (AADT)
Minor Road Traffic Volume:	Minimum of 51 to Maximum of 2600 Annual Average Daily Traffic (AADT)

Average Major Road Volume:	38724 Annual Average Daily Traffic (AADT)
Average Minor Road Volume:	519 Annual Average Daily Traffic (AADT)

Development Details

Date Range of Data Used:	
Municipality:	
State:	CA
Country:	USA
Type of Methodology Used:	Regression cross-section
Sample Size (crashes):	483 crashes
Sample Size (sites):	138 sites

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Oct 27, 2018
Comments:	This CMF compares urban, three-legged, stop-controlled intersections with RIRO operation to full movement. This CMF looks at Total crashes. Total crashes are defined as all crashes within 100 ft of intersection (all types and severities combined)

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CMF / CRF Details

CMF ID: 8800

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

Description:

Prior Condition: No median

Category: Pedestrians

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

Star Quality Rating	
Star Quality Rating:	4 Stars

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

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

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

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

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

Other Details

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

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CMF / CRF Details

CMF ID: 5233

CMF Name: Presence of three leg intersection vs. four leg intersection

Description:

Prior Condition: Four-leg intersection

Category: Intersection geometry

Study ID: *Corridor-level signalized intersection safety analysis in Shanghai, China using Bayesian hierarchal models*, Kun Xie, Xuesong Wang, Helai Huang, Xiahong Chen 2013

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.75
Adjusted Standard Error:	
Unadjusted Standard Error:	0.13

Crash Reduction Factor	
Value:	25
Adjusted Standard Error:	
Unadjusted Standard Error:	12.8

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Minimum Number of Lanes:	
Maximum Number of Lanes:	
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	Not specified
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	3-leg,4-leg
Traffic Control:	Signalized
Major Road Traffic Volume:	Minimum of 7700 to Maximum of 140300 Average Daily Traffic (ADT)
Minor Road Traffic Volume:	

Average Major Road Volume:	46200 Average Daily Traffic (ADT)
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	2009 to 2009
Municipality:	
State:	notusa
Country:	China
Type of Methodology Used:	Regression cross-section
Sample Size (site-years):	195 site-years

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Dec 02, 2013
Comments:	Major Road ADT is total entering vehicles for the intersection

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CMF / CRF Details

CMF ID: 351

CMF Name: Replace direct left-turn with right-turn/U-turn

Description:

Prior Condition: No Prior Condition(s)

Category: Access management

Study ID: *Right Turns Followed by U-Turns Versus Direct Left Turns: A Comparison of Safety Issues, Xu 2001*

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.8
Adjusted Standard Error:	0.13
Unadjusted Standard Error:	0.03

Crash Reduction Factor	
Value:	20
Adjusted Standard Error:	13
Unadjusted Standard Error:	3

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Principal Arterial Other
Minimum Number of Lanes:	4
Maximum Number of Lanes:	8
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Not Specified
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	Not Specified
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	
Minor Road Traffic Volume:	Minimum of 0 to Maximum of 34000 Annual Average Daily Traffic (AADT)

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Non-regression cross-section

Other Details

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

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CMF / CRF Details

CMF ID: 7983

CMF Name: Install a traffic signal

Description:

Prior Condition: Intersections with a stop sign on minor roads

Category: Intersection traffic control

Study ID: *Safety Evaluation of Signal Installation With and Without Left Turn Lanes on Two Lane Roads in Rural and Suburban Areas*, Srinivasan et al. 2014

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.639
Adjusted Standard Error:	
Unadjusted Standard Error:	0.033

Crash Reduction Factor	
Value:	36.1
Adjusted Standard Error:	
Unadjusted Standard Error:	3.3

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Minimum Number of Lanes:	2
Maximum Number of Lanes:	2
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	All
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	All
If countermeasure is intersection-based.	
Intersection Type:	Not specified
Intersection Geometry:	3-leg,4-leg
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	Minimum of 2480 to Maximum of 18025 Annual Average Daily Traffic (AADT)
Minor Road Traffic Volume:	Minimum of 746 to Maximum of 6829 Annual Average Daily Traffic (AADT)

Average Major Road Volume:	9778 Annual Average Daily Traffic (AADT)
Average Minor Road Volume:	5767 Annual Average Daily Traffic (AADT)

Development Details

Date Range of Data Used:	1992 to 2012
Municipality:	
State:	NC
Country:	
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes
Sample Size (crashes):	899 crashes before, 575 crashes after
Sample Size (sites):	50 sites before, 50 sites after
Sample Size (site-years):	**site-years before, 240 site-years after**

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Nov 10, 2016
Comments:	The CMF was developed for both rural and suburban areas.

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CMF / CRF Details

CMF ID: 286

CMF Name: Provide a right-turn lane on one major-road approach

Description:

Prior Condition: No Prior Condition(s)

Category: Intersection geometry

Study ID: *Safety Effectiveness of Intersection Left- and Right-Turn Lanes, Harwood et al. 2002*

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.96
Adjusted Standard Error:	0.02
Unadjusted Standard Error:	0.02

Crash Reduction Factor	
Value:	4
Adjusted Standard Error:	2
Unadjusted Standard Error:	2

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not Specified
Minimum Number of Lanes:	
Maximum Number of Lanes:	
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	All
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	3-leg,4-leg
Traffic Control:	Signalized
Major Road Traffic Volume:	Minimum of 7200 to Maximum of 55100 Average Daily Traffic (ADT)
Minor Road Traffic Volume:	Minimum of 550 to Maximum of 8400 Average Daily Traffic (ADT)

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

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

Other Details

Included in HSM:	Yes. HSM lists this CMF in bold font to indicate that it has the highest
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	Countermeasure name changed to match HSM The number of crashes in the after period were not reported in this study, however, they have been recorded as 300 to give 10 points as a beneift of doubt for one or more of the following: (1) number of miles/sites in the reference/treatment group, (2) number of crashes in the references/treatment group, (3) reporting AADTs for the aggregate dataset but not for the disaggragate dataset used for CMF development.

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CMF / CRF Details

CMF ID: 227

CMF Name: Convert intersection with minor-road stop control to modern round

Description:

Prior Condition: No Prior Condition(s)

Category: Intersection geometry

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

Star Quality Rating	
Star Quality Rating:	4 Stars

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

Crash Reduction Factor	
Value:	44
Adjusted Standard Error:	5
Unadjusted Standard Error:	4

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not Specified
Minimum Number of Lanes:	1
Maximum Number of Lanes:	2
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	All
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	4-leg
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

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

Other Details

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

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CMF / CRF Details

CMF ID: 154

CMF Name: Prohibit on-street parking

Description:

Prior Condition: No Prior Condition(s)

Category: On-street parking

Study ID: *Handbook of Road Safety Measures*, Elvik, R. and Vaa, T. 2004

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.73
Adjusted Standard Error:	0.02
Unadjusted Standard Error:	0.01

Crash Reduction Factor	
Value:	27
Adjusted Standard Error:	2
Unadjusted Standard Error:	1

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

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Meta-analysis

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	

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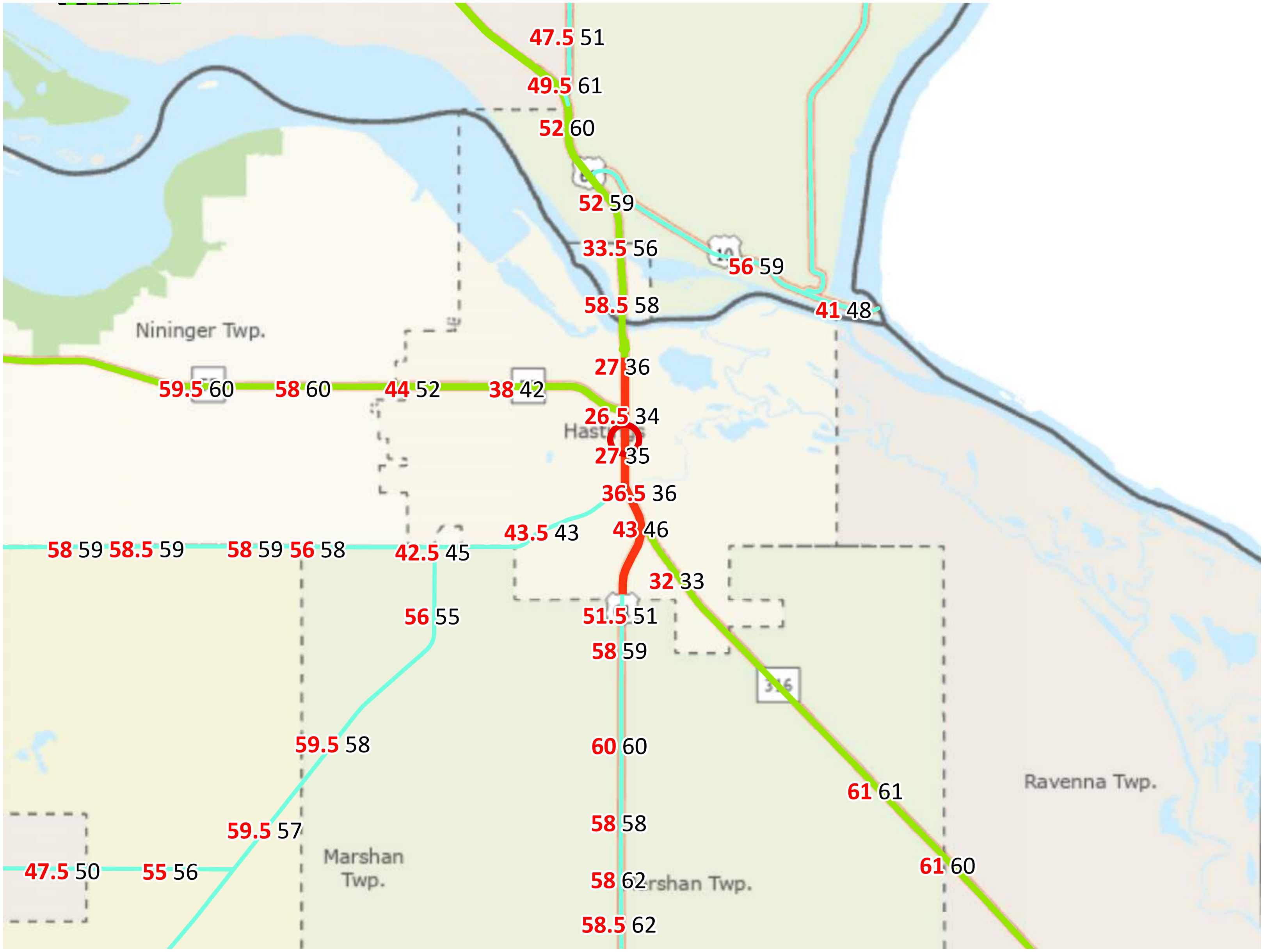
Proposed closing access to/from Highway 61 to Cannon Street for improved safety
On-street parking removed
Restrict outbound left turn vehicle movements from 14th Street (3/4-access) to retain primary movements on and off Highway 61 while encouraging the use of the 15th Street signal for safer left turns onto Highway 61
Potential to vacate city road
Reconstruct retaining wall allowing for right-turn lane, improved safety, and pedestrian space
Full size roundabout
Full size roundabout example
New three-lane section includes left turn lanes and added multi-use trails on both sides of Highway 61
Single lane roundabout
Single lane roundabout example
Northbound three-lane section example
New pedestrian bridge for improved safety and easy access to the Vermillion River Trail system
Added traffic signal and realignment for a safer intersection and reliable access to Highway 61 for pedestrians, bicyclists, and large trucks.
Remove left turn lanes on Highway 61 between Highway 55 and 10th Street for improved traffic flow
5th Street and 7th Street changed to right-in/right-out only vehicle movements with improved pedestrian crossings
On-street parking removed for safety and sight distance
Concept road subject to alignment changes
Restrict 21st, 22nd and 24th Streets to right-in/right-out vehicle movements
Pedestrian bridge example
Potential business revised access to 18th Street
Future Development
Future Development
Cannon St
Eddy St
Sibley St
Ramsey St
Vermillion Rd
61
47
55
316
Proposed pavement
Raised median/curb
Green space
Trail
Shoulder
Concrete
Sidewalk
Access closed
Community space opportunity
N

Level of Congestion

Roadway Reconstruction/Modernization Project: Hastings Highway 61 Modernization | Map ID: 1699985570934



