Application

04751-2016 Roadway Expansion
05081 - Anoka County CSAH 116 Expansion
Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
Submitted Date:
07/15/2016 11:48 AM

## Primary Contact



## Organization Information

Name:

Jurisdictional Agency (if different):
Organization Type: County Government
Organization Website:
Address: 1440 BUNKER LAKE BLVD

| * | ANDOVER | Minnesota |
| :--- | :--- | :--- |
| County: | City |  |
| State/Province |  |  |
| Phone:* | Anoka |  |
| Fax: | $763-862-4200$ | Ext. |
| PeopleSoft Vendor Number | $0000003633 A 15$ |  |

## Project Information

Project Name
Primary County where the Project is Located
Jurisdictional Agency (If Different than the Applicant):

CSAH 116 Expansion
Anoka

Brief Project Description (Limit 2,800 characters; approximately 400 words)

The proposed project expands CSAH 116 (Bunker Lake Boulevard) from two lanes to four lanes between Van Buren Street and Highway 65 in the City of Ham Lake. This 1.0-mile section will complete the final missing section of 11.1 miles of four-lane roadway that currently spans eastward from Highway 65 to CSAH 52 (Radisson Road) and westward from CSAH 57 (Sunfish Lake Boulevard) to

Van Buren Street. The last part of the westward stretch from CSAH 78 (Hanson Boulevard) to Van Buren Street will be completed in the summer of 2017.

The proposed project expands the roadway from an undivided rural two-lane section to a four-lane divided urban facility with turn lanes, raised medians, and paved shoulders. A separated pedestrian/bicycle path, which is an extension of the Central Anoka County Regional Trail will be added on the north side of CSAH 116. Access management, including restricting turning movements at several intersections, will also be implemented along the corridor.

Include location, road name/functional class, type of improvement, etc.

TIP Description Guidance (will be used in TIP if the project is selected for funding)

Project Length (Miles)

CSAH 116 (Bunker Lake Boulevard), 4-lane expansion between Van Buren Street and TH 65
1.0

## Project Funding

Are you applying for funds from another source(s) to implement
this project?
If yes, please identify the source(s)

Federal Amount \$3,360,000.00
Match Amount \$840,000.00

Minimum of $20 \%$ of project total

| Project Total | $\$ 4,200,000.00$ |
| :--- | :--- |
| Match Percentage | $20.0 \%$ |
| Minimum of $20 \%$ |  |
| Compute the match percentage by dividing the match amount by the project total |  |

Source of Match Funds Anoka County Highway FundA 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 federalsourcesPreferred Program Year
Select one: ..... 2020
For TDM projects, select 2018 or 2019. For Roadway, Transit, or Trail/Pedestrian projects, select 2020 or 2021.

Additional Program Years:2019

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

## Project Information: Roadway Projects

| County, City, or Lead Agency | Anoka County |
| :--- | :--- |
| Functional Class of Road | A Minor Reliever Arterial |
| Road System | CSAH |
| TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET |  |
| Road/Route No. | 116 |
| i.e., 53 for CSAH 53 |  |
| Name of Road | Bunker Lake Boulevard |
| Example; 1st ST., MAIN AVE | 55304 |
| Zip Code where Majority of Work is Being Performed | $03 / 01 / 2020$ |
| (Approximate) Begin Construction Date | $11 / 02 / 2020$ |
| (Approximate) End Construction Date | CSAH 116 \& Van Buren Street |
| TERMINI:(Termini listed must be within 0.3 miles of any work) |  |
| From: | CSAH 116 \& TH 65 |
| (Intersection or Address) |  |
| To: |  |
| (Intersection or Address) |  |
| DO NOT INCLUDE LEGAL DESCRIPTION |  |
| Or At |  |

Primary Types of Work
Grade, Paved Surface, Multiuse Trails, Storm Sewer, Traffic Signal, ADA Ramps, Sidewalk, Curb and Gutter, Raised Median, Landscaping
BRIDGE/CULVERT PROJECTS (IF APPLICABLE)
Old Bridge/Culvert No.:
New Bridge/Culvert No.:
Structure is Over/Under
(Bridge or culvert name):

## Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES

Cost
Mobilization (approx. 5\% of total cost) $\quad \$ 364,500.00$
Removals (approx. 5\% of total cost) \$282,600.00
Roadway (grading, borrow, etc.) \$316,600.00
Roadway (aggregates and paving) $\quad \$ 1,076,000.00$
Subgrade Correction (muck) \$0.00
Storm Sewer $\quad \$ 611,400.00$
Ponds \$332,200.00
Concrete Items (curb \& gutter, sidewalks, median barriers) \$310,000.00
Traffic Control \$39,900.00
Striping \$47,100.00
Signing \$20,900.00
Lighting \$0.00
Turf - Erosion \& Landscaping $\quad \$ 165,300.00$
Bridge \$0.00
Retaining Walls \$30,200.00
Noise Wall (do not include in cost effectiveness measure) $\quad \$ 191,000.00$
$\begin{array}{lr}\text { Traffic Signals } & \$ 318,300.00\end{array}$
Wetland Mitigation \$0.00
Other Natural and Cultural Resource Protection \$0.00
RR Crossing \$0.00
Roadway Contingencies \$0.00
Other Roadway Elements \$14,000.00
Totals $\mathbf{\$ 4 , 1 2 0 , 0 0 0 . 0 0}$

Specific Bicycle and Pedestrian Elements
CONSTRUCTION PROJECT ELEMENTS/COST
ESTIMATES
Cost
Path/Trail Construction ..... $\$ 80,000.00$
Sidewalk Construction ..... $\$ 0.00$
On-Street Bicycle Facility Construction ..... $\$ 0.00$
Right-of-Way ..... $\$ 0.00$
Pedestrian Curb Ramps (ADA) ..... $\$ 0.00$
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK) ..... $\$ 0.00$
Pedestrian-scale Lighting ..... $\$ 0.00$
Streetscaping ..... $\$ 0.00$
Wayfinding ..... $\$ 0.00$
Bicycle and Pedestrian Contingencies ..... $\$ 0.00$
Other Bicycle and Pedestrian Elements ..... $\$ 0.00$
Totals ..... \$80,000.00
Specific Transit and TDM Elements
CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES ..... Cost
Fixed Guideway Elements ..... $\$ 0.00$
Stations, Stops, and Terminals ..... $\$ 0.00$
Support Facilities ..... $\$ 0.00$
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)
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) | $\$ 0.00$ |
| Substotal | $\$ 0.00$ |
| Other Costs - Administration, Overhead,etc. | $\$ 0.00$ |

## Totals

| Total Cost | $\$ 4,200,000.00$ |
| :--- | :--- |
| Construction Cost Total | $\$ 4,200,000.00$ |
| Transit Operating Cost Total | $\$ 0.00$ |

## 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, the 2040 Regional Parks Policy Plan (2015), 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 objectives and strategies that relate to the project.

Goal B: Safety and Security: The regional transportation system is safe and secure for all users (page 60)
-Objectives: Reduce crashes and improve safety and security for all modes of passenger travel and freight transport.

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

Goal C: Access to Destinations: People and businesses prosper by using a reliable, affordable, and efficient multimodal transportation system that connects them to destinations throughout the region and beyond (page 62).
-Objectives: Increase the availability of multimodal travel options, especially in congested highway corridors.
-Increase travel time reliability and predictability for travel on highway and transit systems.
-Ensure access to freight terminals such as river ports, airports, and intermodal rail yards.

Strategies: C7. Regional transportation partners will manage and optimize the performance of the principle arterial system as measured by person throughput.

Strategies: C8. Regional transportation partners will prioritize all regional highway capital investments based on a project?s expected contributions to achieving the outcomes, goals, and objectives identified in Thrive MSP 2040 and the Transportation Policy Plan.

> Strategies: C9. The Council will support investments in A-minor arterials that build, manage, or improve the system?s ability to supplement the capacity of the principal arterial system and support access to the region?s job, activity, and industrial and manufacturing concentrations.
> Goal D: Competitive Economy: The regional transportation system supports the economic competitiveness, vitality, and prosperity of the region and state (page 64).

-Objectives: Support the region?s economic competitiveness through the efficient movement of freight.

> Goal F: Leveraging Transportation Investment to Guide Land Use: The leverages transportation investments to guide land use and development patterns that advance the regional vision of stewardship, prosperity, livability, equity, and sustainability (page 70).

