



Application

13860 - 2020 Roadway Expansion

14018 - I-35E/County Road J Corridor Improvements and Interchange Replacement

Regional Solicitation - Roadways Including Multimodal Elements

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

Organization Information

Name: RAMSEY COUNTY

Jurisdictional Agency (if different):

Organization Type:

County Government

Organization Website:

Address:

DEPT OF PUBLIC WORKS

1425 PAUL KIRKWOOD DR

*

ARDEN HILLS

Minnesota

55112

City

State/Province

Postal Code/Zip

County:

Ramsey

Phone:*

651-266-7100

Ext.

Fax:

PeopleSoft Vendor Number

0000023983A30

Project Information

Project Name

I-35E/County Road J Interchange

Primary County where the Project is Located

Ramsey

Cities or Townships where the Project is Located:

Lino Lakes, North Oaks, White Bear Township

Jurisdictional Agency (If Different than the Applicant):

Ramsey and Anoka Counties

The proposed project will reconstruct the I-35E/County Road J Interchange to provide a full-access interchange with added ramps to and from the north on I-35E to improve overall traffic operations and roadway safety.

I-35E provides regional access to communities within Ramsey and Anoka County. At the Lino Lakes/White Bear Township boundary, County Road J (Ash Street) provides access to and from the south on

I-35E with a half-diamond interchange configuration. Motorists traveling along County Road J experience significant travel delays and congestion during the morning and evening peak periods due to the all-way stop control at the Centerville Road, East Ramp and Otter Lake Road intersections. During the a.m. and p.m. peak periods, there is a heavy movement from southbound Centerville Road, to eastbound County Road J to enter the southbound I-35E ramp. During the p.m. peak period, the east ramp experiences significant backups with queues regularly extending onto northbound I-35E. MnDOT has recently expressed concerns about this backup and has provided a photo from the Regional Traffic Management Center (see attached). In addition, the project segment of County Road J from Centerville Road to Otter Lake Road lack accommodations for pedestrians and bicyclists as a two-lane roadway with eight-foot wide shoulders.

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

The proposed project will include the following:

Traffic operations improvements ? The removal of the all-way and side-street stop control and replacement with roundabouts at the County Road J intersections at Centerville Road, 20th Avenue/West Ramps and Otter Lake Road/West

Ramps will improve the overall peak hour operations along the corridor. In addition, the I-35E/County Road J full-access interchange will attract more traffic from and improve the overall peak hour operations at the I-35E/CSAH 14 interchange.

Safety improvements ? The construction of the roundabouts will decrease overall congestion and queues at the County Road J intersections at Centerville Road and the East Ramps. The reduction of the southbound Centerville Road and northbound I-35E East Ramp queues at County Road J will provide safer conditions during the peak periods.

Pedestrian and bicycle improvements ? The construction of a multiuse trail on the north side and sidewalk on the south side of the corridor provides multimodal benefits for all modes of transportation.

Roadway improvements ? The replacement of a 0.3-mile segment of Country Road J; an aging facility that was constructed in 1935. In addition, the correction of a vertical curve on the bridge that inhibits sight distance.

(Limit 2,800 characters; approximately 400 words)

TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

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

I-35E/County Road J Interchange

Project Length (Miles)

0.45

to the nearest one-tenth of a mile

Project Funding

Are you applying for competitive funds from another source(s) to implement this project?

No

If yes, please identify the source(s)

Federal Amount \$8,618,210.00

Match Amount \$2,154,553.00

Minimum of 20% of project total

Project Total \$10,772,763.00

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

Match Percentage 20.0%

Minimum of 20%

Compute the match percentage by dividing the match amount by the project total

Source of Match Funds CSAH and Local Funds

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

Preferred Program Year

Select one: 2025

Select 2022 or 2023 for TDM projects only. For all other applications, select 2024 or 2025.

Additional Program Years:

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

Project Information-Roadways

County, City, or Lead Agency Ramsey County Public Works

Functional Class of Road A Minor Arterial Expander

Road System County Road, CSAH, MSAS, Interstate Highway

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

Road/Route No. 6081

i.e., 53 for CSAH 53

Name of Road County Road J ? also Centerville Road (Anoka CSAH 21; Ramsey CSAH 59), Otter Lake Road (Anoka CSAH 84; Ramsey CSAH 60), 20th Avenue (Anoka CSAH 54)

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed 55110

(Approximate) Begin Construction Date 04/01/2025

(Approximate) End Construction Date 07/01/2026

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

From:
(Intersection or Address) Centerville Road

To:
(Intersection or Address) Otter Lake Road

DO NOT INCLUDE LEGAL DESCRIPTION

Or At

Miles of Sidewalk (nearest 0.1 miles) 0.5

Miles of Trail (nearest 0.1 miles) 0.6

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

Primary Types of Work

Grading, Aggregate Base, Bituminous Surfacing, Bridge Construction, Ramp Construction, Roundabout Construction Multiuse Trail

Examples: GRADE, AGG BASE, BIT BASE, BIT SURF, SIDEWALK, CURB AND GUTTER, STORM SEWER, SIGNALS, LIGHTING, GUARDRAIL, BIKE PATH, PED RAMPS, BRIDGE, PARK AND RIDE, ETC.

BRIDGE/CULVERT PROJECTS (IF APPLICABLE)

Old Bridge/Culvert No.: 62836

New Bridge/Culvert No.: TBD

Structure is Over/Under (Bridge or culvert name): I-35E

Requirements - All Projects

All Projects

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

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

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

The project aligns with many goals, objectives and strategies of the 2040 Transportation Policy Plan:

Goal: Transportation System Stewardship (page 42)

Objective: Efficiently preserve and maintain the regional transportation system in a state of good repair (page 2.2)

Strategies: A1, A2 (pages 2.2 and 2.3)

Goal: Safety and Security (page 44)

Objective: Reduce fatal and serious injury crashes and improve safety and security for all modes of passenger travel and freight transport (page 2.5)

Strategies: B1, B2, B3, B4, B6, B8 (pages 2.5 to 2.9)

Goal: Access to Destinations (page 46)

Objectives: Increase the availability of multimodal travel options, especially in congested highway corridors. Improve the availability of and quality of multimodal travel options for people of all ages and abilities to connect to jobs and other opportunities, particularly for historically under-represented populations (page 2.10)

Strategies: C1, C2, C16, C17 and C19 (pages 2.10 to 2.25)

Goal: Healthy and Equitable Communities (page 50)

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

Objectives: Increase the availability and attractiveness of transit, bicycling and walking to encourage healthy communities through the use of active transportation options. Provide a transportation system that promotes community cohesion and connectivity for people of all ages and abilities, particularly for historically under-represented populations (page 2.30)

Strategies: E3 (page 2.31)

Goal: Leveraging Transportation Investment to Guide Land Use (page 53)

Objective: Encourage local land use design that integrates highways, streets, transit, walking and

Bicycling (page 2.35)

Strategies: F3, F6, F7 (pages 2.36 and 2.38)

Limit 2,800 characters, approximately 400 words

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

City of Lino Lakes Draft 2040 Comprehensive Plan
(pages 3-13, 3-32, 6-4, 6-23, 6-25, 6-27, 6-28, 12-5, 12-6)

List the applicable documents and pages:

White Bear Township Draft 2040 Comprehensive Plan (page 4-56)

Limit 2,800 characters, approximately 400 words

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

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

5. Applicants that are not State Aid cities or counties in the seven-county metro area with populations over 5,000 must contact the MnDOT Metro State Aid Office prior to submitting their application to determine if a public agency sponsor is required.

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

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

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

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

Strategic Capacity (Roadway Expansion): \$1,000,000 to \$10,000,000

Roadway Reconstruction/Modernization: \$1,000,000 to \$7,000,000

Traffic Management Technologies (Roadway System Management): \$250,000 to \$3,500,000

Spot Mobility and Safety: \$1,000,000 to \$3,500,000

Bridges Rehabilitation/Replacement: \$1,000,000 to \$7,000,000

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

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

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

9. In order for a selected project to be included in the Transportation Improvement Program (TIP) and approved by USDOT, the public agency sponsor must either have a current Americans with Disabilities Act (ADA) self-evaluation or transition plan that covers the public right of way/transportation, as required under Title II of the ADA. The plan must be completed by the local agency before the Regional Solicitation application deadline. For the 2022 Regional Solicitation funding cycle, this requirement may include that the plan is updated within the past five years.

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

Date plan completed: 06/02/1997

Link to plan: Attached as PDF

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

Date self-evaluation completed:

Link to plan:

Upload plan or self-evaluation if there is no link

Upload as PDF

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

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

11. The owner/operator of the facility must operate and maintain the project year-round for the useful life of the improvement, per FHWA direction established 8/27/2008 and updated 6/27/2017.

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

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

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

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

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

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

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

Roadways Including Multimodal Elements

1. All roadway and bridge projects must be identified as a principal arterial (non-freeway facilities only) or A-minor arterial as shown on the latest TAB approved roadway functional classification map.

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

Roadway Expansion and Reconstruction/Modernization and Spot Mobility projects only:

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

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

Bridge Rehabilitation/Replacement and Strategic Capacity projects only:

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

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

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

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

Bridge Rehabilitation/Replacement projects only:

5. The length of the bridge must equal or exceed 20 feet.

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

6. The bridge must have a National Bridge Inventory Rating of 6 or less for rehabilitation projects and 4 or less for replacement projects.

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

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

7. All roadway projects that involve the construction of a new/expanded interchange or new interchange ramps must have approval by the Metropolitan Council/MnDOT Interchange Planning Review Committee prior to application submittal. Please contact Michael Corbett at MnDOT (Michael.J.Corbett@state.mn.us or 651-234-7793) to determine whether your project needs to go through this process as described in Appendix F of the 2040 Transportation Policy Plan.

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

Requirements - Roadways Including Multimodal Elements

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	\$441,600.00
Removals (approx. 5% of total cost)	\$161,880.00
Roadway (grading, borrow, etc.)	\$1,086,590.00
Roadway (aggregates and paving)	\$1,605,471.00
Subgrade Correction (muck)	\$0.00
Storm Sewer	\$351,445.00
Ponds	\$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	\$370,455.00
Traffic Control	\$135,000.00
Striping	\$94,583.00
Signing	\$300,000.00
Lighting	\$400,000.00
Turf - Erosion & Landscaping	\$52,406.00
Bridge	\$4,830,021.00
Retaining Walls	\$0.00
Noise Wall (not calculated in cost effectiveness measure)	\$0.00
Traffic Signals	\$0.00
Wetland Mitigation	\$251,870.00
Other Natural and Cultural Resource Protection	\$0.00
RR Crossing	\$0.00
Roadway Contingencies	\$304,370.00
Other Roadway Elements	\$0.00
Totals	\$10,385,691.00

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	\$140,271.00
Sidewalk Construction	\$181,989.00
On-Street Bicycle Facility Construction	\$0.00
Right-of-Way	\$0.00

Pedestrian Curb Ramps (ADA)	\$21,500.00
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	\$43,312.00
Totals	\$387,072.00

Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Fixed Guideway Elements	\$0.00
Stations, Stops, and Terminals	\$0.00
Support Facilities	\$0.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	\$0.00
Vehicles	\$0.00
Contingencies	\$0.00
Right-of-Way	\$0.00
Other Transit and TDM Elements	\$0.00
Totals	\$0.00

Transit Operating Costs

Number of Platform hours	0
Cost Per Platform hour (full loaded Cost)	\$0.00
Subtotal	\$0.00
Other Costs - Administration, Overhead, etc.	\$0.00

Totals

Total Cost	\$10,772,763.00
Construction Cost Total	\$10,772,763.00
Transit Operating Cost Total	\$0.00

Congestion within Project Area:

The measure will analyze the level of congestion within the project area. Council staff will provide travel speed data on the "Level of Congestion" map. The analysis will compare the peak hour travel speed within the project area to free-flow conditions.

Free-Flow Travel Speed:	46
Peak Hour Travel Speed:	37
Percentage Decrease in Travel Speed in Peak Hour compared to Free-Flow:	19.57%
Upload Level of Congestion map:	1589381125897_Congestion Map.pdf

Congestion on adjacent Parallel Routes:

Adjacent Parallel Corridor	Anoka CSAH 14
Adjacent Parallel Corridor Start and End Points:	
Start Point:	Anoka CSAH 54
End Point:	I-35E West Ramp
Free-Flow Travel Speed:	39
<i>The Free-Flow Travel Speed is black number.</i>	
Peak Hour Travel Speed:	17
<i>The Peak Hour Travel Speed is red number.</i>	
Percentage Decrease in Travel Speed in Peak Hour Compared to Free-Flow:	56.41%
Upload Level of Congestion Map:	1589381125897_Congestion Map.pdf

Principal Arterial Intersection Conversion Study:

Proposed interchange or at-grade project that reduces delay at a High Priority Intersection:

(80 Points)

Proposed at-grade project that reduces delay at a Medium Priority Intersection:

(60 Points)

Proposed at-grade project that reduces delay at a Low Priority Intersection:

(50 Points)

Proposed interchange project that reduces delay at a Medium Priority Intersection:

(40 Points)

Proposed interchange project that reduces delay at a Low Priority Intersection:

(0 Points)

Not listed as a priority in the study: Yes

(0 Points)

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

Existing Employment within 1 Mile: 1864

Existing Manufacturing/Distribution-Related Employment within 1 Mile: 850

Existing Post-Secondary Students within 1 Mile: 0

Upload Map 1589381011150_Regional Economy Map.pdf

Please upload attachment in PDF form.

Measure C: Current Heavy Commercial Traffic

RESPONSE: Select one for your project, based on the Regional Truck Corridor Study:

Along Tier 1:

Miles: 0

(to the nearest 0.1 miles)

Along Tier 2:

Miles: 0

(to the nearest 0.1 miles)

Along Tier 3: Yes

Miles: 0.4

(to the nearest 0.1 miles)

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

None of the tiers:

Measure A: Current Daily Person Throughput

Location Centerville Road and I-35E West Ramp

Current AADT Volume 10500

Existing Transit Routes on the Project 275

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

Upload Transit Connections Map 1589381909396_Transit Connections Map.pdf

Please upload attachment in PDF form.

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	13650.0

Measure B: 2040 Forecast ADT

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

No

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

OR

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

Lino Lakes 2040 Travel Demand Model for Trans Plan

Forecast (2040) ADT volume

15700

Measure A: Connection to disadvantaged populations and projects benefits, impacts, and mitigation

*1. **Sub-measure:** Equity Population Engagement: A successful project is one that is the result of active engagement of low-income populations, people of color, persons with disabilities, youth and the elderly. Engagement should occur prior to and during a projects development, with the intent to provide direct benefits to, or solve, an expressed transportation issue, while also limiting and mitigating any negative impacts. Describe and map the location of any low-income populations, people of color, disabled populations, youth or the elderly within a ½ mile of the proposed project. Describe how these specific populations were engaged and provided outreach to, whether through community planning efforts, project needs identification, or during the project development process. Describe what engagement methods and tools were used and how the input is reflected in the projects purpose and need and design. Elements of quality engagement include: outreach and engagement to specific communities and populations that are likely to be directly impacted by the project; techniques to reach out to populations traditionally not involved in community engagement related to transportation projects; feedback from these populations identifying potential positive and negative elements of the proposed project through engagement, study recommendations, or plans that provide feedback from populations that may be impacted by the proposed project. If relevant, describe how NEPA or Title VI regulations will guide engagement activities.*

Engagement of equity populations has occurred prior to the project's development, during the County's 2040 Comprehensive Plan process.

- The County wanted to respond to diverse perspectives in their Plan and partnered with Move Minnesota, a nonprofit organization leading the movement for an equitable transportation system that puts people first.

- Engagement in November/December 2018 resulted in multimodal themes such as improved sidewalk/bike facilities. Formal County recommendations - "ensure that community members can easily comment on projects and consideration must be given to how community members of all abilities, race, and income are able to get to public meetings".

Response:

- The Kitty Andersen Youth Science Center (KAYSC) solicited feedback on the Plan in October/December 2018, specific to the youth population in underrepresented communities who live or work in Ramsey County. Workshop results identified a common theme - the need for reliable transportation.

- The County's Implementation chapter states that "staff will continue to foster community inclusion in the decision-making process". Recommendations from the Move Minnesota and KAYSC Engagement Reports are key to its successful implementation and future projects.

https://www.ramseycounty.us/sites/default/files/Projects%20and%20Initiatives/RamseyCounty2040_Implementation_7.26.pdf.

The upcoming project process will ensure that all

community members are involved, including the Waverly Gardens retirement community within ½ mile of the project (see attached map).

(Limit 2,800 characters; approximately 400 words)

2. Sub-measure: *Equity Population Benefits and Impacts: A successful project is one that has been designed to provide direct benefits to low-income populations, people of color, persons with disabilities, youth and the elderly. All projects must mitigate potential negative benefits as required under federal law. Projects that are designed to provide benefits go beyond the mitigation requirement to proactively provide transportation benefits and solve transportation issues experienced by Equity populations.*

a. Describe the projects benefits to low-income populations, people of color, children, people with disabilities, and the elderly. Benefits could relate to pedestrian and bicycle safety improvements; public health benefits; direct access improvements for residents or improved access to destinations such as jobs, school, health care or other; travel time improvements; gap closures; new transportation services or modal options, leveraging of other beneficial projects and investments; and/or community connection and cohesion improvements. Note that this is not an exhaustive list.

The proposed project provides direct benefits to persons with disabilities and the elderly with its close proximity to the Waverly Garden retirement community. Waverly Gardens is a 313-unit senior housing facility with several care options including more than half of the apartments being independent living. Currently, there are no pedestrian or bicycle facilities along the project segment of County Road J and at the intersections.

The proposed improvements provide a vital multimodal link between neighborhoods and services for people living east and west of I-35E. The proposed sidewalk on the south side and multiuse trail on the north side will provide direct access improvements for the Waverly Gardens residents to retail destinations such as the Emagine movie theater, restaurant and services in the commercial development on the south side of County Road J between Centerville Road and the I-35E south ramp. In addition, families and children living on the east side of I-35E will also have a safe pedestrian facility to cross over the freeway to access the retail uses.

Response:

The proposed project will provide direct vehicular access and public health benefits to the elderly and their families (including children) visiting the Waverly Gardens senior housing. If traveling to/from the north, these families will have an improved access with the reconstructed interchange. These families who want to take their senior resident out to eat or see a movie will now have a safe pedestrian route. The multimodal improvements provide a non-motorized healthy alternative for the elderly to get out and about with daily exercise and family involvement.

The reconstructed interchange will improve vehicular access for underrepresented populations working at Schwing America and the Specialty Manufacturing Company, two manufacturing businesses within ½ mile of the project that offer employment opportunities for people with various educational levels.

The project's location involves several government agencies - Ramsey County to the south, Anoka County and Lino Lakes to the north, North Oaks to the south/west and White Bear Township to the south/east. Ramsey County's 2040 Transportation Plan includes planned east-west trails along CR J, continuing to the north and south along Centerville Road and Otter Lake Road. The Plan states, "the County will assist municipalities in the development of facilities that allow the bicycle to become a viable transportation option". Other communities will be able to leverage the proposed project investments, casting a wider net of transportation benefits to equity populations in adjacent communities.

(Limit 2,800 characters; approximately 400 words)

b. Describe any negative impacts to low-income populations, people of color, children, people with disabilities, and the elderly created by the project, along with measures that will be taken to mitigate them. Negative impacts that are not adequately mitigated can result in a reduction in points.

Below is a list of negative impacts. Note that this is not an exhaustive list.

Increased difficulty in street crossing caused by increased roadway width, increased traffic speed, wider turning radii, or other elements that negatively impact pedestrian access.

Increased noise.

Decreased pedestrian access through sidewalk removal / narrowing, placement of barriers along the walking path, increase in auto-oriented curb cuts, etc.

Project elements that are detrimental to location-based air quality by increasing stop/start activity at intersections, creating vehicle idling areas, directing an increased number of vehicles to a particular point, etc.

Increased speed and/or cut-through traffic.

Removed or diminished safe bicycle access.

Inclusion of some other barrier to access to jobs and other destinations.

Displacement of residents and businesses.

Mitigation of temporary construction/implementation impacts such as dust; noise; reduced access for travelers and to businesses; disruption of utilities; and eliminated street crossings.

Other

Response:

As expected with interchange reconstruction projects, there will be short-term construction impacts such as dust, noise, traffic congestion and general inconveniences to roadway mobility. Roadway users who rely on the County Road J interchange will be directed to other alternate routes during bridge construction activities. The project construction will incorporate proper noise, dust, and traffic mitigation and will not negatively impact disadvantaged populations present in the project area.

The proposed project has the potential to displace one home east of I-35E, on Otter Lake Road. However, it is expected that this impact can be removed during the design phase.

(Limit 2,800 characters; approximately 400 words)

Select one:

3.Sub-measure: Bonus Points *Those projects that score at least 80% of the maximum total points available through sub-measures 1 and 2 will be awarded bonus points based on the geographic location of the project. These points will be assigned as follows, based on the highest-scoring geography the project contacts:*

a.25 points to projects within an Area of Concentrated Poverty with 50% or more people of color

b.20 points to projects within an Area of Concentrated Poverty

c.15 points to projects within census tracts with the percent of population in poverty or population of color above the regional average percent

d.10 points for all other areas

Project is located in an Area of Concentrated Poverty where 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 includes children, people with disabilities, or the elderly:

Yes

(up to 40% of maximum score)

Upload the "Socio-Economic Conditions" map used for this measure. The second map created for sub measure A1 can be uploaded on the Other Attachments Form, or can be combined with the "Socio-Economic Conditions" map into a single PDF and uploaded here.

Upload Map

1589383307575_Socio-Economic Map.pdf

Measure B: Part 1: Housing Performance Score

City	Segment Length (For stand-alone projects, enter population from Regional Economy map) within each City/Township	Segment Length/Total Project Length	Score	Housing Score Multiplied by Segment percent
White Bear Township	0.25	0.25	17.0	4.25
Lino Lakes	0.54	0.54	48.0	25.92
North Oaks	0.21	0.21	11.0	2.31

Total Project Length

Total Project Length 0.45

Project length entered on the Project Information - General form.

Housing Performance Score

Total Project Length (Miles) or Population 1.0

Total Housing Score 32.48

Affordable Housing Scoring

Part 2: Affordable Housing Access

Reference Access to Affordable Housing Guidance located under Regional Solicitation Resources for information on how to respond to this measure and create the map.

If text box is not showing, click Edit or "Add" in top right of page.

Response:

Although there are no affordable housing units within ½ mile of the proposed interchange project, significantly improved access will be provided to the nearby Waverly Garden residents who often face physical and cognitive challenges that make driving difficult or impossible. Many of these residents rely on walking as their only mode of transportation. Therefore, pedestrian connections are essential to their continued mobility and independence.

(Limit 2,100 characters; approximately 300 words)

Upload map:

1589384276936_Socio-Economic Map.pdf

Measure A: Infrastructure Age

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
1935.0	0.45	870.75	1935.0
	0	871	1935

Average Construction Year

Weighted Year	1935.0
---------------	--------

Total Segment Length (Miles)

Total Segment Length	0.45
----------------------	------

Measure A: Congestion Reduction/Air Quality

Total Peak Hour Delay Per Vehicle Without The Project (Seconds/Vehicle)	Total Peak Hour Delay Per Vehicle With The Project (Seconds/Vehicle)	Total Peak Hour Delay Per Vehicle Reduced by Project (Seconds/Vehicle)	Volume without the Project (Vehicles per hour)	Volume with the Project (Vehicles Per Hour):	Total Peak Hour Delay Reduced by the Project:	Total Peak Hour Delay Reduced by the Project:	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable.	Synchro or HCM Reports
15.0	15.0	0	1585	1495	0	0	Main St and 20th Ave	158938480 6757_Cty Rd J Traffic Analysis.pdf
14.0	15.0	-1	1480	1405	-1480	-1405	Main St and West Ramps	158938486 1480_Cty Rd J Traffic Analysis.pdf

0	0	0	1655	1650	0	0	Main St and SB On Ramp	158938515 7234_Cty Rd J Traffic Analysis.pdf
11.0	10.0	1.0	2470	2520	2470.0	2520.0	Main St and East Ramps	158938527 7922_Cty Rd J Traffic Analysis.pdf
20.0	17.0	3.0	2520	2500	7560.0	7500.0	Main St and Otter Lake Rd	158938533 1688_Cty Rd J Traffic Analysis.pdf
85.0	10.0	75.0	1703	1830	127725.0	137250.0	CR J and Centerville Rd	158938539 2066_Cty Rd J Traffic Analysis.pdf
3.0	13.0	-10	1410	1635	-14100	-16350	CR J and West Ramps	158938556 5783_Cty Rd J Traffic Analysis.pdf
36.0	32.0	4.0	1215	1573	4860.0	6292.0	CR J and East Ramps	158938561 0983_Cty Rd J Traffic Analysis.pdf
13.0	0	13.0	957	0	12441.0	0	CR J and Otter Lake Road	158938566 5531_Cty Rd J Traffic Analysis.pdf
135807								

Vehicle Delay Reduced

Total Peak Hour Delay Reduced	139476.0
Total Peak Hour Delay Reduced	135807.0

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

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
25.59	21.32	4.27
26	21	4

Total

Total Emissions Reduced: 4.27

Upload Synchro Report 1589386150403_Cty Rd J Traffic Analysis.pdf

Please upload attachment in PDF form. (Save Form, then click 'Edit' in top right to upload file.)

Measure B: Roadway projects that are constructing new roadway segments, but do not include railroad grade-separation elements (for Roadway Expansion applications only):

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
0	0	0

Total Parallel Roadway

Emissions Reduced on Parallel Roadways 0

Upload Synchro Report

Please upload attachment in PDF form. (Save Form, then click 'Edit' in top right to upload file.)

New Roadway Portion:

Cruise speed in miles per hour with the project: 0

Vehicle miles traveled with the project: 0

Total delay in hours with the project: 0

Total stops in vehicles per hour with the project: 0

Fuel consumption in gallons: 0

Total (CO, NOX, and VOC) Peak Hour Emissions Reduced or Produced on New Roadway (Kilograms): 0

EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)

Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms): 0.0

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

Cruise speed in miles per hour without the project:	0
Vehicle miles traveled without the project:	0
Total delay in hours without the project:	0
Total stops in vehicles per hour without the project:	0
Cruise speed in miles per hour with the project:	0
Vehicle miles traveled with the project:	0
Total delay in hours with the project:	0
Total stops in vehicles per hour with the project:	0
Fuel consumption in gallons (F1)	0
Fuel consumption in gallons (F2)	0
Fuel consumption in gallons (F3)	0
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	0

EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)

Measure A: Benefit of Crash Reduction

Crash Modification Factor Used:

Convert side street stop to Roundabout, convert stop controlled intersection to roundabout, and crash reductions based on volume reductions

(Limit 700 Characters; approximately 100 words)

Rationale for Crash Modification Selected:

The CMF used for roundabouts was found to be the most applicable for the intersection improvements. Engineering judgement was used to determine that angle and left-turn crashes will no longer occur at the roundabouts, as those types of movements are eliminated, therefore, a CMF of 0.00 can be used. For the crash reductions based on the volumes at the Anoka CSAH 14 intersections, there are no specific intersection improvements, but as a result of the new on and off ramps at County Road J, there is a reduction in traffic volumes at some of the intersections. Therefore, a crash analysis was completed to determine how many crashes would be reduced with the volume reductions in order to have a similar intersection crash rate in the before/after analysis.

(Limit 1400 Characters; approximately 200 words)

Project Benefit (\$) from B/C Ratio:	\$5,364,577.00
Total Fatal (K) Crashes:	0
Total Serious Injury (A) Crashes:	1
Total Non-Motorized Fatal and Serious Injury Crashes:	0
Total Crashes:	64
Total Fatal (K) Crashes Reduced by Project:	0
Total Serious Injury (A) Crashes Reduced by Project:	0
Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:	0
Total Crashes Reduced by Project:	16
Worksheet Attachment	1589386687153_Complete Crash Analysis.pdf

Please upload attachment in PDF form.

Roadway projects that include railroad grade-separation elements:

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

Measure A: Multimodal Elements and Existing Connections

The proposed I-35E/County Road J interchange project will significantly improve pedestrian and bicycle safety within the project area. The proposed improvements will provide a vital multimodal link between neighborhoods and services for people living east and west of I-35E. The proposed sidewalk on the south side and multiuse trail on the north side will provide a safer route for the Waverly Gardens residents to retail destinations such as the Emagine movie theater, restaurant and services in the commercial development on the south side of County Road J between Centerville Road and the I-35E south ramp. In addition, families and children living on the east side of I-35E will also have a safe pedestrian facility to cross over the freeway to access the retail uses.

Response:

The proposed pedestrian and bicycle improvements for the interchange project east and west of I-35E is one of the pedestrian/bicycle safety strategies identified in MnDOT's Best Practices for Pedestrians/Bicycle Safety and FHWA's Proven Safety Countermeasures documents.

These improvements indicate the importance for Ramsey County to integrate pedestrian walkways into their transportation system to provide safer travel conditions for pedestrians. The sidewalks and trails will complement the interchange project to greatly improve the reliability of the local pedestrian system east and west of I-35E.

(Limit 2,800 characters; approximately 400 words)

Measure A: Multimodal Elements and Existing Connections

The interchange project improves the travel experience and safety for all modes of transportation.

