Application

01969-2014 Roadway System Management
02260 - Dakota Co CSAHs 26, 28, 31, 43 Roadway Traffic Flow Improvements
Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
Submitted Date:
12/01/2014 2:18 PM

## Primary Contact



## Organization Information

Jurisdictional Agency (if different):

| Organization Type: | County Government |  |  |
| :---: | :---: | :---: | :---: |
| Organization Website: |  |  |  |
| Address: | TRANSPORTATION DEPT |  |  |
|  | 14955 GALAXIE AVE |  |  |
| * | APPLE VALLEY | Minnesota | 55124 |
|  | City | State/Province | Postal Code/Zip |
| County: | Dakota |  |  |
| Phone:* 952-891-7100 |  |  |  |
|  | Ext. |  |  |
| Fax: |  |  |  |
| PeopleSoft Vendor Number | 0000002621 A15 |  |  |

## Project Information

Project Name

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

Dakota Co CSAHs 26283143 Roadway Traffic Flow
Improvements
Dakota

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

The proposed project is along CSAHs 26 (Lone Oak Rd), 28 (Yankee Doodle Rd), 31 (Pilot Knob Rd), and CSAH 43 (Lexington Ave) located in the city of Eagan. The project consists of installing fiber optic cable for signal interconnection, traffic monitoring cameras, flashing yellow left turn arrows, additional primary signal heads, updating signal equipment for the new technology, and retiming traffic signals. All of the roadways are classified as A-Minor Arterials except for CSAH 43 which is a B-Minor Arterial. CSAHs 31 and 43 run north-south and CSAHs 26 and 28 run east-west across the county and are primary arteries serving commercial areas and access to Interstate 35E and 494 and Minnesota Highways 13, 55, and 149. These roadways are heavily used by people living in the metro suburbs and commuting to Minneapolis or St. Paul, and industrial and commercial businesses. Dakota County currently has 3 zones of interconnected and time coordinated signals along these roadway corridors. The type of interconnection equipment currently in place is a mixture of copper wire and radio. The existing interconnect is aging and is becoming more unreliable. The project consists of the installation of 9.25 miles of fiber optic cable and upgrading signal equipment for fiber optic use (cabinets, controllers), replacing the copper wire and radio. The corridors will benefit from the added functionality and reliability of the fiber optic communications. The project also includes the installation of flashing yellow left turn arrows at several of the intersections to allow for flexibility in operations throughout the day. Traffic monitoring cameras will be installed to assist the County in real-time traffic monitoring. The project will also include retiming of the 26 signals to relieve congestion resulting in less stops and delay for users. The Minnesota Valley Transit Authority (MVTA) has bus service routes within the project limits including the Park-N-Ride facility located at
the intersection of CSAH 28 and CSAH 31 that will benefit from the project by resulting in more timely service for the buses. The corridors will be integrated into the Countys planned 2015 Advanced Traffic Management System installation which will eliminate these zones and allow for the coordination of the corridors as a larger, connected system. The project will provide for enhanced traffic management, improved traffic flow, reduced traffic congestion and reduce harmful vehicle emissions along the project corridors.

Include location, road name/functional class, type of improvement, etc.
$\begin{array}{ll}\text { Project Length (Miles) } & 9.25\end{array}$
Connection to Local Planning:
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 MnDOT 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.

Connection to Local Planning
Shown in adopted Dakota County 2030
Transportation plan, majority of the corridors within the project limits are expected to be over capacity by 2030 (Figure 5, page 2-16). Goal 4 of County plan is Management to Increase Transportation System Efficiency, Improve Safety, and Maximize Existing Highway Capacity (Chapter 7, page 7-1). Safe travel on routes with minimal congestion is an integral part of Dakota Countys vision for its transportation system. One County identified strategy is: Traffic Signal Coordination Consider coordination of signal systems on County highways as appropriate to maximize system efficiency and the capacity of the County highway system (page 7-27). Goal 5 in the County plan is Replace Deficient Elements of System. County policy R. 1 Highway Replacement states: Reconstruct highways or highway elements that have exceeded their useful life based on structural, functional, operations, or safety factors (page 8-2).

## Project Funding

| Are you applying for funds from another source(s) to implement <br> this project? | No |
| :--- | :--- |
| If yes, please identify the source(s) | $\$ 1,232,000.00$ |
| Federal Amount | $\$ 308,000.00$ |
| Match Amount | $\$ 1,540,000.00$ |
| Minimum of $20 \%$ of project total | $20.0 \%$ |
| Project Total | County / City |
| Match Percentage | 2018 |

## MnDOT State Aid Project Information: Roadway Projects

County, City, or Lead Agency

Functional Class of Road

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

Name of Road

|  | CSAH 31-A Minor Arterial |
| :--- | :--- |
| Coad System | CSAH 43-B Minor Arterial |
| TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET | CSAH |

26 - Lone Oak Road

28 - Yankee Doodle Road

31 - Pilot Knob Road

43 - Lexington Avenue

Example; 1st ST., MAIN AVE
Zip Code where Majority of Work is Being Performed
(Approximate) Begin Construction Date
55122
(Approximate) End Construction Date
05/31/2018

## LOCATION

From:
(Intersection or Address)
Do not include legal description;
Include name of roadway if majority of facility
runs adjacent to a single corridor.
To:
(Intersection or Address)

Type of Work

Examples: grading, aggregate base, bituminous base, bituminous surface, sidewalk, signals, lighting, guardrail, bicycle path, ped ramps, bridge, Park \& Ride, etc.)