-Objectives: Encourage local land use design that integrates highways, streets, transit, walking, and bicycling.
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:
2030 Ham Lake Comprehensive Plan (2008) Pages 6-19, 6-21, 8-3
4. The project must exclude costs for studies, preliminary engineering, design, or construction engineering. Right-of-way costs are only eligible as part of bicycle/pedestrian projects, 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.

Check the box to indicate that the project meets this requirement. Yes
5.Applicants that are not 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.
Roadway Expansion: \$1,000,000 to \$7,000,000
Roadway Reconstruction/ Modernization: \$1,000,000 to \$7,000,000
Roadway System Management \$250,000 to \$7,000,000
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.

Check the box to indicate that the project meets this requirement. Yes
9.The project must be accessible and open to the general public.

Check the box to indicate that the project meets this requirement. Yes
10.The owner/operator of the facility must operate and maintain the project for the useful life of the improvement.

Check the box to indicate that the project meets this requirement. Yes
11.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
12.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
13.The project applicant must send written notification regarding the proposed project to all affected state and local units of government prior to submitting the application.

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

## Roadways Including Multimodal Elements

1.All roadway and bridge projects must be identified as a Principal Arterial (Non-Freeway facilities only) or A-Minor Arterial as shown on the latest TAB approved roadway functional classification map.

Check the box to indicate that the project meets this requirement. Yes
Roadway Expansion and Reconstruction/Modernization 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 projects only:
3.Projects requiring a grade-separated crossing of a Principal Arterial freeway must be limited to the federal share of those project costs identified as local (non-MnDOT) cost responsibility using MnDOTs Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities manual. In the case of a federally funded trunk highway project, the policy guidelines should be read as if the funded trunk highway route is under local jurisdiction.

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

Check the box to indicate that the project meets this requirement.
5.The length of the bridge must equal or exceed 20 feet

Check the box to indicate that the project meets this requirement.
6. The bridge must have a sufficiency rating less than 80 for rehabilitation projects and less than 50 for replacement projects. Additionally, the bridge must also be classified as structurally deficient or functionally obsolete.

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

## Requirements - Roadways Including Multimodal Elements

## Expander/Augmentor/Non-Freeway Principal Arterial

Select one:
Area 0

Project Length 0
Average Distance 0

Upload Map

## Reliever: Relieves a Principle Arterial that is a Freeway Facility

Facility being relieved
US 10
Number of hours per day volume exceeds capacity (based on the Congestion Report)

## Reliever: Relives a Principle Arterial that is a Non-Freeway Facility

Facility being relieved

Number of hours per day volume exceeds capacity (based on the table below)

0

Non-Freeway Facility Volume/Capacity Table

| Hour | NB/EB Volume | SB/WB Volume |
| :--- | :---: | :---: |
| 12:00am-1:00am |  | Capacity <br> Volume exceeds <br> capacity |
| 1:00am-2:00am | 0 |  |
| $2: 00 \mathrm{am}-3: 00 \mathrm{am}$ | 0 |  |

```
3:00am-4:00am 0
4:00am - 5:00am 0
5:00am-6:00am 0
6:00am-7:00am 0
7:00am - 8:00am 0
8:00am-9:00am 0
9:00am-10:00am 0
10:00am-11:00am 0
11:00am-12:00pm 0
12:00pm-1:00pm 0
1:00pm-2:00pm 0
2:00pm-3:00pm 0
3:00pm-4:00pm 0
4:00pm - 5:00pm 0
5:00pm-6:00pm 0
6:00pm - 7:00pm 0
7:00pm - 8:00pm 0
8:00pm-9:00pm 0
9:00pm-10:00pm 0
10:00pm-11:00pm 0
11:00pm-12:00am 0
```


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

Existing Employment within 1 Mile:
1856
Existing Manufacturing/Distribution-Related Employment within 1
Mile:
390

Existing Students:
0

Upload Map 1467995873713_CSAH 116HL_R E.pdf

## Measure C: Current Heavy Commercial Traffic

Location:
Current daily heavy commercial traffic volume:
Date heavy commercial count taken:

On CSAH 116, west of TH 65

May, 2016

## Measure D: Freight Elements

Response (Limit 1,400 characters; approximately 200 words)
The project has taken into consideration heavy commercial vehicles. This includes turning lanes, paved shoulders, and appropriate turning-radius at intersections to accommodate trucks.

The CSAH 116 is one of the few continuous eastwest corridors in Anoka County, serving large manufacturers, industrial uses, and commercial/retail services. This vital east-west freight corridor provides direct access to TH 47, TH 65 and I-35W (via Lexington Avenue). The proposed project will fill a gap in freight improvements/needs in the City Andover and Ham Lake, while leverage recent freight investments along the corridor.

## Measure A: Current Daily Person Throughput

| Location | East of Jefferson Street |
| :--- | :--- |
| Current AADT Volume | 11400 |
| Existing Transit Routes on the Project | 2 |

For New Roadways only, list transit routes that will be moved to the new roadway
Upload Transit Map
1467744565857_CSAH 116HL_T C.pdf

## Response: Current Daily Person Throughput

| Average Annual Daily Transit Ridership | 0 |
| :--- | :--- |
| Current Daily Person Throughput | 1 |

## Measure B: 2040 Forecast ADT

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

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

## OR

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

Forecast (2040) ADT volume

## Measure A: Project Location and Impact to Disadvantaged Populations

Select one:
Project located in Area of Concentrated Poverty with 50\% or more of residents are people of color (ACP50):

Project located in Area of Concentrated Poverty:
Projects census tracts are above the regional average for population in poverty or population of color:

Project located in a census tract that is below the regional average for population in poverty or populations of color or Yes includes children, people with disabilities, or the elderly:

The project is located in Census Tract 502.15, with 14.5 percent of the population elderly (over the age of 65 ) as recorded by the 2012 Census. The census tract greatly exceeds the Anoka County average of 9.88 percent and the seven County metro average of 10.85 percent.

There is currently no trail or sidewalk in the project area. The extension of the Central Anoka County Regional Trail will benefit the elderly by increasing walking and bicycling opportunities and will provide a connection to Bunker Hills Regional Park, which includes several recreational opportunities.

The addition of through lanes, turn lanes, and a center median will benefit the elderly through improved mobility to the Fairview and HealthPartners clinics and by allowing for safer vehicular turning movements along CSAH 116 in the project area.

Low-income populations without a vehicle will benefit from a regional connection to expanding job opportunities via the extension of the existing trail system. One of these businesses, DSTI (recognized by Inc. Magazine as one of the fastest growing manufacturing businesses in 2010), is a located just west of the project area.

Finally, the project is consistent with the goals and desired outcomes in Thrive 2040 to connect local residents in these neighborhoods (inclusive of all races, ethnicity, incomes, and abilities) with a safe and reliable transportation system to improve their overall quality of life.

The response should address the benefits, impacts, and mitigation for the populations affected by the project.
Upload Map
Measure B: Affordable Housing
City/Township
Ham Lake Segment Length in Miles (Population)

## Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

| Total Project Length (Miles) | 1.0 |
| :--- | :--- |
| Total Housing Score | 0 |

## Measure A: Infrastructure Age

Year of Original
Roadway Construction or Most Recent
Reconstruction

Segment Length
Calculation
1999.0

1999

Calculation 2

Average Construction Year
Weighted Year
1999.0

Total Segment Length (Miles)
Total Segment Length

## Measure A: Vehicle Delay Reduction

|  |  |  |  |  | EXPLANATIO <br> N of |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Peak <br> Hour Delay <br> Per Vehicle <br> Without The <br> Project | Total Peak <br> Hour Delay <br> Per Vehicle <br> With The <br> Project | Total Peak <br> Hour Delay <br> Per Vehicle <br> Reduced by <br> Project | Volume <br> (Vehicles Per <br> Hour) | Total Peak <br> Hour Delay <br> Reduced by <br> the Project <br> (Seconds) | used to <br> calculate <br> railroad <br> crossing <br> delay, if | Synchro or <br> HCM Reports |
| applicable: |  |  |  |  |  |  |

## Total Delay

Total Peak Hour Delay Reduced
165636.0

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


## Total

Total Emissions Reduced:
Upload Synchro Report
15827.44

1467745142693_CSAH 116 HL Synchro.pdf

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, | Total (CO, NOX, |
| :---: | :---: |
| and VOC) Peak | and VOC) Peak |
| Hour Emissions | Hour Emissions |
| Per Vehicle | Per Vehicle with |
| without the Project | the Project |
| (Kilograms): | (Kilograms): |