Bicycles and Pedestrians - Currently there are no pedestrian/bicycle facilities along County Road J, at the intersections and on the I-35E bridge crossing. The existing infrastructure only serves vehicular traffic.

I-35E is an "expressway barrier" and County Road J is a Tier 1 barrier crossing as depicted on Figure 3 defined in the 2040 TPP and May 2019 Technical Addendum. The project provides an improved crossing of this barrier between neighborhoods and services for people living east and west of I-35E. The sidewalk (south side) and multiuse trail (north side) provides a safer route for Waverly Gardens residents to retail destinations such as the Emagine movie theater and restaurants to the east. Many older adults face physical and cognitive challenges that make driving difficult. Therefore, pedestrian connections are essential to their continued mobility and independence. Families living east of I-35E will also have a safe pedestrian facility over the freeway to access retail on the other side. These multimodal improvements provide a healthy alternative for the elderly and families to exercise daily.

Response:

The proposed improvement positively affects Centerville Road, a Tier 2 alignment in the RBTN. Trails/sidewalks will be constructed adjacent to the westerly roundabout, extending slightly to the north and south. This starts the Tier 2 alignment on Centerville Road, to be extended in the future.

The project involves Ramsey County, Anoka County, Lino Lakes, North Oaks and White Bear

Township. Ramsey County's 2040 Transportation Plan includes planned east-west trails along County Road J, continuing along Centerville Road and Otter Lake Road. The Plan states, "the County will assist municipalities in the development of facilities that allow the bicycle to become a viable transportation option". The project is a commitment by Ramsey County to complete a key trail segment that can be built upon by other communities. Ramsey County's Bicycle and Pedestrian Plan also includes County Road J as a "Major County-Wide Corridor" west of Centerville Road and a "County-Wide Connector" east of I-35E with planned upgrades.

Transit - Currently the project at I-35E connects with Metro Transit Route 275, an express route from Forest Lake to downtown St. Paul with a park-and-ride to the north at CSAH 14. Although Route 275 does not currently stop along County Road J, the additional ramp access would enable consideration of a future stop as the area continues to develop.

(Limit 2,800 characters; approximately 400 words)

Transit Projects Not Requiring Construction

If the applicant is completing a transit application that is operations only, check the box and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.

Park-and-Ride and other transit construction projects require completion of the Risk Assessment below.

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment - Construction Projects

1)Layout (25 Percent of Points)

Layout should include proposed geometrics and existing and proposed right-of-way boundaries.

Layout approved by the applicant and all impacted jurisdictions (i.e., cities/counties that the project goes through or agencies that maintain the roadway(s)). A PDF of the layout must be attached along with letters from each jurisdiction to receive points.

100%

Attach Layout

Please upload attachment in PDF form.

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

Yes

50%

Attach Layout

1589387359984_Layout County Road J(all roundabouts)(2020).pdf

Please upload attachment in PDF form.

Layout has not been started

0%

Anticipated date or date of completion

2)Review of Section 106 Historic Resources (15 Percent of Points)

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

Yes

100%

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

100%

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

80%

Historic/archeological property impacted; determination of adverse effect anticipated

40%

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

0%

Project is located on an identified historic bridge

3)Right-of-Way (25 Percent of Points)

Right-of-way, permanent or temporary easements either not required or all have been acquired

100%

Right-of-way, permanent or temporary easements required, plat, legal descriptions, or official map complete

50%

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

25%

Right-of-way, permanent or temporary easements required, parcels not all identified Yes

0%

Anticipated date or date of acquisition 10/02/2023

4)Railroad Involvement (15 Percent of Points)

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

100%

Signature Page

Please upload attachment in PDF form.

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

50%

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

0%

Anticipated date or date of executed Agreement

5) Public Involvement (20 percent of points)

Projects that have been through a public process with residents and other interested public entities are more likely than others to be successful. The project applicant must indicate that events and/or targeted outreach (e.g., surveys and other web-based input) were held to help identify the transportation problem, how the potential solution was selected instead of other options, and the public involvement completed to date on the project. List Dates of most recent meetings and outreach specific to this project:

Meeting with general public:

Meeting with partner agencies:

Targeted online/mail outreach:

Number of respondents:

Meetings specific to this project with the general public and partner agencies have been used to help identify the project need.

100%

Targeted outreach to this project with the general public and partner agencies have been used to help identify the project need.

75%

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

50%

At least one meeting specific to this project with key partner agencies has been used to help identify the project need.

50%

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

25%

No outreach has led to the selection of this project.

0%

Although meetings with the general public have not occurred specifically for this project, the proposed I-35E/County Road J interchange project was identified through outreach related to larger planning efforts. These efforts included public involvement activities during the 2040 Comprehensive Plan process for Ramsey County, Anoka County, and Lino Lakes. All three Transportation Plans include the proposed trail and sidewalk improvements in their jurisdictions. In addition, the proposed interchange improvements are also included in the Ramsey County and Lino Lakes plans. In addition, Ramsey County has continued to coordinate and communicate with its project's partners (MnDOT, Anoka County, Lino Lakes, North Oaks and White Bear Township) to gain support for the reconstructed full-access interchange.

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

The County also has their "Advancing Racial and Health Equity in All Decision Making" and "Residents First" policies to advance racial and health equity. The first policy places an emphasis on fair, inclusive and transparent processes and policies where participatory methods will be used to strengthen programs and services so residents most impacted can contribute to improving outcomes. The "Residents First" policy focuses on normalizing racial equity by stating "disproportionately communities of color in Ramsey County, must be intentionally included in authentic community engagement and partnership efforts, from development to implementation, to ensure that all residents have equitable and fair access to services".

The upcoming project process will follow these policies and prioritize meetings with the general public and public agencies to ensure all

communities benefit from its success.

Measure A: Cost Effectiveness

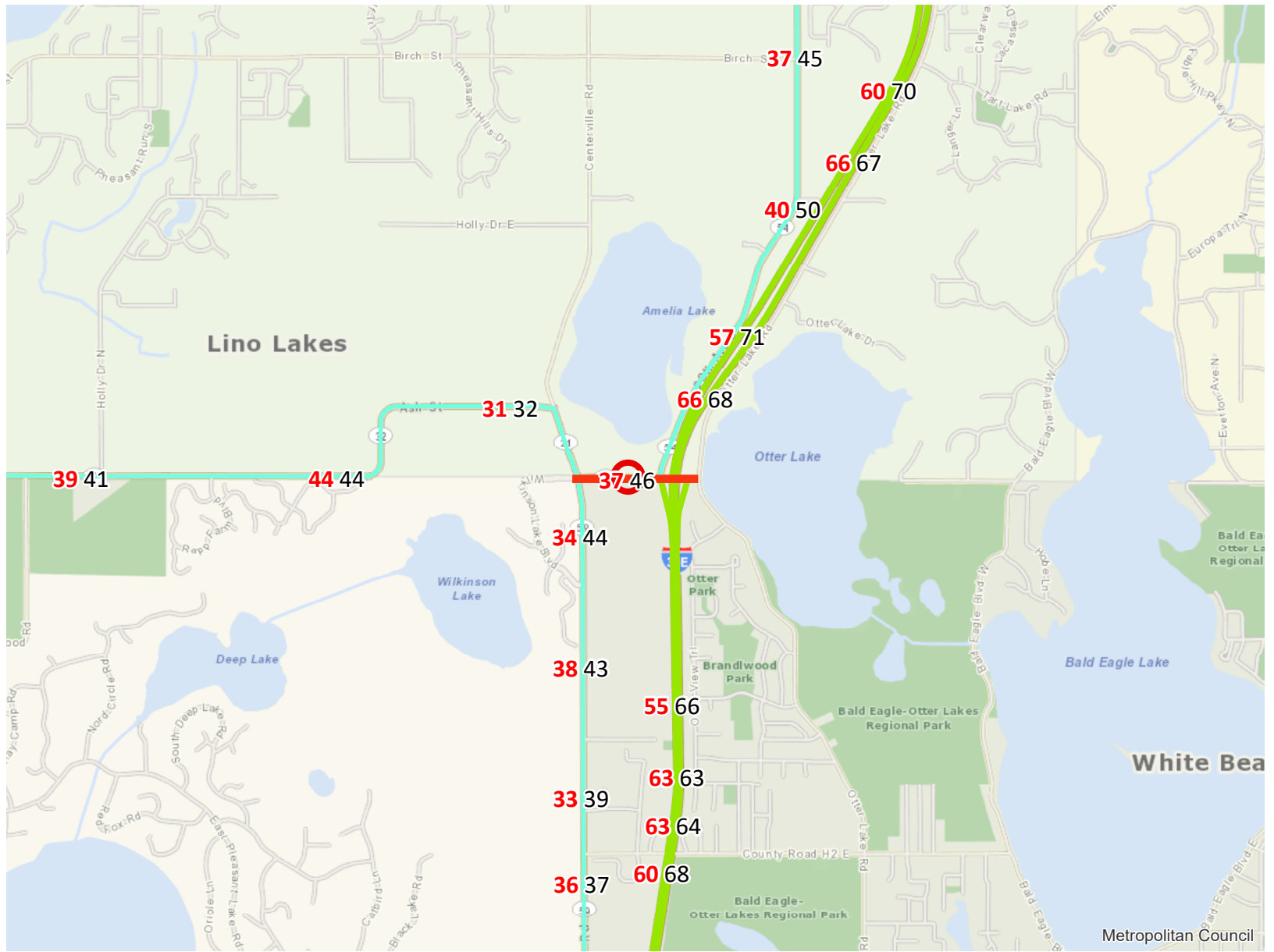
Total Project Cost (entered in Project Cost Form):	\$10,772,763.00
Enter Amount of the Noise Walls:	\$0.00
Total Project Cost subtract the amount of the noise walls:	\$10,772,763.00
Enter amount of any outside, competitive funding:	\$0.00
Attach documentation of award:	
Points Awarded in Previous Criteria	
Cost Effectiveness	\$0.00

Other Attachments

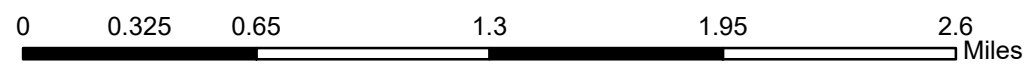
File Name	Description	File Size
1997 RC ADA Transition Plan.pdf	ADA Transition Plan	256 KB
2020 Project Summary.pdf	Project Summary	174 KB
All Support.pdf	Support Letters	2.1 MB
NEW_Connected Ramsey Communities Bicycle Network - 24x36.pdf	County Bicycle Network	4.8 MB
NEW_Ramsey Communities Pedestrian Map_24x36.pdf	County Pedestrian Network	5.2 MB
Project Before Photos_.pdf	Before Photos	771 KB
Ramsey County Advancing Racial Equity in Decision Making.pdf	Racial Equity Policy	103 KB
Ramsey County Residents First.pdf	Residents First Policy	116 KB

Level of Congestion

Roadway Expansion Project: I-35E/County Road J- Centerville Road to Otter Lake Road | Map ID: 1583184007242



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



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Regional Solicitation Grant Applications

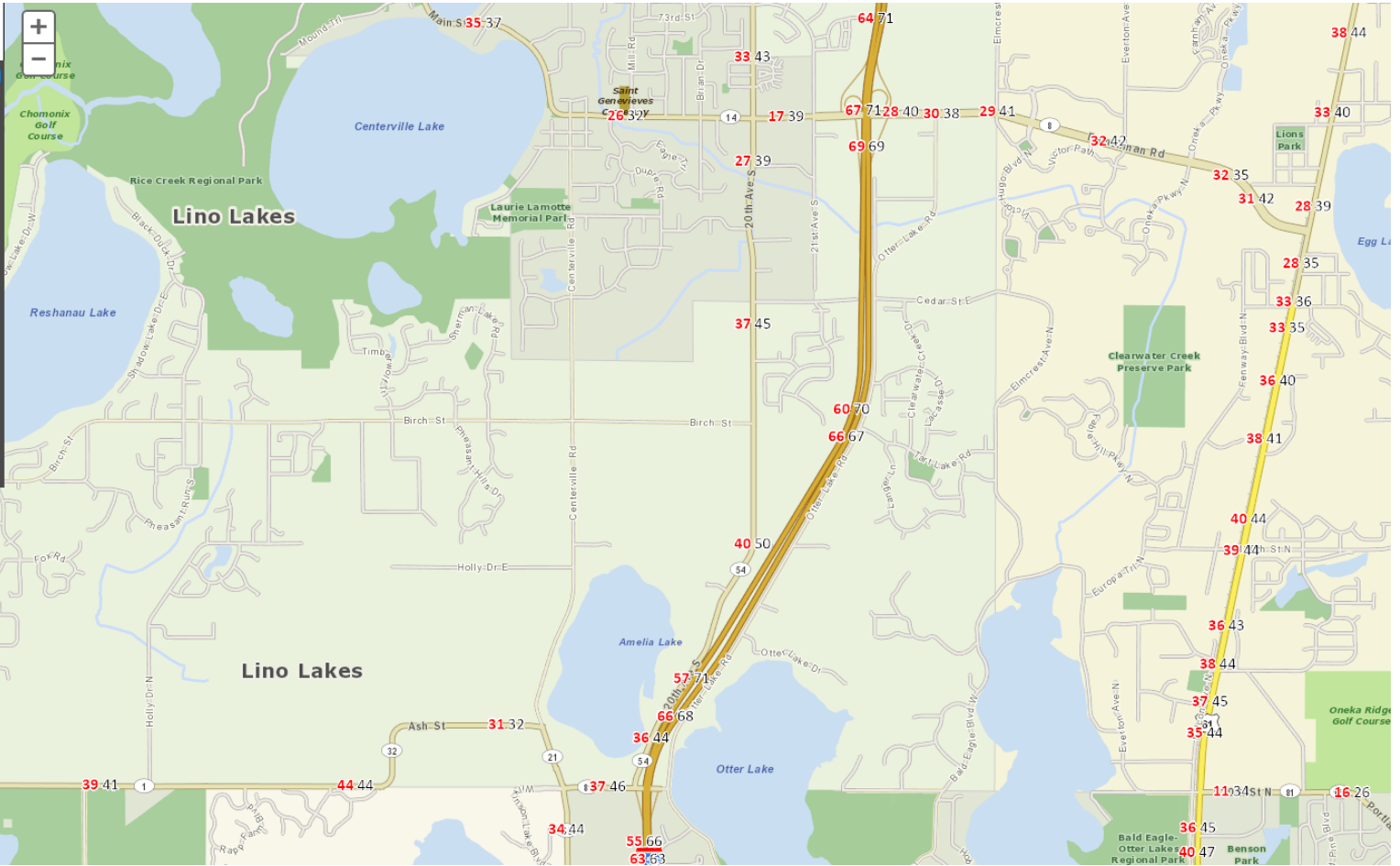
Explore Sketch the Project Print Help

Search Layers Legend

Layers

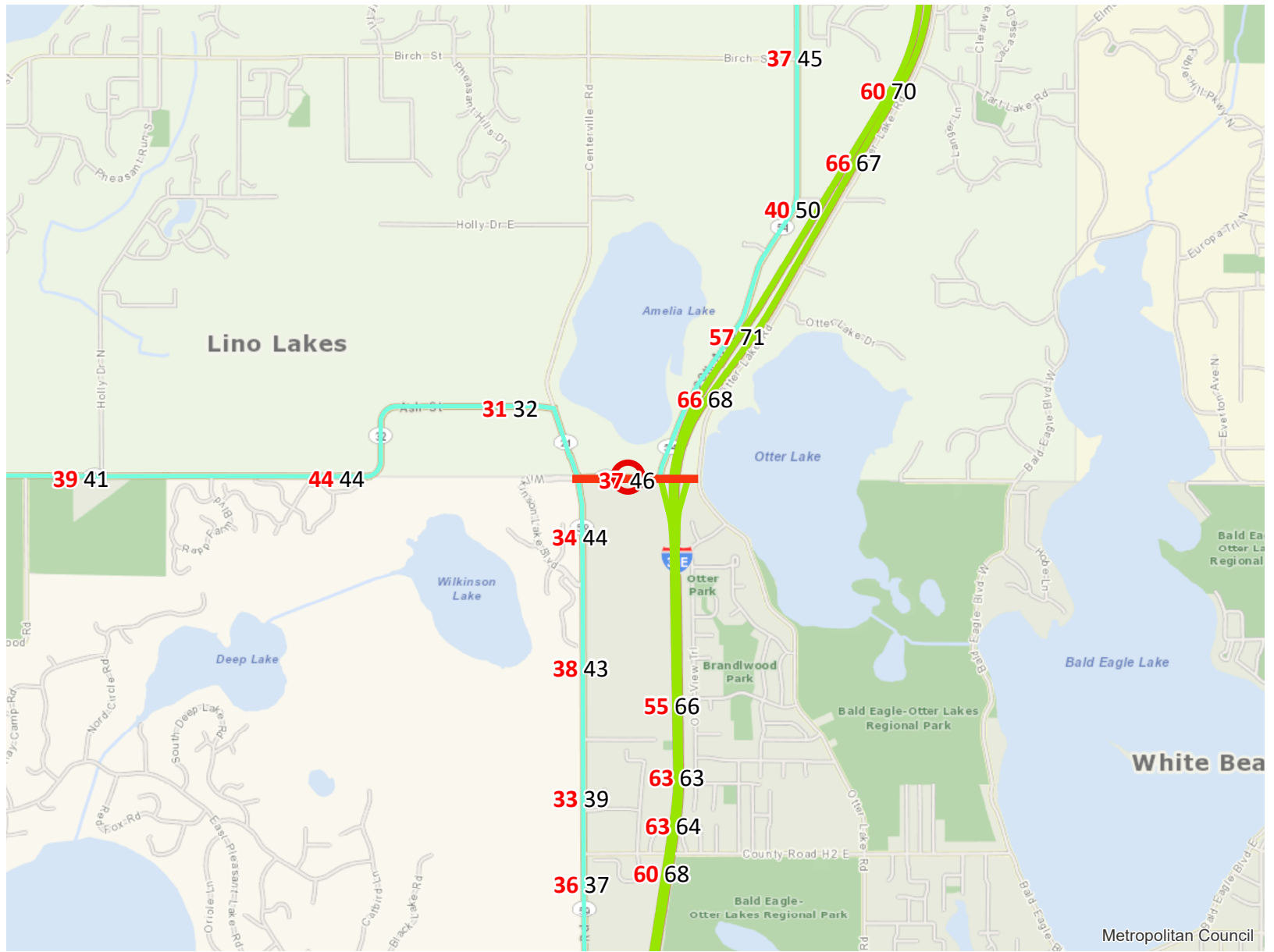
- Levels of Congestion
- Job Concentration Areas
- Areas of Conc Poverty
- Areas of Conc Poverty >50% people of color
- Areas of Conc Poverty Above Regn'l Avg
- Manufacturing/Distribution Centers
- Transitway Stations
- Active Transit Stops
- Planned Transitway Stations
- Post Secondary Education Sites
- Transit Routes
- Transitway Alignments
- Planned Alignments
- Functional Class Roads Planned
- Functional Class Roads
- Streets

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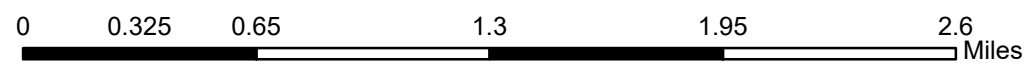


Level of Congestion

Roadway Expansion Project: I-35E/County Road J- Centerville Road to Otter Lake Road | Map ID: 1583184007242



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



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Regional Solicitation Grant Applications

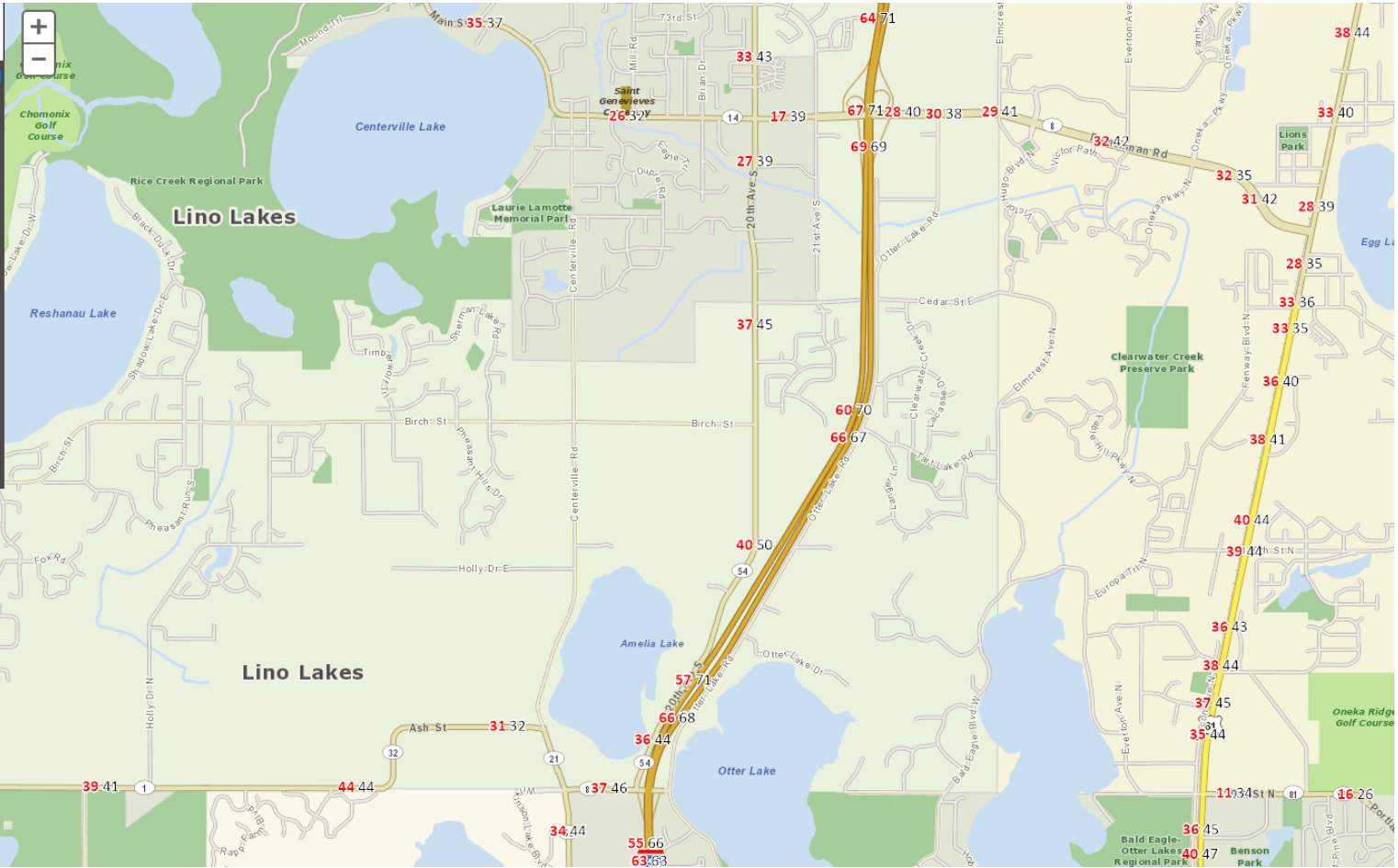
Explore Sketch the Project Print Help

Search Layers Legend

Layers

- Levels of Congestion
- Job Concentration Areas
- Areas of Conc Poverty
- Areas of Conc Poverty >50% people of color
- Areas of Conc Poverty Above Regn'l Avg
- Manufacturing/Distribution Centers
- Transitway Stations
- Active Transit Stops
- Planned Transitway Stations
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- Transitway Alignments
- Planned Alignments
- Functional Class Roads Planned
- Functional Class Roads
- Streets

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Regional Economy

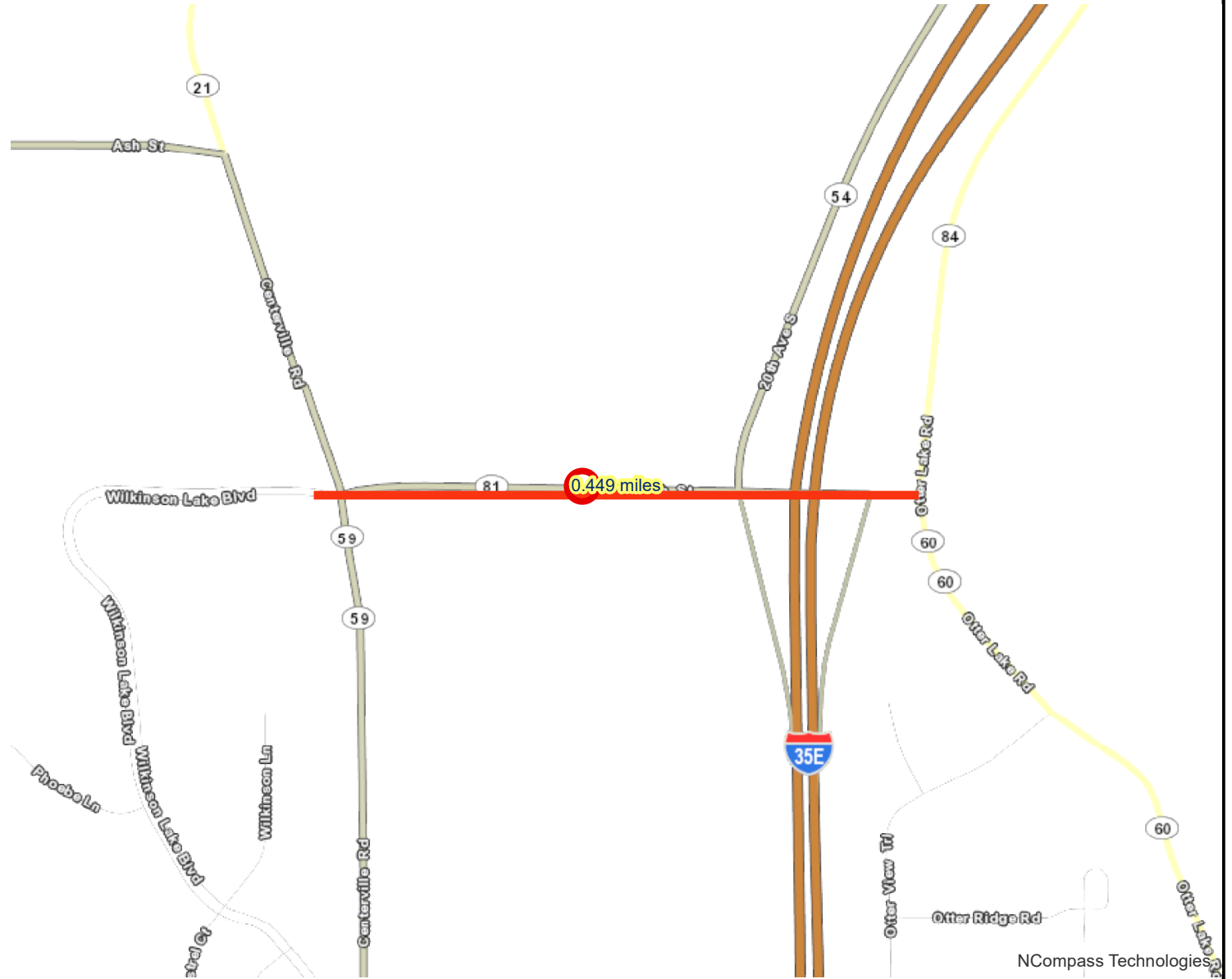
Roadway Expansion Project: I-35E/County Road J- Centerville Road to Otter Lake Road | Map ID: 1583184007242





Results

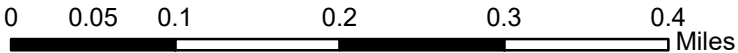
WITHIN ONE MI of project:
Postsecondary Students: 0

Totals by City:

- Lino Lakes**
Population: 4662
Employment: 959
Mfg and Dist Employment: 494
- North Oaks**
Population: 1824
Employment: 399
Mfg and Dist Employment: 6
- White Bear Twp.**
Population: 2218
Employment: 506
Mfg and Dist Employment: 350



-  Project Points
-  Project
-  Manufacturing/Distribution Centers
-  Job Concentration Centers