Old Bridge/Culvert? No
New Bridge/Culvert? No

## Structure is Over/Under

(Bridge or culvert name)

For CSAH 31 - From CSAH 32; For CSAH 28 - From Blue Cross Rd

For CSAH 31 - to CSAH 26; For CSAH 28 - to CSAH 43

Fiber Optic Signal Interconnection, Traffic Signal Revisions, Signal Retming/Coordination

N/A

## Specific Roadway Elements

## CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES

Mobilization (approx. 5\% of total cost)
\$34,000.00
Removals (approx. 5\% of total cost)
Roadway (grading, borrow, etc.)
Roadway (aggregates and paving) \$0.00
Subgrade Correction (muck) \$0.00
Storm Sewer \$0.00
Ponds \$0.00
Concrete Items (curb \& gutter, sidewalks, median barriers) \$0.00
Traffic Control \$55,000.00
Striping \$0.00
Signing \$0.00
Lighting \$0.00
Turf - Erosion \& Landscaping \$0.00
Bridge \$0.00
Retaining Walls \$0.00
Noise Wall \$0.00
Traffic Signals $\quad \$ 1,241,000.00$
Wetland Mitigation \$0.00
Other Natural and Cultural Resource Protection ..... $\$ 0.00$
RR Crossing ..... $\$ 0.00$
Roadway Contingencies ..... \$190,000.00
Other Roadway Elements ..... $\$ 0.00$
Totals \$1,540,000.00
Specific Bicycle and Pedestrian Elements
CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES ..... Cost
Path/Trail Construction ..... $\$ 0.00$
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 ..... $\$ 0.00$
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 ..... $\$ 0.00$
Transit and TDM Contingencies ..... $\$ 0.00$
Other Transit and TDM Elements ..... $\$ 0.00$
Totals ..... $\$ 0.00$

## Transit Operating Costs

OPERATING COSTS ..... Cost
Transit Operating Costs ..... $\$ 0.00$
Totals ..... $\$ 0.00$

## Totals

| Total Cost | $\$ 1,540,000.00$ |
| :--- | :--- |
| Construction Cost Total | $\$ 1,540,000.00$ |
| 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 2030 Transportation Policy Plan (amended 2013), the 2030 Regional Parks Policy Plan (amended 2013), and the 2030 Water Resources Management Policy Plan (2005).

Check the box to indicate that the project meets this requirement. Yes
2.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
3.Applicants must not submit an application for the same project in more than one funding sub-category.

Check the box to indicate that the project meets this requirement. Yes
4. 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. Expansion, reconstruction/modernization, and bridges must be between $\$ 1,000,000$ and $\$ 7,000,000$. Roadway system management must be between \$250,000 and \$7,000,000.

Check the box to indicate that the project meets this requirement. Yes
5. The project must comply with the Americans with Disabilities Act.

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

Check the box to indicate that the project meets this requirement. Yes
7. 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
8. 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
9. 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
10. The project applicant must send written notification regarding the proposed projected to all affected communities and other levels and units of government prior to submitting the application.

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

## Requirements - Roadways Including Multimodal Elements

## Expansion and Reconstruction/Modernization Projects Only

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

Check the box to indicate that the project meets this requirement.
2.Federal funds are available for roadway construction and reconstruction on new alignments or within existing right-of-way, including associated construction and excavation, bridges, or installation of traffic signals, signs, utilities, bikeway or walkway components and transit components.
The project must exclude costs for right-of-way, studies, preliminary engineering, design, or construction engineering. Noise barriers, drainage projects, fences, landscaping, etc., are not eligible for funding unless included as part of a larger project, which is otherwise eligible.

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

## Bridge Projects Only

3.The bridge project 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.
4.Bridges selected in previous Bridge Improvement and Replacement solicitations (1994 2011) are not eligible. A previously selected project is not eligible unless it has been withdrawn or sunset prior to the deadline for proposals in this solicitation.

Check the box to indicate that the project meets this requirement.
5.Projects requiring a grade-separated crossing of a Principal Arterial of freeway design 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.
6. 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 sub-categories. Rail-only bridges are ineligible for funding.

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

Check the box to indicate that the project meets this requirement.
8. Project limits for bridge projects are limited from abutment to abutment.

Check the box to indicate that the project meets this requirement.
9.The project must exclude costs for studies, preliminary engineering, design, construction engineering, and right-of-way.

Check the box to indicate that the project meets this requirement.
Bridge Replacement Projects Only

Check the box to indicate that the project meets this requirement.
Bridge Rehabilitiation Projects Only
11.The bridge must have a sufficienty rating less than 80 . Additionally, it must also be classified as structurally deficient or functionally obsolete.

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

## Other Attachments

| File Name | Description | File Size |
| :---: | :---: | :---: |
| CorrectDakotaCo2260HSIPBCworksheet .pdf | Corrected HSIP | 31 KB |
| Dakota Co 2030 AADT - <br> Final_County_Analysis.pdf | Dakota County 2030 AADT map | 1.7 MB |
| Dakota Co 26283143 Additional Crash Info.pdf | Additional Crash Information | 210 KB |
| Dakota Co 26283143 crashes.xls | 2011-2013 Crashes | 464 KB |
| Dakota Co 26283143 Heavy Com Veh Count.pdf | Heavy Com Veh Counts | 34 KB |
| Dakota Co 26283143 Individual Roadway Area Def Maps.pdf | Individual roadway area definition maps | 238 KB |
| Dakota Co 26283143 Proj Loc Map.pdf | Project Location Map | 228 KB |
| Dakota Co 26283143 Resolutions Letters.pdf | Resolutions Letters | 183 KB |
| MnDOT 50 Series Traffic Vol Map 3D.pdf | MnDOT 50 series traffic vol map | 2.3 MB |
| RdwayAreaDef.pdf | Roadway Area Definition | 907 KB |
| RegionalEcon.pdf | Regional Economy | 1.3 MB |
| SocioEcon.pdf | Socio Economic | 1.3 MB |
| TransitCon.pdf | Transit Connections | 1.4 MB |

## Measure A: Functional Classification

Address how the project fulfills its role in the regional economy as identified by its current functional classification. If the project serves a system of routes, respond using the route with the highest functional classification. This system must include a Non-Freeway Principal Arterial or an "A" Minor Arterial.
Reference the Roadway Area Definition map generated at the beginning of the application process. Report the total area and project length, as depicted on the Roadway Project Summary map, to calculate the average distance between the project route (highest functional classification) and the closest parallel A Minor Arterials or Principal Arterials on both sides of the project.
Upload the "Roadway Area Definition" map used for this measure.
Area
18.383

| Project Length | 3.658 |
| :--- | :--- |
| Average Distance | 5.0254 |
| Upload Map | Dakota Co 26283143 RAD Map1A1.pdf |