0

| Total (CO, NOX, |  | Total (CO, NOX, |
| :---: | :---: | :---: |
| and VOC) Peak |  | and VOC) Peak |
| Hour Emissions | Volume (Vehicles | Hour Emissions |
| Reduced Per | Per Hour): | Reduced by the |
| Vehicle by the |  | Project |
| Project |  | (Kilograms): |
| (Kilograms): |  |  |

0

## Total Parallel Roadways

Emissions Reduced on Parallel Roadways
Upload Synchro Report

0

## 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):
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):

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

Cruise speed in miles per hour without the project:
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: Benefit of Crash Reduction

|  | CR 1=Installation of a median |
| :--- | :--- |
| Crash Modification Factor Used: | CR 2=increase number of lanes |

(Limit 700 Characters; approximately 100 words)

Rationale for Crash Modification Selected:
(Limit 1400 Characters; approximately 200 words)
Project Benefit (\$) from B/C Ratio:

Worksheet Attachment

These improvements are part of the project. See the attachment for the HSIP Worksheets and additional information.
1.1928645E7

1468527270890_CSAH 116 HSIP Worksheets and additional information.pdf

## Roadway projects that include railroad grade-separation elements:

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

## Measure A: Multimodal Elements and Existing Connections

There are currently no accommodations for modes other than vehicles. The project will greatly improve the mobility and safety of all modes.

The project will continue the planned extension of the Central Anoka County Regional Trail, a ten-foot wide trail along CSAH 116, from Jefferson St. to Highway 65 to accommodate bicyclists and pedestrians.

The Central Anoka County Regional Trail is located along CSAH 116 east of Highway 65. West of the project limits the trail will be extended to Jefferson St. as part of a current project to be completed in 2017.

## Transit Projects Not Requiring Construction

If the applicant is completing a transit or TDM 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

1)Project Scope (5 Percent of Points)

Meetings or contacts with stakeholders have occurred
Yes
100\%
Stakeholders have been identified
40\%
Stakeholders have not been identified or contacted
0\%
2)Layout or Preliminary Plan (5 Percent of Points)

Layout or Preliminary Plan completed
Yes
100\%
Layout or Preliminary Plan started

Layout or Preliminary Plan has not been started

## 0\%

Anticipated date or date of completion
3)Environmental Documentation (5 Percent of Points)

EIS

## EA <br> Yes

PM
Document Status:

Document approved (include copy of signed cover sheet)
Yes
100\%

Document submitted to State Aid for review

Document in progress; environmental impacts identified; review request letters sent

50\%
Document not started
0\%
Anticipated date or date of completion/approval
4)Review of Section 106 Historic Resources (10 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 Yes project is not located on an identified historic bridge

100\%
Historic/archeological review under way; determination of no historic properties affected or no adverse effect anticipated

80\%
Historic/archaeological review under way; determination of adverse effect anticipated

40\%
Unsure if there are any historic/archaeological resources in the project area

0\%
Anticipated date or date of completion of historic/archeological review:

Project is located on an identified historic bridge
5)Review of Section $4 \mathrm{f} / 6 \mathrm{f}$ Resources ( 10 Percent of Points)

4(f) Does the project impacts any public parks, public wildlife refuges,
public golf courses, wild \& scenic rivers or public private historic properties?
6 (f) Does the project impact any public parks, public wildlife refuges,
public golf courses, wild \& scenic rivers or historic property that
was purchased or improved with federal funds?

No Section 4f/6f resources located in the project area
100\%
No impact to $4 f$ property. The project is an independent bikeway/walkway project covered by the bikeway/walkway Negative Declaration statement; letter of support received

100\%
Section $4 f$ resources present within the project area, but no known adverse effects

Project impacts to Section 4f/6f resources likely coordination/documentation has begun

50\%
Project impacts to Section 4f/6f resources likely
coordination/documentation has not begun
$30 \%$
Unsure if there are any impacts to Section 4f/6f resources in the project area

0\%
6)Right-of-Way (15 Percent of Points)

Right-of-way, permanent or temporary easements not required 100\%

Right-of-way, permanent or temporary easements has/have been acquired

100\%
Right-of-way, permanent or temporary easements required, offers made

75\%
Right-of-way, permanent or temporary easements required, appraisals made

50\%
Right-of-way, permanent or temporary easements required, parcels identified

25\%
Right-of-way, permanent or temporary easements required, parcels not identified

0\%
Right-of-way, permanent or temporary easements identification has not been completed

0\%
Anticipated date or date of acquisition
7)Railroad Involvement (25 Percent of Points)

No railroad involvement on project

Yes

07/14/2017

Yes

Railroad Right-of-Way Agreement is executed (include signature page)

Railroad Right-of-Way Agreement required; Agreement has been initiated

60\%
Railroad Right-of-Way Agreement required; negotiations have begun

40\%
Railroad Right-of-Way Agreement required; negotiations not begun

0\%

Anticipated date or date of executed Agreement
8)Interchange Approval (15 Percent of Points)*
*Please contact Karen Scheffing at MnDOT (Karen.Scheffing@state.mn.us or 651-234-7784) to determine if your project needs to go through the Metropolitan Council/MnDOT Highway Interchange Request Committee.

Project does not involve construction of a new/expanded interchange or new interchange ramps

100\%
Interchange project has been approved by the Metropolitan Council/MnDOT Highway Interchange Request Committee

## $100 \%$

Interchange project has not been approved by the Metropolitan Council/MnDOT Highway Interchange Request Committee $0 \%$
9)Construction Documents/Plan (10 Percent of Points)

Construction plans completed/approved (include signed title sheet)

100\%
Construction plans submitted to State Aid for review
75\%
Construction plans in progress; at least 30\% completion
Yes
50\%
Construction plans have not been started
0\%
Anticipated date or date of completion
06/01/2017
10)Letting

Anticipated Letting Date 03/25/2019

Measure A: Cost Effectiveness

| Total Project Cost (entered in Project Cost Form): | $\$ 4,200,000.00$ |
| :--- | :--- |
| Enter Amount of the Noise Walls: | $\$ 191,000.00$ |
| Total Project Cost subtract the amount of the noise walls: | $\$ 4,009,000.00$ |
| Points Awarded in Previous Criteria |  |
| Cost Effectiveness | $\$ 0.00$ |

## Other Attachments

| File Name | Description | File Size |
| :--- | :--- | :--- |
| 2016_CSAH 116 Resolution from Ham <br> Lake.pdf | Resolution/Letter of Support from Ham <br> Lake | 116 KB |
| Anoka County Resolution of Support for <br> CSAH 116 Project.pdf | Anoka County Board Resolution of <br> Support for Project | 683 KB |
| CSAH 116 and TH 65_Synchro | Synchro Summary Reports |  |
| Summary Report.pdf | Project Layout | 44 KB |
| CSAH 116 HL Layout.pdf | CSAH 116 EA Approval Letter | 426 KB |
| CSAH 116HL_EA Approval Letter.pdf | 429 KB |  |
| CSAH116_ProjectArea.pdf | Project Area | 3.9 MB |
| RAD05251I35AnokaREX.pdf | RADI35AnokaRE | 205 KB |
| REC05251I35AnokaIntREX.pdf | RECI35AnokalntRE | 303 KB |
| SEC05251AnokI35IntRex.pdf | SECI35AnokalntRE | 281 KB |
| Trn05251I35AnokaREX.pdf | TrnI35AnokaRE | 291 KB |

Regional Economy Roadway Expansion Project: CSAH 116 in Ham Lake | Map ID: 1467742555282

Results
WITHIN ONE MI of project:
Totals by City:

## Blaine

Population: 6426
Employment: 891
Mfg and Dist Employment: 3

## Ham Lake

Population: 2665
Employment: 965
Mfg and Dist Employment: 387

Postsecondary Students:
0


Project Points
Project Area
Project
For complete disclaimer of accuracy, please visit
For complete disclaimer of accuracy, please visit
ttp://giswebsite.metc.state.mn.us/gissitenew/notice.aspx