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NCompass Technologies

Transit Connections

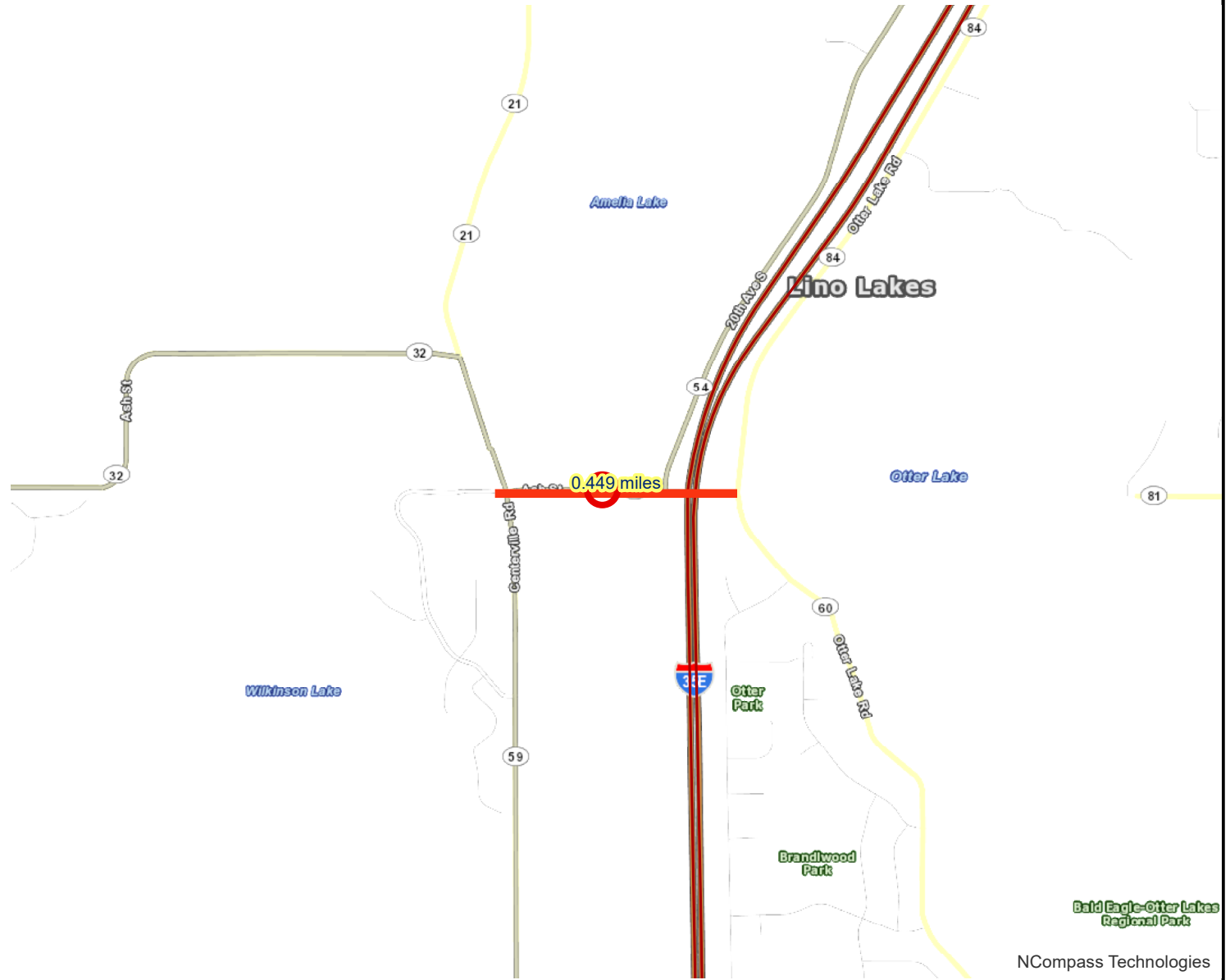
Roadway Expansion Project: I-35E/County Road J- Centerville Road to Otter Lake Road | Map ID: 1583184007242

Results

Transit with a Direct Connection to project:
275

**indicates Planned Alignments*

Transit Market areas: 4



- Project Points
- Active Stop
- Project
- Transit Routes
- Project Area



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NCompass Technologies

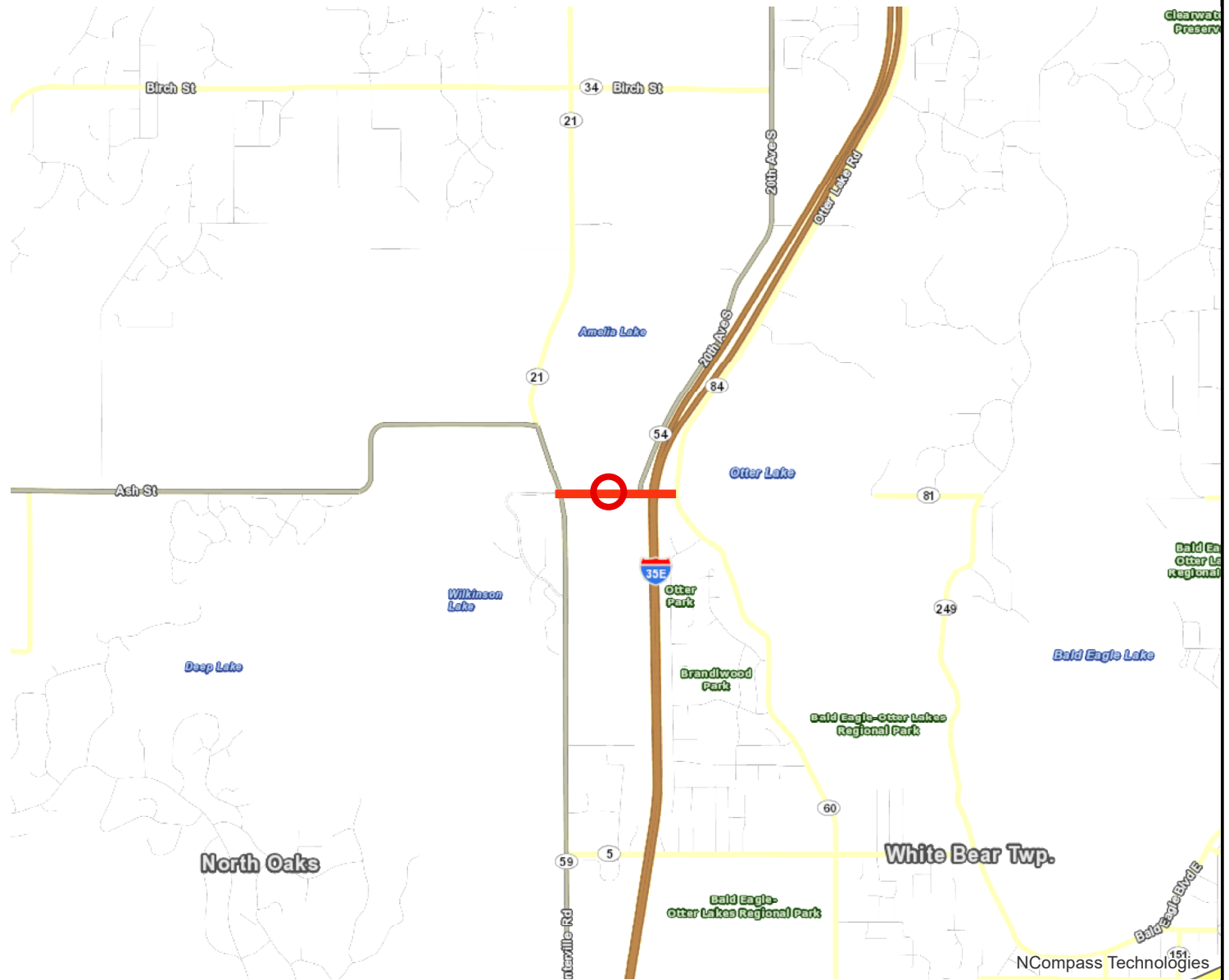
Socio-Economic Conditions




Roadway Expansion Project: I-35E/County Road J- Centerville Road to Otter Lake Road | Map ID: 1583184007242



Results

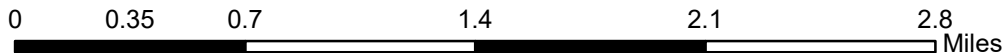
Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:
(0 to 12 Points)

Tracts within half-mile:
40100 40601 50230
50236



-  Points
-  Lines
-  Area of Concentrated Poverty > 50% residents of color

-  Area of Concentrated Poverty
-  Above reg'l avg conc of race/poverty

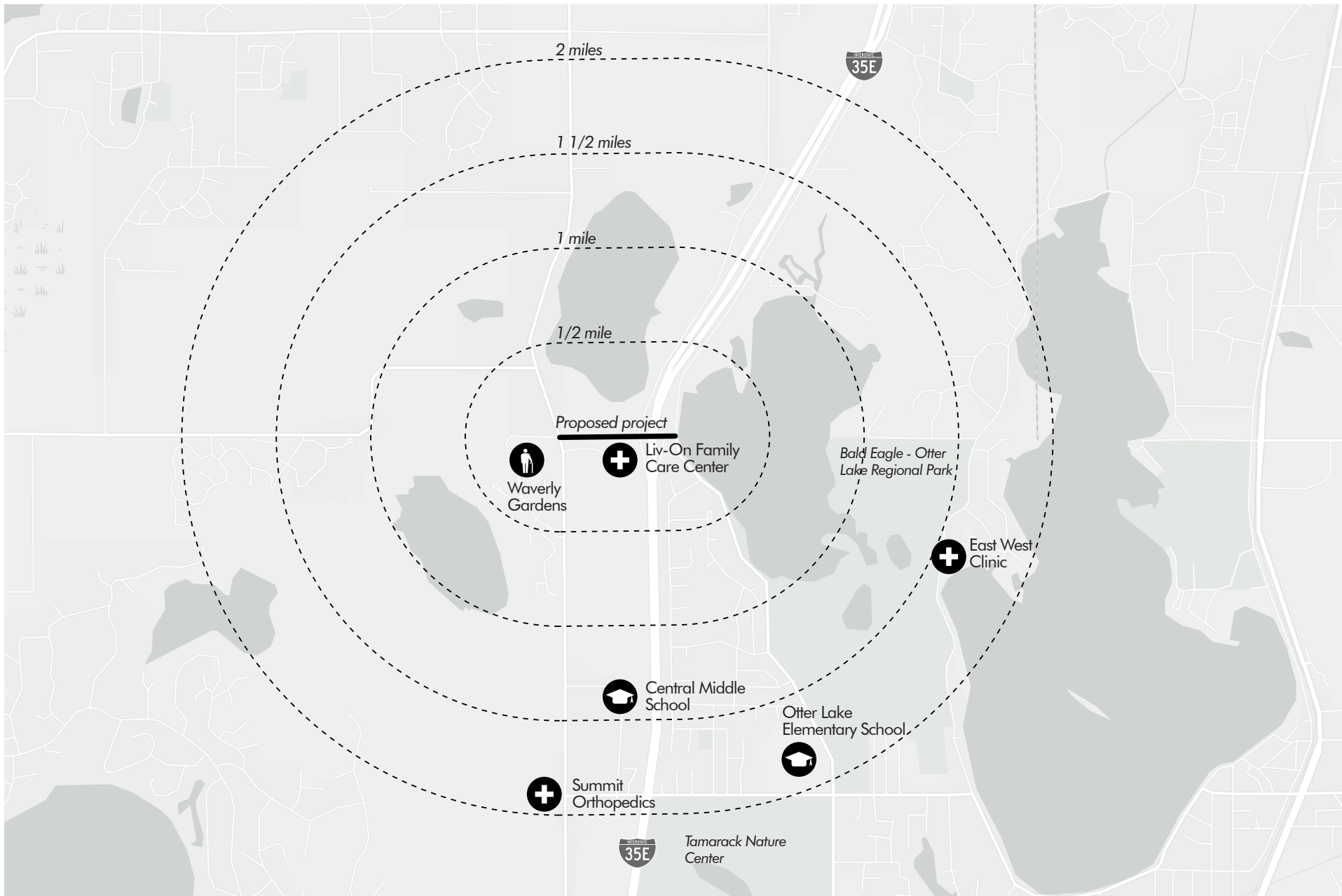


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I-35E/County Road J Interchange
Equity Populations and Destinations

- Public park
- + Medical clinic
- ⌚ School
- 👤 Retirement community

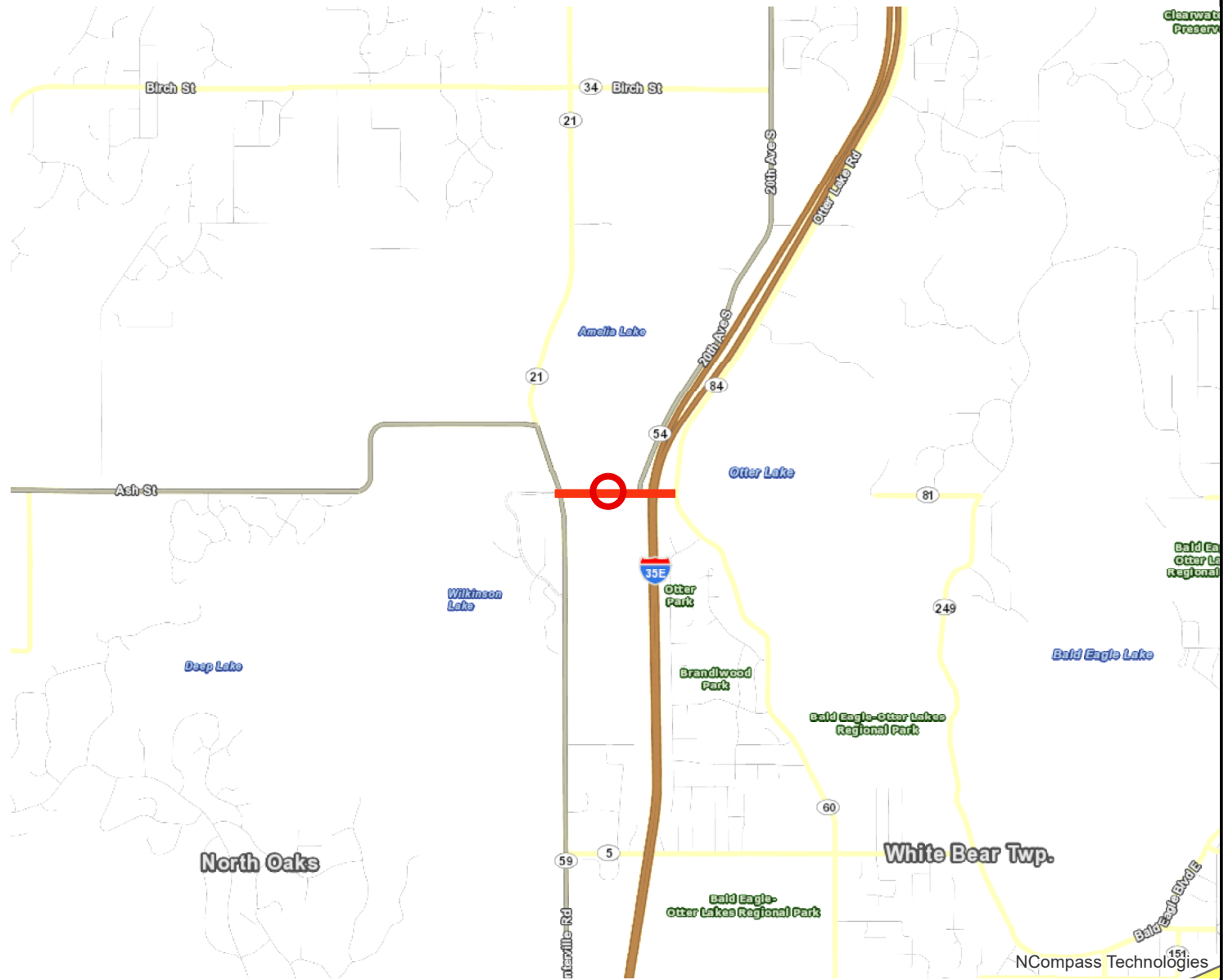
Socio-Economic Conditions




Roadway Expansion Project: I-35E/County Road J- Centerville Road to Otter Lake Road | Map ID: 1583184007242



Results

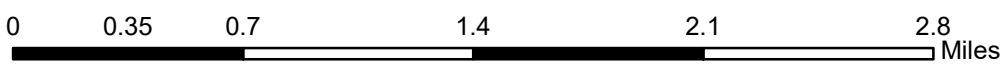
Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:
(0 to 12 Points)

Tracts within half-mile:
40100 40601 50230
50236



-  Points
-  Lines
-  Area of Concentrated Poverty > 50% residents of color

-  Area of Concentrated Poverty
-  Above reg'l avg conc of race/poverty

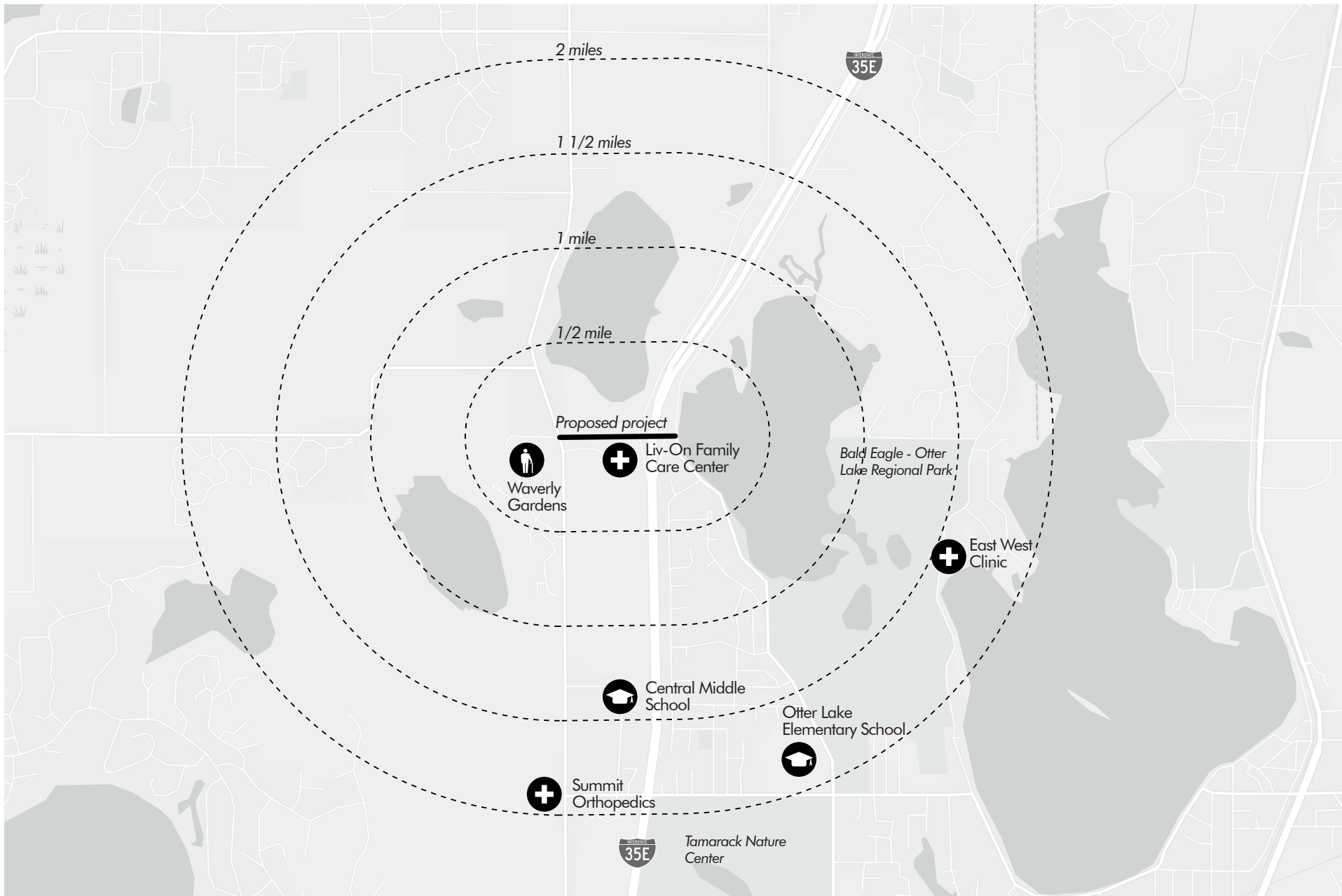


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I-35E/County Road J Interchange
Equity Populations and Destinations

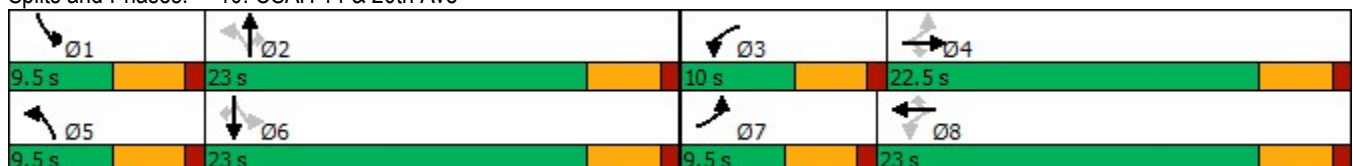
- Public park
- + Medical clinic
- 🏠 School
- 👤 Retirement community

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



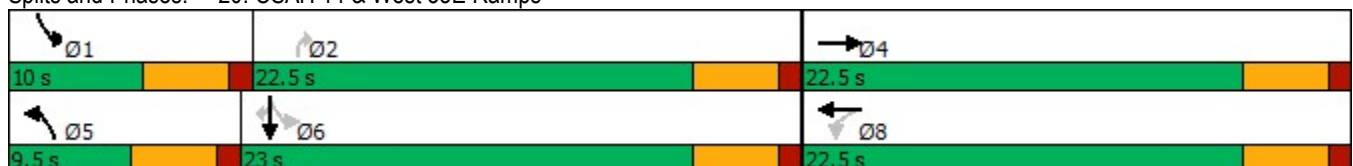


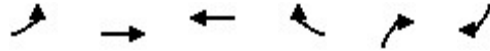
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↗	↖	↑	↗
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



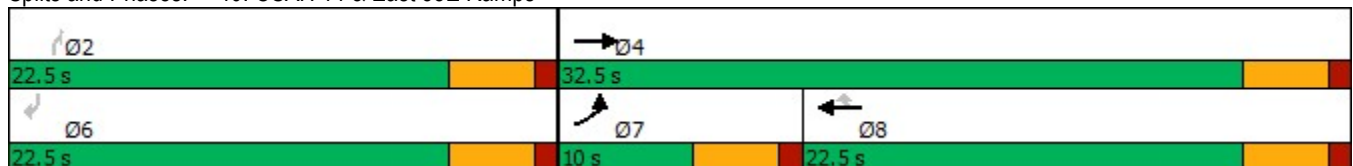


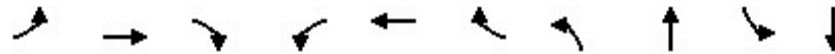
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



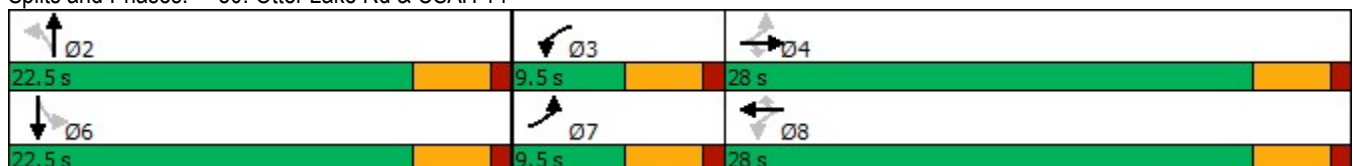


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

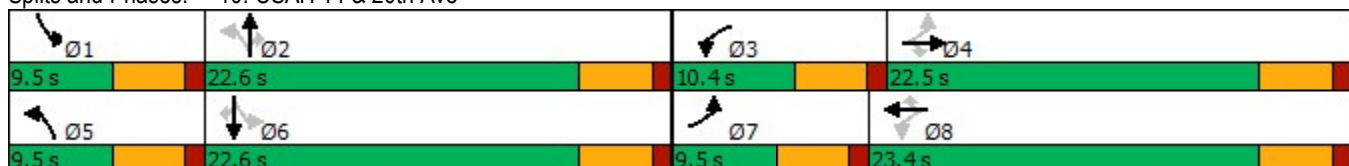


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



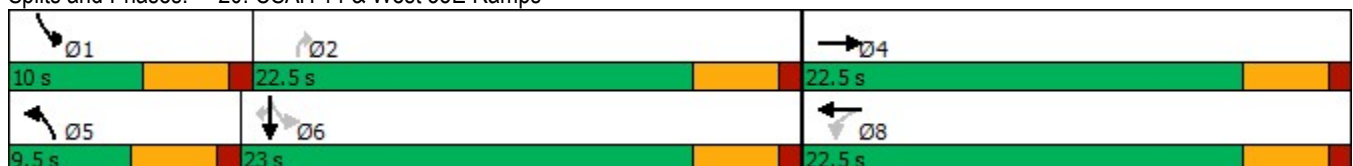


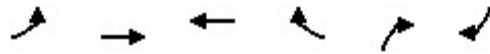
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



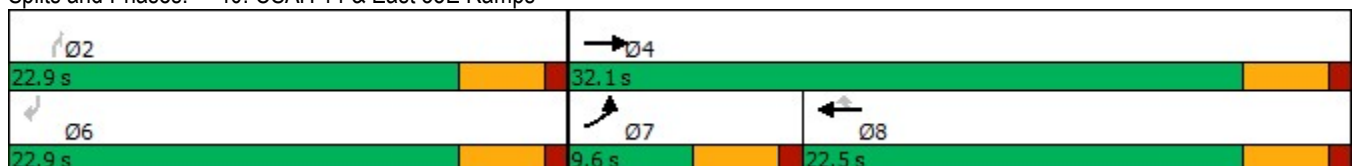


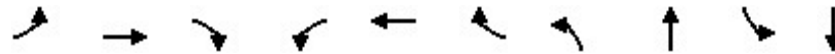
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



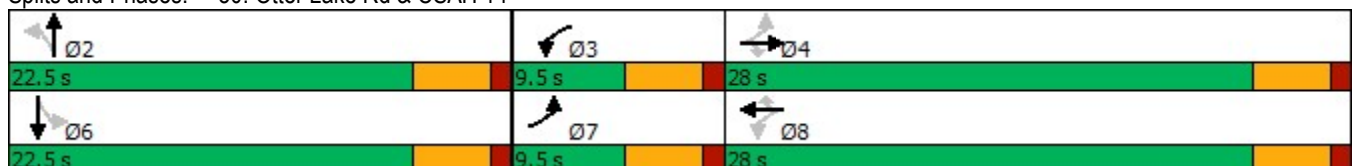


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	1
Conflicting Circle Lanes	1	1	1	1	1	1	1
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

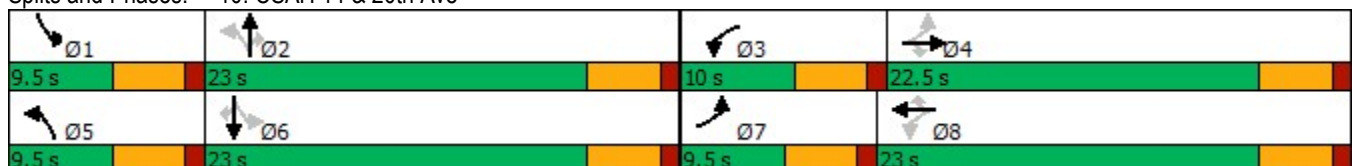
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



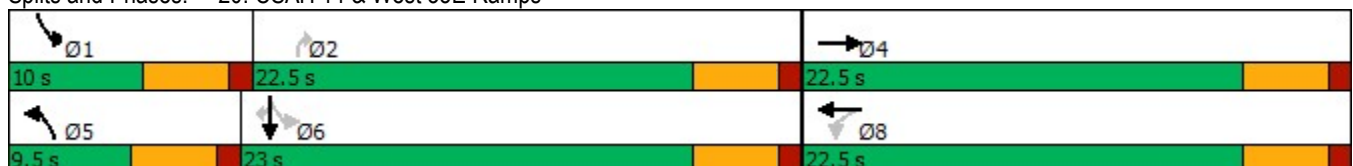


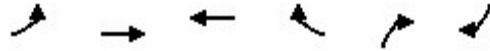
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↗	↖	↑	↗
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



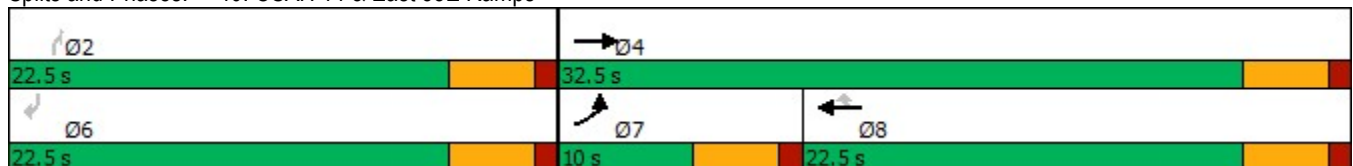


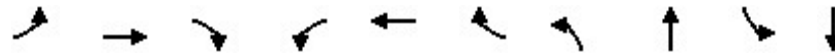
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



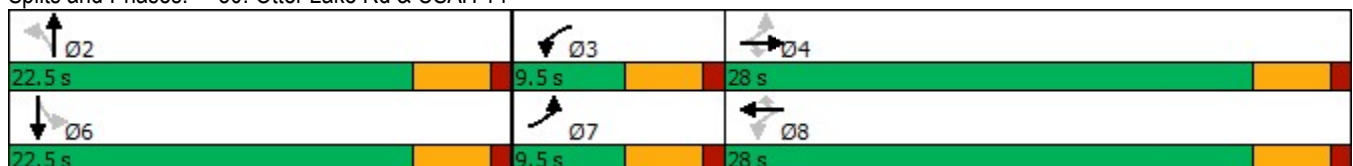


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

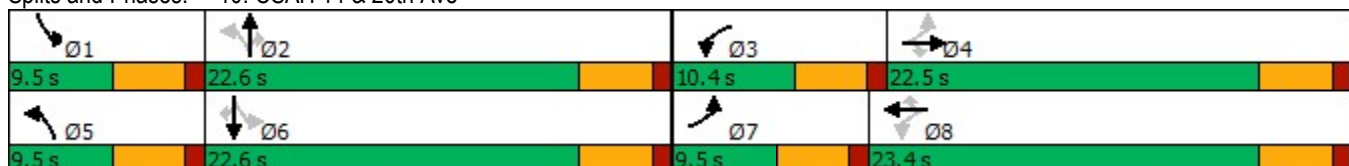


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘	↗	↗	↘
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