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

0 0.75 1.5 3 4.5 6 Miles

Created: 11/14/2023
LandscapeRSA1

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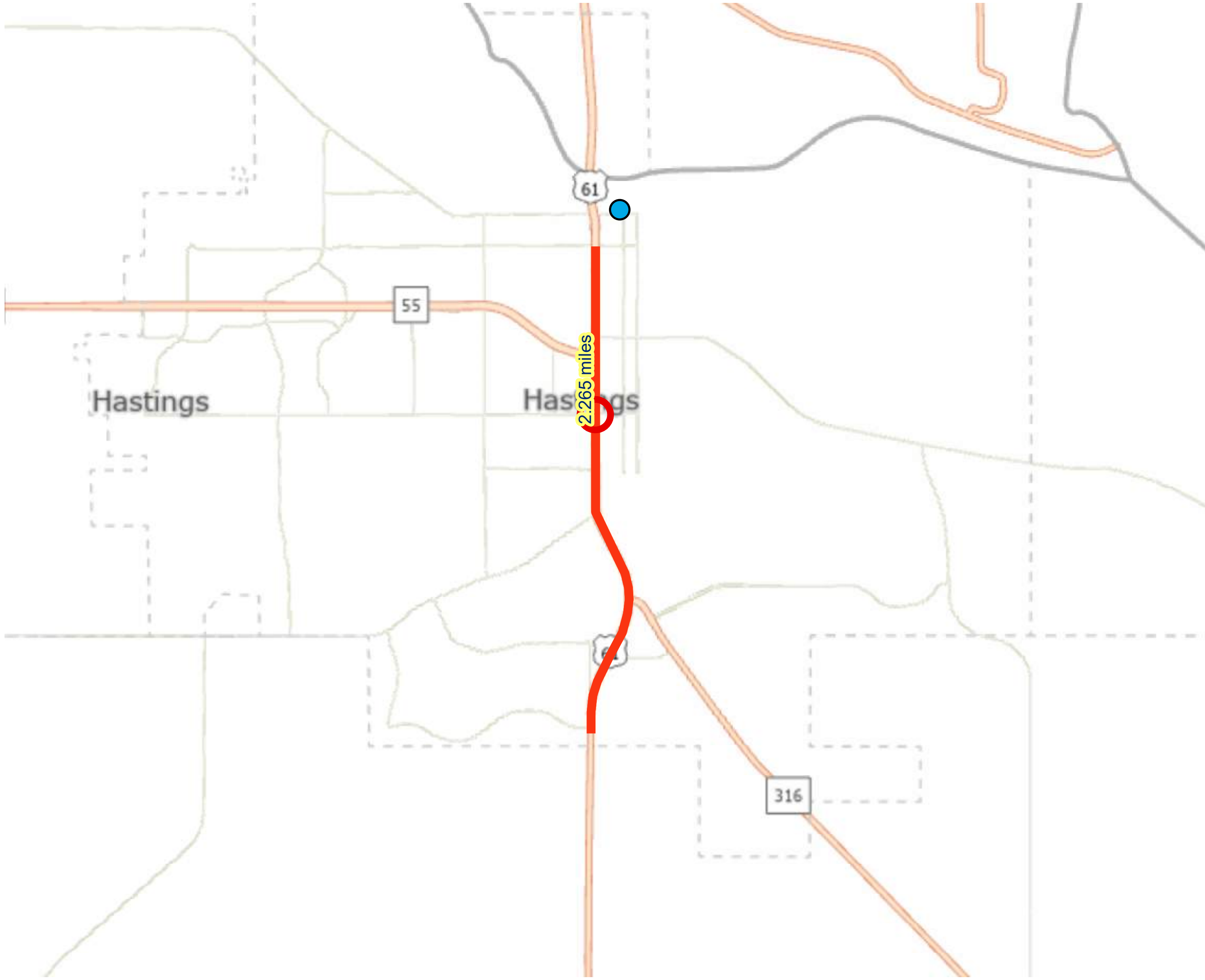
METROPOLITAN COUNCIL

Regional Economy

Roadway Reconstruction/Modernization Project: Hastings Highway 61 Modernization | Map ID: 1699985570934



Results

WITHIN ONE MI of project:
Postsecondary Students: 14

Totals by City:
Hastings
Population: 14288
Employment: 5553
Mfg and Dist Employment: 1359
Marshan Twp.
Population: 1390
Employment: 438
Mfg and Dist Employment: 1

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

0 0.45 0.9 1.8 2.7 3.6 Miles

Created: 11/14/2023
LandscapeRSA5

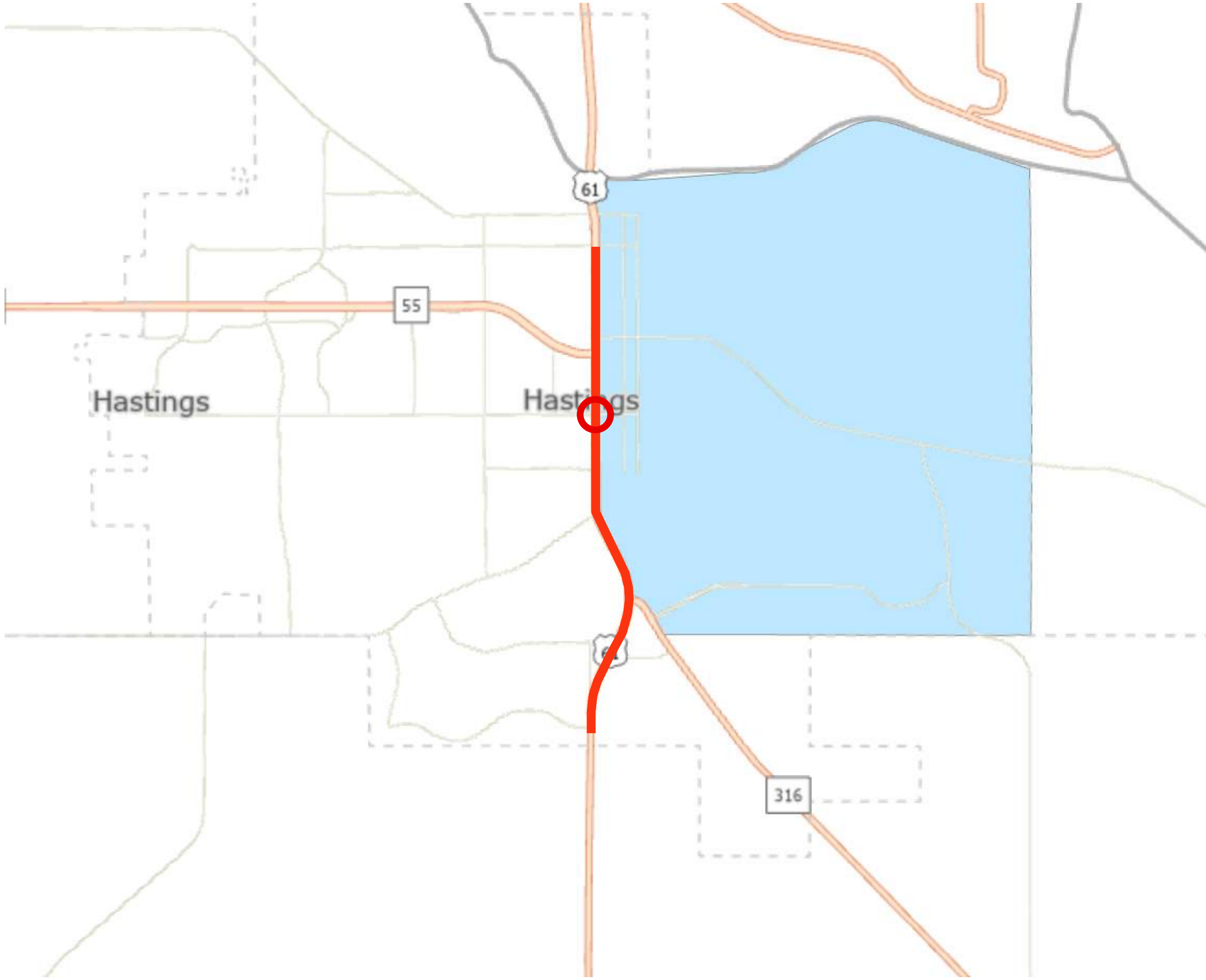
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: Hastings Highway 61 Modernization | Map ID: 1699985570934

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 255

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



Points | Area of Concentrated Poverty
Lines | Regional Environmental Justice Area

0 0.45 0.9 1.8 2.7 3.6 Miles

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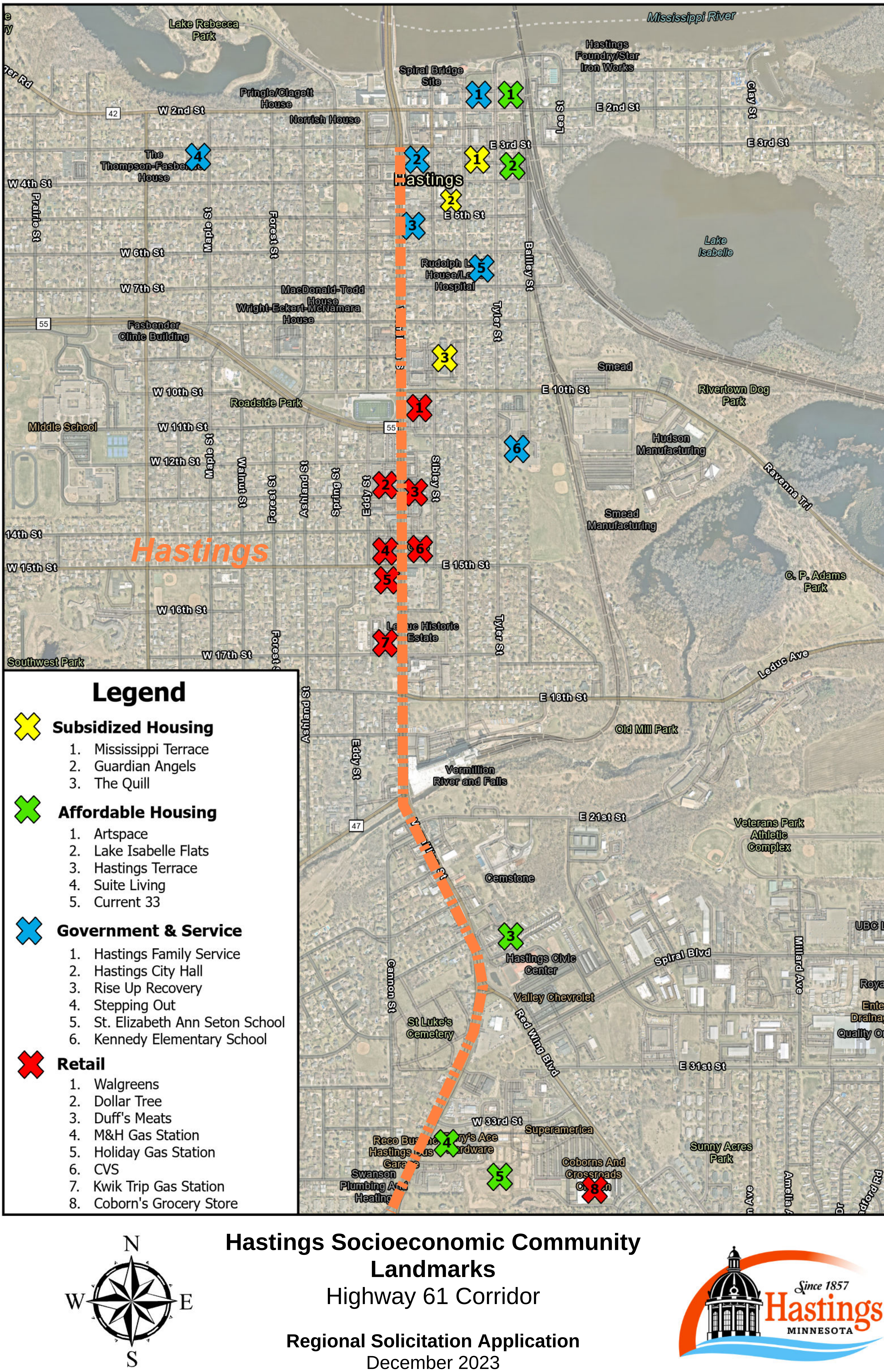