3: TH 65 \& CSAH 116

| Direction | All |
| :--- | ---: |
| Volume (vph) | 4601 |
| Total Delay / Veh (s/v) | 59 |
| CO Emissions $(\mathrm{kg})$ | 7.28 |
| NOx Emissions $(\mathrm{kg})$ | 1.42 |
| VOC Emissions $(\mathrm{kg})$ | 1.69 |

3: TH 65 \& CSAH 116

| Direction | All |
| :--- | ---: |
| Volume (vph) | 4601 |
| Total Delay / Veh (s/v) | 23 |
| CO Emissions $(\mathrm{kg})$ | 4.87 |
| NOx Emissions $(\mathrm{kg})$ | 0.95 |
| VOC Emissions $(\mathrm{kg})$ | 1.13 |

3: TH 65 \& CSAH 116

| Direction | All |
| :--- | ---: |
| Volume (vph) | 4601 |
| Total Delay / Veh (s/v) | 59 |
| CO Emissions $(\mathrm{kg})$ | 7.28 |
| NOx Emissions $(\mathrm{kg})$ | 1.42 |
| VOC Emissions $(\mathrm{kg})$ | 1.69 |

3: TH 65 \& CSAH 116

| Direction | All |
| :--- | ---: |
| Volume (vph) | 4601 |
| Total Delay / Veh (s/v) | 23 |
| CO Emissions $(\mathrm{kg})$ | 4.87 |
| NOx Emissions $(\mathrm{kg})$ | 0.95 |
| VOC Emissions $(\mathrm{kg})$ | 1.13 |



## Dual CRF for CSAH 116

Improvements include installation of a median and addition of a through lane in each direction.

CR1=Installation of a median
CR2=Increase number of lanes
$C R=1-(1-C R 1) *(1-C R 2)$
Rear end: $C R=1-(1-.39)^{*}(1-.52)=.71$
Sideswipe: $C R=1-(1-.39)^{*}(1-.44)=.66$
Left Turn: CR=1-(1-.39)*(1-.71) $=.82$
Right Angle: CR=1-(1-.39)*(1-.45) $=.66$
Ran Off Road: CR=1-(1-.39)*(1-.44)=. 65
Other: CR=. 39 (CR1 applies only)

* Countermeasure Install raised median

:

0.29 A 70.77 All All Urban | Schultz |
| :---: |
| et al., |
| 2008 |

- 

0.45 A5.43 Angle All Urban | Schultz |
| :---: |
| et al., |
| 2008 |

- 

0.8614 All \begin{tabular}{c}
All

 Urban 

Yanmaz- <br>
Tuzel <br>
and <br>
Ozbay, <br>
2010
\end{tabular}

Roadway Departure Crashes

Desktop Reference for Crash Reduction Factors

| Desktop Reference fo | Crash Re | uction F | tors |  |  |  |  | Road | y | pa | Crashes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Daily Tr |  | Effectiven | ess |  |  |  |
| Countermeasure(s) | Crash Type | Crash Severity | Area Type | Road Type | Volume | Ref | Crash Reduction Factor | Std | Ra | nge | Study Type |
|  |  |  |  |  |  |  |  |  | Low | High |  |
|  | Rightangle | All |  |  | <5,000/lane | 15 | 35 |  |  |  |  |
|  | Rightangle | All |  |  | >5,000/lane | 15 | $45$ |  |  |  |  |
|  | Rightangle | All |  |  |  | 15 | 15 |  |  |  |  |
| Increase number of lanes (cont'd) | Rightangle | PDO |  |  |  | 15 | 46 |  |  |  |  |
|  | Sideswipe | All |  |  | <5,000/lane | 15 | 38 |  |  |  |  |
|  | Sideswipe | All |  |  | >5,000/lane | 15 | 44 |  |  |  |  |
|  | Sideswipe | All |  |  |  | 15 | 30 |  |  |  |  |
|  | Sideswipe | All |  |  |  | 15 | 30 |  |  |  |  |
|  | Sideswipe | All |  |  |  | 15 | 35 |  |  |  |  |
|  | Sideswipe | PDO |  |  |  | 15 | 64 |  |  |  |  |
| Increase vertical grade by $1 \%$ | All | All | Rural | 2-lane |  | 23 | -1.6P; $\mathrm{P}=$ percent grade ( | solut | valu |  |  |
|  | All | All |  |  |  | 15 | 26 |  |  |  |  |
|  | All | All | All | All |  | 1 | 10 |  |  |  |  |
|  | All | All |  |  |  | 15 | 10 |  |  |  |  |
|  | All | All |  |  |  | 15 | 10 |  |  |  |  |
| Install acceleration/ | All | All |  |  |  | 15 | 10 |  |  |  |  |
| deceleration lanes | All | All |  |  |  | 15 | 25 |  |  |  |  |
|  | All | All |  |  |  | 15 | 75 |  |  |  |  |
|  | Rear-end | All |  |  |  | 15 | 75 |  |  |  |  |
|  | Sideswipe | All |  |  |  | 15 | 75 |  |  |  |  |
|  | All | All |  |  |  | 15 | 67 |  |  |  |  |
| Install channelized lane | All | PDO |  |  |  | 15 | 62 |  |  |  |  |
|  | Rear-end | All |  |  |  | 15 | 93 |  |  |  |  |
| Install climbing lane (where large difference between car and truck speed) | All | Fatal/ Injury | Rural | 2-lane |  | 38 | 33 |  |  |  |  |

## CITY OF HAM LAKE

15544 Central Avenue NE
Ham Lake, Minnesota 55304

July 6, 2016
Douglas W. Fischer, P.E.
County Engineer
Anoka County Highway Department
1440 Bunker lake Blvd NW
Andover, MN 5304

## RE: REGIONAL FUNDING SOLICITATION - CSAH 116

## Dear Doug,

The City of Ham Lake is writing this letter in regards to this year's federal funding solicitation. We understand that Anoka County would like to submit an application for the expansion and reconstruction of CSAH 116 in our community.

This letter is in support of the project and for Anoka County to pursue federal funding. The City of Ham Lake and Anoka County continue to coordinate their efforts in improving the area's transportation issues. We feel this project will help address safety and mobility issues occurring in the area.

If you have any further questions in regard to the project on the city's end, please feel free to contact us.


City of Ham Lake Mayor

## CITY OF HAM LAKE MINNESOTA

RESOLUTION NO. 16-32

## SUPPORTING ANOKA COUNTY FEDERAL FUNDING APPLICATION FOR CSAH 116

WHEREAS, CSAH 116 is an "A" minor arterial reliever route that provides an important eastwest transportation connection in Anoka County, and,

WHEREAS, traffic volumes on CSAH 116 have been increasing over the past decade and are expected to continue to increase in the future as the cities in and around the roadway continue to grow, and,

WHEREAS, existing and future traffic volumes are such that safety is a concern at intersections and along some segments of the corridor, and,

WHEREAS, existing and future traffic volumes are such that congestion is and will continue to negatively impact the ability of the corridor to move traffic, and

WHEREAS, Anoka County has identified this corridor as needing safety and capacity improvements, and,

WHEREAS, Anoka County and the City of Ham Lake have worked together in the past to make capacity and safety improvements to other segments of CSAH 116 to serve long-term growth and development along the corridor, and,

WHEREAS, Anoka County would like to submit an application to the Transportation Advisory Board to the Metropolitan Council for 2019-2021 to receive federal transportation funds to make capacity and safety improvements on CSAH 116.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF HAM LAKE, MINNESOTA:

That the City of Ham Lake supports Anoka County in preparing and submitting an application for CSAH 116 in the Roadway Expansion category.

Adopted by the Ham Lake City Council this 5th day of July, 2016


Michael G. Van Kirk, Mayor

# BOARD OF COUNTY COMMISSIONERS 

Anoka County, Minnesota
DATE: July 12, 2016
RESOLUTION \#2016-91
OFFERED BY COMMISSIONER: Schulte

## RESOLUTION AUTHORIZING SUBMITTAL OF FEDERAL FUNDING APPLICATION FOR CSAH 116

WHEREAS, CSAH 116 (Bunker Lake Boulevard) is an "A" minor arterial reliever route that provides an important transportation connection in Anoka County; and,

WHEREAS, traffic volumes on CSAH 116 have been increasing over the past decade and are expected to continue to increase in the future as the area continues to grow; and,

WHEREAS, existing and future traffic volumes are such that congestion is and will continue to negatively impact the ability of the corridor to move traffic; and,

WHEREAS, existing and future traffic volumes are such that safety is a concern at intersections and along some segments of the corridor; and,

WHEREAS, Anoka County and the City of Ham Lake have worked together in the past to make capacity and safety improvements to other segments of CSAH 116 to serve long-term growth and development along the corridor; and,

WHEREAS, the Anoka County Board of Commissioners is aware of and understands the project being submitted, and commits to operate and maintain the facility for its design life and not change the use of any right-of-way acquired without prior approval from MnDOT and the Federal Highway Administration.