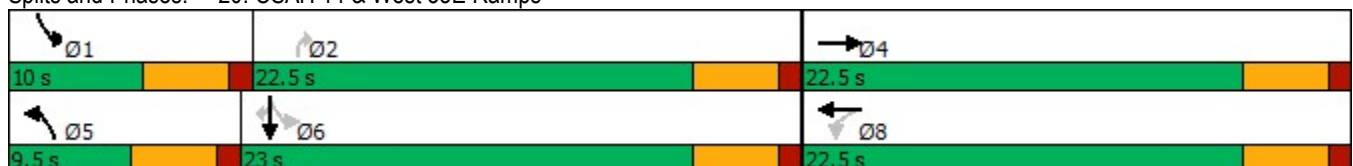


Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



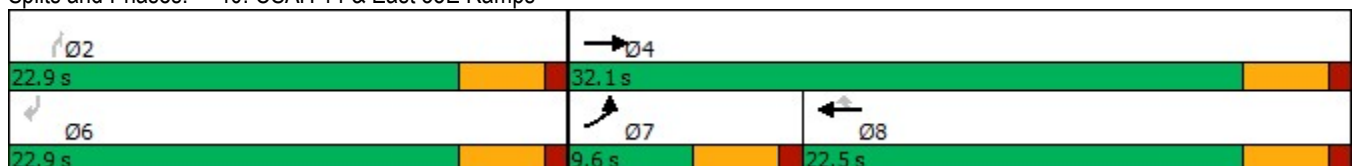


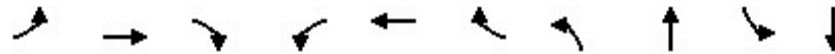
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



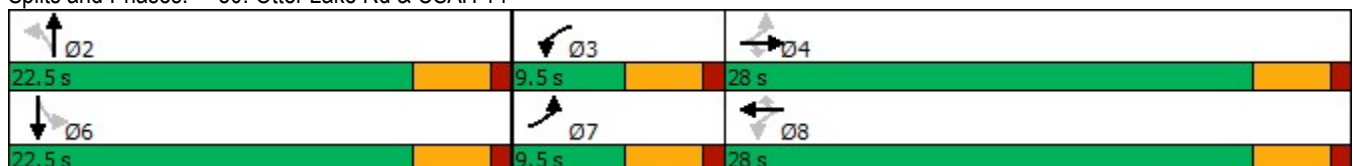


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↶	↶↶	↶	↶	↶↶	↶	↶	↶	↶	↶
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

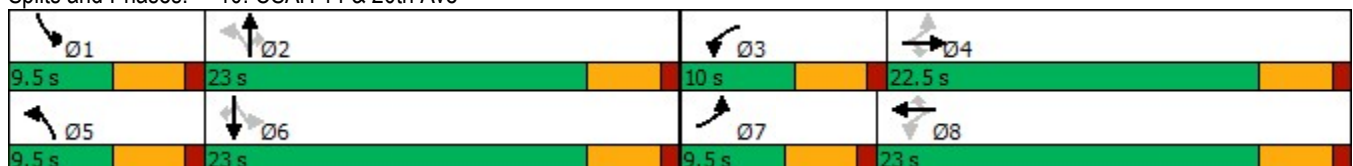
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



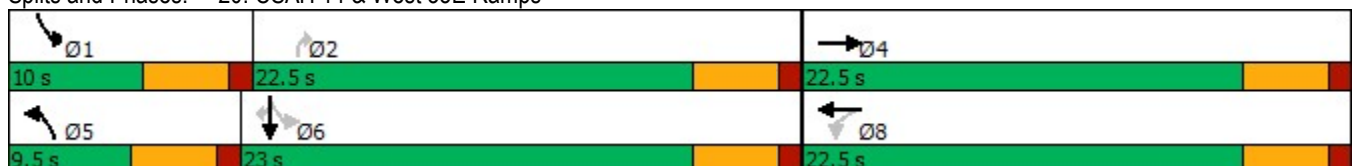


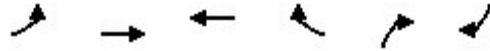
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



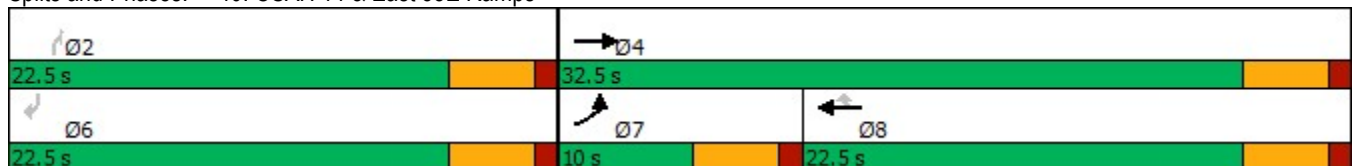


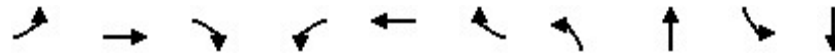
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



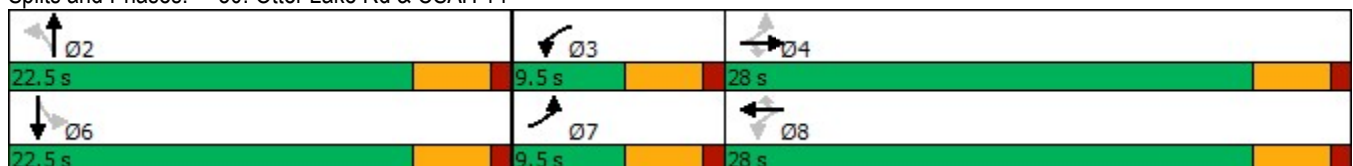


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

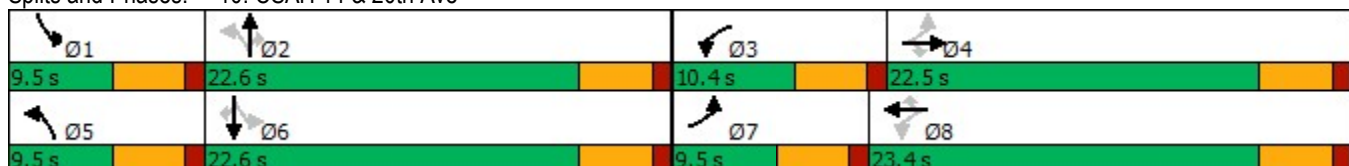


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



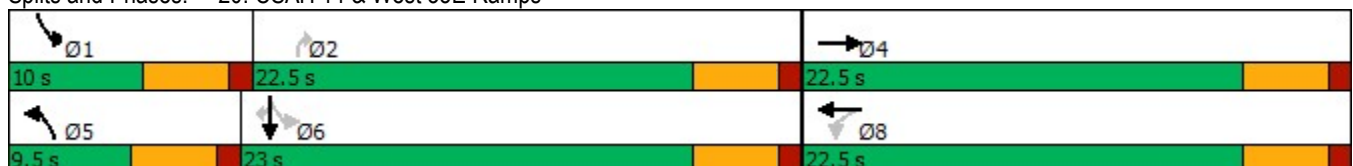


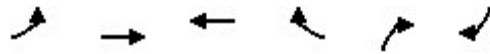
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



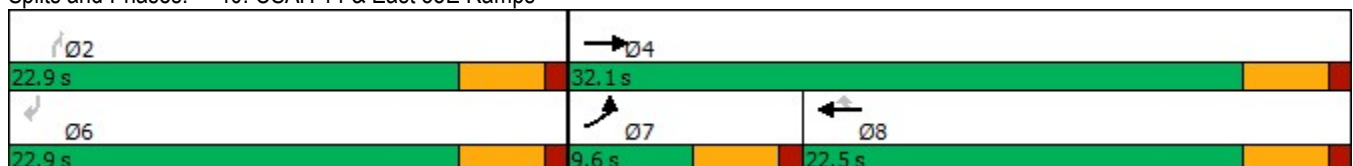


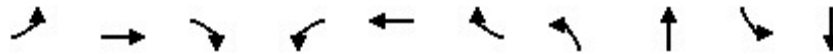
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



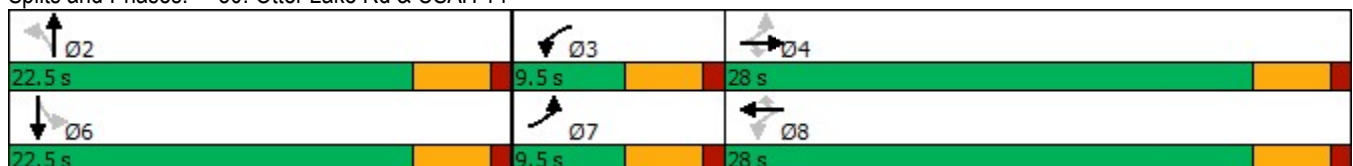


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

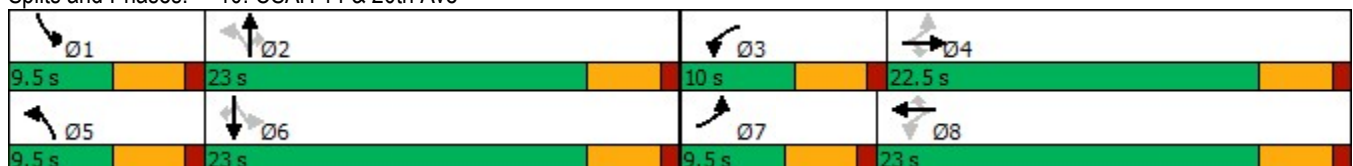
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



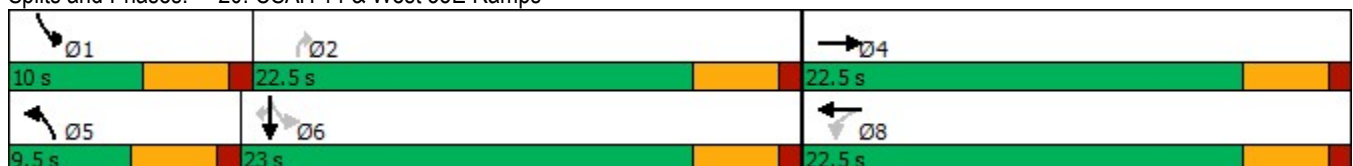


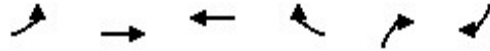
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↗	↖	↑	↗
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



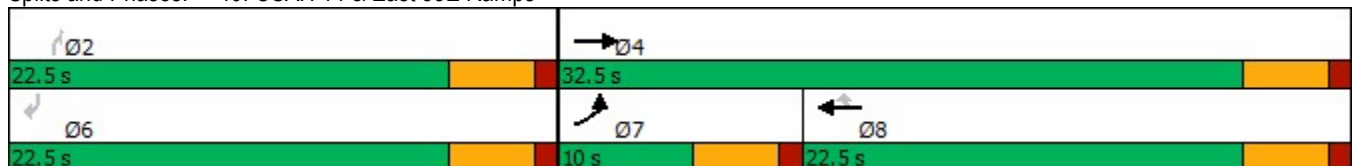


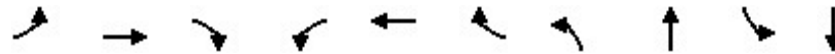
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



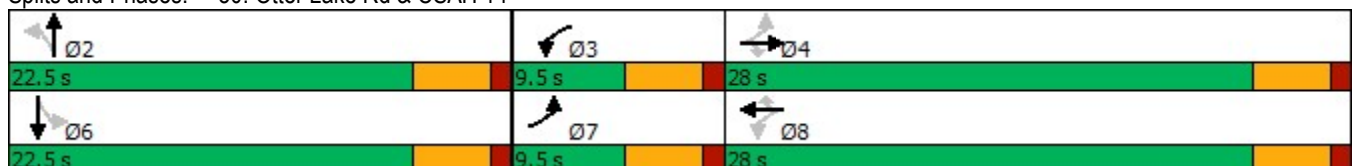


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

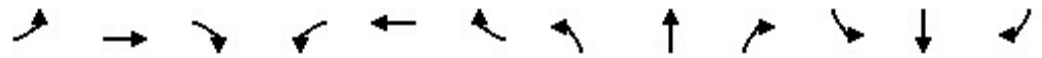
Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

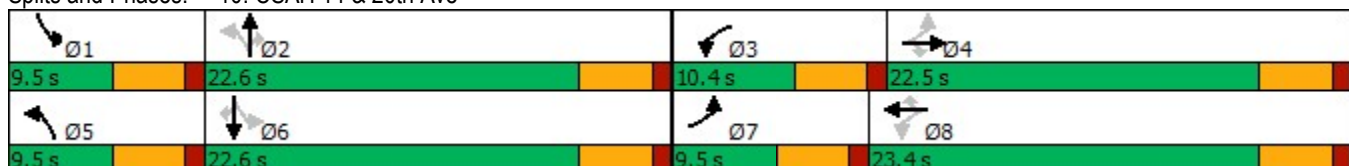


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘	↗	↘	↘
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection Capacity Utilization 37.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 10: CSAH 14 & 20th Ave



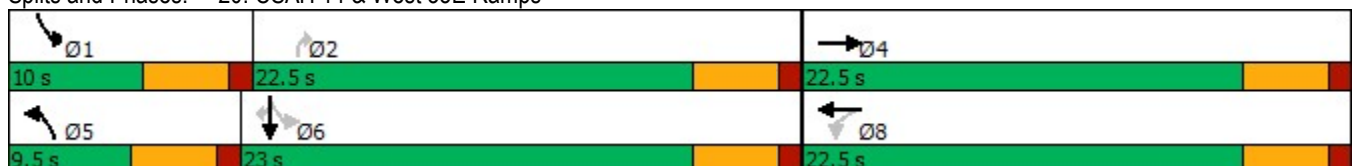


Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



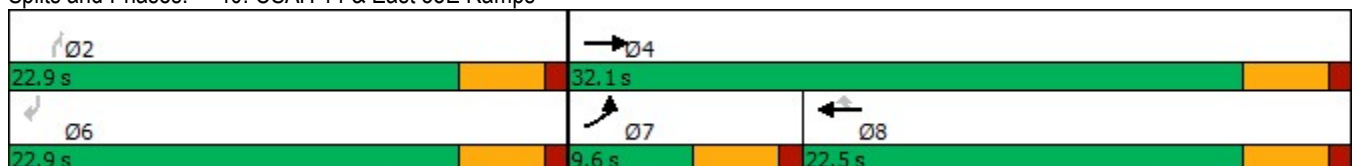


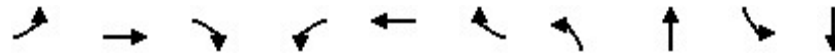
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



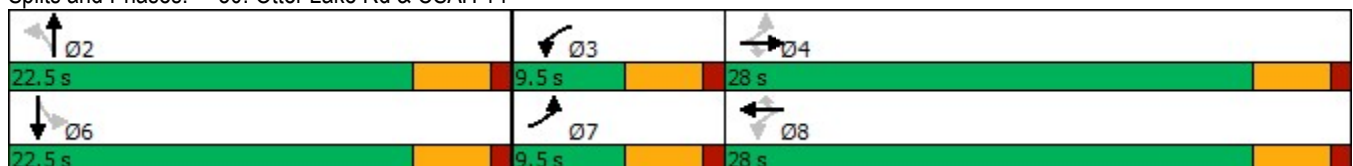


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

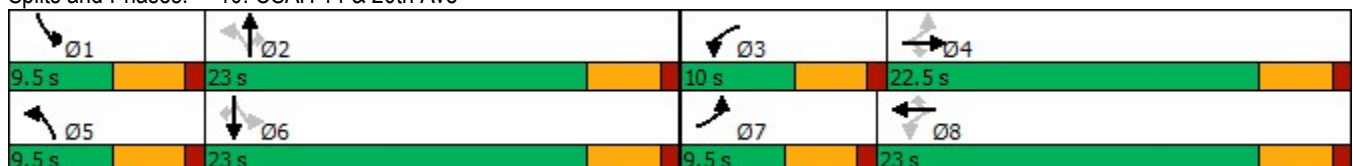
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



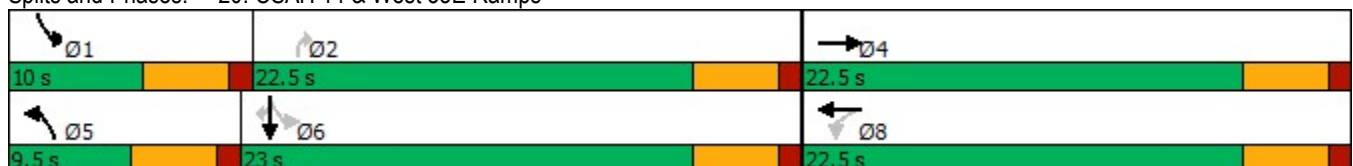


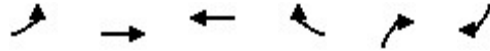
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↗	↖	↑	↗
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



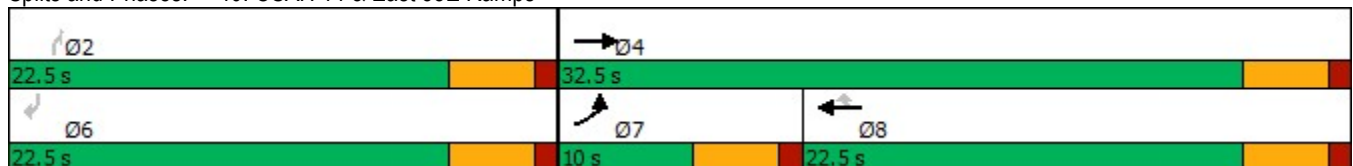


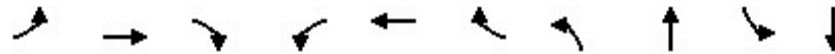
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



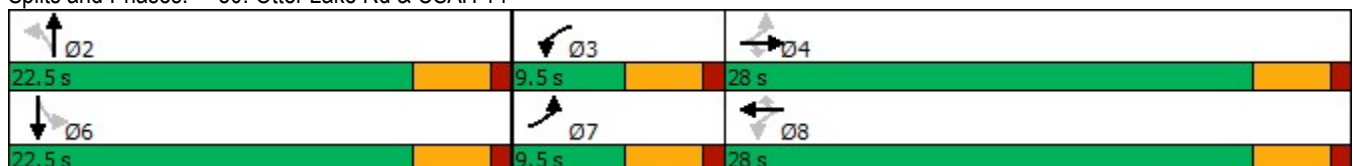


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

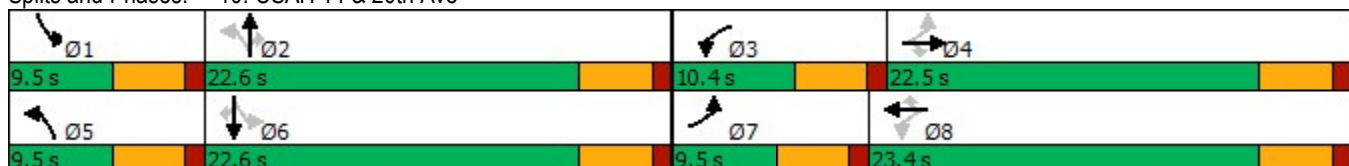


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘	↗	↘	↘
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



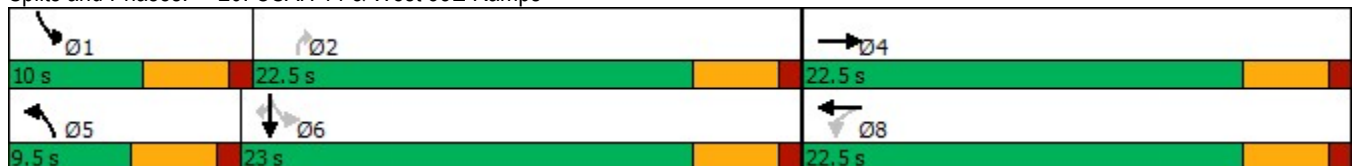


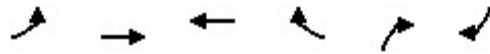
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↗	↖	↑	↗
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



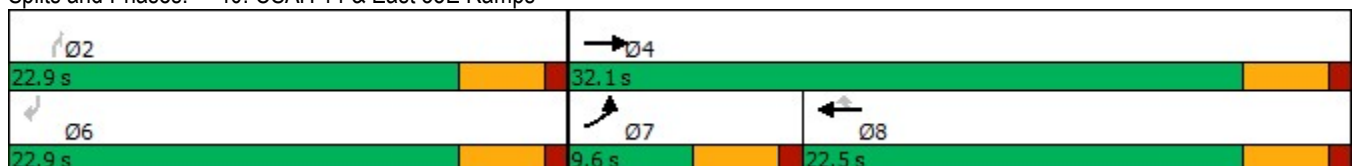


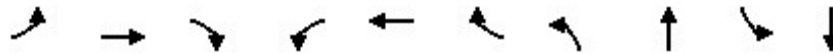
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



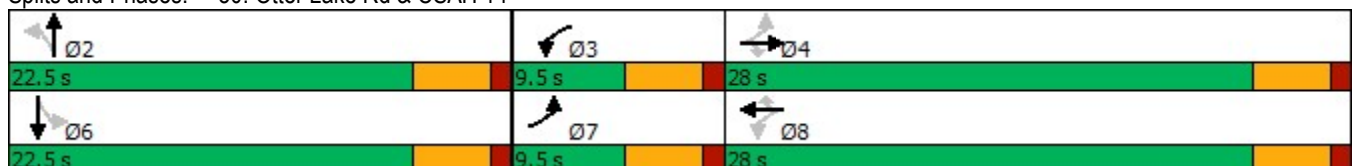


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

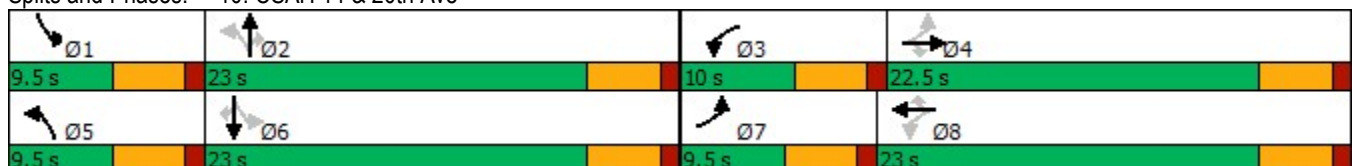
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



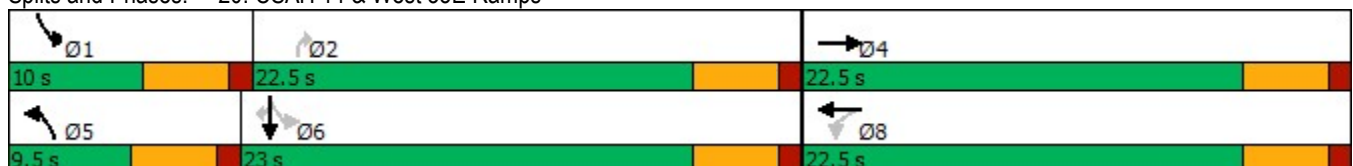


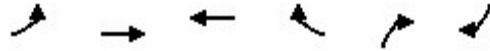
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↗	↖	↑	↗
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



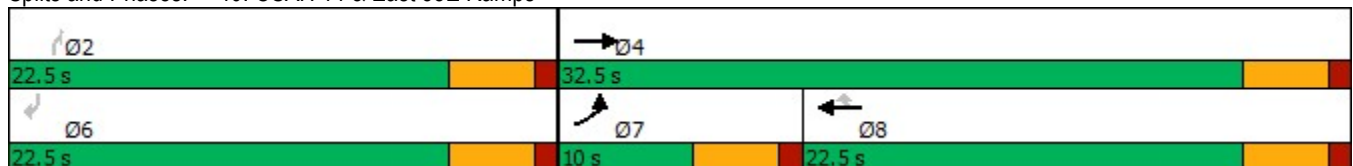


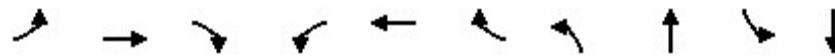
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



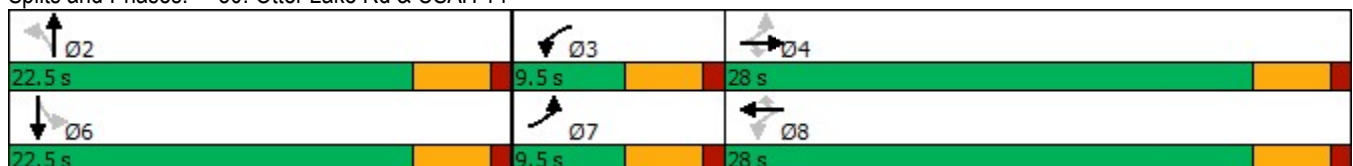


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

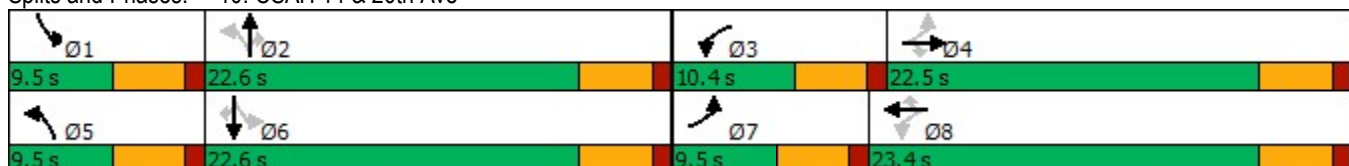


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



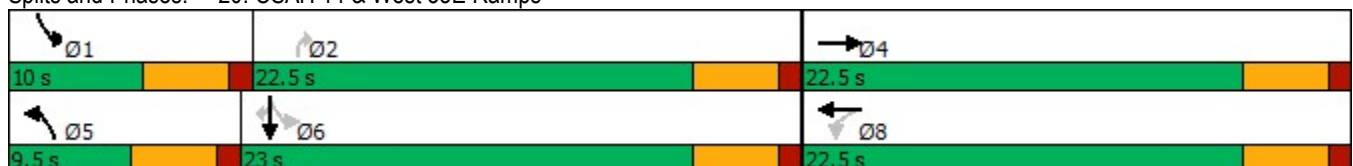


Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



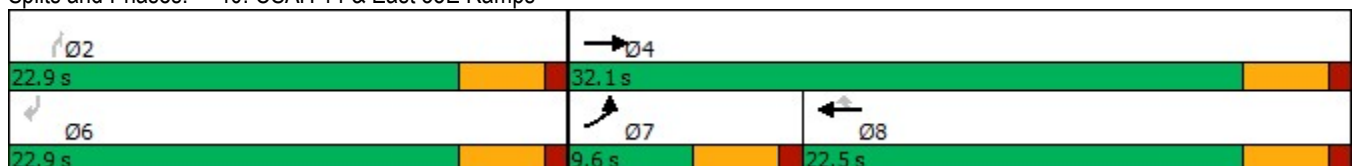


Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



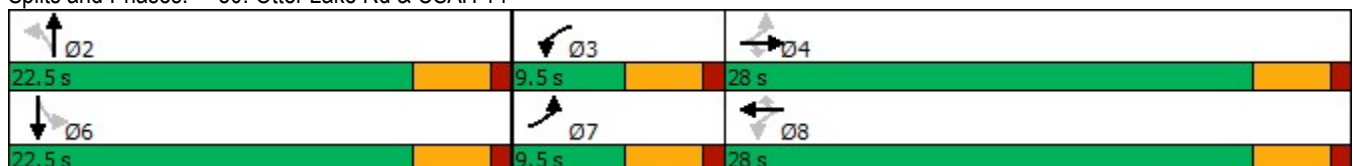


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection LOS: B
 Intersection Capacity Utilization 54.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

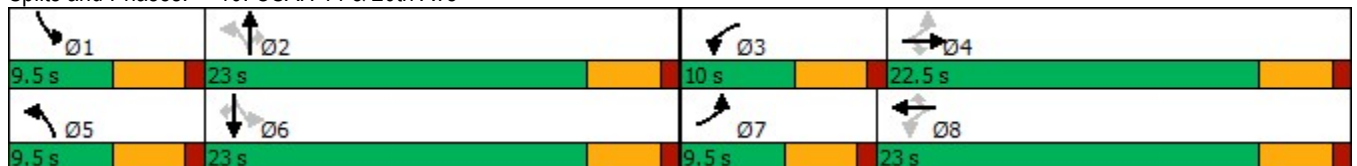
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