## Measure A: Current Daily Person Throughput

| Location | CSAH 28 between CSAH 31 \& Denmark |
| :--- | :--- |
| Current AADT Volume | 30500.0 |
| Existing Transit Routes on the Project | $437,445,446,470,480,484,489$ |

## Response - Daily Person Throughput

| Average Annual Daily Transit Ridership | 3779.0 |
| :--- | :--- |
| Current Daily Person Throughput | 43429.0 |

## Measure B: 2030 Forecast ADT

| Use Metropolitan Council model to determine forecast (2030) ADT <br> volume | No |
| :--- | :--- |
| METC Staff - Forecast (2030) ADT volume | 0 |
| OR | Yes |
| Approved county or city travel demand model to determine <br> forecast (2030) ADT volume | 49000.0 |

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

Select one:
Project located in Racially Concentrated Area of Poverty
Project located in Concentrated Area of 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 includes children, people with disabilities, or the elderly.

Response (Limit 1,400 characters; approximately 200 words)

Upload Map

Yes

The primary benefit to the community will be realized through the project by enhancing mobility in a major commercial area of Eagan which will reduce delays, queuing, and congestion while improving travel times in this area.

Dakota co 26283143 Soc Econ Map3A.pdf

## Measure B: Affordable Housing

City/Township Segment Length (Miles)
Eagan

## Total Project Length

Total Project Length

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

| City/Township | Segment <br> Length (Miles) | Total Length <br> (Miles) | Score | Segment <br> Length/Total <br> Length | Housing Score <br> Multiplied by <br> Segment <br> percent |
| :--- | :---: | :---: | ---: | ---: | ---: | ---: |
| Eagan | 9.251 | 9.251 | 82.0 | 1.0 | 82.0 |
|  |  | 9 | 82 | $\mathbf{1}$ | 82 |

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

Total Project Length (Miles)
Total Housing Score

## Measure A: Equipment Improvements and Installation Year

Equipment to be Improved
Date of Equipment Installation
'85copper wire intercnnect; '94cabinet/controller
05/01/1985

## Measure A: Cost Effectiveness of Vehicle Delay Reduction

Total Project Cost from Cost Sheet
Total Peak Hour Vehicle Delay Without The Project
Total Peak Hour Vehicle Delay With The Project
Total Peak Hour Vehicle Delay Reduced by Project

Cost Effectiveness

Synchro or HCM Reports
\$1,540,000.00
218380.0
117245.0
101135.0
\$15.23
Dakota Co 26283143 Synchro 5A.pdf

## Measure B: Cost Effectiveness of Emissions Reduction

Total Project Cost from Cost Sheet
Total Peak Hour Kilograms Reduced by Project
Cost Effectiveness
Synchro or HCM Reports
\$1,540,000.00
8636.7
\$178.31
Dakota Co 26283143 Synchro 5B.pdf

## Measure A: Benefit/Cost of Crash Reduction

Project Benefit/Cost Ratio 4.34
Worksheet Attachment

## Measure A: Transit Connections

| Existing Routes Directly Connected to the Project | 437, 445, 446, 470, 480, 484, 489 |
| :--- | :--- |
| Planned Transitways directly connected to the project (alignment <br> and mode determined and identified in the 2030 TPP) | N/A |
| Upload Map | Dakota Co 26283143 Trans Con Map7A.pdf |

## Response

Met Council Staff Data Entry Only
Route Ridership
569942.0

Transitway Ridership
0

## Measure B: Bicycle and Pedestrian Connections

Avenue) currently have shared use trails on both sides of the roadway that provide pedestrian access to the heart of the business and commercial /industrial corridor including the Eagandale Center Industrial Park, the USPS Bulk Mail Center, and the Eagan Promenade. The primary pedestrian and bicycle traffic that these corridors experience will be commuter traffic that connects people to these areas of employment. CSAH 26 is listed as a Tier 2 Regional Bicycle Transportation Corridor. CSAH 31 currently has shared-use trails, separated from the highway, to accommodate bicycles and pedestrians on both the east and west side of the highway between CSAH 28 and Northwood/Central Parkway. The existing trails are located in a commercial area of Eagan and provide bicycle and pedestrian access to businesses along the corridor. The north/south trails on CSAH 31 connect to east/west trails on CSAH 28 providing a connection to additional commercial areas as well as the Eagan Community Center in the northwest quadrant of the intersection of CSAH 31 and Northwood/Central Parkway.

## Measure C: Multimodal Facilities

Response (Limit 1,400 characters; approximately 200 words)

The primary benefit to the community will be realized through reduced delays and increased safety at the intersection for motorists, transit, and pedestrian users. The Minnesota Valley Transit Authority (MVTA) has bus service routes within the project limits including the Park-n-Ride facility located in the southeast corner of the intersection of CSAH 28 and CSAH 31 that will benefit from the signal coordination and retiming. The retiming will relieve congestion along the corridors, therefore decreasing delay experienced by the buses. MVTA will benefit from the retiming of the signals and integration into the County's planned traffic monitoring system by providing more responsive signal timing adjustments, less delay, less stops and more timely service for the buses, and seamless travel to users.

## Transit Projects Not Requiring Construction

If the applicant is completing a transit or TDM application, only Park-and-Ride and other construction projects require completion of the Risk Assessment below. Check the box below if the project does not require the Risk Assessment fields, and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.