NOW, THEREFORE, BE IT RESOLVED that the Anoka County Highway Department is hereby authorized to submit an application to the Transportation Advisory Board of the Metropolitan Council for 2019-2021 to receive federal transportation funds to make capacity and safety improvements on CSAH 116 between Jefferson Street and TH 65 in Ham Lake.

## STATE OF MINNESOTA) <br> COUNTY OF ANOKA , ss

I, Jerry Soma, County Administrator, Anoka County, Minnesota, hereby certify that I have compared the foregoing copy of the resolution of the county board of said county with the original record thereof on file in the Administration Office, Anoka County, Minnesota, as stated in the minutes of the proceedings of said board at a meeting duly held on July 12, 2016, and that the same is a true and correct copy of said original record and of the whole thereof, and that said resolution was duly passed by said board at said meeting.

Witness my hand and seal this 12 th day of


|  | YES | NO |
| :---: | :---: | :---: |
| DISTRICT \# - Look | X |  |
| DISTRICT \#2-BraAstad | X |  |
| District \#3 - West | X |  |
| DISTRICT \#4 - Kordiak | X |  |
| District \#5 - Gamache | X |  |
| District \#6-Sivarajah | X |  |
| DISTRICT \#7-Schulte | X |  |


|  | 4 | $\rightarrow$ | 7 | 5 | 6 |  | 4 | 71 | 4 | 4 | 7 | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU |
| Lane Configurations | ${ }^{1}$ | 4 | 「 |  | \＄ | ＋ | 「＇ |  | ＊ | 中4 | 「 |  |
| Volume（vph） | 230 | 219 | 277 | 1 | 86 | 222 | 105 | 9 | 274 | 2031 | 13 | 3 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length（ft） | 285 |  | 285 |  | 275 |  | 0 |  | 465 |  | 150 |  |
| Storage Lanes | 1 |  | 1 |  | 1 |  | 1 |  | 2 |  | 1 |  |
| Taper Length（ft） | 135 |  |  |  | 165 |  |  |  | 300 |  |  |  |
| Lane Util．Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.97 | 0.95 | 1.00 | 0.95 |
| Frt |  |  | 0.850 |  |  |  | 0.850 |  |  |  | 0.850 |  |
| Flt Protected | 0.950 |  |  |  | 0.950 |  |  |  | 0.950 |  |  |  |
| Satd．Flow（prot） | 1770 | 1863 | 1583 | 0 | 1770 | 1863 | 1583 | 0 | 3433 | 3539 | 1583 | 0 |
| Flt Permitted | 0.950 |  |  |  | 0.235 |  |  |  | 0.239 |  |  |  |
| Satd．Flow（perm） | 1770 | 1863 | 1583 | 0 | 438 | 1863 | 1583 | 0 | 864 | 3539 | 1583 | 0 |
| Right Turn on Red |  |  | Yes |  |  |  | Yes |  |  |  | Yes |  |
| Satd．Flow（RTOR） |  |  | 200 |  |  |  | 132 |  |  |  | 101 |  |
| Link Speed（mph） |  | 30 |  |  |  | 30 |  |  |  | 30 |  |  |
| Link Distance（ft） |  | 915 |  |  |  | 814 |  |  |  | 838 |  |  |
| Travel Time（s） |  | 20.8 |  |  |  | 18.5 |  |  |  | 19.0 |  |  |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Growth Factor | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ |
| Adj．Flow（vph） | 252 | 240 | 304 | 1 | 94 | 244 | 115 | 10 | 301 | 2230 | 14 | 3 |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 252 | 240 | 304 | 0 | 95 | 244 | 115 | 0 | 311 | 2230 | 14 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | R NA | Left | Left | Right | R NA | Left | Left | Right | R NA |
| Median Width（ft） |  | 32 |  |  |  | 32 |  |  |  | 84 |  |  |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed（mph） | 15 |  | 9 | 9 | 15 |  | 9 | 9 | 15 |  | 9 | 9 |
| Turn Type | Prot | NA | Perm | Prot | Perm | NA | Perm | Prot | Perm | NA | Perm | Prot |
| Protected Phases | 7 | 4 |  | 3 |  | 8 |  | 5 |  | 2 |  | 1 |
| Permitted Phases |  |  | 4 |  | 8 |  | 8 |  | 2 |  | 2 |  |
| Minimum Split（s） | 8.0 | 20.0 | 20.0 | 8.0 | 20.0 | 20.0 | 20.0 | 8.0 | 20.0 | 20.0 | 20.0 | 8.0 |
| Total Split（s） | 22.0 | 35.0 | 35.0 | 8.0 | 21.0 | 21.0 | 21.0 | 8.0 | 89.0 | 89.0 | 89.0 | 8.0 |
| Total Split（\％） | 15．7\％ | 25．0\％ | 25．0\％ | 5．7\％ | 15．0\％ | 15．0\％ | 15．0\％ | 5．7\％ | 63．6\％ | 63．6\％ | 63．6\％ | 5．7\％ |
| Maximum Green（s） | 18.0 | 31.0 | 31.0 | 4.0 | 17.0 | 17.0 | 17.0 | 4.0 | 85.0 | 85.0 | 85.0 | 4.0 |
| Yellow Time（s） | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All－Red Time（s） | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 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） | 4.0 | 4.0 | 4.0 |  | 4.0 | 4.0 | 4.0 |  | 4.0 | 4.0 | 4.0 |  |
| Lead／Lag | Lag | Lead | Lead | Lag | Lead | Lead | Lead | Lag | Lag | Lag | Lag | Lead |
| Lead－Lag Optimize？ | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Walk Time（s） |  | 5.0 | 5.0 |  | 5.0 | 5.0 | 5.0 |  | 5.0 | 5.0 | 5.0 |  |
| Flash Dont Walk（s） |  | 11.0 | 11.0 |  | 11.0 | 11.0 | 11.0 |  | 11.0 | 11.0 | 11.0 |  |
| Pedestrian Calls（\＃／hr） |  | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |
| Act Effct Green（s） | 18.0 | 31.0 | 31.0 |  | 17.0 | 17.0 | 17.0 |  | 85.0 | 85.0 | 85.0 |  |
| Actuated g／C Ratio | 0.13 | 0.22 | 0.22 |  | 0.12 | 0.12 | 0.12 |  | 0.61 | 0.61 | 0.61 |  |
| v／c Ratio | 1.11 | 0.58 | 0.60 |  | 1.79 | 1.08 | 0.37 |  | 0.59 | 1.04 | 0.01 |  |


|  |  |  | $\pm$ |
| :---: | :---: | :---: | :---: |
| Lane Group | SBL | SBT | SBR |
| Lane Configurations | H | 中4 | 7 |
| Volume (vph) | 37 | 940 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 |
| Storage Length (ft) | 490 |  | 300 |
| Storage Lanes | 1 |  | 1 |
| Taper Length (ft) | 165 |  |  |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 |
| Frt |  |  | 0.850 |
| Flt Protected | 0.950 |  |  |
| Satd. Flow (prot) | 1770 | 3539 | 1583 |
| Flt Permitted | 0.047 |  |  |
| Satd. Flow (perm) | 88 | 3539 | 1583 |
| Right Turn on Red |  |  | Yes |
| Satd. Flow (RTOR) |  |  | 121 |
| Link Speed (mph) |  | 30 |  |
| Link Distance (ft) |  | 962 |  |
| Travel Time (s) |  | 21.9 |  |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 |
| Growth Factor | 101\% | 101\% | 101\% |
| Adj. Flow (vph) | 41 | 1032 | 121 |
| Shared Lane Traffic (\%) |  |  |  |
| Lane Group Flow (vph) | 44 | 1032 | 121 |
| Enter Blocked Intersection | No | No | No |
| Lane Alignment | Left | Left | Right |
| Median Width(ft) |  | 84 |  |
| Link Offset(ft) |  | 0 |  |
| Crosswalk Width(ft) |  | 16 |  |
| Two way Left Turn Lane |  |  |  |
| Headway Factor | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 |  | 9 |
| Turn Type | Perm | NA | Perm |
| Protected Phases |  | 6 |  |
| Permitted Phases | 6 |  | 6 |
| Minimum Split (s) | 20.0 | 20.0 | 20.0 |
| Total Split (s) | 89.0 | 89.0 | 89.0 |
| Total Split (\%) | 63.6\% | 63.6\% | 63.6\% |
| Maximum Green (s) | 85.0 | 85.0 | 85.0 |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lead | Lead |
| Lead-Lag Optimize? | Yes | Yes | Yes |
| Walk Time (s) | 5.0 | 5.0 | 5.0 |
| Flash Dont Walk (s) | 11.0 | 11.0 | 11.0 |
| Pedestrian Calls (\#/hr) | 0 | 0 | 0 |
| Act Effct Green (s) | 85.0 | 85.0 | 85.0 |
| Actuated g/C Ratio | 0.61 | 0.61 | 0.61 |
| v/c Ratio | 0.83 | 0.48 | 0.12 |