Hastings Socioeconomic Community Landmarks

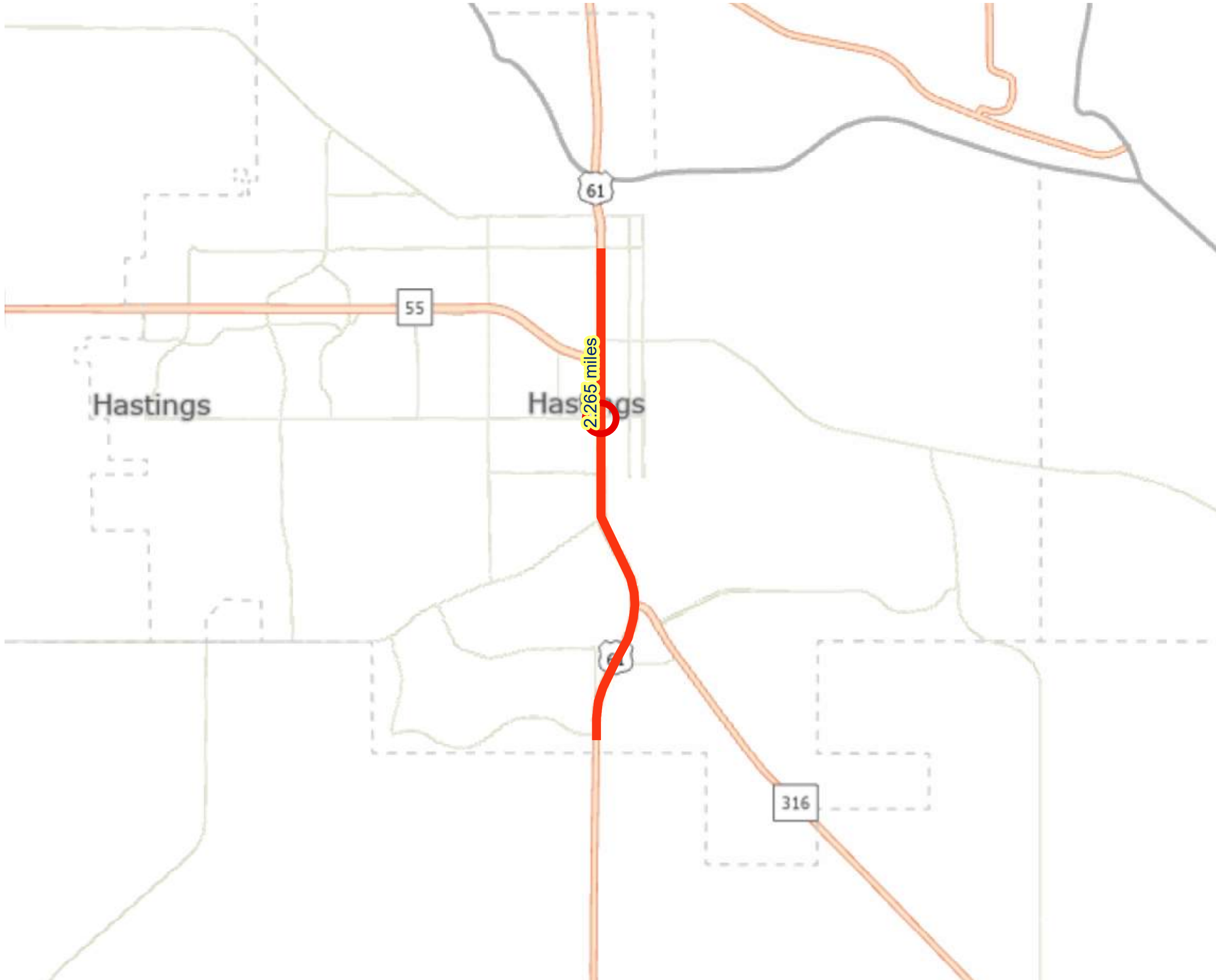
Highway 61 Corridor

Regional Solicitation Application

December 2023

Transit Connections

Roadway Reconstruction/Modernization Project: Hastings Highway 61 Modernization | Map ID: 1699985570934



Results

Transit with a Direct Connection to project:
*Red Rock

indicates Planned Alignments

Transit Market areas: 2

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

0 0.45 0.9 1.8 2.7 3.6 Miles

Created: 11/14/2023
LandscapeRSA3

METROPOLITAN COUNCIL

Hastings Highway 61 Modernization Project					
Congestion Reduction Calculation Table					
	TH 316	CSAH 47	TH 55	10th St	**TOTAL**
Peak Hour Delay/Vehicle without the Project (seconds/vehicle)	47	12	19	11	**89**
Peak Hour Delay/Vehicle with the Project (seconds/vehicle)	6	9	13	12	**40**
Peak Hour Delay/Vehicle Reduced by the Project (seconds/vehicle)	41	3	6	-1	**49**
Volume (vehicles/hour)	2302	2914	3141	3049	**11406**
Total Peak Hour Delay Reduced by the Project (seconds)	94382	8742	18846	-3049	**118921**

Emissions Reduction Calculation Table					
Total Peak Hour Emissions without the Project (kg)	8.05	5.82	4.37	4.31	**22.55**
Total Peak Hour Emissions with the Project (kg)	4.96	5.62	3.81	4.6	**18.99**
Total Peak Hour Emissions Reduced by the Project (kg)	3.09	0.2	0.56	-0.29	3.56

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	760	331	27	726	451
Future Volume (Veh/h)	7	760	331	27	726	451
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	7	784	341	28	748	465
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2070	341			369	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2070	341			369	
tC, single (s)	7.1	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	53	0			37	
cM capacity (veh/h)	15	652			1179	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	784	341	28	748	232	232
Volume Left	7	0	0	0	748	0	0
Volume Right	0	784	0	28	0	0	0
cSH	15	652	1700	1700	1179	1700	1700
Volume to Capacity	0.47	1.20	0.20	0.02	0.63	0.14	0.14
Queue Length 95th (ft)	30	682	0	0	120	0	0
Control Delay (s)	388.4	127.2	0.0	0.0	13.2	0.0	0.0
Lane LOS	F	F			B		
Approach Delay (s)	129.5		0.0		8.1		
Approach LOS	F						

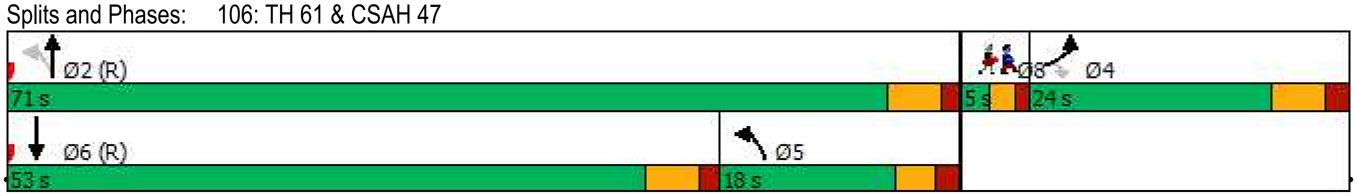
Intersection Summary			
Average Delay	47.3		
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	205	282	193	968	1054	212	
Future Volume (vph)	205	282	193	968	1054	212	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	260	140			0	
Storage Lanes	1	1	1			0	
Taper Length (ft)	100		100				
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	
Frt		0.850			0.975		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1736	1553	1752	3505	3417	0	
Flt Permitted	0.950		0.119				
Satd. Flow (perm)	1736	1553	220	3505	3417	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		288			32		
Link Speed (mph)	35			35	35		
Link Distance (ft)	947			1649	2389		
Travel Time (s)	18.4			32.1	46.5		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	4%	4%	3%	3%	3%	3%	
Adj. Flow (vph)	209	288	197	988	1076	216	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	209	288	197	988	1292	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
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	
Number of Detectors	2	1	1	1	1		
Detector Template							
Leading Detector (ft)	186	5	55	196	126		
Trailing Detector (ft)	5	0	5	190	120		
Detector 1 Position(ft)	5	0	5	190	120		
Detector 1 Size(ft)	20	5	50	6	6		
Detector 1 Type	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		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)	180						
Detector 2 Size(ft)	6						
Detector 2 Type	Cl+Ex						
Detector 2 Channel							
Detector 2 Extend (s)	0.0						
Turn Type	Prot	Perm	pm+pt	NA	NA		
Protected Phases	4		5	2	6		8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Permitted Phases		4	2				
Detector Phase	4	4	5 2	2	6		
Switch Phase							
Minimum Initial (s)	7.0	7.0	5.0	15.0	15.0		1.0
Minimum Split (s)	20.0	20.0	10.0	21.0	27.5		5.0
Total Split (s)	24.0	24.0	18.0	71.0	53.0		5.0
Total Split (%)	24.0%	24.0%	18.0%	71.0%	53.0%		5%
Maximum Green (s)	18.0	18.0	13.0	65.5	47.5		2.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0		2.0
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	5.0	5.5	5.5		
Lead/Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0	2.0	5.0	5.0		0.2
Minimum Gap (s)	0.2	0.2	0.2	2.0	2.0		0.2
Time Before Reduce (s)	0.0	0.0	0.0	20.0	20.0		0.0
Time To Reduce (s)	0.0	0.0	0.0	20.0	20.0		0.0
Recall Mode	None	None	None	C-Max	C-Max		None
Walk Time (s)					7.0		7.0
Flash Dont Walk (s)					15.0		17.0
Pedestrian Calls (#/hr)					0		4
Act Effct Green (s)	16.8	16.8	71.2	70.7	52.7		
Actuated g/C Ratio	0.17	0.17	0.71	0.71	0.53		
v/c Ratio	0.72	0.58	0.55	0.40	0.71		
Control Delay	53.6	9.4	27.7	7.0	7.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	53.6	9.4	27.7	7.0	7.2		
LOS	D	A	C	A	A		
Approach Delay	28.0			10.5	7.2		
Approach LOS	C			B	A		

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 42 (42%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 71.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 106: TH 61 & CSAH 47

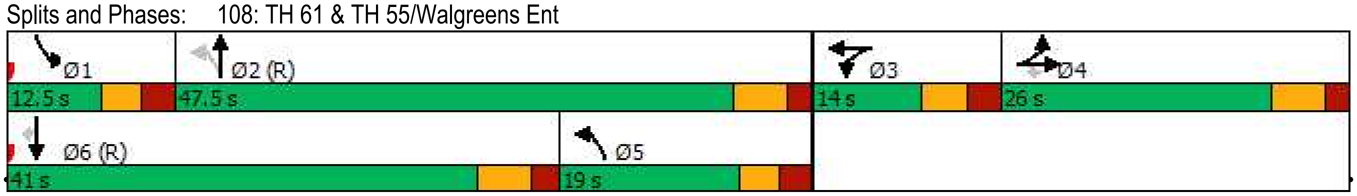


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	36	343	22	26	16	223	838	28	6	876	345
Future Volume (vph)	356	36	343	22	26	16	223	838	28	6	876	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		0	0		0	150		0	100		25
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	100			100			100			50		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.942			0.995				0.850
Flt Protected	0.950	0.961		0.950			0.950			0.950		
Satd. Flow (prot)	1649	1680	1599	1805	1790	0	1752	3491	0	1805	3471	1599
Flt Permitted	0.950	0.961		0.950			0.218			0.950		
Satd. Flow (perm)	1649	1680	1599	1805	1790	0	402	3491	0	1805	3471	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			357		17			4				164
Link Speed (mph)		35			15			35			35	
Link Distance (ft)		874			846			1453			382	
Travel Time (s)		17.0			38.5			28.3			7.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	3%	3%	0%	0%	4%	1%
Adj. Flow (vph)	371	38	357	23	27	17	232	873	29	6	913	359
Shared Lane Traffic (%)	45%											
Lane Group Flow (vph)	204	205	357	23	44	0	232	902	0	6	913	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	L NA	Right	L NA	Left	Right	Left	Left	L NA
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	2	2	1	1	1		1	1		1	1	0
Detector Template			Right									
Leading Detector (ft)	103	103	20	45	45		50	117		65	126	0
Trailing Detector (ft)	0	0	0	5	5		0	111		15	120	0
Detector 1 Position(ft)	0	0	0	5	5		0	111		15	120	0
Detector 1 Size(ft)	20	6	20	40	40		50	6		50	6	20
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)	97	97										
Detector 2 Size(ft)	6	6										
Detector 2 Type	Cl+Ex	Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0										
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4				2					6
Detector Phase	4	4	4	3	3		5 2	2		1 6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	5.0		7.0	15.0		7.0	15.0	15.0
Minimum Split (s)	26.0	26.0	26.0	14.0	14.0		12.5	34.5		12.5	41.0	41.0
Total Split (s)	26.0	26.0	26.0	14.0	14.0		19.0	47.5		12.5	41.0	41.0
Total Split (%)	26.0%	26.0%	26.0%	14.0%	14.0%		19.0%	47.5%		12.5%	41.0%	41.0%
Maximum Green (s)	20.0	20.0	20.0	8.0	8.0		13.5	41.5		7.0	35.0	35.0
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5	2.5		2.5	2.0		2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		5.5	6.0		5.5	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	2.5		0.2	2.5	2.5
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	15.0		0.0	15.0	15.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			9.0			7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	22.0	22.0			19.0			21.0	21.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	17.2	17.2	17.2	6.7	6.7		58.3	57.8		7.0	41.3	41.3
Actuated g/C Ratio	0.17	0.17	0.17	0.07	0.07		0.58	0.58		0.07	0.41	0.41
v/c Ratio	0.72	0.71	0.63	0.19	0.32		0.56	0.45		0.05	0.64	0.47
Control Delay	53.4	52.5	9.2	47.2	37.1		19.1	9.0		54.7	18.8	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.3	0.3
Total Delay	53.4	52.5	9.2	47.2	37.1		19.1	9.0		54.7	19.1	7.1
LOS	D	D	A	D	D		B	A		D	B	A
Approach Delay		32.5			40.6			11.1			15.9	
Approach LOS		C			D			B			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 86 (86%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 18.7	Intersection LOS: B
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 108: TH 61 & TH 55/Walgreens Ent