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
100\%
Stakeholders have been identified
40\%
Stakeholders have not been identified or contacted Yes

0\%
2)Layout or Preliminary Plan (5 Percent of Points)

Layout or Preliminary Plan completed
100\%

Layout or Preliminary Plan started

Anticipated date or date of completion
3)Environmental Documentation (10 Percent of Points)

EIS
EA
PM Yes

Document Status:

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

75\%
Document in progress; environmental impacts identified
50\%
Document not started Yes

0\%
Anticipated date or date of completion/approval
4)Review of Section 106 Historic Resources (15 Percent of Points)

No known potential for archaeological resources, no historic resources known to be eligible for/listed on the National Register of Historic Places located in the project area, and 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\%
Unknown impacts to historic/archaeological resources
Yes
0\%
Anticipated date or date of completion of historic/archeological review:

Project is located on an identified historic bridge
5)Review of Section 4f/6f Resources (15 Percent of Points)
(4f is publicly owned parks, recreation areas, historic sites, wildlife or waterfowl refuges; 6f is outdoor recreation lands where Land and Water Conservation Funds were used for planning, acquisition, or development of the property)

No Section 4f/6f resources located in the project area
100\%

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

80\%
Adverse effects (land conversion) to Section 4f/6f resources likely
$30 \%$
Unknown impacts to Section $4 \mathrm{f} / 6 \mathrm{f}$ resources in the project area
Yes
0\%
6)Right-of-Way (15 Percent of Points)

Right-of-way or easements not required
100\%
Right-of-way or easements has/have been acquired
100\%
Right-of-way or easements required, offers made
75\%
Right-of-way or easements required, appraisals made
50\%
Right-of-way or easements required, parcels identified
25\%
Right-of-way or easements required, parcels not identified
0\%
Right-of-way or easements identification has not been completed
Yes
0\%
Anticipated date or date of acquisition
7)Railroad Involvement (25 Percent of Points)

No railroad involvement on project
Yes
100\%
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

Anticipated date or date of executed Agreement
8)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
50\%
Construction plans have not been started
Yes
0\%
Anticipated date or date of completion
9)Letting

Anticipated Letting Date

| B/C <br> worksheet |  |  | $\begin{array}{\|c\|} \text { Control } \\ \text { Section } \\ \hline \end{array}$ | T.H. / <br> Roadway | Location |  |  |  | $\begin{gathered} \text { Beginning } \\ \text { Ref. Pt. } \\ \hline \end{gathered}$ | Ending Ref. Pt. |  | State, <br> County, <br> City or <br> Township$\|$ | Study <br> Period <br> Begins <br> 1/1/2011 | $\begin{array}{c}\text { Study } \\ \text { Period } \\ \text { Ends }\end{array}$ <br>  <br> $12 / 31 / 2013$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{aligned} & \mathrm{CSAH} 26, \\ & 28,31,43 \\ & \hline \end{aligned}$ | At variousintersections along CSAH 26, 28, 31, 43 (see attached list of locations) |  |  |  |  |  |  |  |  |  |
|  |  |  | Descripti Proposed | ion of d Work | CMF ID 414: Add signal (additional primary head) for through movement |  |  |  |  |  |  |  |  |  |
|  | Dia |  | 1 Rear End | $\xrightarrow{\text { d }}$ |  |  | Main Line | 5 Right Angle | $\underset{\sim}{4,7}$ |  | Head On/ wipe - <br> site Direction <br> $\longrightarrow$ <br> $\longrightarrow$ | Pedestrian | 6, 90, 99 <br> Other | Total |
| Study <br> Period: <br> Number of Crashes | 砍 | F |  | 0 | 0 |  | 0 | 0 | 0 |  | 0 |  | 0 |  |
|  |  | A |  | 0 | 0 |  | 1 | 0 | 0 |  | 0 |  | 0 | 1 |
|  |  | B |  | 3 | 0 |  | 1 | 1 | 0 |  | 1 |  | 0 | 6 |
|  |  | C |  | 19 | 2 |  | 6 | 8 | 0 |  | 3 |  | 1 | 39 |
|  |  | PD |  | 46 | 11 |  | 1 | 21 | 2 |  | 3 |  | 1 | 85 |
| \% Change in Crashes <br> *Recommend using MnDOT's <br> \% Change in Crashes | PI | F |  | -28\% | -28\% |  | -28\% | -28\% | -28\% |  | -28\% | -28\% | -28\% |  |
|  |  | A |  | -28\% | -28\% |  | -28\% | -28\% | -28\% |  | -28\% | -28\% | -28\% |  |
|  |  | B |  | -28\% | -28\% |  | -28\% | -28\% | -28\% |  | -28\% | -28\% | -28\% |  |
|  |  | C |  | -28\% | -28\% |  | -28\% | -28\% | -28\% |  | -28\% | -28\% | -28\% |  |
|  |  | PD |  | -28\% | -28\% |  | -28\% | -28\% | -28\% |  | -28\% | -28\% | -28\% |  |
| Change inCrashes= No. ofcrashes $\mathbf{X}$$\quad$ PI |  | F |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | A |  |  |  |  | 0.00 |  |  |  |  |  |  |  |
|  |  | B |  | -0.84 |  |  | 0.00 | -0.28 |  |  | -0.28 |  |  | -1.40 |
|  |  | C |  | -5.32 | -0.56 |  | 0.00 | -2.24 |  |  | -0.84 |  | -0.28 | -9.24 |
|  |  | PD |  | -12.88 | -3.08 |  | 0.00 | -5.88 | -0.56 |  | -0.84 |  | -0.28 | -23.52 |
| Year (Safety Improvement Construction) |  |  |  |  | 2018 |  |  |  |  |  |  |  |  |  |
| Project Cost (exclude Right of Way) |  |  |  |  | \$ 1,540,000 | Type of Crash | Study <br> Period: <br> Change in Crashes | Annual Change in Crashes | Cost per Crash |  | Annual <br> Benefit | $B / C=4.34$ <br> Using present worth values, $B=\$ \quad 6,685,522$ |  |  |
| Right of Way Costs (optional) |  |  |  |  | \$ | F |  |  | \$ 10,300,000 |  |  |  |  |  |  |  |
| Traffic Growth Factor |  |  |  |  | 3\% | A |  |  | \$ 550,000 |  |  |  |  |  |  |  |
| Capital Recovery |  |  |  |  |  | B | -1.40 | -0.47 | \$ 160,000 | \$ | 74,667 | See "Calculations" sheet for amortization. |  |  |
| 1. Discount Rate |  |  |  |  | 4.5\% | C | -9.24 | -3.08 | \$ 81,000 | \$ | 249,480 |  |  |  |  |  |
| 2. Project Service Life (n) |  |  |  |  | 20 | PD | -23.52 | -7.84 | \$ 7,400 | \$ | 58,016 | Office of Traffic, Safety and Operations November 2007 |  |  |
|  |  |  |  |  |  | Total |  |  |  | \$ | 382,163 |  |  |  |  |  |