|  | $\rangle$ |  |  |  |  |  | 4 | $\dagger$ | 4 | $\uparrow$ | $p$ | 14 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU |
| Control Delay | 146.8 | 55.3 | 21.9 |  | 455.4 | 138.9 | 9.7 |  | 22.7 | 57.7 | 0.0 |  |
| Queue Delay | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 |  |
| Total Delay | 146.8 | 55.3 | 21.9 |  | 455.4 | 138.9 | 9.7 |  | 22.7 | 57.7 | 0.0 |  |
| LOS | F | E | C |  | F | F | A |  | C | E | A |  |
| Approach Delay |  | 71.5 |  |  |  | 172.4 |  |  |  | 53.2 |  |  |
| Approach LOS |  | E |  |  |  | F |  |  |  | D |  |  |
| Stops (vph) | 191 | 195 | 92 |  | 54 | 186 | 11 |  | 177 | 1787 | 0 |  |
| Fuel Used(gal) | 10 | 5 | 4 |  | 9 | 9 | 1 |  | 4 | 47 | 0 |  |
| CO Emissions (g/hr) | 674 | 359 | 262 |  | 623 | 614 | 66 |  | 292 | 3314 | 6 |  |
| NOx Emissions (g/hr) | 131 | 70 | 51 |  | 121 | 119 | 13 |  | 57 | 645 | 1 |  |
| VOC Emissions (g/hr) | 156 | 83 | 61 |  | 144 | 142 | 15 |  | 68 | 768 | 1 |  |
| Dilemma Vehicles (\#) | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |
| Queue Length 50th (ft) | -261 | 197 | 82 |  | -129 | -247 | 0 |  | 85 | -1149 | 0 |  |
| Queue Length 95th (ft) | \#439 | 289 | 185 |  | \#248 | \#423 | 44 |  | 138 | \#1280 | 0 |  |
| Internal Link Dist (tt) |  | 835 |  |  |  | 734 |  |  |  | 758 |  |  |
| Turn Bay Length ( t ) | 285 |  | 285 |  | 275 |  |  |  | 465 |  | 150 |  |
| Base Capacity (vph) | 227 | 412 | 506 |  | 53 | 226 | 308 |  | 524 | 2148 | 1000 |  |
| Starvation Cap Reductn | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |
| Spillback Cap Reductn | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |
| Storage Cap Reductn | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |
| Reduced v/c Ratio | 1.11 | 0.58 | 0.60 |  | 1.79 | 1.08 | 0.37 |  | 0.59 | 1.04 | 0.01 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type: Other |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length: 140 |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length: 140 |  |  |  |  |  |  |  |  |  |  |  |  |
| Offset: 0 (0\%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle: 140 |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type: Pretimed |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v/c Ratio: 1.79 |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay: 58.6 |  |  |  |  | Intersection LOS: E |  |  |  |  |  |  |  |
| Intersection Capacity Utilization 98.0\% |  |  |  |  | ICU Level of Service F |  |  |  |  |  |  |  |
| Analysis Period (min) 15 |  |  |  |  |  |  |  |  |  |  |  |  |
| ~ Volume exceeds capacity, queue is theoretically infinite. |  |  |  |  |  |  |  |  |  |  |  |  |
| Queue shown is maximum after two cycles. |  |  |  |  |  |  |  |  |  |  |  |  |
| \# 95th percentile volume exceeds capacity, queue may be longer. |  |  |  |  |  |  |  |  |  |  |  |  |

Splits and Phases: 3: TH 65 \& CSAH 116


|  |  | $\downarrow$ | $\downarrow$ |
| :---: | :---: | :---: | :---: |
| Lane Group | SBL | SBT | SBR |
| Control Delay | 111.7 | 16.2 | 2.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 |
| Total Delay | 111.7 | 16.2 | 2.1 |
| LOS | F | B | A |
| Approach Delay |  | 18.3 |  |
| Approach LOS |  | B |  |
| Stops (vph) | 28 | 504 | 7 |
| Fuel Used(gal) | 1 | 13 | 1 |
| CO Emissions (g/hr) | 95 | 911 | 64 |
| NOx Emissions (g/hr) | 19 | 177 | 13 |
| VOC Emissions (g/hr) | 22 | 211 | 15 |
| Dilemma Vehicles (\#) | 0 | 0 | 0 |
| Queue Length 50th (tt) | 30 | 261 | 0 |
| Queue Length 95th (t) | \#69 | 313 | 25 |
| Internal Link Dist (tt) |  | 882 |  |
| Turn Bay Length (tt) | 490 |  | 300 |
| Base Capacity (vph) | 53 | 2148 | 1008 |
| Starvation Cap Reductn | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.83 | 0.48 | 0.12 |
| Intersection Summary |  |  |  |


|  | 4 | $\rightarrow$ |  | 5 | $\checkmark$ |  |  | 71 | 4 | 4 | \％ | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU |
| Lane Configurations | 7 | 44 | 「＇ |  | ＊） | 44 | 「＇ |  | ＊） | 44 | 「 |  |
| Volume（vph） | 230 | 219 | 277 | 1 | 86 | 222 | 105 | 9 | 274 | 2031 | 13 | 3 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length（ft） | 500 |  | 285 |  | 275 |  | 250 |  | 465 |  | 150 |  |
| Storage Lanes | 2 |  | 1 |  | 2 |  | 1 |  | 2 |  | 1 |  |
| Taper Length（ft） | 135 |  |  |  | 165 |  |  |  | 300 |  |  |  |
| Lane Util．Factor | 0.97 | 0.95 | 1.00 | 0.95 | 0.97 | 0.95 | 1.00 | 0.95 | 0.97 | 0.95 | 1.00 | 0.95 |
| Frt |  |  | 0.850 |  |  |  | 0.850 |  |  |  | 0.850 |  |
| Flt Protected | 0.950 |  |  |  | 0.950 |  |  |  | 0.950 |  |  |  |
| Satd．Flow（prot） | 3433 | 3539 | 1583 | 0 | 3433 | 3539 | 1583 | 0 | 3433 | 3539 | 1583 | 0 |
| Flt Permitted | 0.950 |  |  |  | 0.603 |  |  |  | 0.236 |  |  |  |
| Satd．Flow（perm） | 3433 | 3539 | 1583 | 0 | 2179 | 3539 | 1583 | 0 | 853 | 3539 | 1583 | 0 |
| Right Turn on Red |  |  | Yes |  |  |  | Yes |  |  |  | Yes |  |
| Satd．Flow（RTOR） |  |  | 216 |  |  |  | 89 |  |  |  | 89 |  |
| Link Speed（mph） |  | 30 |  |  |  | 30 |  |  |  | 30 |  |  |
| Link Distance（ft） |  | 915 |  |  |  | 814 |  |  |  | 838 |  |  |
| Travel Time（s） |  | 20.8 |  |  |  | 18.5 |  |  |  | 19.0 |  |  |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Growth Factor | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ | 101\％ |
| Adj．Flow（vph） | 252 | 240 | 304 | 1 | 94 | 244 | 115 | 10 | 301 | 2230 | 14 | 3 |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 252 | 240 | 304 | 0 | 95 | 244 | 115 | 0 | 311 | 2230 | 14 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | R NA | Left | Left | Right | R NA | Left | Left | Right | R NA |
| Median Width（ft） |  | 32 |  |  |  | 32 |  |  |  | 84 |  |  |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed（mph） | 15 |  | 9 | 9 | 15 |  | 9 | 9 | 15 |  | 9 | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 |
| Detector Template | Left | Thru | Right | Left | Left | Thru | Right | Left | Left | Thru | Right | Left |
| Leading Detector（ft） | 20 | 100 | 20 | 20 | 20 | 100 | 20 | 20 | 20 | 100 | 20 | 20 |
| Trailing Detector（ft） | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position（ft） | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size（ft） | 20 | 6 | 20 | 20 | 20 | 6 | 20 | 20 | 20 | 6 | 20 | 20 |
| Detector 1 Type | Cl＋Ex | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ |
| Detector 1 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 1 Extend（s） | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue（s） | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay（s） | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position（ft） |  | 94 |  |  |  | 94 |  |  |  | 94 |  |  |
| Detector 2 Size（ft） |  | 6 |  |  |  | 6 |  |  |  | 6 |  |  |
| Detector 2 Type |  | $\mathrm{Cl}+\mathrm{Ex}$ |  |  |  | $\mathrm{Cl}+\mathrm{Ex}$ |  |  |  | $\mathrm{Cl}+\mathrm{Ex}$ |  |  |
| Detector 2 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 2 Extend（s） |  | 0.0 |  |  |  | 0.0 |  |  |  | 0.0 |  |  |
| Turn Type | Prot | NA | Perm | Prot | Perm | NA | Perm | Prot | Perm | NA | Perm | Prot |
| Protected Phases | 7 | 4 |  | 3 |  | 8 |  | 5 |  | 2 |  | 1 |
| Permitted Phases |  |  | 4 |  | 8 |  | 8 |  | 2 |  | 2 |  |