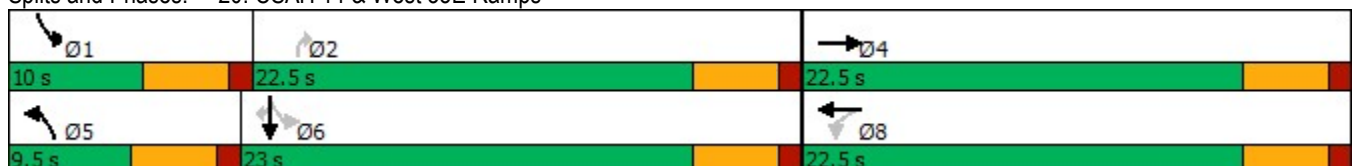


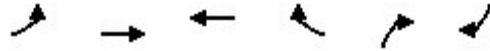
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



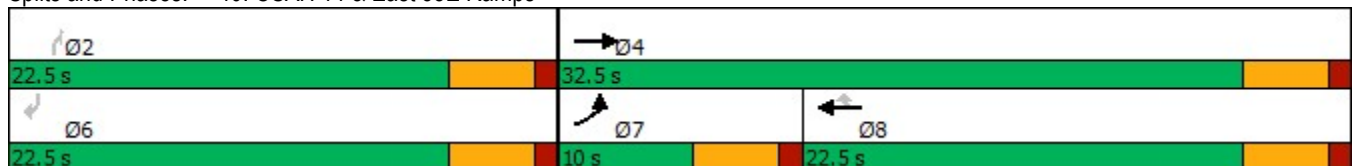


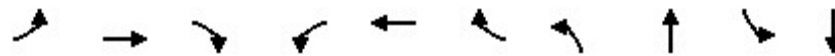
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



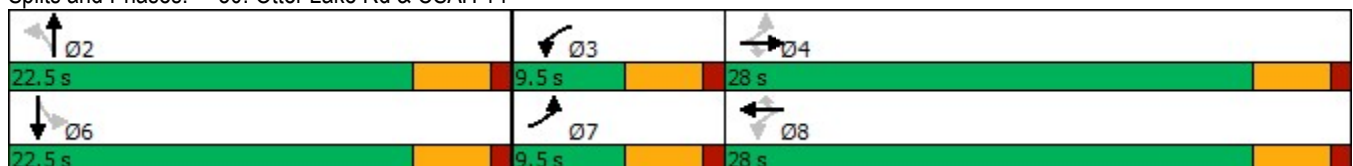


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

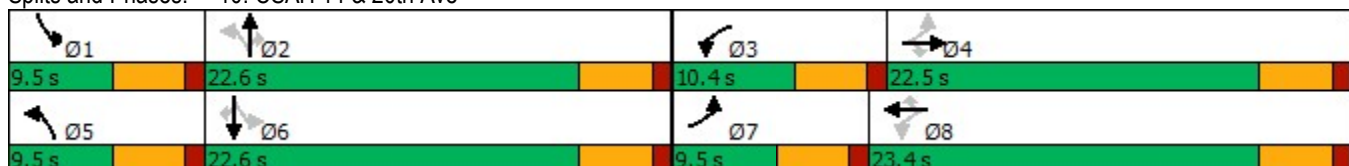


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



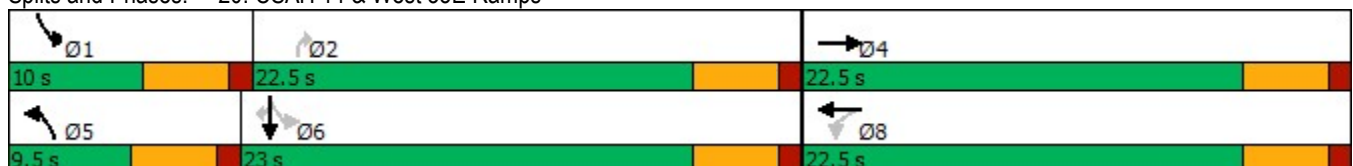


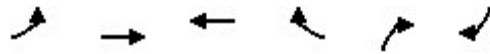
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



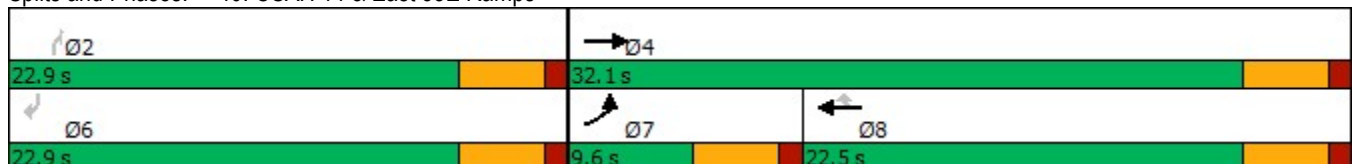


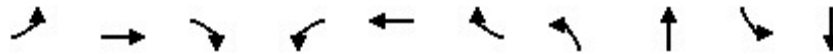
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



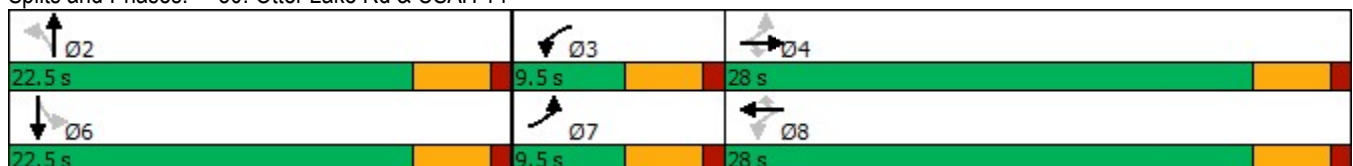


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

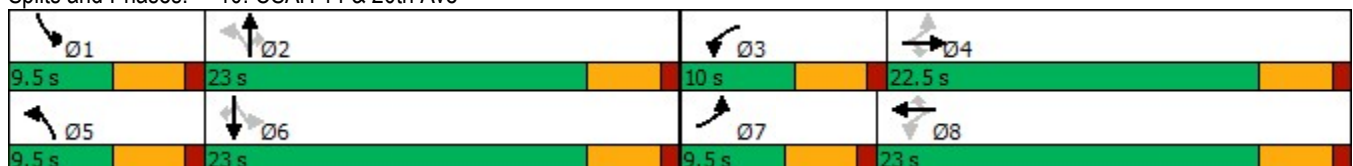
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



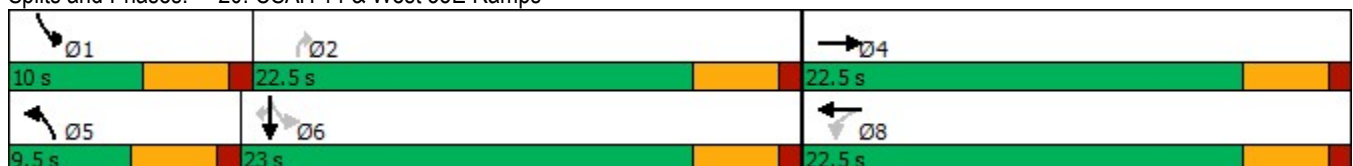


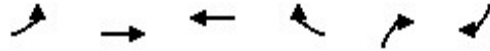
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↘	↑↑	↘	↗	↘	↑	↗
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



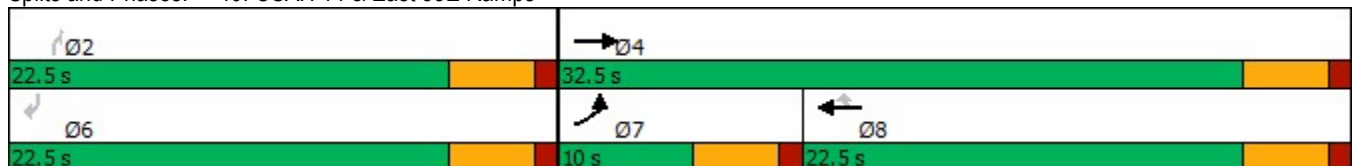


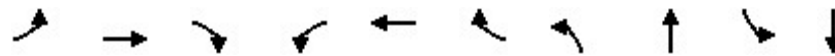
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



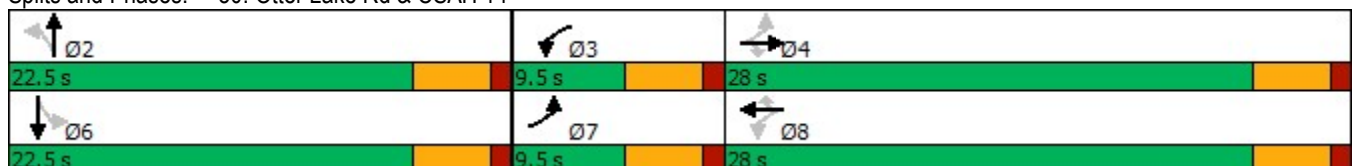


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

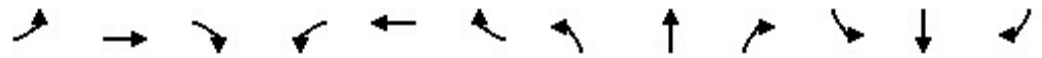
Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

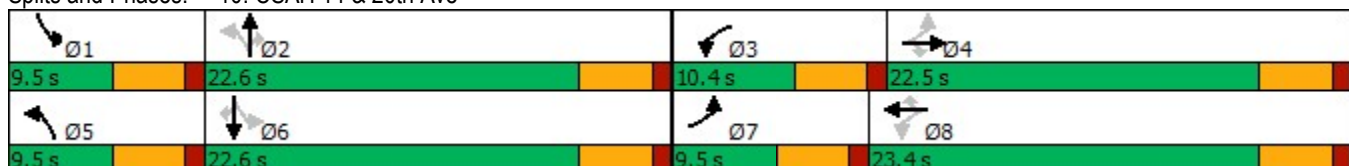


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘	↗	↘	↘
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection Capacity Utilization 37.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 10: CSAH 14 & 20th Ave



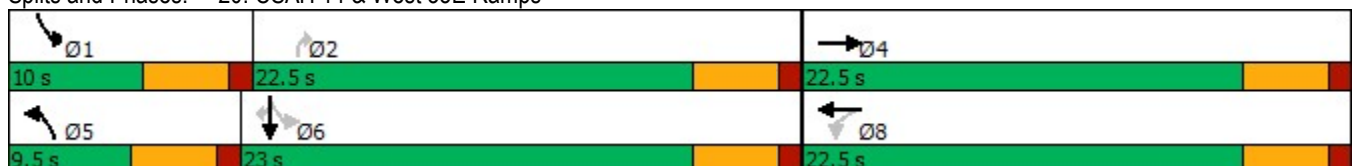


Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



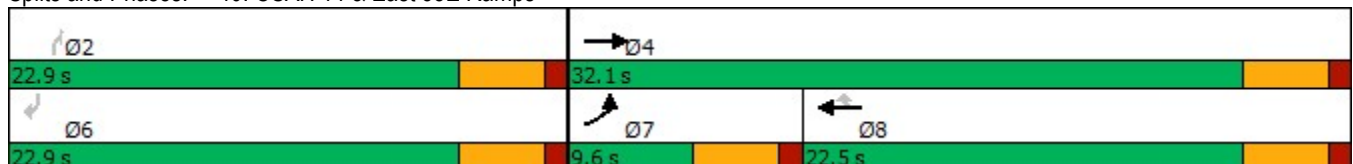


Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



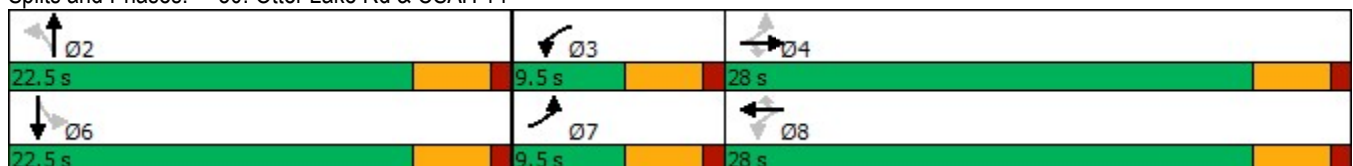


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

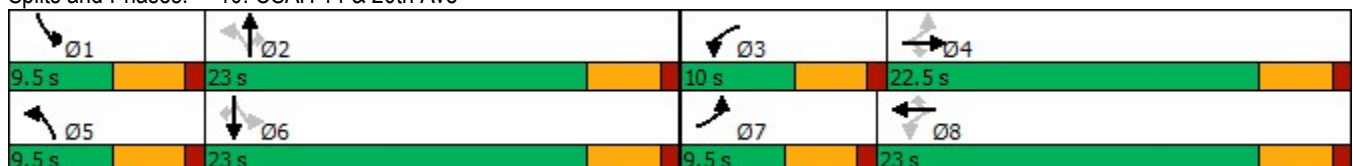
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



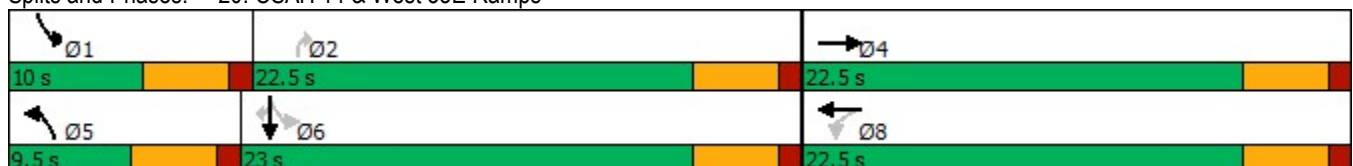


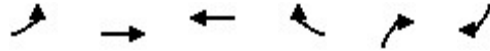
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



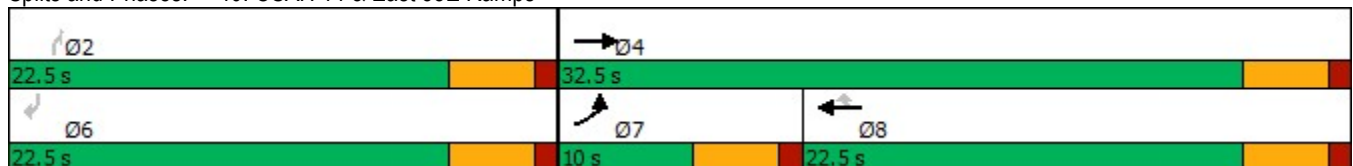


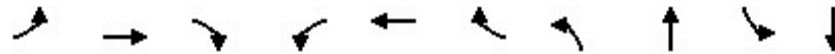
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



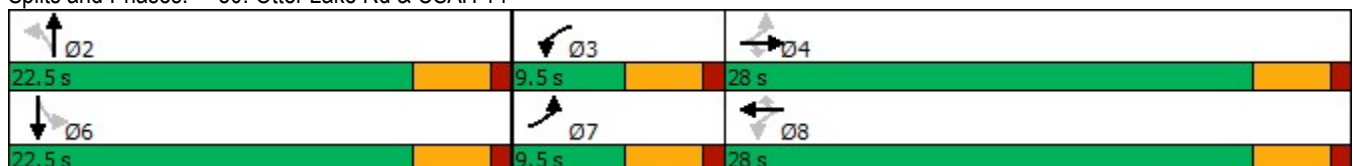


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

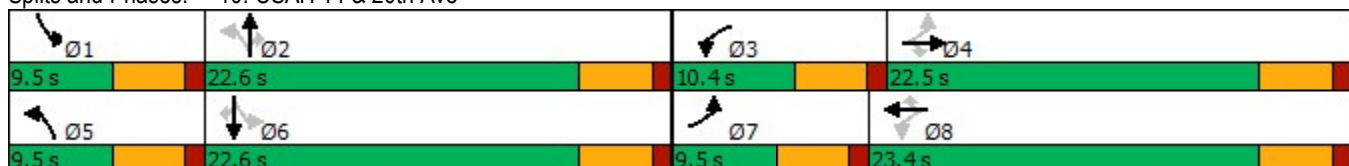


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘	↗	↗	↘
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



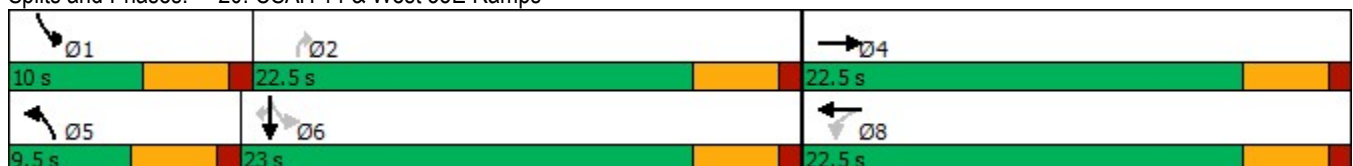


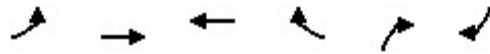
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



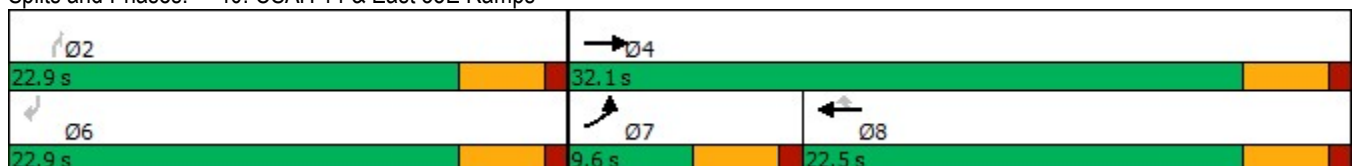


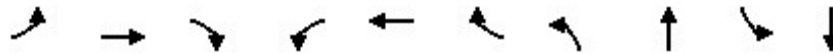
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



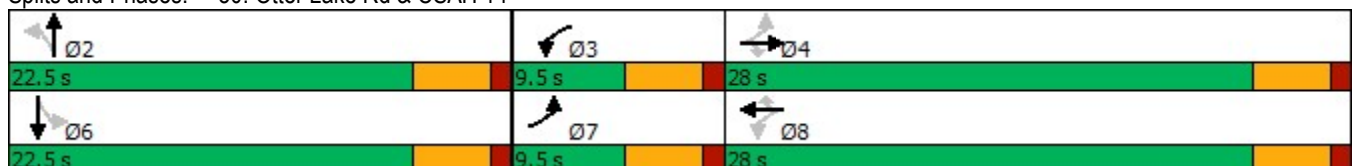


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection LOS: B
 Intersection Capacity Utilization 54.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

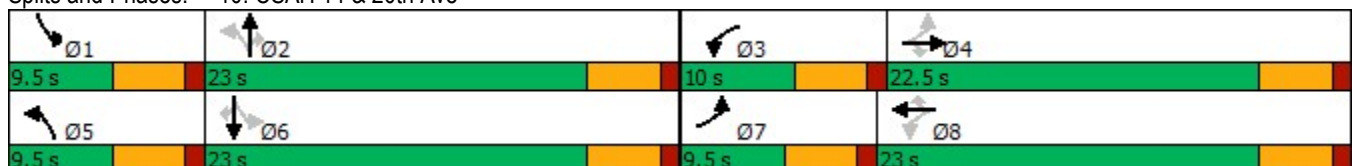
Reduction	4.27
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Future Volume (vph)	35	370	20	140	460	90	55	110	200	60	30	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.0	23.0	23.0	9.5	23.0	23.0	9.5	23.0	23.0
Total Split (%)	14.6%	34.6%	34.6%	15.4%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.4	12.6	12.6	18.8	16.9	16.9	22.1	19.5	19.5	22.1	19.5	19.5
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.31	0.31	0.41	0.36	0.36	0.41	0.36	0.36
v/c Ratio	0.11	0.49	0.04	0.41	0.45	0.16	0.10	0.09	0.31	0.06	0.05	0.02
Control Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	21.1	0.1	15.7	17.7	1.1	10.8	15.8	4.6	10.3	16.4	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.4			15.1			8.9			10.6	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 54
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 38.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



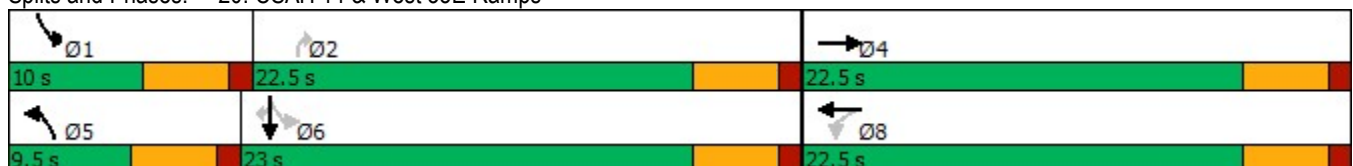


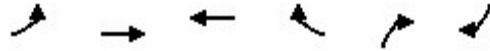
Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↖	↑↑	↖	↖	↖	↑	↖
Traffic Volume (vph)	555	20	605	20	50	145	5	80
Future Volume (vph)	555	20	605	20	50	145	5	80
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	5.1	18.6	25.4	24.4	24.4
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.32	0.10	0.63	0.12	0.08	0.18	0.01	0.10
Control Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	14.4	18.6	24.6	0.7	7.6	10.0	2.2
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.4		18.5				5.8	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 36.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



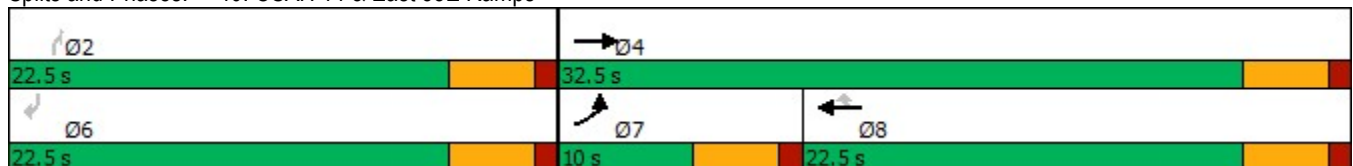


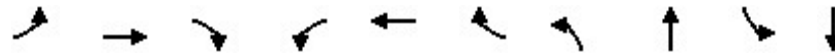
Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	115	565	565	250	685	290
Future Volume (vph)	115	565	565	250	685	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	32.5	22.5	22.5	22.5	22.5
Total Split (%)	18.2%	59.1%	40.9%	40.9%	40.9%	40.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effect Green (s)	5.6	20.9	13.3	13.3	18.4	18.4
Actuated g/C Ratio	0.12	0.43	0.27	0.27	0.38	0.38
v/c Ratio	0.61	0.40	0.44	0.43	0.57	0.22
Control Delay	39.6	9.8	15.8	4.7	8.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	9.8	15.8	4.7	8.4	0.4
LOS	D	A	B	A	A	A
Approach Delay		14.8	12.4			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 10.5
 Intersection LOS: B
 Intersection Capacity Utilization 47.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



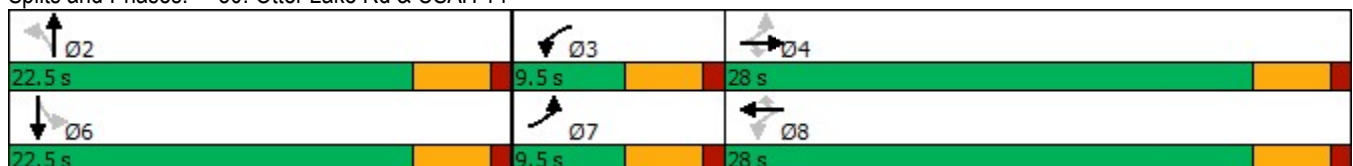


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Future Volume (vph)	30	1245	70	55	765	20	95	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.5	23.7	23.7	27.3	25.4	25.4	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.47	0.42	0.42	0.49	0.45	0.45	0.32	0.32	0.32	0.32
v/c Ratio	0.10	0.91	0.10	0.22	0.52	0.03	0.24	0.31	0.06	0.08
Control Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	28.1	1.9	8.6	13.3	0.1	17.3	5.1	15.7	8.3
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		26.3			12.7			9.3		10.7
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 56.2
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1585
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.85
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1480
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.65
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1655
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.40
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.09

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2470
Total Delay / Veh (s/v)	11
CO Emissions (kg)	2.17
NOx Emissions (kg)	0.42
VOC Emissions (kg)	0.50

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.85
NOx Emissions (kg)	0.55
VOC Emissions (kg)	0.66

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1703
Total Delay / Veh (s/v)	85
CO Emissions (kg)	4.56
NOx Emissions (kg)	0.89
VOC Emissions (kg)	1.06

200: SB I-35E/CSAH 54 & CR J

Direction	All
Future Volume (vph)	1410
Total Delay / Veh (s/v)	3
CO Emissions (kg)	1.14
NOx Emissions (kg)	0.22
VOC Emissions (kg)	0.26

300: NB I-35E & CR J

Direction	All
Future Volume (vph)	1215
Total Delay / Veh (s/v)	36
CO Emissions (kg)	2.05
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.47

400: Otter Lake Rd & CR J

Direction	All
Future Volume (vph)	957
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

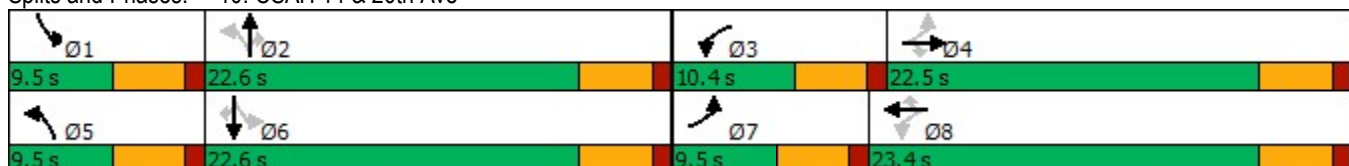


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘	↘	↗	↘	↗	↘	↘
Traffic Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Future Volume (vph)	35	370	15	110	455	80	55	110	170	60	20	15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	10.4	23.4	23.4	9.5	22.6	22.6	9.5	22.6	22.6
Total Split (%)	14.6%	34.6%	34.6%	16.0%	36.0%	36.0%	14.6%	34.8%	34.8%	14.6%	34.8%	34.8%
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)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	Max	Max
Act Effct Green (s)	16.1	12.3	12.3	18.9	16.9	16.9	21.7	19.1	19.1	21.7	19.1	19.1
Actuated g/C Ratio	0.30	0.23	0.23	0.35	0.32	0.32	0.40	0.36	0.36	0.40	0.36	0.36
v/c Ratio	0.11	0.49	0.03	0.32	0.44	0.14	0.10	0.10	0.27	0.06	0.03	0.02
Control Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.3	0.1	13.8	17.5	0.5	10.9	15.9	4.7	10.3	16.6	0.1
LOS	B	C	A	B	B	A	B	B	A	B	B	A
Approach Delay		19.8			14.7			9.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 53.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 10: CSAH 14 & 20th Ave



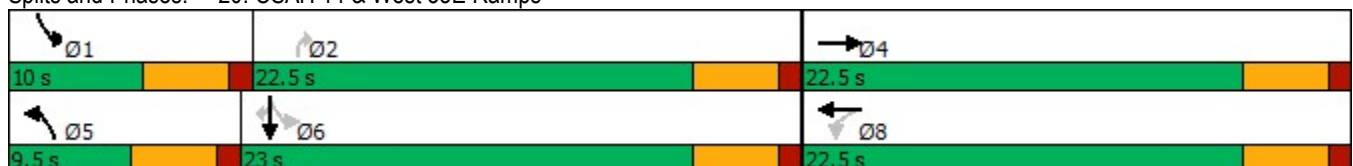


Lane Group	EBT	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↘	↑↑	↘	↗	↘	↑	↗
Traffic Volume (vph)	525	20	590	20	50	145	5	50
Future Volume (vph)	525	20	590	20	50	145	5	50
Turn Type	NA	Perm	NA	Prot	Perm	pm+pt	NA	Perm
Protected Phases	4		8	5		1	6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	9.5	22.5	10.0	23.0	23.0
Total Split (%)	40.9%	40.9%	40.9%	17.3%	40.9%	18.2%	41.8%	41.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	14.5	14.5	14.5	5.1	18.6	25.3	24.3	24.3
Actuated g/C Ratio	0.29	0.29	0.29	0.10	0.37	0.51	0.49	0.49
v/c Ratio	0.31	0.10	0.62	0.12	0.08	0.18	0.01	0.06
Control Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.3	18.5	24.5	0.7	7.6	10.0	0.6
LOS	B	B	B	C	A	A	A	A
Approach Delay	14.3		18.3				5.9	
Approach LOS	B		B				A	

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 49.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 35.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 20: CSAH 14 & West 35E Ramps



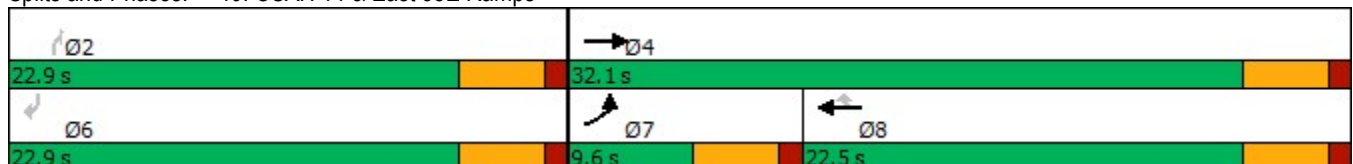


Lane Group	EBL	EBT	WBT	WBR	NBR	SBR
Lane Configurations	↘	↑↑	↑↑↑	↗	↗↗	↗↗
Traffic Volume (vph)	85	565	590	245	745	290
Future Volume (vph)	85	565	590	245	745	290
Turn Type	Prot	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases				8	2	6
Detector Phase	7	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.6	32.1	22.5	22.5	22.9	22.9
Total Split (%)	17.5%	58.4%	40.9%	40.9%	41.6%	41.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	5.2	20.9	13.7	13.7	18.8	18.8
Actuated g/C Ratio	0.11	0.43	0.28	0.28	0.38	0.38
v/c Ratio	0.49	0.41	0.45	0.42	0.62	0.23
Control Delay	34.3	10.0	15.8	4.6	9.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	10.0	15.8	4.6	9.6	0.4
LOS	C	A	B	A	A	A
Approach Delay		13.2	12.5			
Approach LOS		B	B			