Crash ID: 1414 Add additional primary head CR=0.28
Yes - An extra head is needed
No - An extra head is not needed

| CSAH 31 | Mainline | Side Street |
| :--- | :---: | :---: |
| CSAH 32 | Yes | Yes |
| CSAH 30 | Yes | Yes |
| Wescott Road | No | No |
| Duckwood Drive | No | No |
| CSAH 28 | Yes | Yes |
| I-35 North Ramp | Yes | No |
| I-35 South Ramp | Yes | No |
| Northwood PKWY | Yes | Yes |
| CSAH 26 | Yes | Yes |


| CSAH 26 | Mainline | Side Street |
| :--- | :---: | :---: |
| Eagandale Place | Yes | No |
| l-35 West Ramp | Yes | No |
| l-35 East Ramp | Yes | No |
| CSAH 43 | Yes | No |


| CSAH 43 | Mainline | Side Street |
| :--- | :---: | :---: |
| CSAH 26 | Yes | No |
| Clubview | No | No |
| Northwood | No | Yes |
| CSAH 28 | No | No |
| Duckwood | No | No |
| Wescott | No | No |


| CSAH 28 | Mainline | Side Street |
| :--- | :---: | :---: |
| Denmark | No | No |
| 35E w ramp | No | No |
| CSAH 31 | Yes | Yes |
| Washington | Yes | Yes |
| Federal | No | No |
| Coachman | No | No |
| Blue Cross | No | Yes |

$\begin{array}{lllll}\text { ACCUM } & \text { C } & \text { M CNTRL PTRL } \\ \text { (MILES) } & \text { D } & \text { A } & \text { SECTN } \\ \text { STAT } \\ \text { CITY } & \text { NUM }\end{array}$
LOGPOINT LISTINGS





[^0]
## $\begin{array}{lc}\text { ROUTE } & \text { REF-POINT' } \\ \text { NUMBER } & \text { (MILES) }\end{array}$


LOGPOINT LISTINGS
TRUNK HIGHWAY LOGPOINT LISTING

$$
\text { NOV } 19,2014
$$



[^1]CRASH MODIFICATION FACTORS CLEARRMCHOUSE

## CMF / CRF Details

CMF ID: 1414
Add signal (additional primary head)
Description:
Prior Condition: Intersection has one primary signal head per approach
Category: Intersection traffic control
Study: Safety Benefits of Additional Primary Signal Heads, Felipe et al., 1998

Star Quality Rating:

## [View score details]

## Crash Modification Factor (CMF)

$$
\text { Value: } \quad 0.72
$$

Adjusted Standard Error:

Unadjusted Standard
Error:

## Crash Reduction Factor (CRF)

Value: $\quad 28$ (This value indicates a decrease in crashes)

Adjusted Standard Error:

Unadjusted Standard
Error:

## Applicability

Crash Type: ..... All
Crash Severity: ..... All
Roadway Types Not specified
Number of Lanes:
Road Division Type:
Speed Limit:
Area Type: Urban
Traffic Volume:
Time of Day:
If countermeasure is intersection-based
Intersection Type: Roadway/roadway (not interchange related)
Intersection Geometry ..... 4-leg
Traffic Control: Signalized
Major Road Traffic
Volume:
Minor Road Traffic
Volume:






Dakota County CSAHs 26283143 Roadway Traffic Flow Improvements Project Location Map


Major Project Items Installation of:

- Traffic monitoring cameras
- Fiber optic signal interconnect
- Flashing yellow left turn arrows
- Additional primary signal heads
- Signal equipment upgrades
- Signal retiming

WHEREAS, the Transportation Advisory Board (TAB) is requesting project submittals for federal funding under the Moving Ahead for Progress in the $21^{\text {st }}$ Century Act (MAP-21); and

WHEREAS, these federal programs fund up to 80 percent of project construction costs; and
WHEREAS, federal funding of projects reduces the burden local taxpayers for regional improvements; and
WHEREAS, non-federal funds must be at least 20 percent of the project costs; and
WHEREAS, project submittals are due on December 1, 2014; and
WHEREAS, all projects proposed are consistent with the adopted Dakota County Comprehensive Plan.
NOW, THEREFORE, BE IT RESOLVED, That the Dakota County Board of Commissioners hereby approves the following County lead projects for submittal to the TAB for federal funding:

1. County State Aid Highway (CSAH) 9 (Dodd Boulevard) from Hayes Avenue to CSAH 23 (Cedar Avenue) in Lakeville
2. CSAH 26 (Lone Oak Road) at its intersection with CSAH 43 (Lexington Avenue) in Eagan
3. CSAH 26 (70 ${ }^{\text {th }}$ Street) at its intersection with Trunk Highway (TH) 3 in Inver Grove Heights
4. CSAH 28/63 (Yankee Doodle Road/Argenta Trail) from south of TH 55 to south of CSAH 26 ( $70^{\text {th }}$ Street)
5. CSAH 31 (Pilot Knob Road) from l-35E to north of Central Parkway in Eagan
6. CSAH $42\left(145^{\text {th }}\right.$ Street East) at its interchange with TH 52 in Rosemount
7. CSAH 23 (Foliage Avenue) from CSAH 86 (280 ${ }^{\text {th }}$ Street) to CR 96 ( $320^{\text {th }}$ Street) in Greenvale Township
8. CSAH 86 ( $280^{\text {th }}$ Street) from CSAH 23 (Galaxie Avenue) to TH 3 in Eureka, Greenvale, Castle Rock, and Waterford Townships
9. CSAH 86 ( $280^{\text {th }}$ Street) from TH 3 to CSAH 47(Northfield Blvd) in Castle Rock, Waterford, and Sciota Townships
10. CSAH 31 and CSAH 46 Advanced Traffic Management System for 16 Signals
11. CSAH 26, CSAH 28, CSAH 31, and CSAH 43 Advanced Traffic Management System for 25 Signals
12. Mississippi River Regional Trail - Rosemount East
13. Minnesota River Greenway - Eagan South
14. North Creek Greenway - CSAH 42 Underpass east of Flagstaff in Apple Valley
15. CSAH 14 (Southview Boulevard) from $14^{\text {th }}$ Avenue to $3^{\text {rd }}$ Avenue in South St. Paul; and