|  |  |  | 4 |
| :---: | :---: | :---: | :---: |
| Lane Group | SBL | SBT | SBR |
| Lane Configurations | * | 44 | T |
| Volume (vph) | 37 | 940 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 |
| Storage Length (ft) | 490 |  | 300 |
| Storage Lanes | 2 |  | 1 |
| Taper Length (ft) | 165 |  |  |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 |
| Frt |  |  | 0.850 |
| Flt Protected | 0.950 |  |  |
| Satd. Flow (prot) | 3433 | 3539 | 1583 |
| Flt Permitted | 0.061 |  |  |
| Satd. Flow (perm) | 220 | 3539 | 1583 |
| Right Turn on Red |  |  | Yes |
| Satd. Flow (RTOR) |  |  | 121 |
| Link Speed (mph) |  | 30 |  |
| Link Distance (ft) |  | 962 |  |
| Travel Time (s) |  | 21.9 |  |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 |
| Growth Factor | 101\% | 101\% | 101\% |
| Adj. Flow (vph) | 41 | 1032 | 121 |
| Shared Lane Traffic (\%) |  |  |  |
| Lane Group Flow (vph) | 44 | 1032 | 121 |
| Enter Blocked Intersection | No | No | No |
| Lane Alignment | Left | Left | Right |
| Median Width(ft) |  | 84 |  |
| Link Offset(ft) |  | 0 |  |
| Crosswalk Width(ft) |  | 16 |  |
| Two way Left Turn Lane |  |  |  |
| Headway Factor | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 |  | 9 |
| Number of Detectors | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | 20 |
| Detector 1 Type | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ |
| Detector 1 Channel |  |  |  |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) |  | 94 |  |
| Detector 2 Size(ft) |  | 6 |  |
| Detector 2 Type |  | $\mathrm{Cl}+\mathrm{Ex}$ |  |
| Detector 2 Channel |  |  |  |
| Detector 2 Extend (s) |  | 0.0 |  |
| Turn Type | Perm | NA | Perm |
| Protected Phases |  | 6 |  |
| Permitted Phases | 6 |  | 6 |


|  | $\rangle$ |  |  | 5 |  |  |  | $\dagger$ | 4 | $\dagger$ |  | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | 8 | 8 | 5 | 2 | 2 | 2 | 1 |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | 20.0 | 8.0 | 20.0 | 20.0 | 20.0 | 8.0 | 20.0 | 20.0 | 20.0 | 8.0 |
| Total Split (s) | 12.0 | 24.0 | 24.0 | 8.0 | 20.0 | 20.0 | 20.0 | 8.0 | 70.0 | 70.0 | 70.0 | 8.0 |
| Total Split (\%) | 10.9\% | 21.8\% | 21.8\% | 7.3\% | 18.2\% | 18.2\% | 18.2\% | 7.3\% | 63.6\% | 63.6\% | 63.6\% | 7.3\% |
| Maximum Green (s) | 8.0 | 20.0 | 20.0 | 4.0 | 16.0 | 16.0 | 16.0 | 4.0 | 66.0 | 66.0 | 66.0 | 4.0 |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 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) | 4.0 | 4.0 | 4.0 |  | 4.0 | 4.0 | 4.0 |  | 4.0 | 4.0 | 4.0 |  |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lag | Lead | Lag | Lag | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | 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 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | None | None | None | None | Max | Max | Max | None |
| Walk Time (s) |  | 5.0 | 5.0 |  | 5.0 | 5.0 | 5.0 |  | 5.0 | 5.0 | 5.0 |  |
| Flash Dont Walk (s) |  | 11.0 | 11.0 |  | 11.0 | 11.0 | 11.0 |  | 11.0 | 11.0 | 11.0 |  |
| Pedestrian Calls (\#/hr) |  | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |
| Act Effct Green (s) | 8.0 | 24.3 | 24.3 |  | 12.3 | 12.3 | 12.3 |  | 66.1 | 66.1 | 66.1 |  |
| Actuated g/C Ratio | 0.08 | 0.25 | 0.25 |  | 0.12 | 0.12 | 0.12 |  | 0.67 | 0.67 | 0.67 |  |
| v/c Ratio | 0.90 | 0.27 | 0.55 |  | 0.35 | 0.55 | 0.42 |  | 0.54 | 0.94 | 0.01 |  |
| Control Delay | 80.4 | 30.6 | 13.8 |  | 42.8 | 45.2 | 17.7 |  | 13.3 | 24.6 | 0.0 |  |
| Queue Delay | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 |  |
| Total Delay | 80.4 | 30.6 | 13.8 |  | 42.8 | 45.2 | 17.7 |  | 13.3 | 24.6 | 0.0 |  |
| LOS | F | C | B |  | D | D | B |  | B | C | A |  |
| Approach Delay |  | 39.9 |  |  |  | 37.7 |  |  |  | 23.1 |  |  |
| Approach LOS |  | D |  |  |  | D |  |  |  | C |  |  |
| 90th \%ile Green (s) | 8.0 | 28.0 | 28.0 | 0.0 | 16.0 | 16.0 | 16.0 | 0.0 | 66.0 | 66.0 | 66.0 | 0.0 |
| 90th \%ile Term Code | Max | Hold | Hold | Skip | Max | Max | Max | Skip | MaxR | MaxR | MaxR | Skip |
| 70th \%ile Green (s) | 8.0 | 26.4 | 26.4 | 0.0 | 14.4 | 14.4 | 14.4 | 0.0 | 66.0 | 66.0 | 66.0 | 0.0 |
| 70th \%oile Term Code | Max | Hold | Hold | Skip | Gap | Gap | Gap | Skip | MaxR | MaxR | MaxR | Skip |
| 50th \%ile Green (s) | 8.0 | 24.0 | 24.0 | 0.0 | 12.0 | 12.0 | 12.0 | 0.0 | 66.0 | 66.0 | 66.0 | 0.0 |
| 50th \%ile Term Code | Max | Hold | Hold | Skip | Gap | Gap | Gap | Skip | MaxR | MaxR | MaxR | Skip |
| 30th \%ile Green (s) | 8.0 | 22.7 | 22.7 | 0.0 | 10.7 | 10.7 | 10.7 | 0.0 | 66.0 | 66.0 | 66.0 | 0.0 |
| 30th \%ile Term Code | Max | Hold | Hold | Skip | Gap | Gap | Gap | Skip | MaxR | MaxR | MaxR | Skip |
| 10th \%ile Green (s) | 8.0 | 20.8 | 20.8 | 0.0 | 8.8 | 8.8 | 8.8 | 0.0 | 66.0 | 66.0 | 66.0 | 0.0 |
| 10th \%oile Term Code | Max | Hold | Hold | Skip | Gap | Gap | Gap | Skip | MaxR | MaxR | MaxR | Skip |
| Stops (vph) | 201 | 170 | 79 |  | 76 | 203 | 33 |  | 150 | 1580 | 0 |  |
| Fuel Used(gal) | 7 | 4 | 3 |  | 2 | 5 | 1 |  | 3 | 32 | 0 |  |
| CO Emissions (g/hr) | 459 | 272 | 225 |  | 121 | 322 | 87 |  | 243 | 2265 | 6 |  |
| NOX Emissions (g/hr) | 89 | 53 | 44 |  | 24 | 63 | 17 |  | 47 | 441 | 1 |  |
| VOC Emissions (g/hr) | 106 | 63 | 52 |  | 28 | 75 | 20 |  | 56 | 525 | 1 |  |
| Dilemma Vehicles (\#) | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |
| Queue Length 50th (tt) | 81 | 64 | 44 |  | 28 | 76 | 15 |  | 45 | 574 | 0 |  |
| Queue Length 95th (t) | \#162 | 97 | 124 |  | 53 | 116 | 65 |  | 95 | \#915 | 0 |  |
| Internal Link Dist (tt) |  | 835 |  |  |  | 734 |  |  |  | 758 |  |  |
| Turn Bay Length ( t ) | 500 |  | 285 |  | 275 |  | 250 |  | 465 |  | 150 |  |
| Base Capacity (vph) | 279 | 875 | 553 |  | 354 | 575 | 332 |  | 572 | 2375 | 1092 |  |
| Starvation Cap Reductn | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |