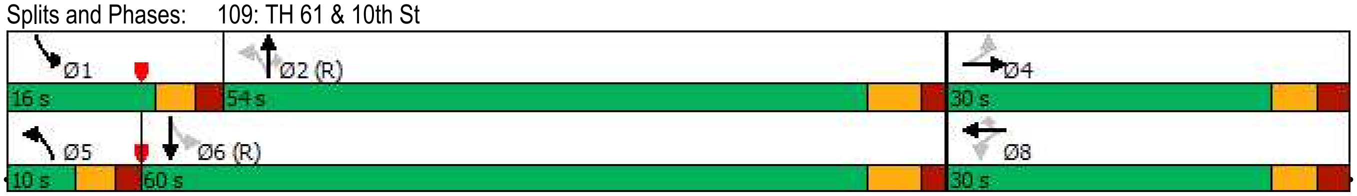


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	36	2	93	69	201	7	1113	90	161	1132	17
Future Volume (vph)	31	36	2	93	69	201	7	1113	90	161	1132	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	25		0	0		250	95		170	280		0
Storage Lanes	1		1	0		1	1		1	1		0
Taper Length (ft)	100			100			50			100		
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		0.992				0.850			0.850		0.998	
Flt Protected	0.950				0.972		0.950			0.950		
Satd. Flow (prot)	1805	1833	0	0	1785	1599	1805	3471	1615	1805	3499	0
Flt Permitted	0.550				0.800		0.210			0.166		
Satd. Flow (perm)	1045	1833	0	0	1469	1599	399	3471	1615	315	3499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				159			142		2	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		747			1138			382			2197	
Travel Time (s)		17.0			25.9			7.4			42.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	6%	0%	1%	0%	4%	0%	0%	3%	0%
Adj. Flow (vph)	32	38	2	97	72	209	7	1159	94	168	1179	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	40	0	0	169	209	7	1159	94	168	1197	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			16			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	2	1	1	1	0	1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	106		20	126	25	55	126	0	55	126	
Trailing Detector (ft)	0	5		0	5	5	5	120	0	5	120	
Detector 1 Position(ft)	0	5		0	5	5	5	120	0	5	120	
Detector 1 Size(ft)	20	20		20	20	20	50	6	20	50	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)		100			120							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5 2	2	2	1 6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	5.0	15.0	15.0	5.0	15.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	10.0	31.0	31.0	10.0	23.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	10.0	54.0	54.0	16.0	60.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%	30.0%	10.0%	54.0%	54.0%	16.0%	60.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	5.0	48.0	48.0	11.0	54.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0	6.0	5.0	6.0	6.0	5.0	6.0	
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	2.0	3.5	3.5	2.0	3.5	
Minimum Gap (s)	0.2	0.2		0.2	0.2	0.2	0.2	2.5	2.5	0.2	2.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	23.0	23.0		20.0	20.0	20.0		18.0	18.0		10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0		0	
Act Effct Green (s)	16.9	16.9			16.9	16.9	64.5	58.5	58.5	72.1	69.1	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	0.64	0.58	0.58	0.72	0.69	
v/c Ratio	0.18	0.13			0.68	0.52	0.02	0.57	0.09	0.49	0.50	
Control Delay	35.5	32.3			52.1	14.7	5.4	10.7	1.4	11.6	4.9	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.1	0.0	0.0	0.0	
Total Delay	35.5	32.3			52.1	14.7	5.4	10.9	1.4	11.6	4.9	
LOS	D	C			D	B	A	B	A	B	A	
Approach Delay		33.7			31.4			10.1			5.7	
Approach LOS		C			C			B			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 80 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 109: TH 61 & 10th St



Intersection	
Intersection Delay, s/veh	6.4
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	1	2
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	791	369	1213
Demand Flow Rate, veh/h	816	373	1254
Vehicles Circulating, veh/h	344	770	8
Vehicles Exiting, veh/h	799	492	344
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	0.0	16.8	7.4
Approach LOS	A	C	A

Lane	Left	Bypass	Left	Left	Right
Designated Moves	L	R	TR	L	TR
Assumed Moves	L	R	TR	L	TR
RT Channelized		Free			
Lane Util	1.000		1.000	0.614	0.386
Follow-Up Headway, s	2.609		2.609	2.535	2.535
Critical Headway, s	4.976	808	4.976	4.544	4.544
Entry Flow, veh/h	8	1957	373	770	484
Cap Entry Lane, veh/h	972	0.971	629	1410	1410
Entry HV Adj Factor	0.875	784	0.988	0.971	0.962
Flow Entry, veh/h	7	1900	369	748	465
Cap Entry, veh/h	850	0.413	622	1370	1356
V/C Ratio	0.008	0.0	0.593	0.546	0.343
Control Delay, s/veh	4.3	A	16.8	8.5	5.8
LOS	A	2	C	A	A
95th %tile Queue, veh	0		4	3	2

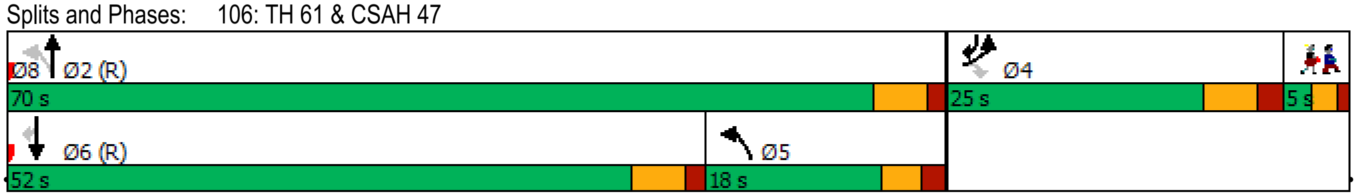
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	205	282	193	968	1054	212	
Future Volume (vph)	205	282	193	968	1054	212	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	300	300	140			200	
Storage Lanes	1	1	1			1	
Taper Length (ft)	100		100				
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	3367	1553	1752	3505	3505	1568	
Flt Permitted	0.950		0.193				
Satd. Flow (perm)	3367	1553	356	3505	3505	1568	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		288				216	
Link Speed (mph)	35			35	35		
Link Distance (ft)	947			888	1039		
Travel Time (s)	18.4			17.3	20.2		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	4%	4%	3%	3%	3%	3%	
Adj. Flow (vph)	209	288	197	988	1076	216	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	209	288	197	988	1076	216	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	24			12	12		
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	
Number of Detectors	2	1	1	1	1	1	
Detector Template						Right	
Leading Detector (ft)	186	5	55	196	126	20	
Trailing Detector (ft)	5	0	5	190	120	0	
Detector 1 Position(ft)	5	0	5	190	120	0	
Detector 1 Size(ft)	20	5	50	6	6	20	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(ft)	180						
Detector 2 Size(ft)	6						
Detector 2 Type	Cl+Ex						
Detector 2 Channel							
Detector 2 Extend (s)	0.0						
Turn Type	Prot	Perm	pm+pt	NA	NA	pm+ov	
Protected Phases	4		5	2	6	4	8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Permitted Phases		4	2			6	
Detector Phase	4	4	5 2	2	6	4	
Switch Phase							
Minimum Initial (s)	7.0	7.0	5.0	15.0	15.0	7.0	1.0
Minimum Split (s)	13.0	13.0	10.0	21.0	27.5	13.0	5.0
Total Split (s)	25.0	25.0	18.0	70.0	52.0	25.0	5.0
Total Split (%)	25.0%	25.0%	18.0%	70.0%	52.0%	25.0%	5%
Maximum Green (s)	19.0	19.0	13.0	64.5	46.5	19.0	2.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	2.0
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	5.0	5.5	5.5	6.0	
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	2.0	5.0	5.0	3.0	0.2
Minimum Gap (s)	0.2	0.2	0.2	2.0	2.0	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	20.0	20.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	20.0	20.0	0.0	0.0
Recall Mode	None	None	None	C-Max	C-Max	None	None
Walk Time (s)					7.0		7.0
Flash Dont Walk (s)					15.0		17.0
Pedestrian Calls (#/hr)					0		4
Act Effct Green (s)	14.1	14.1	73.9	73.4	55.4	73.8	
Actuated g/C Ratio	0.14	0.14	0.74	0.73	0.55	0.74	
v/c Ratio	0.44	0.62	0.44	0.38	0.55	0.18	
Control Delay	41.3	10.7	15.6	6.1	6.3	0.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.3	10.7	15.6	6.1	6.3	0.3	
LOS	D	B	B	A	A	A	
Approach Delay	23.6			7.7	5.3		
Approach LOS	C			A	A		

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 8 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 59.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 106: TH 61 & CSAH 47



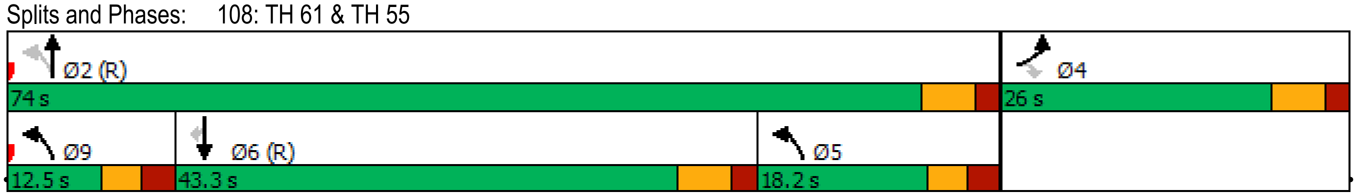
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø5	Ø9
Lane Configurations								
Traffic Volume (vph)	459	345	230	838	898	371		
Future Volume (vph)	459	345	230	838	898	371		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	400	0	150			150		
Storage Lanes	2	1	1			1		
Taper Length (ft)	100		100					
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00		
Frt		0.850				0.850		
Flt Protected	0.950		0.950					
Satd. Flow (prot)	3367	1599	1752	3505	3471	1599		
Flt Permitted	0.950		0.239					
Satd. Flow (perm)	3367	1599	441	3505	3471	1599		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		359				315		
Link Speed (mph)	35			35	35			
Link Distance (ft)	989			1453	382			
Travel Time (s)	19.3			28.3	7.4			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Heavy Vehicles (%)	4%	1%	3%	3%	4%	1%		
Adj. Flow (vph)	478	359	240	873	935	386		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	478	359	240	873	935	386		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	L NA	Left	Left	L NA		
Median Width(ft)	24			12	12			
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		
Number of Detectors	2	1	1	1	1	0		
Detector Template		Right						
Leading Detector (ft)	103	20	50	117	126	0		
Trailing Detector (ft)	0	0	0	111	120	0		
Detector 1 Position(ft)	0	0	0	111	120	0		
Detector 1 Size(ft)	20	20	50	6	6	20		
Detector 1 Type	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		
Detector 1 Queue (s)	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		
Detector 2 Position(ft)	97							
Detector 2 Size(ft)	6							
Detector 2 Type	Cl+Ex							
Detector 2 Channel								
Detector 2 Extend (s)	0.0							
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm		
Protected Phases	4		5 9	2	6		5	9

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø5	Ø9
Permitted Phases		4	2			6		
Detector Phase	4	4	5 2	2	6	6		
Switch Phase								
Minimum Initial (s)	7.0	7.0		15.0	15.0	15.0	7.0	7.0
Minimum Split (s)	26.0	26.0		34.5	41.0	41.0	12.5	12.5
Total Split (s)	26.0	26.0		74.0	43.3	43.3	18.2	12.5
Total Split (%)	26.0%	26.0%		74.0%	43.3%	43.3%	18%	13%
Maximum Green (s)	20.0	20.0		68.0	37.3	37.3	12.7	7.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		
Lead/Lag					Lag	Lag		Lead
Lead-Lag Optimize?					Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		4.0	4.0	4.0	3.0	3.0
Minimum Gap (s)	0.2	0.2		2.5	2.5	2.5	0.2	3.0
Time Before Reduce (s)	0.0	0.0		15.0	15.0	15.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		15.0	15.0	15.0	0.0	0.0
Recall Mode	None	None		C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0		9.0	7.0	7.0		
Flash Dont Walk (s)	19.0	19.0		19.0	21.0	21.0		
Pedestrian Calls (#/hr)	0	0		0	0	0		
Act Effct Green (s)	18.9	18.9	69.6	69.1	50.9	50.9		
Actuated g/C Ratio	0.19	0.19	0.70	0.69	0.51	0.51		
v/c Ratio	0.75	0.61	0.51	0.36	0.53	0.40		
Control Delay	46.5	8.6	12.2	4.3	10.2	1.4		
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.3		
Total Delay	46.5	8.6	12.2	4.4	10.5	1.7		
LOS	D	A	B	A	B	A		
Approach Delay	30.2			6.1	7.9			
Approach LOS	C			A	A			

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 48 (48%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 65.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 108: TH 61 & TH 55