BE IT FURTHER RESOLVED, That, subject to federal funding award, the Dakota County Board of Commissioners would be asked to consider authorization to execute the grant agreement at a future meeting; and

BE IT FURTHER RESOLVED, That the Dakota County Board of Commissioners hereby supports the following submittals by others:
16. Apple Valley Transit Station Parking Expansion - Lead Agency: Minnesota Valley Transit Authority
17. CSAH 73 (Oakdale Ave) Trail from CSAH 14 to CSAH 8 - Lead Agency: West St. Paul
18. River to River Greenway Robert Street Pedestrian Bridge - Lead Agency: West St. Paul
19. North Creek Greenway - Farmington Gap - Lead Agency: Farmington
20. Lake Marion Greenway - Sunset Park to Murphy Hanrehan Regional Park - Lead Agency: Burnsville
21. Lake Marion Greenway - Ritter Farm Park Connection - Lead Agency: Lakeville
22. Rosemount Greenway - Downtown Rosemount to Lebanon Hills - Lead Agency: Rosemount
23. Vermillion Highlands Greenway - CSAH 42 Underpass at Akron- Lead Agency : Rosemount; and

BE IT FURTHER RESOLVED, That, subject to federal funding award of the city lead projects, the Dakota County Board of Commissioners will provide the local match for regional greenway projects, and for non-greenway projects will provide Dakota County's share of the matching funds consistent with Dakota County transportation cost share policies.

| County Manager＇s Comments： | Reviewed by（if required）： |  |
| :---: | :---: | :---: |
| ® Recommend Action | 区 | County Attorney＇s Office |
| $\square \quad$ Do Not Recommend Action | 区 | Financial Services |
| $\square \quad$ Reviewed－－－No Recommendation | 区 | Risk Management |
| $\square$ Reviewed－－－Information Only | $\square$ | Employee Relations |
| $\square \quad$ Submitted at Commissioner Request | $\begin{aligned} & \square \\ & \square \end{aligned}$ | Information Technology Facilities Management |
| Branet Kichae |  |  |
| County Manager |  |  |

November 25, 2014
Brian K. Sorenson, PE
Assistant County Engineer
Dakota County Transportation Department
14955 Galaxie Avenue
Apple Valley, MN 55124
RE: Regional Solicitation Application to install Advanced Traffic Management System (ATMS) for 25 Signals, including CSAH 31 at the I-35E ramp intersections

Dear Mr. Sorenson:
Thank you for requesting a letter of support from MnDOT for the Metropolitan Council's 2014 Regional Solicitation. Your application to install Advanced Traffic Management System (ATMS) for 25 Signals, including CSAH 31 at the I-35E ramp intersections impacts MnDOT right of way on Highway I-35E.

As the agency with jurisdiction over I-35E, MnDOT supports this application. Details of any future maintenance agreement with the county will be determined during project development.

This project currently has no funding from MnDOT.
Sincerely,


Scott McBride, P.E.
Metro District Engineer

## Cc: Elaine Koustsoukos, Metropolitan Council Jon Solberg, MnDOT Metro District - South Area Manager

Physical Development Division

November $20^{\text {th }}, 2014$
John Gorder
City Engineer
City of Eagan
3830 Pilot Knob Road
Eagan, MN 55122
Dear Mr. Gorder:

The Dakota County Transportation Department is submitting a Roadway System Management funding application for a transportation project as part of the Metropolitan Council's 2014 Federal Funding Solicitation. The project consists of the installation of fiber optic cable for signal interconnection, traffic monitoring cameras, flashing yellow left turn arrows at intersections, and signal timing optimization of signals along the County State Aid Highways (CSAHs) 26 (Lone Oak Road), 28 (Yankee Doodle Road), 31 (Pilot Knob Road) and 43 (Lexington Avenue) corridors within the city of Eagan. This will provide the County ability to manage traffic signals on county roadways as an entire system versus as limited and unconnected zones. The project will provide for improved traffic flow, and reduced traffic congestion and harmful emissions.

As part of the application, the County is requesting a letter of support from the City of Eagan to include in our project funding application. The application deadline is December 1, 2014. To assist in this request, I am enclosing a draft letter that can be used as a framework for you to modify as you see appropriate. The letter can be returned directly to me.

The City of Eagan's support of the project for Dakota County to improve traffic safety and mobility along CSAHs 26, 28, 31, and 43, and your assistance in the funding application is greatly appreciated.

Sincerely,


Suzanne Hanrahan, P.E.
Assistant Traffic Engineer

From: Hanrahan, Suzanne
Sent: Wednesday, November 05, 2014 8:45 PM
To: John Gorder (JGorder@cityofeagan.com)
Subject: Metropolitan Council Regional Solicitation Grant Application
Hi John,
The Metropolitan Council is currently soliciting Regional Grant Applications. Dakota County Transportation is working to submit an application for the Roadway System Management category (formerly Congestion Mitigation/Air Quality - CMAQ). The application would be for a project to:

- Install fiber optic cable for signal interconnect along County Highways County Highway 31 (Pilot Knob Road), County Highway 28 (Yankee Doodle Road), 26 (Lone Oak Road), and County Highway 43 (Lexington Avenue) - please refer to attached map
- Installation of traffic monitoring cameras
- Signal conversions at several intersections to include flashing yellow left turn arrows
- Signal equipment upgrades for the newer technology
- Signal corridor retiming

The fiber optic installation would allow for these signals to be incorporated into the new Advanced Traffic Management System Dakota County is acquiring next year for signal operation/management and traffic monitoring.