Intersection Summary

Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.4
 Intersection LOS: B
 Intersection Capacity Utilization 49.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 40: CSAH 14 & East 35E Ramps



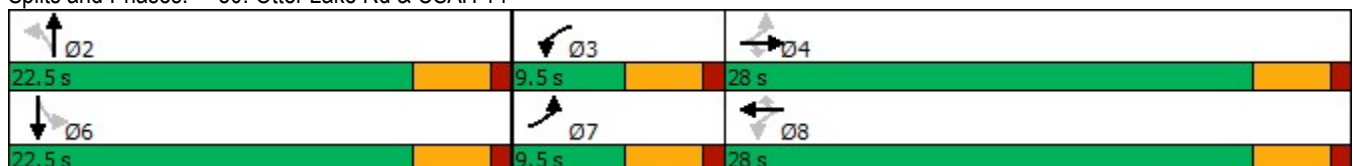


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↘
Traffic Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Future Volume (vph)	30	1305	70	15	805	20	75	10	20	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	7	4		3	8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	26.3	25.4	25.4	25.5	23.7	23.7	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.47	0.47	0.47	0.44	0.44	0.33	0.33	0.33	0.33
v/c Ratio	0.10	0.86	0.10	0.06	0.57	0.03	0.18	0.21	0.05	0.08
Control Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	21.3	1.9	6.9	14.1	0.1	15.8	5.5	14.8	8.1
LOS	A	C	A	A	B	A	B	A	B	A
Approach Delay		20.0			13.6			9.4		10.3
Approach LOS		C			B			A		B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 54.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 50: Otter Lake Rd & CSAH 14



10: CSAH 14 & 20th Ave

Direction	All
Future Volume (vph)	1495
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41

20: CSAH 14 & West 35E Ramps

Direction	All
Future Volume (vph)	1405
Total Delay / Veh (s/v)	15
CO Emissions (kg)	1.56
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.36

30: SB On Ramp & CSAH 14

Direction	All
Future Volume (vph)	1650
Total Delay / Veh (s/v)	0
CO Emissions (kg)	0.41
NOx Emissions (kg)	0.08
VOC Emissions (kg)	0.10

40: CSAH 14 & East 35E Ramps

Direction	All
Future Volume (vph)	2520
Total Delay / Veh (s/v)	10
CO Emissions (kg)	2.23
NOx Emissions (kg)	0.43
VOC Emissions (kg)	0.52

50: Otter Lake Rd & CSAH 14

Direction	All
Future Volume (vph)	2501
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.76
NOx Emissions (kg)	0.54
VOC Emissions (kg)	0.64

100: Centerville Rd & Wilkinson Lake Blvd/CR J

Direction	All
Future Volume (vph)	1830
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.69
NOx Emissions (kg)	0.52
VOC Emissions (kg)	0.62

200: SB I-35E Ramps & CR J & CSAH 54

Direction	All
Future Volume (vph)	1635
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

300: NB I-35E Ramps & CSAH 60 & CR J/CSAH 84

Direction	All
Future Volume (vph)	1573
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Intersection							
Intersection Delay, s/veh	10.4						
Intersection LOS	B						
Approach	EB	WB	NB		SB		
Entry Lanes	1	1	1	1	1	1	
Conflicting Circle Lanes	1	1	1	1	1	1	
Adj Approach Flow, veh/h	42	648	569	730			
Demand Flow Rate, veh/h	43	668	592	754			
Vehicles Circulating, veh/h	822	349	575	94			
Vehicles Exiting, veh/h	17	565	289	345			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	6.9	11.2	10.0	10.1			
Approach LOS	A	B	A	B			
Lane	Left	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LTR	LT	R	LT	R	LT	R
Assumed Moves	LTR	LT	R	LT	R	LT	R
RT Channelized			Yield		Yield		Yield
Lane Util	1.000	1.000		1.000		1.000	
Follow-Up Headway, s	2.609	2.609		2.609		2.609	
Critical Headway, s	4.976	4.976	578	4.976	253	4.976	9
Entry Flow, veh/h	43	90	971	339	775	745	1356
Cap Entry Lane, veh/h	597	967	0.971	768	0.962	1254	0.971
Entry HV Adj Factor	0.988	0.964	561	0.962	243	0.968	9
Flow Entry, veh/h	42	87	942	326	746	721	1317
Cap Entry, veh/h	590	932	0.595	738	0.326	1214	0.007
V/C Ratio	0.072	0.093	12.3	0.442	8.8	0.594	2.8
Control Delay, s/veh	6.9	4.7	B	10.9	A	10.2	A
LOS	A	A	4	B	1	B	0
95th %tile Queue, veh	0	0		2		4	

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	0	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	731	862	0	64
Demand Flow Rate, veh/h	756	900	0	68
Vehicles Circulating, veh/h	173	79	479	851
Vehicles Exiting, veh/h	746	400	450	172
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	13.3	0.0	8.0
Approach LOS	B	B	-	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	756	900	68	68
Cap Entry Lane, veh/h	1157	1273	579	579
Entry HV Adj Factor	0.967	0.958	0.946	0.946
Flow Entry, veh/h	731	862	64	64
Cap Entry, veh/h	1119	1219	548	548
V/C Ratio	0.654	0.707	0.117	0.117
Control Delay, s/veh	12.3	13.3	8.0	8.0
LOS	B	B	A	A
95th %tile Queue, veh	5	6	0	0

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	SW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	120
Demand Flow Rate, veh/h	123
Vehicles Circulating, veh/h	900
Vehicles Exiting, veh/h	79
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	9.7
Approach LOS	A
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	123
Cap Entry Lane, veh/h	551
Entry HV Adj Factor	0.978
Flow Entry, veh/h	120
Cap Entry, veh/h	539
V/C Ratio	0.223
Control Delay, s/veh	9.7
LOS	A
95th %tile Queue, veh	1

Intersection				
Intersection Delay, s/veh	31.8			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	187	827	0
Demand Flow Rate, veh/h	388	192	863	0
Vehicles Circulating, veh/h	59	986	446	1012
Vehicles Exiting, veh/h	953	397	0	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.6	13.7	49.7	0.0
Approach LOS	A	B	E	-
Lane	Left	Left	Left	
Designated Moves	LTR	LTR	LTR	
Assumed Moves	LTR	LTR	LTR	
RT Channelized				
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	
Entry Flow, veh/h	388	192	863	
Cap Entry Lane, veh/h	1299	505	876	
Entry HV Adj Factor	0.972	0.974	0.958	
Flow Entry, veh/h	377	187	827	
Cap Entry, veh/h	1263	492	839	
V/C Ratio	0.299	0.380	0.986	
Control Delay, s/veh	5.6	13.7	49.7	
LOS	A	B	E	
95th %tile Queue, veh	1	2	17	

Intersection	
Intersection Delay, s/veh	
Intersection LOS	
Approach	NW
Entry Lanes	1
Conflicting Circle Lanes	1
Adj Approach Flow, veh/h	319
Demand Flow Rate, veh/h	326
Vehicles Circulating, veh/h	1057
Vehicles Exiting, veh/h	252
Ped Vol Crossing Leg, #/h	0
Ped Cap Adj	1.000
Approach Delay, s/veh	27.3
Approach LOS	D
Lane	Left
Designated Moves	LR
Assumed Moves	LR
RT Channelized	
Lane Util	1.000
Follow-Up Headway, s	2.609
Critical Headway, s	4.976
Entry Flow, veh/h	326
Cap Entry Lane, veh/h	470
Entry HV Adj Factor	0.979
Flow Entry, veh/h	319
Cap Entry, veh/h	459
V/C Ratio	0.694
Control Delay, s/veh	27.3
LOS	D
95th %tile Queue, veh	5

Cty Rd J Application

1 Main St/20th Ave		
Existing Volume	1585	vehicles
Existing Delay	15	sec/veh
Existing Total Delay	23775	seconds
Future Volume	1495	vehicles
Future Delay	15	sec/veh
Future Total Delay	22425	seconds
Total Delay Reduction	1350	seconds

2 Main St/West Ramps		
Existing Volume	1480	vehicles
Existing Delay	14	sec/veh
Existing Total Delay	20720	seconds
Future Volume	1405	vehicles
Future Delay	15	sec/veh
Future Total Delay	21075	seconds
Total Delay Reduction	-355	seconds

3 Main St/SB On Ramp		
Existing Volume	1655	vehicles
Existing Delay	0	sec/veh
Existing Total Delay	0	seconds
Future Volume	1650	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	0	seconds

4 Main St/East Ramps		
Existing Volume	2470	vehicles
Existing Delay	11	sec/veh
Existing Total Delay	27170	seconds
Future Volume	2520	vehicles
Future Delay	10	sec/veh
Future Total Delay	25200	seconds
Total Delay Reduction	1970	seconds

5 Main St/Otter Lake Rd		
Existing Volume	2520	vehicles
Existing Delay	20	sec/veh
Existing Total Delay	50400	seconds
Future Volume	2500	vehicles
Future Delay	17	sec/veh
Future Total Delay	42500	seconds
Total Delay Reduction	7900	seconds

6 CR J/Centerville Rd		
Existing Volume	1703	vehicles
Existing Delay	85	sec/veh
Existing Total Delay	144755	seconds
Future Volume	1830	vehicles
Future Delay	10	sec/veh
Future Total Delay	18300	seconds
Total Delay Reduction	126455	seconds

7 CR J/West Ramps		
Existing Volume	1410	vehicles
Existing Delay	3	sec/veh
Existing Total Delay	4230	seconds
Future Volume	1635	vehicles
Future Delay	13	sec/veh
Future Total Delay	21255	seconds
Total Delay Reduction	-17025	seconds

8 CR J/East Ramps		
Existing Volume	1215	vehicles
Existing Delay	36	sec/veh
Existing Total Delay	43740	seconds
Future Volume	1573	vehicles
Future Delay	32	sec/veh
Future Total Delay	50336	seconds
Total Delay Reduction	-6596	seconds

CR J/Otter Lake Rd		
Existing Volume	957	vehicles
Existing Delay	13	sec/veh
Existing Total Delay	12441	seconds
Future Volume	0	vehicles
Future Delay	0	sec/veh
Future Total Delay	0	seconds
Total Delay Reduction	12441	seconds

Total Network Delay Reduction	126140	seconds
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Emissions

Existing	1	2	3	4	5	6	7	8	9	Total
CO	1.85	1.65	0.4	2.17	2.85	4.56	1.14	2.05	1.28	17.95
NO	0.36	0.32	0.08	0.42	0.55	0.89	0.22	0.4	0.25	3.49
VOC	0.43	0.38	0.09	0.5	0.66	1.06	0.26	0.47	0.3	4.15
								Network Total		25.59

Build	1	2	3	4	5	6	7	8	9	Total
CO	1.76	1.56	0.41	2.23	2.76	2.69	1.86	1.68	0	14.95
NO	0.34	0.3	0.08	0.43	0.54	0.52	0.36	0.33	0	2.9
VOC	0.41	0.36	0.1	0.52	0.64	0.62	0.43	0.39	0	3.47
								Network Total		21.32

Reduction	4.27
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Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description					
Route	CSAH 14	District		County	Ramsey/Anoka
Begin RP		End RP		Miles	
Location	Intersection with 20th Ave				

B. Project Description			
Proposed Work	Adding NB on and SB off ramps at Cty Rd J to the south		
Project Cost*	\$14,020,668	Installation Year	2024
Project Service Life	20 years	Traffic Growth Factor	2.0%

* exclude Right of Way from Project Cost

C. Crash Modification Factor			
0.83	Fatal (K) Crashes	Reference	Crash Analysis
0.83	Serious Injury (A) Crashes		
0.83	Moderate Injury (B) Crashes	Crash Type	All
0.83	Possible Injury (C) Crashes		
0.83	Property Damage Only Crashes		www.CMFClearinghouse.org

D. Crash Modification Factor (optional second CMF)			
	Fatal (K) Crashes	Reference	
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	Crash Type	
	Possible Injury (C) Crashes		
	Property Damage Only Crashes		www.CMFClearinghouse.org

E. Crash Data				
Begin Date	1/1/2016	End Date	12/31/2018	3 years
Data Source	MnDOT			
	Crash Severity	All	< optional 2nd CMF >	
	K crashes			
	A crashes			
	B crashes	1		
	C crashes	1		
	PDO crashes	4		

F. Benefit-Cost Calculation		
\$449,925	Benefit (present value)	B/C Ratio = 0.04
\$14,020,668	Cost	

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

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	\$1,360,000
A crashes	\$680,000
B crashes	\$210,000
C crashes	\$110,000
PDO crashes	\$12,000

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

Real Discount Rate 1.2%
 Traffic Growth Rate 2.0%
 Project Service Life 20 years

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	\$0
A crashes	0.00	0.00	\$0
B crashes	0.17	0.06	\$11,900
C crashes	0.17	0.06	\$6,233
PDO crashes	0.68	0.23	\$2,720

\$20,853

H. Amortized Benefit

Year	Crash Benefits	Present Value
2024	\$20,853	\$20,853
2025	\$21,270	\$21,018
2026	\$21,696	\$21,184
2027	\$22,130	\$21,352
2028	\$22,572	\$21,521
2029	\$23,024	\$21,691
2030	\$23,484	\$21,862
2031	\$23,954	\$22,035
2032	\$24,433	\$22,209
2033	\$24,922	\$22,385
2034	\$25,420	\$22,562
2035	\$25,928	\$22,740
2036	\$26,447	\$22,920
2037	\$26,976	\$23,101
2038	\$27,516	\$23,284
2039	\$28,066	\$23,468
2040	\$28,627	\$23,653
2041	\$29,200	\$23,840
2042	\$29,784	\$24,029
2043	\$30,379	\$24,219
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0

Total = \$449,925

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 14	District		County	Ramsey/Anoka
Begin RP		End RP		Miles	
Location	Intersection with East 35E Ramps				

B. Project Description

Proposed Work	Adding NB on and SB off ramps at Cty Rd J to the south		
Project Cost*	\$14,020,668	Installation Year	2024
Project Service Life	20 years	Traffic Growth Factor	2.0%

* exclude Right of Way from Project Cost

C. Crash Modification Factor

1.00	Fatal (K) Crashes	Reference	Crash Analysis
1.00	Serious Injury (A) Crashes		
1.00	Moderate Injury (B) Crashes	Crash Type	All
1.00	Possible Injury (C) Crashes		
1.00	Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	Reference	
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	Crash Type	
	Possible Injury (C) Crashes		
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2016	End Date	12/31/2018	3 years
Data Source	MnDOT			
Crash Severity	All	< optional 2nd CMF >		
K crashes				
A crashes		1		
B crashes		2		
C crashes		3		
PDO crashes		22		

F. Benefit-Cost Calculation

\$0	Benefit (present value)	B/C Ratio = 0.00
\$14,020,668	Cost	

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

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	\$1,360,000
A crashes	\$680,000
B crashes	\$210,000
C crashes	\$110,000
PDO crashes	\$12,000

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

Real Discount Rate 1.2%
 Traffic Growth Rate 2.0%
 Project Service Life 20 years

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	\$0
A crashes	0.00	0.00	\$0
B crashes	0.00	0.00	\$0
C crashes	0.00	0.00	\$0
PDO crashes	0.00	0.00	\$0

\$0

H. Amortized Benefit

Year	Crash Benefits	Present Value	
2024	\$0	\$0	Total = \$0
2025	\$0	\$0	
2026	\$0	\$0	
2027	\$0	\$0	
2028	\$0	\$0	
2029	\$0	\$0	
2030	\$0	\$0	
2031	\$0	\$0	
2032	\$0	\$0	
2033	\$0	\$0	
2034	\$0	\$0	
2035	\$0	\$0	
2036	\$0	\$0	
2037	\$0	\$0	
2038	\$0	\$0	
2039	\$0	\$0	
2040	\$0	\$0	
2041	\$0	\$0	
2042	\$0	\$0	
2043	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description					
Route	CSAH 14	District		County	Ramsey/Anoka
Begin RP		End RP		Miles	
Location	Intersection with Otter Lake Rd				

B. Project Description			
Proposed Work	Adding NB on and SB off ramps at Cty Rd J to the south		
Project Cost*	\$14,020,668	Installation Year	2024
Project Service Life	20 years	Traffic Growth Factor	2.0%

* exclude Right of Way from Project Cost

C. Crash Modification Factor			
1.00	Fatal (K) Crashes	Reference	Crash Analysis
1.00	Serious Injury (A) Crashes		
1.00	Moderate Injury (B) Crashes	Crash Type	All
1.00	Possible Injury (C) Crashes		
1.00	Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)			
	Fatal (K) Crashes	Reference	
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	Crash Type	
	Possible Injury (C) Crashes		
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data				
Begin Date	1/1/2016	End Date	12/31/2018	3 years
Data Source	MnDOT			
	Crash Severity	All	< optional 2nd CMF >	
	K crashes			
	A crashes			
	B crashes			
	C crashes	1		
	PDO crashes	6		

F. Benefit-Cost Calculation		
\$0	Benefit (present value)	B/C Ratio = 0.00
\$14,020,668	Cost	

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

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	\$1,360,000
A crashes	\$680,000
B crashes	\$210,000
C crashes	\$110,000
PDO crashes	\$12,000

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

Real Discount Rate 1.2%
 Traffic Growth Rate 2.0%
 Project Service Life 20 years

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	\$0
A crashes	0.00	0.00	\$0
B crashes	0.00	0.00	\$0
C crashes	0.00	0.00	\$0
PDO crashes	0.00	0.00	\$0

\$0

H. Amortized Benefit

Year	Crash Benefits	Present Value	
2024	\$0	\$0	Total = \$0
2025	\$0	\$0	
2026	\$0	\$0	
2027	\$0	\$0	
2028	\$0	\$0	
2029	\$0	\$0	
2030	\$0	\$0	
2031	\$0	\$0	
2032	\$0	\$0	
2033	\$0	\$0	
2034	\$0	\$0	
2035	\$0	\$0	
2036	\$0	\$0	
2037	\$0	\$0	
2038	\$0	\$0	
2039	\$0	\$0	
2040	\$0	\$0	
2041	\$0	\$0	
2042	\$0	\$0	
2043	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	
0	\$0	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 14	District		County	Ramsey/Anoka
Begin RP		End RP		Miles	
Location	Intersection with West 35E Ramps				

B. Project Description

Proposed Work	Adding NB on and SB off ramps at Cty Rd J to the south		
Project Cost*	\$14,020,668	Installation Year	2024
Project Service Life	20 years	Traffic Growth Factor	2.0%

* exclude Right of Way from Project Cost

C. Crash Modification Factor

0.83	Fatal (K) Crashes	Reference	Crash Analysis
0.83	Serious Injury (A) Crashes		
0.83	Moderate Injury (B) Crashes	Crash Type	All
0.83	Possible Injury (C) Crashes		
0.83	Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	Reference	
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	Crash Type	
	Possible Injury (C) Crashes		
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2016	End Date	12/31/2018	3 years
Data Source	MnDOT			
Crash Severity	All	< optional 2nd CMF >		
K crashes				
A crashes				
B crashes				
C crashes		1		
PDO crashes		5		

F. Benefit-Cost Calculation

\$207,846	Benefit (present value)	B/C Ratio = 0.02
\$14,020,668	Cost	

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

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	\$1,360,000
A crashes	\$680,000
B crashes	\$210,000
C crashes	\$110,000
PDO crashes	\$12,000

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

Real Discount Rate 1.2%
 Traffic Growth Rate 2.0%
 Project Service Life 20 years

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	\$0
A crashes	0.00	0.00	\$0
B crashes	0.00	0.00	\$0
C crashes	0.17	0.06	\$6,233
PDO crashes	0.85	0.28	\$3,400

\$9,633

H. Amortized Benefit

Year	Crash Benefits	Present Value
2024	\$9,633	\$9,633
2025	\$9,826	\$9,709
2026	\$10,023	\$9,786
2027	\$10,223	\$9,864
2028	\$10,427	\$9,942
2029	\$10,636	\$10,020
2030	\$10,849	\$10,099
2031	\$11,066	\$10,179
2032	\$11,287	\$10,260
2033	\$11,513	\$10,341
2034	\$11,743	\$10,423
2035	\$11,978	\$10,505
2036	\$12,217	\$10,588
2037	\$12,462	\$10,672
2038	\$12,711	\$10,756
2039	\$12,965	\$10,841
2040	\$13,225	\$10,927
2041	\$13,489	\$11,013
2042	\$13,759	\$11,100
2043	\$14,034	\$11,188
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0

Total = \$207,846

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	County Road J	District		County	Ramsey
Begin RP		End RP		Miles	
Location	Intersection with Centerville Road				

B. Project Description

Proposed Work	Convert from a stop controlled to roundabout intersection		
Project Cost*	\$14,020,668	Installation Year	2024
Project Service Life	20 years	Traffic Growth Factor	2.0%

* exclude Right of Way from Project Cost

C. Crash Modification Factor

0.18	Fatal (K) Crashes	Reference	CMF Clearinghouse
0.18	Serious Injury (A) Crashes		
0.18	Moderate Injury (B) Crashes	Crash Type	All
0.42	Possible Injury (C) Crashes		
0.42	Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

0.00	Fatal (K) Crashes	Reference	Engineering Judgement
0.00	Serious Injury (A) Crashes		
0.00	Moderate Injury (B) Crashes	Crash Type	Left Turn and Angle Crashes
0.00	Possible Injury (C) Crashes		
0.00	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2016	End Date	12/31/2018	3 years
Data Source	MnDOT			
	Crash Severity	All	Left Turn and Angle Crashes	
	K crashes			
	A crashes			
	B crashes			
	C crashes	1		
	PDO crashes	2	1	

F. Benefit-Cost Calculation

\$645,257	Benefit (present value)	B/C Ratio = 0.05
\$14,020,668	Cost	

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

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	\$1,360,000
A crashes	\$680,000
B crashes	\$210,000
C crashes	\$110,000
PDO crashes	\$12,000

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

Real Discount Rate 1.2%
 Traffic Growth Rate 2.0%
 Project Service Life 20 years

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	\$0
A crashes	0.00	0.00	\$0
B crashes	0.00	0.00	\$0
C crashes	0.58	0.19	\$21,267
PDO crashes	2.16	0.72	\$8,640

\$29,907

H. Amortized Benefit

Year	Crash Benefits	Present Value
2024	\$29,907	\$29,907
2025	\$30,505	\$30,143
2026	\$31,115	\$30,381
2027	\$31,737	\$30,622
2028	\$32,372	\$30,864
2029	\$33,019	\$31,108
2030	\$33,680	\$31,353
2031	\$34,353	\$31,601
2032	\$35,040	\$31,851
2033	\$35,741	\$32,103
2034	\$36,456	\$32,357
2035	\$37,185	\$32,613
2036	\$37,929	\$32,870
2037	\$38,687	\$33,130
2038	\$39,461	\$33,392
2039	\$40,250	\$33,656
2040	\$41,055	\$33,922
2041	\$41,877	\$34,190
2042	\$42,714	\$34,461
2043	\$43,568	\$34,733
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0

Total = \$645,257

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	County Road J	District		County	Ramsey
Begin RP		End RP		Miles	
Location	Intersections with East 35E Ramp and Otter Lake Rd				

B. Project Description

Proposed Work	Convert from a stop controlled to roundabout intersection		
Project Cost*	\$14,020,668	Installation Year	2024
Project Service Life	20 years	Traffic Growth Factor	2.0%

* exclude Right of Way from Project Cost

C. Crash Modification Factor

0.18	Fatal (K) Crashes	Reference	CMF Clearinghouse
0.18	Serious Injury (A) Crashes		
0.18	Moderate Injury (B) Crashes	Crash Type	All
0.42	Possible Injury (C) Crashes		
0.42	Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

0.00	Fatal (K) Crashes	Reference	Engineering Judgement
0.00	Serious Injury (A) Crashes		
0.00	Moderate Injury (B) Crashes	Crash Type	Left Turn and Angle Crashes
0.00	Possible Injury (C) Crashes		
0.00	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2016	End Date	12/31/2018	3 years
Data Source	MnDOT			
	Crash Severity	All	Left Turn and Angle Crashes	
	K crashes			
	A crashes			
	B crashes	1		
	C crashes		1	
	PDO crashes	5	2	

F. Benefit-Cost Calculation

\$2,452,435	Benefit (present value)	B/C Ratio = 0.18
\$14,020,668	Cost	

Proposed project expected to reduce 3 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	\$1,360,000
A crashes	\$680,000
B crashes	\$210,000
C crashes	\$110,000
PDO crashes	\$12,000

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

Real Discount Rate 1.2%
 Traffic Growth Rate 2.0%
 Project Service Life 20 years

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	\$0
A crashes	0.00	0.00	\$0
B crashes	0.82	0.27	\$57,400
C crashes	1.00	0.33	\$36,667
PDO crashes	4.90	1.63	\$19,600

\$113,667

H. Amortized Benefit

Year	Crash Benefits	Present Value
2024	\$113,667	\$113,667
2025	\$115,940	\$114,565
2026	\$118,259	\$115,471
2027	\$120,624	\$116,384
2028	\$123,036	\$117,304
2029	\$125,497	\$118,231
2030	\$128,007	\$119,166
2031	\$130,567	\$120,108
2032	\$133,179	\$121,057
2033	\$135,842	\$122,014
2034	\$138,559	\$122,979
2035	\$141,330	\$123,951
2036	\$144,157	\$124,931
2037	\$147,040	\$125,918
2038	\$149,981	\$126,914
2039	\$152,980	\$127,917
2040	\$156,040	\$128,928
2041	\$159,161	\$129,947
2042	\$162,344	\$130,975
2043	\$165,591	\$132,010
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0

Total = \$2,452,435

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	County Road J	District		County	Ramsey
Begin RP		End RP		Miles	
Location	Intersection with West 35E Ramps				

B. Project Description

Proposed Work	Convert from a side-street stop controlled to roundabout intersection		
Project Cost*	\$14,020,668	Installation Year	2024
Project Service Life	20 years	Traffic Growth Factor	2.0%

* exclude Right of Way from Project Cost

C. Crash Modification Factor

0.13	Fatal (K) Crashes	Reference	CMF Clearinghouse
0.13	Serious Injury (A) Crashes		
0.13	Moderate Injury (B) Crashes	Crash Type	All
0.29	Possible Injury (C) Crashes		
0.29	Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

0.00	Fatal (K) Crashes	Reference	Engineering Judgement
0.00	Serious Injury (A) Crashes		
0.00	Moderate Injury (B) Crashes	Crash Type	Left Turn and Angle Crashes
0.00	Possible Injury (C) Crashes		
0.00	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2016	End Date	12/31/2018	3 years
Data Source	MnDOT			
	Crash Severity	All	Left Turn and Angle Crashes	
	K crashes			
	A crashes			
	B crashes	1		
	C crashes	0		
	PDO crashes	2	2	

F. Benefit-Cost Calculation

\$1,609,114	Benefit (present value)	B/C Ratio = 0.12
\$14,020,668	Cost	

Proposed project expected to reduce 2 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	\$1,360,000
A crashes	\$680,000
B crashes	\$210,000
C crashes	\$110,000
PDO crashes	\$12,000

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

Real Discount Rate 1.2%
 Traffic Growth Rate 2.0%
 Project Service Life 20 years

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	\$0
A crashes	0.00	0.00	\$0
B crashes	0.87	0.29	\$60,900
C crashes	0.00	0.00	\$0
PDO crashes	3.42	1.14	\$13,680

\$74,580

H. Amortized Benefit

Year	Crash Benefits	Present Value
2024	\$74,580	\$74,580
2025	\$76,072	\$75,170
2026	\$77,593	\$75,764
2027	\$79,145	\$76,363
2028	\$80,728	\$76,966
2029	\$82,342	\$77,575
2030	\$83,989	\$78,188
2031	\$85,669	\$78,806
2032	\$87,382	\$79,429
2033	\$89,130	\$80,057
2034	\$90,913	\$80,690
2035	\$92,731	\$81,328
2036	\$94,585	\$81,971
2037	\$96,477	\$82,619
2038	\$98,407	\$83,272
2039	\$100,375	\$83,930
2040	\$102,382	\$84,593
2041	\$104,430	\$85,262
2042	\$106,519	\$85,936
2043	\$108,649	\$86,616
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0
0	\$0	\$0

Total = \$1,609,114

CSAH 14 Crash Analysis April 2020 supporting the Cty Rd J Interchange Modification Regional Solicitation Application

	Intersections	Total Number of Accidents	Years of Data	ADT*	Calculated Crash Rate (Million Entering Vehicles)
Existing	CSAH 14 and 20th Ave	6	3	20175	0.28
Future	CSAH 14 and 20th Ave	5	3	19325	0.24
Existing	CSAH 14 and West 35E Ramps	6	3	22200	0.25
Future	CSAH 14 and West 35E Ramps	5	3	21200	0.22
Existing	CSAH 14 and East 35E Ramps	28	3	28100	0.91
Future	CSAH 14 and East 35E Ramps	28	3	28400	0.91
Existing	CSAH 14 and Otter Lake Rd	7	3	23550	0.28
Future	CSAH 14 and Otter Lake Rd	7	3	23550	0.28

Reduction based on decreased volumes from Cty J Interchange

Modification	CMF	
20th Ave	17%	0.83
West 35E Ramp	17%	0.83
East 35E Ramps	0%	1.00
Otter Lake Rd	0%	1.00

▼ Countermeasure: Convert intersection with minor-road stop control to modern roundabout

Compare	CMF	CRF(%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
<input type="checkbox"/>	0.56 [B]	44	★★★★★	All	All	All	RODEGERDTS ET AL., 2007	Countermeasure name changed from "convert ... [READ MORE]
<input type="checkbox"/>	0.18 [B]	82	★★★★★	All	Serious Injury;Minor Injury	All	RODEGERDTS ET AL., 2007	Countermeasure name changed from "convert ... [READ MORE]
<input type="checkbox"/>	0.29 [B]	71	★★★★★	All	All	Rural	RODEGERDTS ET AL., 2007	Countermeasure name changed from "convert ... [READ MORE]
<input type="checkbox"/>	0.13 [B]	87	★★★★★	All	Serious Injury;Minor Injury	Rural	RODEGERDTS ET AL., 2007	Countermeasure name changed from "convert ... [READ MORE]

▼ Countermeasure: Conversion of stop-controlled intersection into single-lane roundabout

Compare	CMF	CRF(%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
<input type="checkbox"/>	0.28	72	★★★★☆	All	All	Urban	PERSAUD ET AL., 2001	
<input type="checkbox"/>	0.42	58	★★★★☆	All	All	Rural	PERSAUD ET AL., 2001	
<input type="checkbox"/>	0.12	88	★★★★☆	All	Serious injury, Minor injury	Urban	PERSAUD ET AL., 2001	
<input type="checkbox"/>	0.18	82	★★★★☆	All	Serious injury, Minor injury	Rural	PERSAUD ET AL., 2001	

Compare **Reset Compare**

*NOTE: You can compare CMFs across countermeasures, subcategories, and categories.