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	141	69	217	0	1144	162	167	1132	17
Future Volume (vph)	0	0	0	141	69	217	0	1144	162	167	1132	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		150	225		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	100			100			50			100		
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		0.998	
Flt Protected					0.968					0.950		
Satd. Flow (prot)	0	0	0	0	1768	1599	0	3471	1615	1805	3499	0
Flt Permitted					0.968					0.152		
Satd. Flow (perm)	0	0	0	0	1768	1599	0	3471	1615	289	3499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						226			133		3	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		713			848			382			2197	
Travel Time (s)		16.2			19.3			7.4			42.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	6%	0%	1%	0%	4%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	0	147	72	226	0	1192	169	174	1179	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	219	226	0	1192	169	174	1197	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			16			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		2	1	1	2	
Detector Template				Left	Thru	Right		Thru	Right	Left	Thru	
Leading Detector (ft)				20	100	20		100	20	20	100	
Trailing Detector (ft)				0	0	0		0	0	0	0	
Detector 1 Position(ft)				0	0	0		0	0	0	0	
Detector 1 Size(ft)				20	6	20		6	20	20	6	
Detector 1 Type				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	
Detector 1 Queue (s)				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	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Split	NA	Perm		NA	Perm	pm+pt	NA	
Protected Phases				8	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						8			2	6		
Detector Phase				8	8	8		2	2	1	6	
Switch Phase												
Minimum Initial (s)				6.5	6.5	6.5		15.0	15.0	5.0	15.0	
Minimum Split (s)				12.5	12.5	12.5		22.0	22.0	10.0	22.0	
Total Split (s)				29.0	29.0	29.0		55.0	55.0	16.0	71.0	
Total Split (%)				29.0%	29.0%	29.0%		55.0%	55.0%	16.0%	71.0%	
Maximum Green (s)				23.0	23.0	23.0		49.0	49.0	11.0	65.0	
Yellow Time (s)				3.5	3.5	3.5		4.0	4.0	3.0	4.0	
All-Red Time (s)				2.5	2.5	2.5		2.0	2.0	2.0	2.0	
Lost Time Adjust (s)					0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)					6.0	6.0		6.0	6.0	5.0	6.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)				3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode				None	None	None		C-Max	C-Max	None	C-Max	
Act Effct Green (s)					17.6	17.6		56.8	56.8	71.4	70.4	
Actuated g/C Ratio					0.18	0.18		0.57	0.57	0.71	0.70	
v/c Ratio					0.71	0.48		0.61	0.17	0.52	0.49	
Control Delay					50.7	8.2		14.7	4.4	10.0	4.7	
Queue Delay					0.0	0.0		0.5	0.0	0.0	0.0	
Total Delay					50.7	8.2		15.3	4.4	10.0	4.7	
LOS					D	A		B	A	B	A	
Approach Delay					29.1			13.9			5.4	
Approach LOS					C			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 12.4 Intersection LOS: B

Intersection Capacity Utilization 66.5% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 109: TH 61 & 10th St

5: TH 61 & TH 316

Direction	All
Future Volume (vph)	2302
Total Delay / Veh (s/v)	47
CO Emissions (kg)	5.64
NOx Emissions (kg)	1.10
VOC Emissions (kg)	1.31

106: TH 61 & CSAH 47

Direction	All
Future Volume (vph)	2914
Total Delay / Veh (s/v)	12
CO Emissions (kg)	4.08
NOx Emissions (kg)	0.79
VOC Emissions (kg)	0.95

108: TH 61 & TH 55/Walgreens Ent

Direction	All
Future Volume (vph)	3116
Total Delay / Veh (s/v)	19
CO Emissions (kg)	3.06
NOx Emissions (kg)	0.60
VOC Emissions (kg)	0.71

109: TH 61 & 10th St

Direction	All
Future Volume (vph)	2952
Total Delay / Veh (s/v)	11
CO Emissions (kg)	3.02
NOx Emissions (kg)	0.59
VOC Emissions (kg)	0.70

9: TH 61 & TH 316

Direction	All
Future Volume (vph)	2302
Total Delay / Veh (s/v)	0
CO Emissions (kg)	3.47
NOx Emissions (kg)	0.68
VOC Emissions (kg)	0.81

106: TH 61 & CSAH 47

Direction	All
Future Volume (vph)	2914
Total Delay / Veh (s/v)	9
CO Emissions (kg)	3.94
NOx Emissions (kg)	0.77
VOC Emissions (kg)	0.91

108: TH 61 & TH 55

Direction	All
Future Volume (vph)	3141
Total Delay / Veh (s/v)	13
CO Emissions (kg)	2.67
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

109: TH 61 & 10th St

Direction	All
Future Volume (vph)	3049
Total Delay / Veh (s/v)	12
CO Emissions (kg)	3.22
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route	US 61	**District**	Metro	**County**	Dakota
Begin RP	4th Street	**End RP**	36th Street	**Miles**	2.3 miles
Location	Highway 61 corridor entirely within City of Hastings municipal boundary				

B. Project Description

Proposed Work	Corridor improvements at several intersections		
Project Cost*	$21,408,861	**Installation Year**	2027
Project Service Life	30 years	**Traffic Growth Factor**	1.2%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

1.00	**Fatal (K) Crashes**	**Reference**	See attached worksheet
0.87	**Serious Injury (A) Crashes**		
0.65	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.80	**Possible Injury (C) Crashes**		
0.80	**Property Damage Only Crashes**		

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D. Crash Modification Factor (optional second CMF)

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

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E. Crash Data

Begin Date	1/1/2020	**End Date**	12/31/2022	3 years
Data Source				

Crash Severity	All	< optional 2nd CMF >
K crashes	1	0
A crashes	2	0
B crashes	12	0
C crashes	30	0
PDO crashes	145	0

F. Benefit-Cost Calculation

$26,396,962	**Benefit (present value)**
$21,408,861	**Cost**

B/C Ratio = 1.24

Proposed project expected to reduce 14 crashes annually, 1 of which involving fatality or serious injury.

F. Analysis Assumptions

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

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

Real Discount Rate:	0.8%	Default
Traffic Growth Rate:	1.2%	**Revised**
Project Service Life:	30 years	**Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.27	0.09	$72,000
B crashes	4.24	1.41	$353,700
C crashes	5.95	1.98	$257,920
PDO crashes	29.58	9.86	$147,900
			$831,520

H. Amortized Benefit

Year	Crash Benefits	Present Value
2027	$831,520	$831,520
2028	$841,415	$834,737
2029	$851,428	$837,967
2030	$861,560	$841,209
2031	$871,812	$844,464
2032	$882,187	$847,731
2033	$892,685	$851,011
2034	$903,308	$854,303
2035	$914,057	$857,609
2036	$924,935	$860,927
2037	$935,941	$864,258
2038	$947,079	$867,602
2039	$958,349	$870,959
2040	$969,754	$874,328
2041	$981,294	$877,711
2042	$992,971	$881,107
2043	$1,004,788	$884,516
2044	$1,016,744	$887,938
2045	$1,028,844	$891,374
2046	$1,041,087	$894,823
2047	$1,053,476	$898,285
2048	$1,066,012	$901,760
2049	$1,078,698	$905,249
2050	$1,091,534	$908,752
2051	$1,104,524	$912,268
2052	$1,117,667	$915,797
2053	$1,130,968	$919,340
2054	$1,144,426	$922,897
2055	$1,158,045	$926,468
2056	$1,171,826	$930,053
0	$0	$0

Total = $26,396,962

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

Table 1 - Total Crashes Observed and Crash Reduction Factors

Intersection	Crashes Observed, 2020-2022					Proposed Improvement	CMF ID	Crash Reduction Factor
	K	A	B	C	O			
5th Street	0.0	0.0	2.0	0.0	4.0	Right-in, Right-out with pedestrian median island	9821, 8800 *	0.5919
7th Street	0.0	0.0	0.0	0.0	0.0	Right-in, Right-out with pedestrian median island	9821, 8800*	0.5919
10th Street	0.0	0.0	1.0	7.0	17.0	Close EB Approach	5233	0.25
Trunk Hwy 55	0.0	0.0	1.0	3.0	12.0	Close East Leg	5233	0.25
12th Street	0.0	0.0	0.0	1.0	11.0	Right-in, Right-out	9821	0.45
14th Street	0.0	0.0	0.0	2.0	6.0	Replace direct left-turn with right-turn/U-turn	351	0.2
18th Street	0.0	0.0	1.0	1.0	8.0	Add Signal	7983	0.361
County Hwy 47	0.0	0.0	1.0	1.0	16.0	Add Right Turn Lane	286	0.04
21st Street	0.0	0.0	1.0	0.0	8.0	Right-in, Right-out	9821	0.45
24th Street	0.0	0.0	0.0	0.0	2.0	Right-in, Right-out	9821	0.45
Trunk Hwy 316	0.0	0.0	0.0	4.0	6.0	Roundabout	227	0.44
Cannon	0.0	0.0	1.0	0.0	2.0	Close Intersection		1
36th Street	0.0	0.0	1.0	1.0	2.0	Roundabout	227	0.44
Corridor	0.0	1.0	1.0	0.0	1.0	Remove on-street parking	154	0.27
Corridor Total (All intersections and segments)	**1.0**	**2.0**	**12.0**	**30.0**	**145.0**			

* Crash modification factors multiplied together to determine the combined CMF/CRF

Table 2 - Total Expected Crashes Eliminated by Improvements

Intersection	Crashes Eliminated				
	K	A	B	C	O
5th Street	0.00	0.00	1.18	0.00	2.37
7th Street	0.00	0.00	0.00	0.00	0.00
10th Street	0.00	0.00	0.25	1.75	4.25
Trunk Hwy 55	0.00	0.00	0.25	0.75	3.00
12th Street	0.00	0.00	0.00	0.45	4.95
14th Street	0.00	0.00	0.00	0.40	1.20
18th Street	0.00	0.00	0.36	0.36	2.89
County Hwy 47	0.00	0.00	0.04	0.04	0.64
21st Street	0.00	0.00	0.45	0.00	3.60
24th Street	0.00	0.00	0.00	0.00	0.90
Trunk Hwy 316	0.00	0.00	0.00	1.76	2.64
Cannon	0.00	0.00	1.00	0.00	2.00
36th Street	0.00	0.00	0.44	0.44	0.88
Corridor	0.00	0.27	0.27	0.00	0.27
Corridor Total (All intersections and segments)	**0.00**	**0.27**	**4.24**	**5.95**	**29.59**

Product of Crashes Observed and CRF (**Table 1**).

Effective CMF (1 - Crashes Eliminated/Crashes Observed)	**1.000**	**0.865**	**0.646**	**0.802**	**0.796**

CMF / CRF Details

CMF ID: 9821

CMF Name: Install right-in-right-out (RIRO) operations at stop-controlled interse

Description:

Prior Condition: No Prior Condition(s)

Category: Access management

Study ID: [*Safety Effects of Turning Movement Restrictions at Stop-Controlled Intersections*, Le et al. 2018]

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.55
Adjusted Standard Error:	
Unadjusted Standard Error:	0.09

Crash Reduction Factor	
Value:	45
Adjusted Standard Error:	
Unadjusted Standard Error:	9

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Minimum Number of Lanes:	4
Maximum Number of Lanes:	6
Number of Lanes Direction:	
Number of Lanes Comment:	4 and 6 Lanes
Road Division Type:	Divided by Median
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	All
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	3-leg
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	Minimum of 13433 to Maximum of 75000 Annual Average Daily Traffic (AADT)
Minor Road Traffic Volume:	Minimum of 51 to Maximum of 2600 Annual Average Daily Traffic (AADT)

Average Major Road Volume:	38724 Annual Average Daily Traffic (AADT)
Average Minor Road Volume:	519 Annual Average Daily Traffic (AADT)

Development Details

Date Range of Data Used:	
Municipality:	
State:	CA
Country:	USA
Type of Methodology Used:	Regression cross-section
Sample Size (crashes):	483 crashes
Sample Size (sites):	138 sites

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Oct 27, 2018
Comments:	This CMF compares urban, three-legged, stop-controlled intersections with RIRO operation to full movement. This CMF looks at Total crashes. Total crashes are defined as all crashes within 100 ft of intersection (all types and severities combined)

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

CMF / CRF Details

CMF ID: 8800

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

Description:

Prior Condition: No median

Category: Pedestrians

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

Star Quality Rating	
Star Quality Rating:	4 Stars

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

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

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

Average Major Road Volume:	
Average Minor Road Volume:	

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

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

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CMF / CRF Details

CMF ID: 5233

CMF Name: Presence of three leg intersection vs. four leg intersection

Description:

Prior Condition: Four-leg intersection

Category: Intersection geometry

Study ID: *Corridor-level signalized intersection safety analysis in Shanghai, China using Bayesian hierarchal models*, Kun Xie, Xuesong Wang, Helai Huang, Xiahong Chen 2013

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.75
Adjusted Standard Error:	
Unadjusted Standard Error:	0.13