The federal funding would be for project construction in 2017 or 2018. The federal funding would contribute $80 \%$ of the construction costs. We are in the process of developing an overall project cost and each involved agency's cost share responsibility including design and construction costs. I will get that information to you early next week and will then be requesting for City of Eagan's support in this project. A support letter from local agencies that will have an involvement in the project is also to be include with the grant application.

If you have any initial comments or questions, please let me know. Otherwise, I will be in touch with you again early next week.

Sincerely,
Suzanne

Suzanne Hanrahan, PE \| Assistant Traffic Engineer
Dakota County Transportation Department
14955 Galaxie Avenue | Apple Valley, MN 55124
Ph: 952-891-7177 | Fax: 952-891-7127
Suzanne.Hanrahan@co.dakota.mn.us

Dakota County Transportation - "We Get You There"
www.dakotacounty.us

From: Hanrahan, Suzanne
Sent: Thursday, November 20, 2014 5:39 PM
To: John Gorder (JGorder@cityofeagan.com)
Subject: Dakota County Metro Council Regional Solicitation Application
Hi John,
It took a little longer to get the cost estimate completed than anticipated. Below is the cost breakdown for the project as proposed below:

|  | Total Project <br> Cost | Federal <br> Contribution | County <br> Contribution | Eagan <br> Contribution |
| :--- | :--- | :--- | :--- | :--- |
| Fiber Optic Interconnect <br> Installation / Flashing Yellow <br> Arrow Conversions / Traffic <br> Monitoring Cameras | $\$ 1,540,000$ | $\$ 1,232,000$ | $\$ 241,000$ | $\$ 67,000$ |
|  |  |  |  |  |
| Engineering Costs (8\%) <br> Not covered by federal funds | $\$ 124,000$ | $\$ 0$ | $\$ 97,000$ | $\$ 27,000$ |
|  |  |  |  |  |
| Total | $\$ 1,664,000$ | $\$ 1,232,000$ | $\$ 338,000$ | $\$ 94,000$ |

Attached is the formal request letter from the County for Eagan's support in the project. If the City can support the project, the application is due December $1^{\text {st }}$ so I would need a response support letter before then.

Please let me know if you have any questions/comments.
Thanks,
Suzanne


AADT Year
20132012
20112010
2009 and older

## Interstate

US Highway

County Road $\langle 55\rangle$

- Other Roads

Railroads
Street Series Grid
Cities
$\square$ Counties
$\mathcal{E}$ Lakes
Rivers
Perennial Streams
Ditches
National Forests
National Parks
Tribal Gov'ts
State Forests
State Parks


Roadway Area Definition

## Results

Project Length: 3.658 miles
Project Area: 18.383 sq mi


Project
Project Area

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


## Regional Economy Roadway System Management Project: Dakota Co Csah 26283143 Flow Improvements | Map ID: 1419961914962

Results
Project IN area of Job Concentration.
Project WITHIN ONE MI of area of Manufacturing and Distribution.

Project CONNECTED to area of Education Institutions.


Project
Project Area
For complete disclaimer of accuracy, please visit
For complete disclaimer of accuracy, please vist


Socio-Economic Conditions Roadway System Management Project: Dakota Co Csah 26283143 Flow Improvements | Map ID: 1419961914962

## Results

Project IN area of above average concentration of race or poverty.


Racially concentrated area of poverty $\square$ Above reg'l avg conc of race/poverty

## Concentrated area of poverty



## Roadway Area Definition

## Results

Project Length: 2.003 miles
Project Area: 16.573 sq mi


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

Regional Economy Roadway System Management Project: Dakota Co CSAHs 26283143 Roadway Flow Improvments | Map ID: 1417374586960

Results
Project IN area of Job Concentration.
Project IN area of
Manufacturing and Distribution.
Project CONNECTED to area of
Education Institutions.


Project
$\square$ Project Area
For complete disclaimer of accuracy, please visit
For complete disclaimer of accuracy, please vist


Socio-Economic Conditions Roadway System Management Project: Dakota Co CSAHs 26283143 Roadway Flow Improvments | Map ID: 1417374588960 Results

Project IN area of above average concentration of race or poverty


Racially concentrated area of poverty $\square$ Above reg'l avg conc of race/poverty Concentrated area of poverty

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


## 30: Park \& Ride/l-35E Off Ramp \& CSAH 28

| Direction | A ${ }^{\text {a }}$ |
| :---: | :---: |
| Volume (vph) | 3641 |
| Total Delay / Ven (s/v) | 19 |
| COEmissions (kg) | 4.04 |
| NOX Emissions (kg) | 0.79 |
| VOC Emissions (kg) | 0.94 |

## 32: Federal/Central \& CSAH 28

| Direction | A |  |
| :---: | :---: | :---: |
| Volume (vph) | 2729 |  |
| Total Delay / Veh (s/v) | 22 |  |
| COEmissions (kg) | 3.52 |  |
| NOX Emisions (kg) | 0.68 |  |
| VOC Emissions (kg) | 0. 82 |  |

## 33: Coachman \& CSAH 28

| Prection | A ${ }^{\text {P }}$ |
| :---: | :---: |
| Volume (vph) | 2482 |
| Total Delay / Ven (SN) | 17 |
| COEmissions (kg) | 4.03 |
| NOX Emissions (kg) | 078 |
| VOC Emissions (kg) | 0.93 |
| 36: CSAH 28 \& Denmark |  |


| Direction | Alf |
| :---: | :---: |
| Volume (vph) | 4475 |
| Total Delay / Veh (SNV) | 49 |
| COEmissions (kg) | 8.73 |
| NOX Emissions (kg) | 1.70 |
| VOC Emissions (kg) | $2.02 / 12.45$ |

## 44: Blue Cross/Heritage \& CSAH 28

| Direction | A 1 |
| :---: | :---: |
| Volume (vph) | 2197 |
| Total Delay / Veh ( $\mathrm{s} / \mathrm{N}$ ) | 15 |
| COEmissions (kg) | 2.85 |
| NOX Emissions (kg) | 0.55 |
| VOC Emissions (kg) | 0.66 |