Cty Rd J / Otter Lake Rd 2016-2018 crashes

objectid	Incident ID Date and T Year	Hour	Crash Seve Number	Ki Number	Officer Nar	Constructi	County	City	Township	Route Typ	Route ID	Route Mea	Roadway	Divided Ro	Intersectio	Manner of First Harm	Relative Tr	Lighting	CoRoad	Circu road_circu	Road Circu road_circu	Relative InTraffic	Con Weather	P Weather	S Surface	Co Work Zone	Work Zone	Work Zone	Work Zone	Workers Pr	Unit1 Type	
2367144	516833 11/11/2017		23	Minor Inj	0	1	VEHICLE #1:M	ANOKA	Lino Lakes	County Ro:070000655	0.01 22ND AVE	East											T Intersect Stop Sign	Clear	Dry		2				NOT APPLICABLE	Motor Veh
2450348	320631 11/15/2016		18	Property D	0	2	Vel.1 was M	ANOKA	Lino Lakes	County Sta 040000655	10.29 OTTER LAK	Not Applicable				Sideswipe	Motor Veh On Roadw	Dark (Stre	Road	Road Surface Condition	(wet, icy, snow, slus	T Intersect Stop Sign	Cloudy	Ice/Frost		2					NOT APPLICABLE	Motor Veh

I35E Ash St east ramp 2016-2018 crashes

objectid	Incident ID Date and T Year	Hour	Crash Seve Number	Ki Number	Officer Nar	Constructi	County	City	Township	Route Typ	Route ID	Route Mea	Roadway	Divided Ro	Intersectio	Manner of First Harm	Relative Tr	Lighting	CoRoad	Circu road_circu	Road Circu road_circu	Relative InTraffic	Con Weather	P Weather	S Surface	Co Work Zone	Work Zone	Work Zone	Work Zone	Workers Pr	Unit1 Type				
1887655	374700 8/26/2016		16	Property D	0	2	Unit #1 MPM	RAMSEY		White Bear Ramp or G:220000655	0.19 RAMP464	East				Front to Re Motor Veh On Roadw	Daylight	None					T Intersect Stop Sign	Clear	Dry		2					NOT APPLICABLE	Motor Veh		
1914246	427926 3/4/2017,		19	Property D	0	2	On 3/4/17,	RAMSEY		White Bear Ramp or G:220000655	0.18 RAMP464					Angle	Motor Veh On Roadw	Dark (Stre	None				T Intersect Stop Sign	Clear	Dry		2					NOT APPLICABLE	Motor Veh		
2184254	426412 1/1/2017,		6	Property D	0	1	DRIVER OF M	Ramsey		White Bear Ramp or G:220000655	0.14 RAMP464	North				Standing T iOn Roadsk	Dark (No S	Road	Road Surface Condition	(wet, icy, snow, slus	Intersectio Stop Sign	Snow	Ice/Frost		2								NOT APPLICABLE	Motor Veh	
2422884	412116 1/6/2017,		12	Possible Inj	0	2	DRIVER OF M	Ramsey		White Bear County Sta 040000655	10.34 OTTER LAK	Not Applicable				Angle	Motor Veh On Roadw	Daylight	None				Entrance/E No Control	Clear	Dry		2						NOT APPLICABLE	Motor Veh	
2454361	496959 8/26/2017,		20	Property D	0	1	Unit 2 had M	Ramsey		White Bear Ramp or G:220000655	0.18 RAMP464	North				Angle	Motor Veh On Roadw	Dark (Stre	None				Four-Way I Stop Sign	Cloudy	Wet		2						NOT APPLICABLE	Hit-And-Ru	
2504333	563941 3/7/2018,		7	Property D	0	1	VEHICLE #1:M	ANOKA	Lino Lakes	County Sta 040000655	0.18 OTTER LAK	Not Applicable				Other Post On Should	Daylight	Road	Road Surface Condition	(wet, icy, snow, slus	T Intersect Stop Sign	Clear	Clear	Clear		2								NOT APPLICABLE	Motor Veh
2554078	357801 6/19/2016		23	Property D	0	2	both unit #M	RAMSEY		White Bear County Sta 040000655	10.31 OTTER LAK	East				Front to Re Motor Veh On Roadw	Dark (Stre	None					T Intersect Stop Sign	Cloudy	Dry		2							NOT APPLICABLE	Motor Veh

I35E Ash St west ramp 2016-2018 crashes

objectid	Incident ID Date and T Year	Hour	Crash Seve Number	Ki Number	Officer Nar	Constructi	County	City	Township	Route Typ	Route ID	Route Mea	Roadway	Divided Ro	Intersectio	Manner of First Harm	Relative Tr	Lighting	CoRoad	Circu road_circu	Road Circu road_circu	Relative InTraffic	Con Weather	P Weather	S Surface	Co Work Zone	Work Zone	Work Zone	Work Zone	Workers Pr	Unit1 Type					
2051702	626791 8/10/2018		13	Property D	0	2	Unit 1 was M	ANOKA	Lino Lakes	County Sta 040000655	0.01 20TH AVE	West				Angle	Motor Veh On Roadw	Daylight	None				Four-Way I No Control	Clear	Dry		2							NOT APPLICABLE	Motor Veh	
2236701	489289 7/25/2017,		7	Property D	0	2	vehicle 1 tH	ANOKA	Lino Lakes	County Sta 040000655	0 20TH AVE	Souath				Angle	Motor Veh On Roadw	Daylight	None				T Intersect Stop Sign	Rain	Wet		2								NOT APPLICABLE	Motor Veh
2393713	648765 9/29/2018		20	Property D	0	2	Unit 2 rear M	RAMSEY		White Bear County Ro:070000655	0.3 ASH ST					Front to Re Motor Veh On Roadw	Dark (Stre	None					T Intersect Stop Sign	Clear	Wet		2								NOT APPLICABLE	Motor Veh
2475645	503584 9/22/2017,		13	Property D	0	2	On M	ANOKA	Lino Lakes	County Sta 040000655	0.01 20TH AVE	East				Other	Motor Veh On Roadw	Daylight	None				T Intersect Stop Sign	Clear	Dry		2								NOT APPLICABLE	Motor Veh
2550678	403481 12/12/201		20	Minor Inj	0	1	UNIT 1 WA M	ANOKA	Lino Lakes	County Sta 040000655	0 20TH AVE S					Traffic Sign On Should	Dark (Stre	None					T Intersect Stop Sign	Clear	Dry		2								NOT APPLICABLE	Motor Veh

Centerville Rd and Ash St 2016-2018 crashes

objectid	Incident ID Date and T Year	Hour	Crash Seve Number	Ki Number	Officer Nar	Constructi	County	City	Township	Route Typ	Route ID	Route Mea	Roadway	Divided Ro	Intersectio	Manner of First Harm	Relative Tr	Lighting	CoRoad	Circu road_circu	Road Circu road_circu	Relative InTraffic	Con Weather	P Weather	S Surface	Co Work Zone	Work Zone	Work Zone	Work Zone	Workers Pr	Unit1 Type							
2184212	423539 2/16/2017,		18	Property D	0	1	UNIT ONE	M	RAMSEY	White Bear County Ro:070000655	0 ASH ST					Angle	Motor Veh On Roadw	Dark (Stre	None				Four-Way I Stop Sign	Clear	Dry		2								NOT APPLICABLE	Motor Veh		
2209763	418172 1/24/2017,		15	Property D	0	1	On 01-24	M	RAMSEY	White Bear County Ro:070000655	0.01 ASH ST	West	CENTERVILLE RD			Standing T iOn Roadw	Daylight	None					T Intersect Stop Sign	Clear	Dry		2									NOT APPLICABLE	Motor Veh	
2293194	591355 4/16/2018		7	Possible Inj	0	2	Unit 1 and M	RAMSEY	North Oaks	County Sta 040000655	0 CENTERVILLE	Not Applicable				Front to Re Motor Veh On Roadw	Daylight	Road	Road Surface Condition	(wet, icy, snow, slus	Four-Way I Stop Sign	Snow	Ice/Frost		99												NOT APPLICABLE	Motor Veh
2430147	650562 10/9/2018		6	Property D	0	2	On M	RAMSEY	North Oaks	County Sta 040000655	0 CENTERVILLE	Souath				Front to Re Motor Veh On Roadw	Sunrise	None					Four-Way I Stop Sign	Clear	Dry		2									NOT APPLICABLE	Motor Veh	

Main St and Otter Lake Rd 2016-2018 crashes

objectid	Incident ID Date and T Year	Hour	Crash Seve Number	Ki Number	Officer Nar	Constructi	County	City	Township	Route Typ	Route ID	Route Mea	Roadway	Divided Ro	Intersectio	Manner of First Harm	Relative Tr	Lighting	CoRoad	Circu road_circu	Road Circu road_circu	Relative InTraffic	Con Weather	P Weather	S Surface	Co Work Zone	Work Zone	Work Zone	Work Zone	Workers Pr	Unit1 Type								
1934132	450588 5/8/2017,		15	Property D	0	2	Vehicle #2	M	ANOKA	Lino Lakes	County Sta 040000655	19.21 MAIN ST	West			Front to Re Motor Veh On Roadw	Daylight	None					Intersectio Traffic	Con Clear	Dry		2										NOT APPLICABLE	Motor Veh	
1939738	341102 4/7/2016,		20	Property D	0	2	Unit 1 was M	ANOKA	Lino Lakes	County Ro:070000655	3.1 OTTER LAK	Not Applicable				Front to Re Motor Veh On Roadw	Dark (Stre	None					T Intersect Traffic	Con Clear	Dry		2											NOT APPLICABLE	Motor Veh
2094264	491326 7/29/2017,		1	Possible Inj	0	1	VEHICLE 1	M	ANOKA	Lino Lakes	County Sta 040000655	19.22 MAIN ST	East			Front to Re Motor Veh On Roadw	Daylight	None					Four-Way I Traffic	Con Clear	Dry		2											NOT APPLICABLE	Motor Veh
2211870	334666 3/8/2017,		22	Property D	0	2	On M	RAMSEY	Lino Lakes	County Sta 040000655	19.24 MAIN ST	East				Front to Re Motor Veh On Roadw	Daylight	None					Interchang No Control	Clear	Other	Dry		2									NOT APPLICABLE	Motor Veh	
2338149	348517 5/11/2016		19	Property D	0	2	Unit 1 and M	ANOKA	Lino Lakes	County Ro:070000655	3.1 OTTER LAK	North				Front to Re Motor Veh On Roadw	Daylight	None					Four-Way I Traffic	Con Cloudy	Rain	Wet		2									NOT APPLICABLE	Motor Veh	
2364754	509233 10/16/201		19	Property D	0	2	VEH 1 AND M	ANOKA	Lino Lakes	County Sta 040000655	19.19 MAIN ST	North				Front to Re Motor Veh On Roadw	Dark (Stre	None					Interchang Traffic	Con Clear	Dry		2											NOT APPLICABLE	Motor Veh
2365231	566106 2/14/2018		8	Property D	0	2	UNIT 1 WA M	ANOKA	Lino Lakes	County Sta 040000655	19.21 MAIN ST	East				Front to Re Motor Veh On Roadw	Daylight	None					Four-Way I Traffic	Con Clear	Dry		2											NOT APPLICABLE	Motor Veh

I35E and Main St east ramps 2016-2018 crashes

objectid	Incident ID Date and T Year	Hour	Crash Seve Number	Ki Number	Officer Nar	Constructi	County	City	Township	Route Typ	Route ID	Route Mea	Roadway	Divided Ro	Intersectio	Manner of First Harm	Relative Tr	Lighting	CoRoad	Circu road_circu	Road Circu road_circu	Relative InTraffic	Con Weather	P Weather	S Surface	Co Work Zone	Work Zone	Work Zone	Work Zone	Workers Pr	Unit1 Type									
1874070	354424 6/5/2016,		14	Serious Inj	0	2	Unit #1 was M	ANOKA	Lino Lakes	County Sta 040000655	19.06 MAIN ST	East	RAMP551			Front to Re Motor Veh On Roadw	Daylight	None					Intersectio Traffic	Con Clear	Dry		2										NOT APPLICABLE	Motor Veh		
1946686	394949 11/11/201		16	Possible Inj	0	2	UNIT 1 STC M	ANOKA	Lino Lakes	County Sta 040000655	19.02 MAIN ST	North				Front to Re Motor Veh On Roadw	Daylight	None					Interchang Traffic	Con Clear	Dry		2												NOT APPLICABLE	Motor Veh
2049430	567811 2/20/2018		7	Property D	0	2	VEHICLE #1:M	ANOKA	Lino Lakes	County Sta 040000655	19.02 MAIN ST	Not Applicable				Sideswipe	Motor Veh On Roadw	Daylight	Road	Road Surface Condition	(wet, icy, snow, slus	Intersectio Traffic	Con Cloudy	Snow		2													NOT APPLICABLE	Motor Veh
2094332	476027 7/6/2017,		12	Possible Inj	0	1	UNIT 1 WA M	ANOKA	Lino Lakes	County Sta 040000655	19.03 MAIN ST	East				Overturn/FOn Separat	Daylight	None					T Intersect Traffic	Con Clear	Dry		2												NOT APPLICABLE	Motor Veh
2100800	673328 12/28/201		13	Property D	0	2	Vehicle on M	ANOKA	Lino Lakes	County Sta 040000655	19.02 MAIN ST	North				Angle	Motor Veh On Roadw	Daylight	Road	Road Surface Condition	(wet, icy, snow, slus	Interchang Traffic	Con Other	Ice/Frost		2													NOT APPLICABLE	Motor Veh
2136943	564592 2/8/2018,		9	Minor Inj	0	2	Unit #1 was M	ANOKA	Lino Lakes	Ramp or G:220000655	0.3 RAMP550	East				Other	Motor Veh On Roadw	Daylight	None				Entrance/E Traffic	Con Clear	Dry		2												NOT APPLICABLE	Motor Veh
2162638	538725 1/19/2018		18	Property D	0	2	Veh. 2 exit M	ANOKA	Lino Lakes	Ramp or G:220000655	0.3 RAMP550	Not Applicable				Front to Re Motor Veh On Roadw	Dark (Stre	None					Four-Way I Traffic	Con Cloudy	Wet		2												NOT APPLICABLE	Motor Veh
2165411	654535 10/25/201		17	Property D	0	2	Veh. 1 was M	ANOKA	Lino Lakes	Ramp or G:220000655	0.27 RAMP550					Front to Re Motor Veh On Roadw	Daylight	None					Not at Inte Traffic	Con Cloudy	Dry		2												NOT APPLICABLE	Motor Veh

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Sport Utilit	Northbound	Over-correcting /	Over	Motor Veh Turning	Le Two-Way	50	Straight	Level	No Appare	Apparently	17	Female	Motor Veh Passenger	Northbound	No Clear	Contributing	Motor Veh Vehicle	Stopped	or St	No Appare	Apparently	28	Female																			

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Passenger	Northbound	Unknown	Motor Veh Turning	Le Two-Way	40	Straight	Level	No Appare	Apparently	36	Male	Motor Veh Sport Utilit	Westbound	No Clear	Contributing	Motor Veh Moving	Forward	No Appare	Apparently	36	Male																						
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n Vehicle	o Westbound	Disregard Other Traffic	Motor Veh Moving	Fo Two-Way	35	Straight	Uphill	No Appare	Unknown	0		Motor Veh Passenger	Westbound	No Clear	Contributing	Motor Veh Turning	Left	No Appare	Apparently	22	Male																						
Passenger	Eastbound	Operated Motor Veh	Other Post Slowing	Two-Way	45	Straight	Hillcrest	No Appare	Apparently	19	Male	Motor Veh Passenger	Eastbound	No Clear	Contributing	Motor Veh Moving	Forward	No Appare	Apparently	22	Male																						
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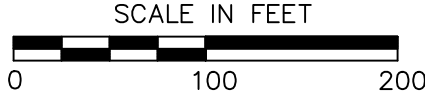
Sport Utilit	Eastbound	No Clear	Contributing	Motor Veh Moving	Fo Two-Way	Not Divided	Straight	Level	No Appare	Apparently	54	Male	Motor Veh Sport Utilit	Southbound	Disregard Other Traffic	Motor Veh Unknown	No Appare	Apparently	28	Female																							
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Passenger	Westbound	Driver Dist	No Clear	C	Motor Veh Vehicle	Stc Two-Way	50	Straight	Level	No Appare	Apparently	58	Female	Motor Veh Passenger	Westbound	No Clear	Contributing	Motor Veh Vehicle	Stopped	or St	No Appare	Apparently	35	Female																		
Sport Utilit	Northbound	Operated	Improper	E	Motor Veh Backing	Two-Way	55	Straight	Level	No Appare	Apparently	16	Female	Motor Veh Passenger	Northbound	No Clear	Contributing	Motor Veh Turning	Right	No Appare	Apparently	29	Male																			
Passenger	Eastbound	Failed to Keep in Prop	Traffic Sign	Moving	Fo Two-Way	50	Straight	Level	Possible	In	Apparently	22	Male																													
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Passenger	Northbound	No Clear	Contributing	Motor Veh Moving	Fo Two-Way	50	Straight	Level	No Appare	Apparently	35	Female	Motor Veh Passenger	Northbound	Unknown	Motor Veh Moving	Forward	No Appare	Apparently	26	Female																					
Passenger	Northbound	No Clear	Contributing	Motor Veh Moving	Fo One Way T	70	Straight	Uphill	No Appare	Apparently	27	Male	Motor Veh Passenger	Northbound	No Clear	Contributing	Motor Veh Turning	Right	No Appare	Apparently	59	Female																				
Passenger	Eastbound	No Clear	Contributing	Motor Veh Vehicle	Stc Two-Way	50	Straight	Level	No Appare	Apparently	58	Female	Motor Veh Passenger	Eastbound	Disregard Other Traffic	Motor Veh Slowing	No Appare	Apparently	26	Male																						

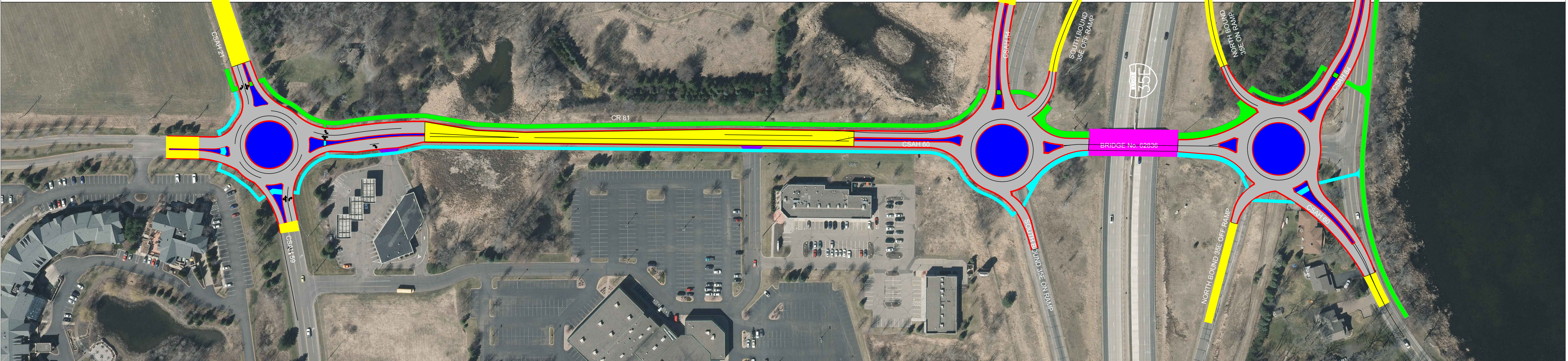
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Passenger	Northbound	No Clear	Contributing	Motor Veh Vehicle	Stc One Way T	70	Straight	Uphill	No Appare	Apparently	36	Female	Motor Veh Sport Utilit	Northbound	Following	Too Closely	Motor Veh Moving	Forward	No Appare	Apparently	21	Male																				
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Passenger	Westbound	Driver Distracted	Motor Veh Moving	Fo One Way Trafficway	Curve Right	Level	53	Male	No Appare	Apparently	35	Male	Motor Veh Passenger	Westbound	Other Contributing	Ac	Motor Veh Moving	Forward	No Appare	Apparently	41	Female																				
Sport Utilit	Northbound	No Clear	Contributing	Motor Veh Vehicle	Stc One Way T	70	Curve	Right Uphill	Possible	In	Apparently	56	Female	Motor Veh Passenger	Northbound	Following	Too Closely	Motor Veh Moving	Forward	No Appare	Apparently	57	Male																			
Sport Utilit	Westbound	Driver Distracted	Motor Veh Moving	Fo Two-Way	50	Straight	Level	No Appare	Apparently	72	Female	Motor Veh Passenger	Westbound	No Clear	Contributing	Motor Veh Vehicle	Stopped	or St	No Appare	Apparently	50	Male																				
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COUNTY ROAD J (ASH STREET, COUNTY ROAD 81) CENTERVILLE ROAD TO OTTER LAKE ROAD



LEGEND

	BRIDGE		MEDIAN
	ROADWAY		TRAIL
	ROUNDABOUT LIMITS		SIDEWALK
	CURB AND GUTTER		DRIVEWAY



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THE AMERICANS WITH DISABILITIES ACT

COMPLIANCE REPORT & TRANSITION PLAN UPDATE

June, 1997

RAMSEY COUNTY ADA POLICY STATEMENT

Ramsey County and its various departments and divisions are committed to full implementation of both the spirit and the letter of the Americans With Disabilities Act. The County will respond quickly, fully, and fairly to all complaints related to the Americans With Disabilities Act.

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II. DEPARTMENT EVALUATIONS

- A. Department Evaluation Process
- B. Department Compliance Procedures
- C. Individual Department Evaluations, Compliance Plans,
and Community Comments

I. COUNTY-WIDE EVALUATION UPDATE

A. INTRODUCTION

The landmark Americans with Disabilities Act of 1990 (ADA), enacted on July 26, 1990, provides comprehensive civil rights protection to individuals with disabilities in the area of employment, public accommodations, state and local government services and telecommunications. This report concentrates on that portion of the Act under Title II that requires all programs, services and activities provided by public entities to be accessible to persons with disabilities.

The ADA requires the County to conduct a self-evaluation regarding compliance and to develop a transition plan to correct those deficiencies. The evaluation and transition plan development took place in 1992/1993: The County and members of its various departments conducted evaluations of the programs, services and activities offered by the County and surveyed the buildings in order to identify any physical barriers.

This report is an update of those previous actions and includes the following:

1. Overview of the ADA
2. County ADA Grievance Procedure
3. County Employee Education Plan
4. Summary of the County's General Compliance Evaluation Process
5. Department Evaluation Process
6. Department's ADA Compliance Procedures
7. Evaluation Updates by Individual Department Including Action and Transition Plans
8. Comments by Interested Persons Within the Community

B. OVERVIEW OF THE AMERICANS WITH DISABILITIES ACT

"The Americans with Disabilities Act (ADA) has set our sights on removing the barriers that deny individuals with disabilities an equal opportunity to share in and contribute to the vitality of American life. The ADA means access to jobs, public accommodations, government services, public transportation and telecommunications -- in other words, full participation in, and access to, all aspects of society."

John R. Dunne,
Assistant U.S. Attorney General
Civil Rights Division

A primary goal of the ADA is the equal participation of individuals with disabilities in the "mainstream" of American society. The major principles of mainstreaming are:

- Individuals with disabilities must be integrated to the maximum extent appropriate;
- Separate programs are permitted where necessary to ensure equal opportunity. A separate program must be appropriate to the particular individual;
- Individuals with disabilities cannot be excluded from the regular program, or required to accept special services or benefits.

The ADA prohibits discrimination against a "qualified individual with a disability". A disability, as defined by the Act, is a physical or mental impairment which places substantial limitations on an individual's major life activities. Three categories of individuals are included:

- Individuals who have a physical or mental impairment that substantially limits one or more major life activities;
- Individuals who have a record of physical or mental impairment that substantially limits one of more of the individual's major life activities;
- Individuals who are regarded as having such an impairment, whether they have the impairment or not.

Title II of the ADA covers all state and local government programs, activities and services. Individuals with a disability must be provided an equally effective opportunity to participate in or benefit from a public service. Programs may not impose eligibility criteria that either screen out or tend to screen out persons with disabilities.

A public entity must reasonably modify its policies, practices, or procedures to avoid discrimination. A public entity's services, when viewed in their entirety, must be readily accessible to and usable by individuals with disabilities. Public entities are not required to make each of their existing facilities accessible but public entities may not deny the benefits of their programs to individuals with disabilities because their facilities are inaccessible. This standard, known as "program accessibility", applies to all existing facilities of public entities. However, the Act does permit exceptions to accessibility where providing accessibility would require a fundamental alteration in the nature of the programs or create undue financial or administrative burden.

There are a variety of means to achieve compliance:

- Re-design equipment;
- Reassignment of services to accessible buildings;
- Provision of personal aides to beneficiaries;
- Home visits, delivery of services at alternate accessible sites;
- Alteration of existing facilities and construction of new facilities;
- Access to facilities through structural methods, such as alteration of existing facilities and acquisition or construction of additional facilities.

All public facilities designed, constructed, or substantially altered after January 26, 1992, must be readily accessible and usable by individuals with disabilities. Where structural changes in facilities are undertaken to comply with the obligations, such changes shall be made by January 26, 1995 or as expeditiously as possible.

C. COUNTY ADA GRIEVANCE PROCEDURE

Ramsey County has adopted an internal grievance procedure for prompt and equitable resolution of complaints alleging any action prohibited by Title II of the Americans With Disabilities Act, which states, in part, that “no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of services, programs or activities of a public entity, or be subjected to discrimination by any public entity.”

1. **NOTICE:** Complaints may be addressed to:

**ADA Coordinator
Ramsey County Affirmative Action Division
Ramsey County Government Center-West
50 West Kellogg Boulevard
St. Paul, MN 55102
(612) 266-2765
TDD - (612) 266-2728**

2. **COMPLAINT:** A complaint may be filed verbally or in writing, should state the name and address of the person making the complaint, and should briefly describe the alleged violation. A complaint should be filed promptly after the complainant becomes aware of the alleged violation.
3. **INVESTIGATION:** An investigation shall follow the filing of a complaint. The investigation shall be conducted by the Coordinator. The investigation shall be impartial and thorough, and shall afford all parties pertinent to the investigation an opportunity to submit evidence relevant to the complaint.
4. **DETERMINATION:** A determination as to the validity of the complaint and a description of the resolution, if any, shall be issued by the Coordinator and a copy forwarded to the complainant no later than 45 days after its filing.
5. **RECORDS:** The Affirmative Action Division shall maintain the files and records of Ramsey County relating to the complaints filed, in accordance with the Minnesota Data Practices Act, and all other pertinent State and Federal laws, rules, and regulation.
6. **RECONSIDERATION:** The complainant may request a reconsideration if s/he is dissatisfied with the determination and/or resolution. The request for reconsideration should be filed with the Affirmative Action Division within 10 working days after receiving the written notice of determination. Within 10 working days following receipt of the request for reconsideration, a determination will be made as to the merits of the request and notice of such determination shall be issued by the Coordinator and a copy to the Complainant.