Page 3

|  |  |  | $\pm$ |
| :---: | :---: | :---: | :---: |
| Lane Group | SBL | SBT | SBR |
| Detector Phase | 6 | 6 | 6 |
| Switch Phase |  |  |  |
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 20.0 | 20.0 | 20.0 |
| Total Split (s) | 70.0 | 70.0 | 70.0 |
| Total Split (\%) | 63.6\% | 63.6\% | 63.6\% |
| Maximum Green (s) | 66.0 | 66.0 | 66.0 |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lag | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 |
| Recall Mode | Max | Max | Max |
| Walk Time (s) | 5.0 | 5.0 | 5.0 |
| Flash Dont Walk (s) | 11.0 | 11.0 | 11.0 |
| Pedestrian Calls (\#/hr) | 0 | 0 | 0 |
| Act Effct Green (s) | 66.1 | 66.1 | 66.1 |
| Actuated g/C Ratio | 0.67 | 0.67 | 0.67 |
| v/c Ratio | 0.30 | 0.43 | 0.11 |
| Control Delay | 14.0 | 8.5 | 1.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 |
| Total Delay | 14.0 | 8.5 | 1.5 |
| LOS | B | A | A |
| Approach Delay |  | 8.0 |  |
| Approach LOS |  | A |  |
| 90th \%ile Green (s) | 66.0 | 66.0 | 66.0 |
| 90th \%ile Term Code | MaxR | MaxR | MaxR |
| 70th \%ile Green (s) | 66.0 | 66.0 | 66.0 |
| 70th \%ile Term Code | MaxR | MaxR | MaxR |
| 50th \%ile Green (s) | 66.0 | 66.0 | 66.0 |
| 50th \%ile Term Code | MaxR | MaxR | MaxR |
| 30th \%ile Green (s) | 66.0 | 66.0 | 66.0 |
| 30th \%ile Term Code | MaxR | MaxR | MaxR |
| 10th \%ile Green (s) | 66.0 | 66.0 | 66.0 |
| 10th \%ile Term Code | MaxR | MaxR | MaxR |
| Stops (vph) | 19 | 410 | 7 |
| Fuel Used(gal) | 1 | 11 | 1 |
| CO Emissions (g/hr) | 36 | 770 | 63 |
| NOx Emissions (g/hr) | 7 | 150 | 12 |
| VOC Emissions (g/hr) | 8 | 179 | 15 |
| Dilemma Vehicles (\#) | 0 | 0 | 0 |
| Queue Length 50th (ft) | 5 | 138 | 0 |
| Queue Length 95th (ft) | 19 | 202 | 19 |
| Internal Link Dist (ft) |  | 882 |  |
| Turn Bay Length (ft) | 490 |  | 300 |
| Base Capacity (vph) | 147 | 2375 | 1102 |
| Starvation Cap Reductn | 0 | 0 | 0 |



Splits and Phases: 3: TH 65 \& CSAH 116


|  | , |  | $\checkmark$ |
| :---: | :---: | :---: | :---: |
| Lane Group | SBL | SBT | SBR |
| Spillback Cap Reductn | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.30 | 0.43 | 0.11 |
| Intersection Summary |  |  |  |



May 9, 2016

Charles A. Zelle
Commissioner of Transportation
Department of Transportation
MS 120, Transportation Building
St. Paul, Minnesota 55155

Re: Finding of No Significant Impact \& Section 4(f) Determination
Minnesota State Project Number 002-716-015
Minnesota Federal Project STPM 0216(064)
CSAH 116 Reconstruction Project
From East of Crane Street
To Trunk Highway 65
In the Cities of Andover and Ham Lake
Anoka County, Minnesota

Dear Mr. Zelle:
Enclosed is a Finding of No Significant Impact (FONSI) as requested by Gary Reihl's April 2016, communication. The proposed project consists of expands approximately 3.2 miles of a two-lane roadway to a four-lane roadway with raised medians, shoulders, turn lanes, traffic control signals, and bicycle/pedestrian paths. This Finding concludes that the project will not significantly impact the human environment.

A Notice of Availability of the FONSI must be sent to Federal, State, and local government agencies that are likely to have an interest in the undertaking and to the State intergovernmental review contacts. It is encouraged that agencies, which commented on the Environmental Assessment (or requested to be informed) are advised on the project decision, the disposition of their comments and provided a copy of the FONSI.

If you have any questions, please contact me at (651) 291-6100 or phil.forst@dot.gov.
Sincerelv.


Philip Forst
Environmental Specialist
Enclosure
cc: $\quad 1$ MnDOT, e-copy, Brian.Gage@state.mn.us
1 FHWA - Ezekwemba, e-copy w/enclosure, Nnaemeka.ezekwemba@dot.gov
1 MnDOT - Reihl, e-copy w/enclosure, gary.reihl@state.mn.us

# UNITED STATES DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION MINNESOTA DIVISION FINDING OF NO SIGNIFICANT IMPACT \& SECTION 4(f) DETERMINATION 

Minnesota State Project Number 002-716-015

Minnesota Federal Project Number STPM 0216(064)
CSAH 116 Reconstruction Project
In the Cities of Andover and Ham Lake
Anoka County, Minnesota
The proposed project consists primarily of reconstructing County State-Aid Highway (CSAH) 116 from East Crane Street to Trunk Highway (TH) 65. This reconstruction expands approximately 3.2 miles of a two-lane roadway to a four-lane roadway with raised medians, shoulders, turn lanes, traffic control signals, and bicycle/pedestrian paths.

The Federal Highway Administration (FHWA) has determined the proposed improvements, as described in the Environmental Assessment (EA) and the Findings of Fact and Conclusion (FOFC) will have no significant impacts to the human or natural environment. This Finding of No Significant Impact is based upon the EA which has been independently evaluated by FHWA and determined to adequately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures.

Furthermore, this executed FONSI constitutes FHWA's determination there is not a feasible and prudent alternative with the use of three Section 4(f) resources: Shadowbrook East Park, Shadowbrook West Park, and Bunker Hills Regional Park. The Section 4(f) evaluation based upon the Programmatic Section 4(f) Evaluation for Federally-Aided Highway Projects with Minor Use of Parks, Recreation Lands, and Wildlife and Waterfowl Refuges provides the basis for this determination.

The EA provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the EA for the subject project.


William Lohr, P.E.
Field Operations Team Leader


Project Area


Regional Solicitation
CSAH 116 - Roadway Expansion

## Results

Project Length: 0.274 miles
Project Area: 2.845 sq mi


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



## Transit Connections Roadway Expansion Project: Anoka 05251 REX I35/TH97 | Map ID: 1471880162694

## Results

Transit with a Direct Connection to project: 275288
*indicates Planned Alignments


Project Points $\square$ Project Area
Project
For complete disclaimer of accuracy, please visit ttp://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

METROPOLITAN