Crash Reduction Factor	
Value:	25
Adjusted Standard Error:	
Unadjusted Standard Error:	12.8

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Minimum Number of Lanes:	
Maximum Number of Lanes:	
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	Not specified
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	3-leg,4-leg
Traffic Control:	Signalized
Major Road Traffic Volume:	Minimum of 7700 to Maximum of 140300 Average Daily Traffic (ADT)
Minor Road Traffic Volume:	

Average Major Road Volume:	46200 Average Daily Traffic (ADT)
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	2009 to 2009
Municipality:	
State:	notusa
Country:	China
Type of Methodology Used:	Regression cross-section
Sample Size (site-years):	195 site-years

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Dec 02, 2013
Comments:	Major Road ADT is total entering vehicles for the intersection

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CMF / CRF Details

CMF ID: 351

CMF Name: Replace direct left-turn with right-turn/U-turn

Description:

Prior Condition: No Prior Condition(s)

Category: Access management

Study ID: Right Turns Followed by U-Turns Versus Direct Left Turns: A Comparison of Safety Issues, Xu 2001

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.8
Adjusted Standard Error:	0.13
Unadjusted Standard Error:	0.03

Crash Reduction Factor	
Value:	20
Adjusted Standard Error:	13
Unadjusted Standard Error:	3

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Principal Arterial Other
Minimum Number of Lanes:	4
Maximum Number of Lanes:	8
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Not Specified
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	Not Specified
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	
Minor Road Traffic Volume:	Minimum of 0 to Maximum of 34000 Annual Average Daily Traffic (AADT)

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Non-regression cross-section

Other Details

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

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CMF / CRF Details

CMF ID: 7983

CMF Name: Install a traffic signal

Description:

Prior Condition: Intersections with a stop sign on minor roads

Category: Intersection traffic control

Study ID: *Safety Evaluation of Signal Installation With and Without Left Turn Lanes on Two Lane Roads in Rural and Suburban Areas*, Srinivasan et al. 2014

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.639
Adjusted Standard Error:	
Unadjusted Standard Error:	0.033

Crash Reduction Factor	
Value:	36.1
Adjusted Standard Error:	
Unadjusted Standard Error:	3.3

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Minimum Number of Lanes:	2
Maximum Number of Lanes:	2
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	All
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	All
If countermeasure is intersection-based.	
Intersection Type:	Not specified
Intersection Geometry:	3-leg,4-leg
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	Minimum of 2480 to Maximum of 18025 Annual Average Daily Traffic (AADT)
Minor Road Traffic Volume:	Minimum of 746 to Maximum of 6829 Annual Average Daily Traffic (AADT)

Average Major Road Volume:	9778 Annual Average Daily Traffic (AADT)
Average Minor Road Volume:	5767 Annual Average Daily Traffic (AADT)

Development Details	
Date Range of Data Used:	1992 to 2012
Municipality:	
State:	NC
Country:	
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes
Sample Size (crashes):	899 crashes before, 575 crashes after
Sample Size (sites):	50 sites before, 50 sites after
Sample Size (site-years):	**site-years before, 240 site-years after**

Other Details	
Included in HSM:	No
Date Added to Clearinghouse:	Nov 10, 2016
Comments:	The CMF was developed for both rural and suburban areas.

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CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 286

CMF Name: Provide a right-turn lane on one major-road approach

Description:

Prior Condition: No Prior Condition(s)

Category: Intersection geometry

Study ID: *Safety Effectiveness of Intersection Left- and Right-Turn Lanes, Harwood et al. 2002*

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.96
Adjusted Standard Error:	0.02
Unadjusted Standard Error:	0.02

Crash Reduction Factor	
Value:	4
Adjusted Standard Error:	2
Unadjusted Standard Error:	2

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not Specified
Minimum Number of Lanes:	
Maximum Number of Lanes:	
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	All
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	3-leg,4-leg
Traffic Control:	Signalized
Major Road Traffic Volume:	Minimum of 7200 to Maximum of 55100 Average Daily Traffic (ADT)
Minor Road Traffic Volume:	Minimum of 550 to Maximum of 8400 Average Daily Traffic (ADT)

Average Major Road Volume:	
Average Minor Road Volume:	

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

Other Details	
Included in HSM:	Yes. HSM lists this CMF in bold font to indicate that it has the highest
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	Countermeasure name changed to match HSM The number of crashes in the after period were not reported in this study, however, they have been recorded as 300 to give 10 points as a beneift of doubt for one or more of the following: (1) number of miles/sites in the reference/treatment group, (2) number of crashes in the references/treatment group, (3) reporting AADTs for the aggregate dataset but not for the disaggragate dataset used for CMF development.

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

CMF / CRF Details

CMF ID: 227

CMF Name: Convert intersection with minor-road stop control to modern round

Description:

Prior Condition: No Prior Condition(s)

Category: Intersection geometry

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

Star Quality Rating	
Star Quality Rating:	4 Stars

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

Crash Reduction Factor	
Value:	44
Adjusted Standard Error:	5
Unadjusted Standard Error:	4

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not Specified
Minimum Number of Lanes:	1
Maximum Number of Lanes:	2
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	All
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
If countermeasure is intersection-based.	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	4-leg
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

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

Other Details

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

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CMF / CRF Details

CMF ID: 154

CMF Name: Prohibit on-street parking

Description:

Prior Condition: No Prior Condition(s)

Category: On-street parking

Study ID: *Handbook of Road Safety Measures*, Elvik, R. and Vaa, T. 2004

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.73
Adjusted Standard Error:	0.02
Unadjusted Standard Error:	0.01

Crash Reduction Factor	
Value:	27
Adjusted Standard Error:	2
Unadjusted Standard Error:	1

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

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Meta-analysis

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	

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

HASTINGS HIGHWAY 61 MODERNIZATION SUMMARY

Project Name: Hastings Highway 61 Modernization

Applicant: City of Hastings

Project Background: This proposed project is the outcome of a Highway 61 Corridor Study completed by the Minnesota Department of Transportation (MnDOT) and the City of Hastings, with the intention of establishing a vision for long-term implementation of projects on the Highway 61 corridor in Hastings. The resulting vision covers approximately 2.3 miles of Highway 61 entirely within the city of Hastings.

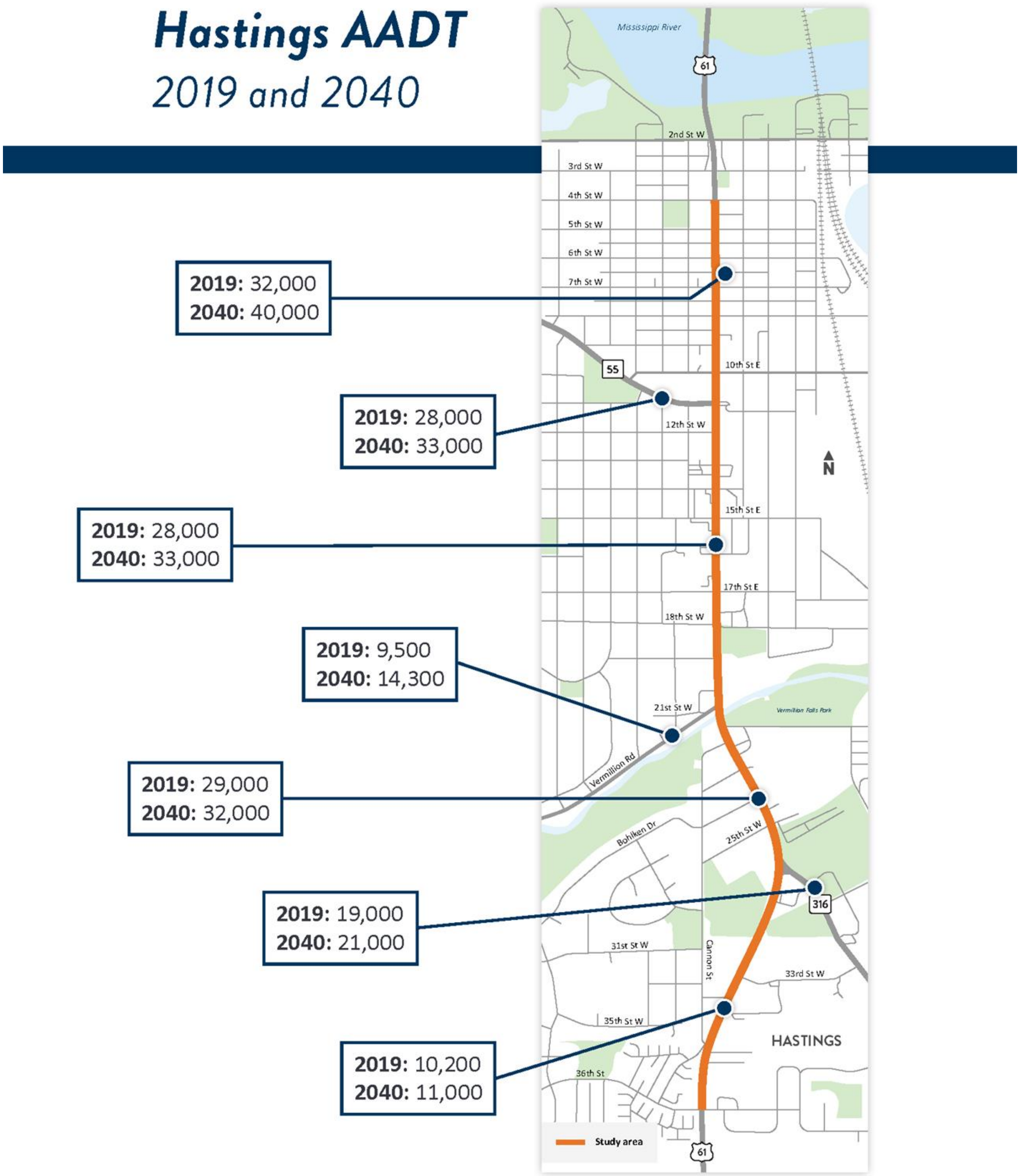
Roadway Issues: The existing roadway (portions of which were last reconstructed in 1931) is nearing the end of its useful life and warrants replacement. A majority of the Highway 61 project corridor is characterized by four 12-foot lanes (two running in each direction) plus an alternating 12-foot center left turn median lane. From the Vermillion River to 36th Street significant gaps in sidewalk continuity exist, leaving bicyclists and pedestrians with limited options for movement along the corridor. Over 30,000 vehicles use the corridor daily, with significant portions of heavy truck (freight) movement. More than 120 businesses front Highway 61 as well, making this an extremely active corridor of commerce for the region.

Travel Time on the Hwy 61 Corridor	
Southbound from 4th Street to 36th Street	
2022	4.8 Minutes
2040 (without improvements)	21.9 Minutes

Left unaddressed, roadway congestion will dramatically increase. Based on traffic forecasts, the average travel time through the corridor for southbound vehicles in the afternoon peak period will more than quadruple. Additionally, Highway 61 acts as a barrier to bike and pedestrian traffic – unsafe crossing locations pose a risk to user safety and will worsen as traffic volumes continue to grow toward 40,000 vehicles per day in 2040. During the five-year period covered in the Corridor Study, there were over 370 crashes reported, resulting in more than $2.7 million in damages per year.