## 30: Park \& Ride/I-35E Off Ramp \& CSAH 28

| Direclion | All |
| :--- | ---: |
| Volume (vph) | 3641 |
| Total Delay / Veh (s/v) | 9 |
| CO Emissions $(\mathrm{kg})$ | 3.89 |
| NOx Emissions $(\mathrm{kg})$ | 0.76 |
| VOC Emissions $(\mathrm{kg})$ | 0.90 |

## 32: Federal/Central \& CSAH 28

| Direction | All |
| :--- | ---: |
| Volume (vph) | 2729 |
| Total Delay $/$ Veh $(\mathrm{s} / \mathrm{v})$ | 16 |
| CO Emissions $(\mathrm{kg})$ | 3.49 |
| NOx Emissions $(\mathrm{kg})$ | 0.68 |
| VOC Emissions $(\mathrm{kg})$ | 0.81 |

## 33: Coachman \& CSAH 28

| Direction | All |
| :--- | ---: |
| Volume (vph) | 2482 |
| Total Delay $/$ Veh $(\mathrm{s} / \mathrm{v})$ | 12 |
| CO Emissions $(\mathrm{kg})$ | 3.60 |
| NOx Emissions $(\mathrm{kg})$ | 0.70 |
| VOC Emissions $(\mathrm{kg})$ | 0.83 |

* 36: CSAH 28 \& Denmark

| Drection | AII |
| :--- | :---: |
| Volume (vph) | 4475 |
| Total Delay $/$ Veh (s/v) | 26 |
| CO Emissions (kg) | 7.41 |
| NOx Emissions | 1.44 |
| VOC Emissions (kg) | $1.72 / 10.57$ |

## 44: Blue Cross/Heritage \& CSAH 28

| Drecticn | All |
| :--- | ---: |
| Volume (vph) | 2197 |
| Total Delay $/$ Veh $(\mathrm{s} / \mathrm{v})$ | 16 |
| CO Emissions $(\mathrm{kg})$ | 2.75 |
| NOx Emissions $(\mathrm{kg})$ | 0.54 |
| VOC Emissions $(\mathrm{kg})$ | 0.64 |



## 30: Park \& Ride/l-35E Off Ramp \& CSAH 28

| Direction | A ${ }^{\text {a }}$ |
| :---: | :---: |
| Volume (vph) | 3641 |
| Total Delay / Ven (s/v) | 19 |
| COEmissions (kg) | 4.04 |
| NOX Emissions (kg) | 0.79 |
| VOC Emissions (kg) | 0.94 |

## 32: Federal/Central \& CSAH 28

| Direction | A |  |
| :---: | :---: | :---: |
| Volume (vph) | 2729 |  |
| Total Delay / Veh (s/v) | 22 |  |
| COEmissions (kg) | 3.52 |  |
| NOX Emisions (kg) | 0.68 |  |
| VOC Emissions (kg) | 0. 82 |  |

## 33: Coachman \& CSAH 28

| Prection | A ${ }^{\text {P }}$ |
| :---: | :---: |
| Volume (vph) | 2482 |
| Total Delay / Ven (SN) | 17 |
| COEmissions (kg) | 4.03 |
| NOX Emissions (kg) | 078 |
| VOC Emissions (kg) | 0.93 |
| 36: CSAH 28 \& Denmark |  |


| Direction | Alf |
| :---: | :---: |
| Volume (vph) | 4475 |
| Total Delay / Veh (SNV) | 49 |
| COEmissions (kg) | 8.73 |
| NOX Emissions (kg) | 1.70 |
| VOC Emissions (kg) | $2.02 / 12.45$ |

## 44: Blue Cross/Heritage \& CSAH 28

| Direction | A 1 |
| :---: | :---: |
| Volume (vph) | 2197 |
| Total Delay / Veh ( $\mathrm{s} / \mathrm{N}$ ) | 15 |
| COEmissions (kg) | 2.85 |
| NOX Emissions (kg) | 0.55 |
| VOC Emissions (kg) | 0.66 |

## 30: Park \& Ride/I-35E Off Ramp \& CSAH 28

| Direclion | All |
| :--- | ---: |
| Volume (vph) | 3641 |
| Total Delay / Veh (s/v) | 9 |
| CO Emissions $(\mathrm{kg})$ | 3.89 |
| NOx Emissions $(\mathrm{kg})$ | 0.76 |
| VOC Emissions $(\mathrm{kg})$ | 0.90 |

## 32: Federal/Central \& CSAH 28

| Direction | All |
| :--- | ---: |
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| VOC Emissions $(\mathrm{kg})$ | 0.81 |

## 33: Coachman \& CSAH 28

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| :--- | ---: |
| Volume (vph) | 2482 |
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* 36: CSAH 28 \& Denmark

| Drection | AII |
| :--- | :---: |
| Volume (vph) | 4475 |
| Total Delay $/$ Veh (s/v) | 26 |
| CO Emissions (kg) | 7.41 |
| NOx Emissions | 1.44 |
| VOC Emissions (kg) | $1.72 / 10.57$ |

## 44: Blue Cross/Heritage \& CSAH 28

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| :--- | ---: |
| Volume (vph) | 2197 |
| Total Delay $/$ Veh $(\mathrm{s} / \mathrm{v})$ | 16 |
| CO Emissions $(\mathrm{kg})$ | 2.75 |
| NOx Emissions $(\mathrm{kg})$ | 0.54 |
| VOC Emissions $(\mathrm{kg})$ | 0.64 |




[^0]:    

[^1]:    LOGPOINT LISTINGS
    Nov 19,2014

    TRUNK HIGHWAY LOGPOINT LISTING
    
    易昆
    NG AT $004+00.200$
    $\begin{array}{llll}\text { ACCUM } & \text { C } & \text { M } & \text { CNTR } \\ \text { (MILES) } & \text { D } & \text { A } & \text { SECT }\end{array}$
    
    2.113
    2.405
    2.614
    2.725
    2.883
    2.961
    3.114
    3.156
    3.379
    3.712
    3.963
    4.111