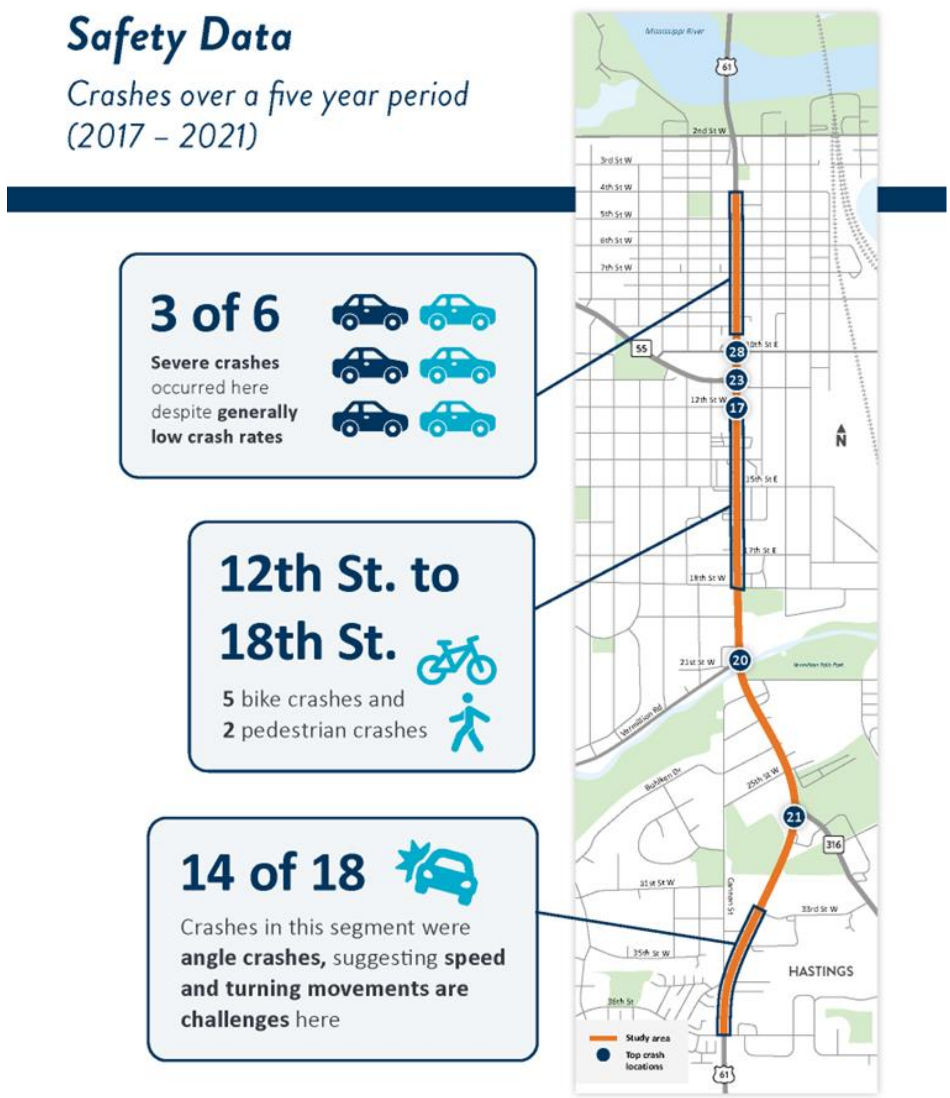
Project Description and Benefits: The proposed project, with 2023 estimated construction costs of over $21 million, will include reconstruction of the corridor for a revitalization of all assets and will be done in conjunction with the City of Hastings to coordinate replacement of critical utilities so that construction disruption is limited. Notable features of the reconstruction include access closures (right-in/right-out restrictions) that enable a new median refuge for crossing pedestrians and bicyclists while calming traffic, new traffic signals, two new roundabouts, and new trail segments to close gaps in the multimodal system. New pavement, stormwater structures, and technology (e.g. lighting) will create a more resilient roadway corridor to serve Hastings and the larger region for decades to come

Existing and Future Traffic Volumes



Highway 61 Crash Statistics (from Corridor Study)

Years of Analysis	2017-2021	
Total Crashes	371	
Top Intersections by Total Crashes	Tenth Street	28 crashes
	Highway 55	23 crashes
	Highway 316	21 crashes
Top Intersections by Injury Crashes	Highway 316	10 crashes
	15th Street	7 crashes
	Tenth Street	6 crashes
Manner of Collision	Read End	37% of crashes
	Angle	29% of crashes
	Sideswipe	13% of crashes
Bike/Pedestrian Crashes	9	Most between 12 and 18 Streets



HASTINGS HIGHWAY 61 MODERNIZATION

DEPARTMENT OF TRANSPORTATION

Highway 316 Intersection

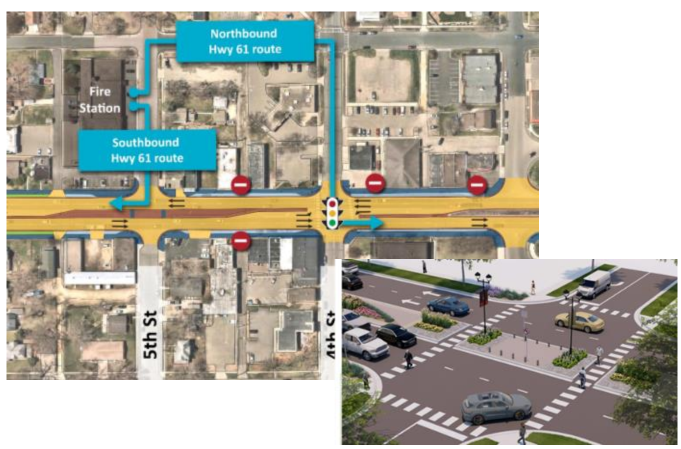
Future Roundabout at Hwy 316 Intersection

Highway 55 Intersection Area

Highway 55 Access Modifications and Turn Lane

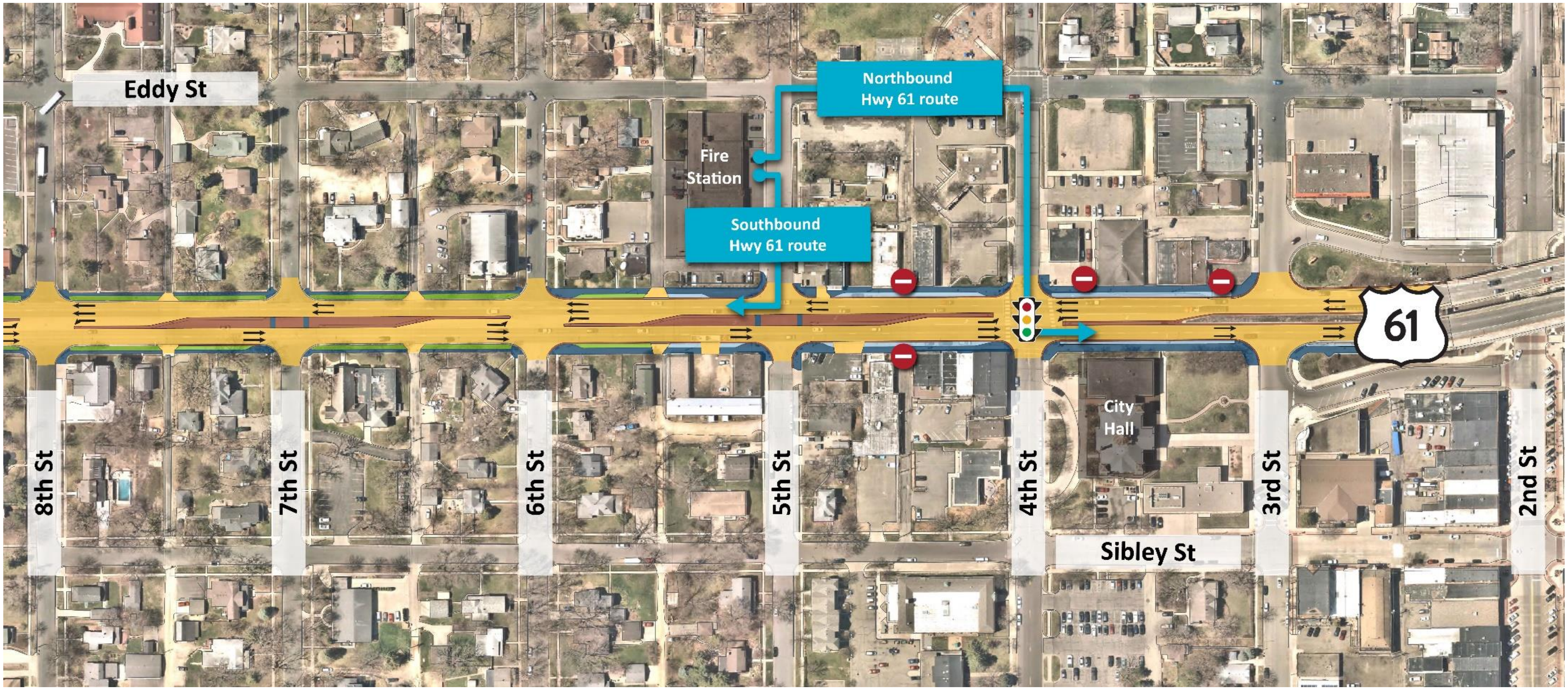
City Hall Area – Pedestrian Crossings Today

City Hall Area – Pedestrian Crossing Improvements



HASTINGS HIGHWAY 61 MODERNIZATION – SHEET 1 (4TH TO 8TH STREETS)

DEPARTMENT OF TRANSPORTATION



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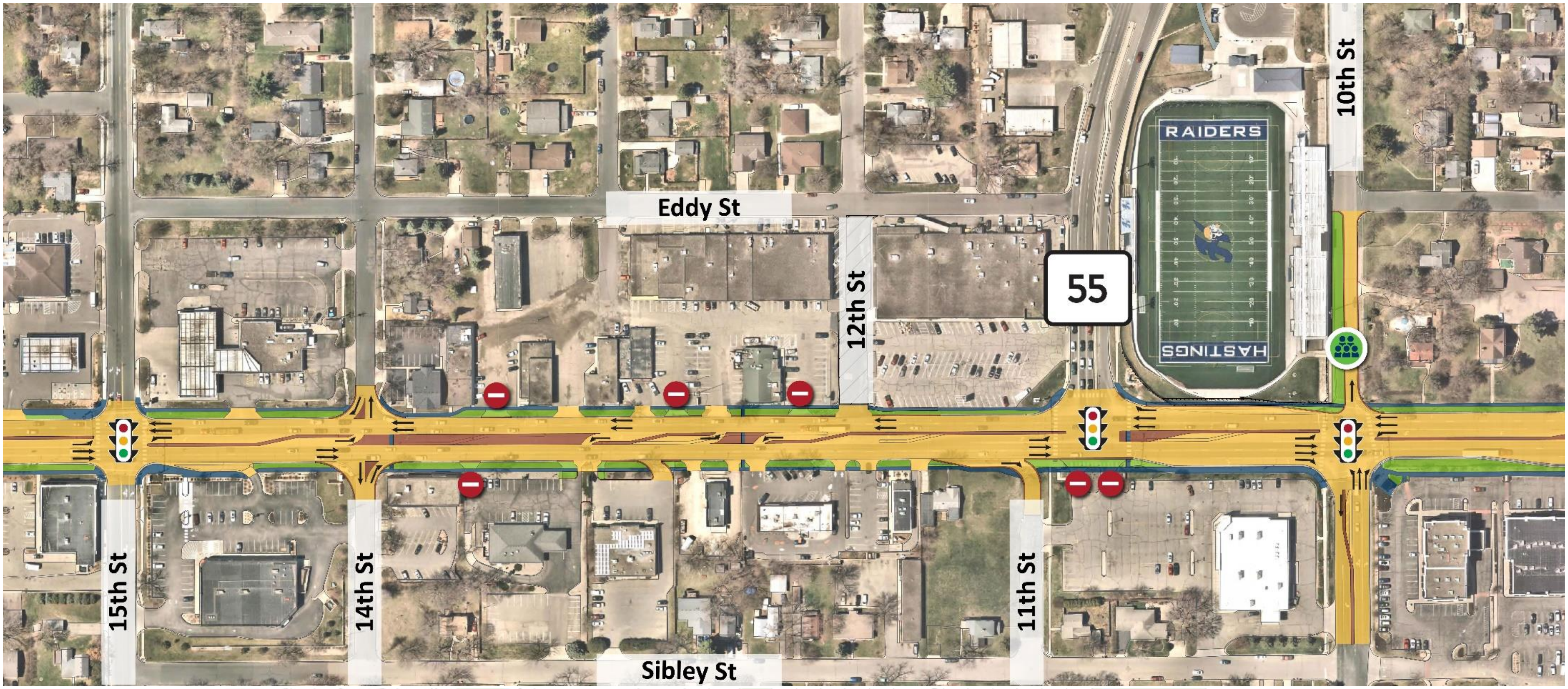
HASTINGS HIGHWAY 61 MODERNIZATION – SHEET 2 (9TH TO 15TH STREETS)

DEPARTMENT OF TRANSPORTATION



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HASTINGS HIGHWAY 61 MODERNIZATION – SHEET 3 (15TH TO 19TH STREETS)

DEPARTMENT OF TRANSPORTATION

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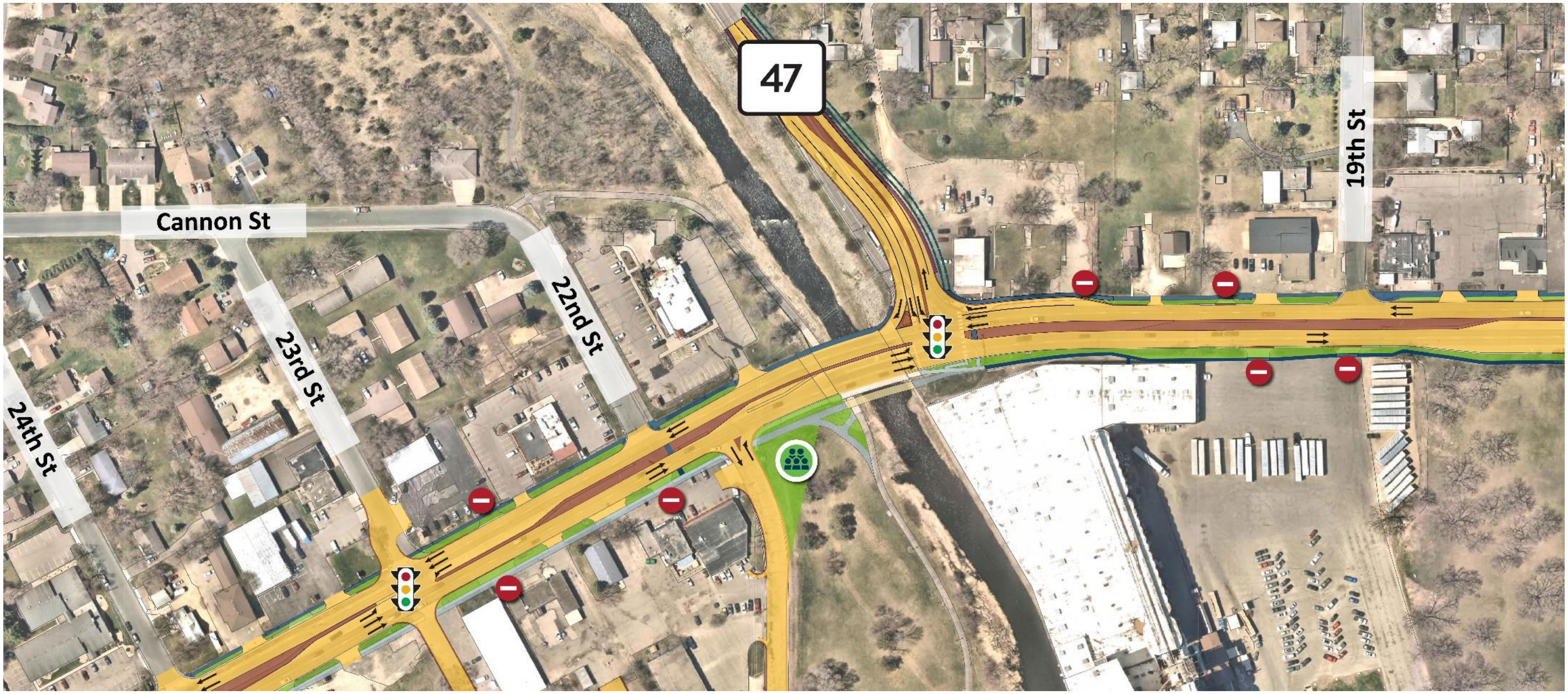
HASTINGS HIGHWAY 61 MODERNIZATION – SHEET 4 (19TH TO 24TH STREETS)

DEPARTMENT OF TRANSPORTATION



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HASTINGS HIGHWAY 61 MODERNIZATION – SHEET 5 (21ST ST TO HWY 316)

DEPARTMENT OF TRANSPORTATION

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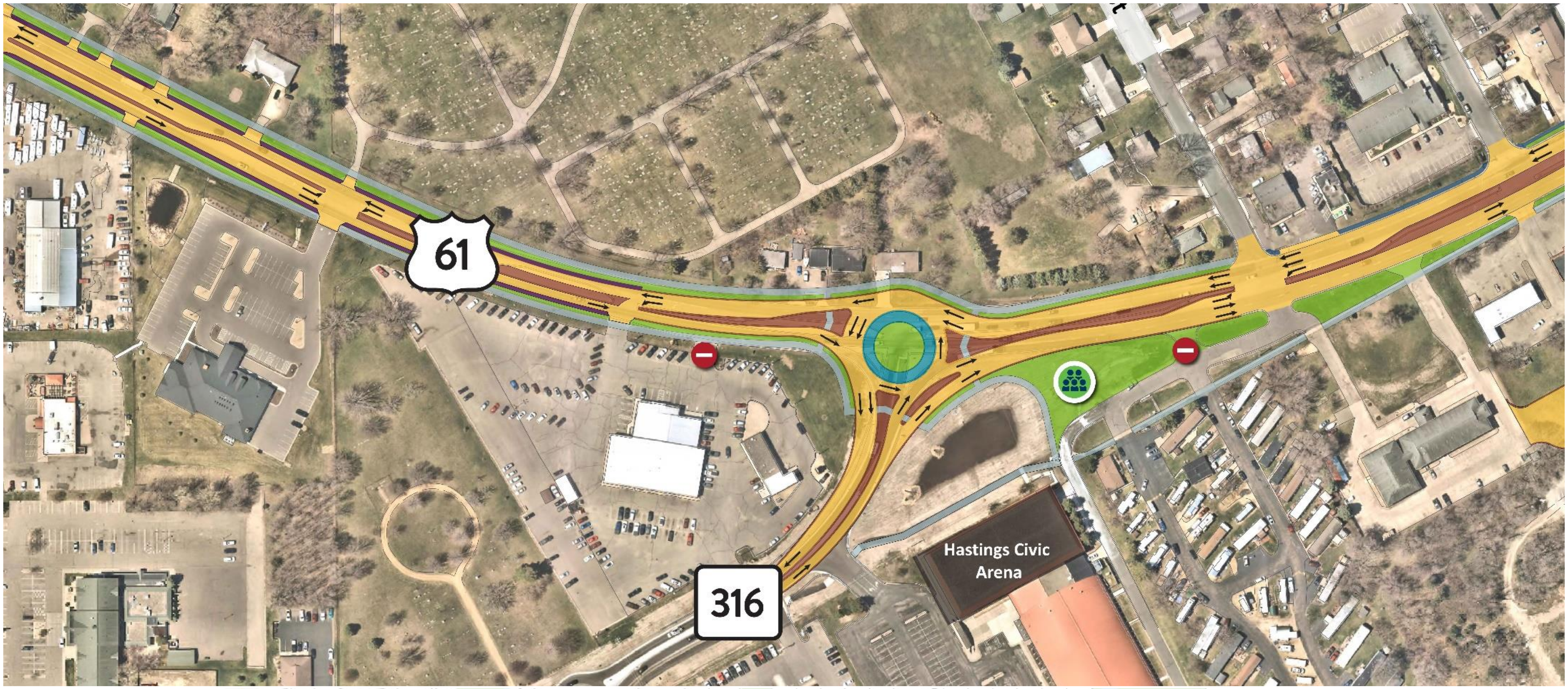
HASTINGS HIGHWAY 61 MODERNIZATION – SHEET 6 (24TH TO 33RD STREETS)

Hastings MINNESOTA Since 1857

mn DEPARTMENT OF TRANSPORTATION



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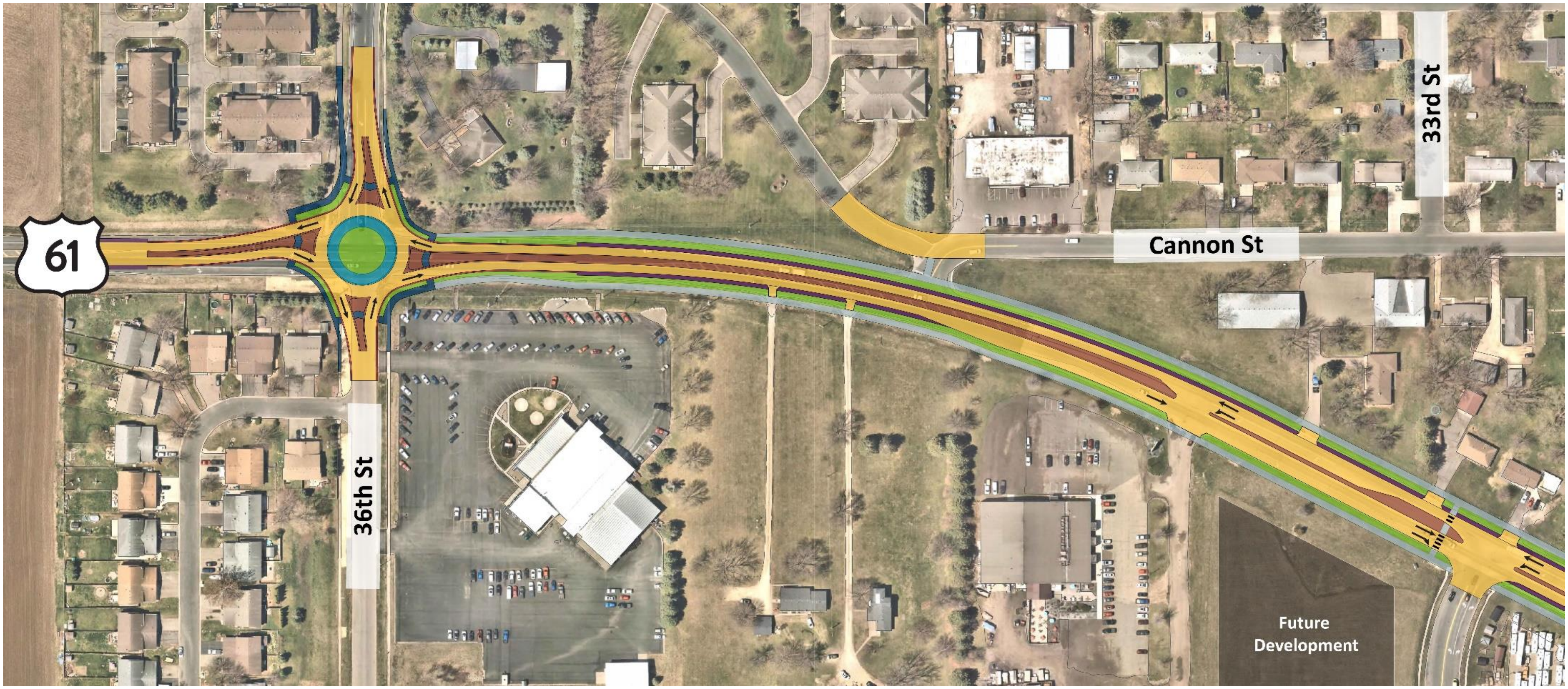
HASTINGS HIGHWAY 61 MODERNIZATION – SHEET 7 (33RD TO 36TH STREETS)

DEPARTMENT OF TRANSPORTATION



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DEPARTMENT OF TRANSPORTATION

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

11/29/2023

Ryan Stempski, P.E.
Public Works Director/City Engineer
City of Hastings Public Works
1225 Progress Drive
Hastings, MN 55033

Re: MnDOT Letter for City of Hastings
Metropolitan Council/Transportation Advisory Board 2024 Regional Solicitation Funding Request for Highway 61 Corridor Improvements

Dear Ryan Stempski,

This letter documents MnDOT Metro District's recognition for the City of Hastings to pursue funding for the Metropolitan Council/Transportation Advisory Board's (TAB) 2024 Regional Solicitation for the Highway 61 Corridor Improvements.

Reconstruction of the US 61 corridor from 36th Street to 4th Street follows the vision plan created in a partnership study between MnDOT and the City. The project will eliminate on-street parking, reduce private and public access, reconstruct a retaining wall, add turn lanes to key intersections, construct roundabouts at the US 61 intersections with 36th Street and with TH 316, construct multi-use trails on both sides from 36th Street to TH 316, and improve pedestrian and biking facilities and crossings.

As the agency with jurisdiction over US 61, MnDOT will allow the City of Hastings to seek improvements proposed in the application. If funded, details of how the project is delivered and any future maintenance agreement with the City will need to be determined during the project's development to define how the improvements will be maintained for the project's useful life.

MnDOT does not anticipate partnering on local projects beyond current agreements. If your project receives funding, continue to work with MnDOT Area staff to coordinate and review needs and opportunities for cooperation.

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

If you have questions or require additional information at this time, please reach out to your Area Manager at Bryant.Ficek@state.mn.us or 651-443-2564

Sincerely,

Sheila Kauppi Digitally signed by Sheila Kauppi Date: 2023.11.29 13:51:26 -06'00'

Sheila Kauppi, PE
Metro District Engineer

CC:
Bryant Ficek, Metro South Area Manager
Aaron Tag, Metro Program Director
Dan Erickson, Metro State Aid Engineer

December 1, 2023

Ryan Stempski
Public Works Director/City Engineer
City of Hastings Public Works
1225 Progress Drive
Hastings, MN 55033

Dear Mr. Stempski,

I am writing this letter to demonstrate the Prairie Island Indian Community's support for the City of Hastings Trunk Highway 61 Improvements Project. We are supportive of this project and the City's application to the Metropolitan Council's Regional Solicitation funding program.

Trunk Highway 61 is an important part of Southeast Minnesota's transportation network that touches many communities throughout the region. Trunk Highway 61 is a busy corridor that already experiences congestion and vehicle delays during peak hours. The City of Hastings has determined that Trunk Highway 61 will turn to gridlock by 2040 if improvements are not made. Travel time from 4th Street to 36th Street will increase from 5 minutes to over 25 minutes. This delay is unacceptable and would negatively impact Prairie Island business operations at Treasure Island Resort and Casino as well as community events such as Pow Wows.

We support this project as it will reduce traffic congestion and improve safety along Trunk Highway 61. The project will benefit multiple businesses within the Community. The proposed Trunk Highway 61 Improvements are endorsed by the Prairie Island Indian Community, and we are supportive of the City's funding pursuits to construct the project.

Sincerely,

Grant Johnson
Tribal Administrator
Prairie Island Indian Community