D. COUNTY EMPLOYEE EDUCATION PLAN

The County and its various departments and divisions will include training on ADA compliance in all new employee orientation to ensure full compliance with the ADA. In addition, the County will immediately address any issues of ADA compliance and educate staff at all locations to properly handle them in the future.

E. COUNTY COMPLIANCE EVALUATION PROCESS

The County began its evaluation on the ADA compliance in the fall of 1991. Representatives from Property Management, the County Attorney's Office and Risk Management met to develop an overall plan for Ramsey County compliance with the ADA.

As a result of these meetings, two groups were formed to deal with the issues presented under Title I and Title II of the ADA. Title I focuses on employment issues. Title II concentrates on the accessibility of the programs, activities and services of public entities. This report focuses on Title II of the ADA.

Title II of the ADA was applicable to the County on January 26, 1992. As of that date, all programs, services and activities of Ramsey County were to be accessible and nondiscriminatory on the basis of disability.

To ensure compliance with the provisions of Title II, a core team of representatives from various departments was formed to develop a compliance plan. The initial goal of the team was to conduct a self-evaluation of the County to:

- identify public use of various County programs and facilities.
- survey programs and buildings for non-compliance.
- evaluate the results of the survey.
- compile the results.
- prioritize deficiencies.
- report and make recommendations for correction.
- seek input from groups representing persons with disabilities.
- monitor plan for completion and compliance during the transition period.

A consultant experienced in ADA issues, Harold Kiewel, assisted the team in developing a program and facility survey to identify existing deficiencies and barriers. Representatives from each department were directed to complete the surveys after training classes were conducted to educate the representatives on the ADA and on how to complete the forms.

A committee of these representatives then evaluated the surveys to identify areas of non-compliance. The committee prioritized deficiencies for correction based on public use, essential services, degree of inaccessibility, and impact on program or service availability.

In a continuing effort to ensure full compliance by the County with Title II of the ADA, the County re-evaluated its compliance efforts in 1996/1997. This compliance report and transition plan update focuses on the remaining barriers to compliance and incorporates comments from the community on the current status of the action and transition plans of individual County departments.

Future Actions:

1. It is the responsibility of the department to ensure that this information is correct and to implement and monitor the action and transition plans. If additional deficiencies outside this report are identified, the departments are responsible for implementing changes to remove these barriers as soon as possible.
2. The County has designated an ADA coordinator to handle claims and grievances under the ADA. This position is identified as a staff member of the Affirmative Action Department. The duties and responsibilities of this position are available through the Affirmative Action Department. All inquires related to the ADA are to be directed through this person.

F. COMMUNITY COMMENTS

To completely evaluate this report, it was necessary to get comments from the Community on the self-evaluation. To do this, notices were sent to various organizations servicing persons with disabilities in Ramsey County. The notices informed the groups and individuals that an updated self-evaluation report was available for their review and that two public meetings would be held at the Roseville Library on June 10, 1997 and June 12, 1997. As a result of these notices, 14 people or organizations requested copies of the report and three sent back comments or attended the meeting. The responses to the report related to specific departments are found under the individual department comment sections. The following responses are directed for the County as a whole.

One individual responded that reading printed materials to visually impaired persons trying to access the various county programs does not allow them to function equally within those programs or have equal access to those programs. If they need to reference some printed materials or forms that were previously read to them, they cannot do this as a sighted person wishing for the same information.

One individual believes that the County has an obligation to inform individuals with disabilities of the services they have which are ADA compliant. For a blind person they could have a message prior to answering the general information lines that some materials, forms, etc are available in alternative media.

One of the sections within a county department offers volunteers a course to represent abused children. They mention course materials but these materials and instructions are not available in an alternative media thus preventing a visually impaired person from participating in this program.

An individual also wanted to know who is the person that is the ADA Coordinator for the County. Since the County has the ability to tax, he felt implementation of the ADA has been a process of foot dragging with money being the excuse. He hopes that his comment will be taken in the vein offered and some substantial improvements will come in the near future.

II. DEPARTMENT EVALUATIONS

A. DEPARTMENT EVALUATION PROCESS

Title II of the Act requires that public entities take several steps designed to achieve compliance with ADA. One step is the completion of a self-evaluation. Each department of the County was evaluated in 1992-93 and re-evaluated in this report. Both evaluations concentrated on the following issues:

- Eligibility, Admission and Participation requirements of programs, services and activities to ensure that they do not discriminate against persons with disabilities.
- Programs to ensure that they communicate with persons with disabilities in a manner that is as effective as their communications with others;
- Procedures and practices to ensure that public employees are familiar with the requirements for the full participation of individuals with disabilities;
- Building restrictions which may limit those with mobility impairments in attending programs and activities;
- Building and construction policies to ensure compliance with ADA standards;
- Evacuation procedures.

B. DEPARTMENT COMPLIANCE PROCEDURES

Upon completion of this report, each department will be provided a copy of the results of its own evaluation and of the following compliance policy.

Each Ramsey County Department shall:

1. Identify an individual responsible authority to coordinate and handle ADA issues for the department.
2. Work with the County's ADA coordinator to ensure proper handling of ADA issues.
3. Accept the recommendations of this Evaluation Report and implement the necessary changes.

4. Add the following language to all contracts:

No qualified individual with a disability as defined by the Americans with Disabilities Act, 42 U.S.C. Sections 12101-12213 or qualified handicapped person, as defined by United States Department of Health and Human Services regulations, Title 45 Part 84.3 (j) and (k), which implements Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. Section 794, under Executive Order No. 11914 (41 FR 17871, April 28, 1976) shall be:

- a. Denied access to or opportunity to participate in or receive benefits from any service offered by the CONTRACTOR under the terms and provisions of this Agreement, or
 - b. Subject to discrimination in employment under any program or activity related to the services provided by the CONTRACTOR under the terms and provisions of this agreement.
5. Immediately forward all claims and grievances to the Affirmative Action Department ADA Coordinator in accordance with the Ramsey County ADA Grievance Procedures.
6. Accept an active role in ensuring the County's compliance with the ADA in accordance with the following statement:
- “The Department has responsibility for monitoring compliance with the ADA, and taking the steps necessary to maintain accessibility. This responsibility includes obtaining adequate funding for projects, either through normal budgeting process, grants or the CIP process to remove barriers to programs, services and activities.”***
7. Develop on-going training/education programs for ADA compliance for all department employees.

C. INDIVIDUAL DEPARTMENT EVALUATIONS, COMPLIANCE PLANS, AND COMMUNITY COMMENTS

AFFIRMATIVE ACTION

455 Government Center-West Building

Affirmative Action is responsible for the active recruiting of and assistance to individuals in protected classes in the application, testing, and employment process throughout Ramsey County. The Division is designated as the ADA Coordinator for the entire County. All complaints and claims under the ADA are handled by this office.

1. PROGRAM EVALUATION

A program evaluation of the Affirmative Action Division was updated on 11/22/96 and found no deficiencies within the division. The division offers alternative formats to meet the needs of individuals applying for employment with the County and ensures that reasonable accommodations are provided to employees. The Division's main objective is to ensure accessibility.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

Affirmative Action is located in the Ramsey County Government Center-West Building. Physical barriers in the building are addressed under the Property Management report.

Deficiencies: Accessibility of Ramsey County Government Center-West.

Transition Plan: See Property Management report.

3. COMMUNITY COMMENTS

None.

BOARD OF COUNTY COMMISSIONERS

220 Courthouse

COUNTY MANAGER'S OFFICE

250 Courthouse

Ramsey County's mission is to enhance the quality of life for its citizens by providing progressive and innovative leadership which addresses federal and state directive and changing community needs by delivering services in a responsive, professional and cost effective manner. The Board of County Commissioners is the governing body of the County. It has established fundamental values of the County to ensure the success of the County in meeting its mission. These values include fiscal responsibility, openness of process, caring, integrity and honesty and an ethical workforce. The Board strives to meet the needs of its citizens balancing them with its fiscal responsibility and compliance with state and federal laws.

The County Manager's Office is committed to fostering an environment for County employees that stimulates creativity, innovation and collaboration while meeting the diverse and ever-changing needs of its citizens. The County Manager's Office supports the Board of Commissioners, departments and the community and provides leadership in fulfilling the County's mission.

1. PROGRAM EVALUATION

A program evaluation was conducted on the various functions of the Board of Commissioners and County Manager's Office on 5/14/93 and updated on 12/20/96. Currently the County Board relies on a relay system in order to communicate with persons who are hearing impaired. To date, there has been minimal use of this relay system. If usage increases, the department will consider use of a TDD.

Board meetings are held in a room that is wheelchair accessible. Hearing devices are provided for use in Council Chambers to help those who are hearing impaired. Minutes for the meeting are typed and available to the public. All meetings are tape-recorded and videotaped for viewing on cable T.V. A copy of the tapes are available upon request.

The County Board also appoints members to various advisory committees. A review of the application and selection process indicates there is no discrimination in the areas of eligibility or admission. Once a Committee member is selected, a location and the necessary auxiliary devices are selected to meet the needs of the various committee members.

Deficiencies: Commissioner application should include ADA compliance statement.

Action Plan: Add ADA compliance statement to all commissioner applications.

2. BUILDING EVALUATION

The offices of the Board of Commissioners and the County Manager are located in the City Hall/Courthouse. The major renovation of the building from 1991-1996 addressed issues of accessibility and made the necessary modifications.

Deficiencies: None

Transition Plan: N/A

3. COMMUNITY COMMENTS

In the public meeting held on June 10, the following comment was made:

The third floor Council Chambers have double doors. There is no easy access because one of the double doors is always locked and there is no power entrance. It was suggested that both doors remain unlocked while the Chambers are in use. This comment will be forwarded to Building Services so that the appropriate action may be taken.

BUDGETING & ACCOUNTING

270 Courthouse

The Budgeting and Accounting Department is an internal operation serving the Board and County Manager's Office. There is limited public contact. Public contact is generated through calls to the County Board or County Manager's Office.

1. PROGRAM EVALUATION

There are no programs, services or activities issues for this department. Any public access issues are dealt with at the Board/County Manager's Office level. The department meets the ADA and no action plan is necessary.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

The Budgeting and Accounting Department is located in the Courthouse. The major renovation of the building from 1991 - 1996 addressed issues of accessibility and made the necessary modifications.

Deficiencies: None

Transition Plan: N/A

3. COMMUNITY COMMENTS

None.

COMMUNITY HUMAN SERVICES

160 Kellogg Boulevard

Community Human Services operates as the social service program of the County. Its mission is to enhance the quality of life for the people of Ramsey County by providing resources to meet basic human needs, assuring protection for the vulnerable, and assisting in achieving self-sufficiency, all in the most cost effective manner. The department is divided into 7 divisions: Administrative Services, Information Services, Income Maintenance, Social Services, Mental Health/Chemical Dependency Services, Lake Owasso Residence and Ramsey Nursing Home. Lake Owasso and Ramsey Nursing Home evaluations are found under separate sections. The other five divisions are included in the following evaluations.

Administrative Services: handles the internal operations of the Department including Human Resources, Budgeting and Accounting, Staff Development and Planning. The division also deals with issues affecting the entire department such as the Data Practices Act, Electronic Benefit Services and Home Delivered Meals of Ramsey County.

Information Services: includes computer support for the Department along with research and evaluation, purchasing, supplies and print shop.

Income Maintenance: provides financial, medical and self-support services to eligible Ramsey County residents in need of these services. Services include Aid to Families with Dependent Children, General Assistance, Emergency Assistance, Food Stamps, General Assistance Medical Care, Medical Assistance, Minnesota Supplemental Aid and Refugee Case Assistance.

Social Services: provides protection for vulnerable adults and children and provides essential culturally sensitive social services to Ramsey County citizens with the most serious needs. The division offers the following services and programs:

- Family & Children Services
- Placement Systems
- Service to Wards
- Purchase of Services
- Adult Services
- Developmental Disabilities

Mental Health/Chemical Dependency Services: provides a variety of assistance to persons with mental illness or chemical dependency issues. The division offers the following services:

- ***Mental Health Clinic:*** provides outpatient mental health services including

psychiatric services (medication monitoring/prescribing) and court evaluations. The target population is serious and persistently mentally ill, lower to middle income, and Medical Assistance clients.

- ***Mental Health Day Treatment:*** provides day treatment for clients with serious and persistent mental illness. Clients participate in group therapy, goal setting, mental health education sessions, and recreational and occupational therapy. Clients are referred to this site from the Intake Section at 529 Jackson.
- ***Mental Health Case Management:*** provides case management services to individuals with serious and persistent mental illness. Program arranges, coordinates, monitors and provides services to individuals living in residential programs, state hospitals or independently.
- ***Mental Health Crisis/Intake Unit:*** provides screening and intake for mental health services; provides mental health crisis outreach and crisis intervention services; assesses all cases referred for civil commitment.
- ***Chemical Assessment And Referral:*** provides access to chemical dependency treatment by determining client financial eligibility and assessing their chemical use history in order to establish an appropriate level of care.
- ***Detox Center:*** provides detoxification services for all people who are intoxicated or experiencing withdrawal. Referrals are from Ramsey County. The Center provides medical treatment and behavioral management for these clients. Length of stay is 24 to 36 hours and the minimum age is 13 years.

1. PROGRAM EVALUATION

Administrative Services: all program, services and activities issues are covered under the various other divisions that deal with the public. No further evaluation is necessary.

Information Services: supports the various other divisions and assists them in contracting for special services. As a support operation, there are no public programs, services or activities. No further evaluation is necessary.

Income Maintenance: an evaluation of the Income Maintenance Division was conducted in May, 1992 and updated in February, 1997. Services under this division have access to TDD, the relay system and sign language interpreters. There are no eligibility or admission requirements that limit the number of qualified persons with disabilities from participating in the various programs. Forms necessary for admission into the programs are usually filled out before the clients are interviewed. Staff is

available to help individuals complete the forms. (No alternate formats are available.)
Program information form notifies applicants how to file a complaint if they feel they are treated differently because of disability. Programs do not discriminate against persons with disability in recruitment, eligibility, admission or participation. Any pre-admission inquiries about the nature or extent of a disability are for the purpose of determining eligibility for financial programs.

Deficiencies: None

Action Plan: N/A

Social Services: program evaluations for the various services and programs offered by this division were conducted in 1992 and updated in 1997. Only those programs/services where deficiencies exist are indicated below.

Child Care: establishes eligibility for child care assistance for individuals who are employed or in training. for continued assistance. It provides child care assistance for parents who are unable to give full time care to their children because of medical, social or child protection problems. The program has a TDD and a signer is available to assist applicants and clients. Eligibility requirements include income guidelines and a medical statement verifying incapacity, but do not discriminate on basis of a person's disability.

Deficiencies: Application has no ADA compliance statement.

Action Plan: Add ADA statement to application.

Home Housekeeping: establishes eligibility for housekeeping services for individuals who are elderly and frail or who are severely handicapped and need these services to remain in their own home. This program uses TDD, relay, amplified phone receiver, and signers to assist clients. Staff will assist individuals with completing applications. The program does not discriminate on eligibility, admission or participation. Clients must meet income guidelines and have written medical verification of their disability and need for services.

Deficiencies: Application has no ADA compliance/non-discrimination statement.

Action Plan: Add ADA statement to application.

Sexual Offense Services (SOS): SOS is the sexual assault victim crisis center for Ramsey County. The program offers 24-hour telephone services for victims of sexual assault. Services include crisis intervention, counseling, advocacy, information and referral (telephone and in person); community education and in-service training for

professionals; coordination and planning of services and prevention efforts with other agencies.

A program evaluation was conducted on 7/21/93 and updated in January, 1997. In the program evaluation, it was found that there are no braille or audiotape versions of the brochures/flyers used in this program. There is a relay service provided but since there is an emphasis on phone service in this program, a TDD would provide the best service to the hearing impaired.

Deficiencies:

1. No alternate formats for materials.
2. No TDD service available on site.

Action Plan:

1. Have audio tape or braille version of materials available at request.
2. Evaluate use of Relay System. Add TDD to site if use warrants it. Make sure staff is trained in how to use TDD effectively.

Mental Health/Chemical Dependency Services: conducted evaluations by individual areas in order to identify any deficiencies in the various programs, services and activities offered by this division.

Mental Health Clinic: a program evaluation of the Mental Health Clinic was conducted on 4/21/92 and updated in January, 1997. The program does not discriminate against persons with disabilities in its recruitment, eligibility, admission or participation practices although the ability to accommodate persons with hearing impairments is limited. A serious barrier for the clinic is their lack of a TDD system. They do provide information to the general public over the telephone, so this would definitely inhibit their ability to communicate with the hearing and speech impaired. The clinic has not hired sign language interpreters and does not have taped or brailled information for clients. (They provide brochures explaining general information, confidentiality and program rules.) A staff person can assist a vision impaired client in filling out the paperwork required for admission into the program and the psychological testing can also be tailored to accommodate the vision impaired.

Deficiencies:

1. No auxiliary aids or TDD system used.
2. Brochures, information, application not available in alternate formats.
3. Staff not trained in issues of ADA accommodations.

Action Plan:

1. Plans for using auxiliary aids should be made so that staff can access them as

needed.

2. The department can use a relay system to handle calls from hearing and speech impaired. If usage warrants, department should purchase TDD for on site use and train staff on how to use it.
3. Staff training programs should be modified to include ADA accommodation.
4. Alternate formats of brochures, information and application should be available. Division should look into services to transfer information on tape or in braille for the visually impaired.

Day Treatment: a program evaluation of the Mental Health Day Treatment program was conducted on 5/14/92 and updated in January, 1997. As per the evaluation, there are no auxiliary aids provided to accommodate individuals with hearing, speech or vision impairments. There is no ADA notice on the forms that they use. There are no post-admission inquiries made regarding disability status to make accommodations. There is no in-service training provided to ensure that staff are informed on accommodations/alternate procedures. The facilities would need assistance in planning accommodations for a hearing, speech or vision impaired client.

Deficiencies:

1. No auxiliary aids provided or TDD.
2. No ADA notice of compliance on forms.
3. No staff training on how to accommodate persons with disability.

Action Plan:

1. In planning appropriate treatment program, staff should accommodate individuals with special needs and make arrangements to provide necessary auxiliary aids.
2. The department can use a relay system to handle calls from hearing and speech impaired. If usage warrants, department should purchase TDD for on site and train staff on how to use it.
3. Staff training programs should be modified to include ADA accommodation.
4. Alternate formats of brochures, information and application should be available. Division should look into services to transfer information on tape or in braille for the visually impaired.

Mental Health Case Management: deals with persons with mental disabilities. They do no recruiting or advertising. Persons in program must meet eligibility requirement of having serious and persistent mental illness as defined in law. Intake workers meet with clients at home or in office and helps client complete necessary application forms. (These forms are not available in alternate formats.) The forms carry a non-discrimination statement. Case managers meet with clients throughout program to review level of service and client's level of function to ensure client is receiving appropriate care.

Deficiencies: None

Action Plan: N/A

Chemical Assessment & Referral: offers presentations at a variety of locations and for a variety of organizations. The program has no printed recruitment or advertisements. Eligibility requirements, admissions and participation do not discriminate against persons with disabilities. This program accepts clients by referral and works to ensure that the program is well suited for the clients and is capable of serving the client's individual needs.

Deficiencies:

1. Presentations, meetings and lectures may not be fully accessible.
2. Admission form do not include ADA compliance statement.

Action Plan:

1. Review presentation materials to deal with hearing and visual impairment.
2. Make sure locations are accessible.
3. Add ADA compliance statement on form
4. Be sure staff orientation includes training in issues of ADA accommodation.

Detox Center : a program evaluation was completed on 4/23/92 and updated in January, 1997. Interpreters and telephones are available for persons with hearing impairments. There is no recruitment for participants. Information on the program is given to the public through meetings or oral presentations at seminars or schools. These meetings may not be held at fully accessible locations. There are no admission restrictions based on disability; however, participation in program may be limited based on medical assessment of client.

Deficiencies: Lectures and oral presentations may not be fully accessible.

Action Plan: Presentations initiated by Ramsey County should be held in accessible locations. Registration or information materials for presentations should have a number to contact if a person has special needs. These needs can then be accommodated at presentations. Employee orientation should include ADA training in accommodating persons with disabilities.

2. BUILDING EVALUATION

Administration, Information Services, and the Income Maintenance Divisions operate out of Ramsey County Government Center-East. This building completed a major renovation in 1996. All ADA deficiencies identified in the building at the time

of renovation were corrected. No additional deficiencies have been identified since that time.

Social Services also operates out of the East Building but uses community sites for some of its programs such as Child Protection and Sexual Offense Services (SOS). An evaluation of these facilities is presented below.

Child Protection Services: operates out of two non-owned facilities: Capital View Center and the Bigelow Building. These buildings were evaluated in December, 1996. The Bigelow Building is fully accessible whereas Capital View has some major deficiencies. Capital View is owned by a school district with no plans for renovations to make the building fully accessible.

Deficiencies:

1. Main entrance to lower level has high threshold which limits accessibility.
2. Signage does not indicate accessible entrances or directions to accessible entrances.
3. Bathrooms are not accessible.

Transition Plan: The division will ask the landlord to remove the barriers in the building. The division will look at an alternate site to Capital View to ensure that the program is accessible at this location.

SOS: operates out of a leased facility in St. Paul. A property survey was conducted in March, 1993, and updated in January, 1997. The survey identified several physical barriers at this location but found they do not restrict access to the program, services or activities.

Deficiencies:

1. Inadequate, noncompliant interior signage for public doors.
2. Inadequate knee space under lavatory.
3. Excessive height of toilet room mirrors.

Transition Plan: Contact building owner to provide better signage at public doors and to modify bathrooms to meet ADA requirements.

Mental Health/Chemical Dependency Services has various sites that were evaluated.

Mental Health Clinic, 529 Jackson St., St. Paul, MN

An evaluation was conducted in June, 1992 and updated in February, 1997. This is a leased site that operates as a Clinic.

Deficiencies:

1. Entry has high threshold and requires excessive force to open door.
2. Excessive projection of wall mounted objects into passageways.
3. Elevator call buttons, floor selector and emergency call buttons are too high.
4. No tactile landing identification signs on elevator door jambs.
5. No audio signals indicating elevator arrival, direction and landing.
6. Non-compliant hardware for common passage doors.
7. Excessive height for telephone, water fountain and fire alarm pulls.
8. Non visual signal for emergency warning system.

Transition Plan: Division should ask owner to address issues of ADA compliance immediately. If building owner is unable to comply, the Division should look for new site that is accessible to persons with disabilities.

Mental Health Day Treatment: Building surveys were conducted in 1992 and updated in 1997 for the 3 Day Treatment Centers. These three centers are all leased facilities. None of the locations are fully accessible. Clients are sent to these programs by referral from the Mental Health Clinic. The centers make the necessary accommodations to assist persons with disabilities at these facilities.

3. COMMUNITY COMMENTS

In program areas, social service decisions are not always made with sensitivity to the client's needs but focus on the system and the concerns of the caregivers. The department should look into its policies of coordinating services in various areas to ensure that the client comes first.

CORRECTIONS

650E Government Center-West Building

The Corrections Department provides services and facilities for adult and juvenile offenders in Ramsey County. The following is a summary of its operations.

The Adult Correction Division provides Investigation, Supervision and Domestic Relation services to the Courts:

- Investigation aids the Courts in providing information used in sentencing decisions including background information on prisons and background information for probation officers supervising offenders.
- The Supervision area provides community based supervision for those convicted offenders ordered by the court to comply with standard and special conditions of supervision. The purpose of this activity is to protect the public, reduce recidivism and obtain individual or community restitution.
- Domestic Relations serves the area of Family Court. Its services include performing mediation services and custody evaluations to support the work of the Courts and to protect the interests of children. It also enforces/oversees orders for protection.

The Correctional Facility (Workhouse) protects the community by providing security, supervision and treatment alternatives to all men committed by the Courts to this facility. Activities include administration, custody, treatment services, institutional and department services, building operations and maintenance.

Juvenile Probation provides probation supervision to juveniles adjudicated delinquent by the Courts and provides the Courts with information upon which to make dispositional decisions relative to these juveniles.

Juvenile Detention Center provides a 30-bed secure detention program for youth charged with delinquent offenses. Detention programming stresses safety, security, medical screening and emergency care, short-term counseling, individualized education programs, and recreational and motivational activities.

Boys Totem Town is a correctional facility for adolescent boys. It is licensed for 65 beds and offers long term programs (4-6 months). Its mission is to protect the community and to develop living skills in residents that may allow them to be successful in life.

1. PROGRAM EVALUATION

A program evaluation was completed in 1992 and updated in December, 1996 for the various programs offered by Corrections.

Under the **Adult Courts Division** there are no eligibility requirements. All participants are referred into the various programs by the Courts. The division provides sign language interpreters, TDD and relay services. Interviews with participants are conducted at accessible sites where information is provided in written and verbal form.

The Correction Facility (Workhouse) also has no eligibility or admission requirements that would affect persons with disabilities. All inmates are committed by order of the Courts. Signers are provided for inmates with hearing impairments. Orientation sessions have both verbal presentations and written materials to assist new inmates. Staff are trained to assist inmates with disabilities during their incarceration at this facility. Barriers at this facility are discussed under the Building Evaluation section.

Juvenile Probation will provide signers as necessary. They have TDD phone access for assisting persons with hearing or speech impairments. Programs for individuals with special needs are modified to accommodate these individuals while still complying with probation rules. Information is available in written and verbal form.

Juvenile Detention Center and Boys Totem Town make use of signers, TDD, taped materials and audio recordings to accommodate persons with disabilities. Eligibility for these facilities are determined by State Statute. Staff are trained in the ADA. Barriers are discussed under the Building Evaluation section.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

The Adult Courts Division has various leased offices to provide services under various programs at the following locations:

710 Arcade, St. Paul
1600 University Ave, St. Paul
650 Marshall, St. Paul

The last two facilities offer accessible sites for all participants in the programs. The Arcade location has several deficiencies.

The Workhouse is a County-owned facility that houses men convicted of felonies and misdemeanors. The facility completed renovation in the fall of 1996 that included removal of barriers to comply with the ADA.

Juvenile Probation has 2 leased offices that are accessible to persons with disabilities; 265 Oneida and 1021 Marion. The third leased office at 715 Edgerton is not fully accessible.

Juvenile Detention Center is a County owned facility that includes Juvenile Court proceedings. There are some barriers in the building that will be addressed during the major renovation and expansion project scheduled to begin in Fall of 1997.

Boys Totem Town is a County owned residential treatment facility. The buildings are old and have numerous deficiencies related to ADA. The facility cannot accommodate a potential resident with special needs and therefore the Courts would not assign a person with special needs to this facility. There are concerns with regard to public areas for visitors to the facility. These concerns are address below under deficiencies.

Deficiencies:

710 Arcade (leased)

1. Absence of direction signage to accessible entrance.
2. Noncompliant interior signage for public doors.
3. Bathroom not fully accessible.

715 Edgerton (leased)

1. Inadequate number of designated accessible parking spaces.
2. Obscured or inconspicuous accessible parking signs.
3. Excessive slope along path to accessible entry.
4. Undesignated accessible entry.
5. Noncompliant interior signage for public doors.
6. Noncompliant toilet room signage.
7. Obstructed threshold to toilet room entry door.

Boys Totem Town

1. Noncompliant site access and entrance.
2. Noncompliant accessibility throughout public areas of building.
3. Noncompliant signage.
4. Noncompliant restroom facilities.

Transition Plan:

For the two leased facilities, alternate sites are available to meet the needs of persons with disabilities; therefore the County is in full compliance with the ADA. However, to ensure greater accessibility, the department should look for alternate sites for these programs upon expiration of the current leases .

Boys Totem Town does not comply with ADA requirement. The County currently has no plans to renovate this facility; however, new juvenile facilities are being explored to meet the increased needs for juvenile detention space in the County. Any new facility must be ADA accessible to be considered as a possible site. All new construction will fully comply with ADA requirements.

3. COMMUNITY COMMENTS

None.

COUNTY ATTORNEY'S OFFICE

315 Government Center-West

The Ramsey County Attorney is an elected official who provides legal and law enforcement services for the citizens of Ramsey County. The County Attorney's Office provides assistance to the County Attorney. Its mission is to protect and provide for the public safety by prosecuting adult and juvenile offenders. In addition, it provides support and assistance to victims of crimes and protects children from neglect and abuse. Furthermore, the office supports children and families by seeking enforcement of child support obligations.

1. PROGRAM EVALUATION

A program evaluation of the County Attorney's Office was completed on 12/3/96. This evaluation revealed that the office uses interpreter services and verbal explanations to assist individuals with disabilities. The department uses TDD services through Ramsey County Telecommunication or the state TDD service. The department does not recruit participants. People in its program are referred by Law Enforcement or other county departments. Meetings are held at places accessible to people with physical disabilities. Upon request, it will make every effort to provide auxiliary aids. Information on Child Support programs is available in written form or on audio tapes. If transportation services are necessary for clients or victims, services are arranged by cab or Metro Mobility.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

The County Attorney's Office is located in the Ramsey County Government Center-West Building. Physical barriers in the building are addressed under the Property Management report.

Deficiencies: Accessibility of Ramsey County Government Center-West.

Transition Plan: See Property Management report.

3. COMMUNITY COMMENTS

None.

COURTS

Room 1700, Courthouse

The Courts Division of Ramsey County offers various programs and services for District Court. For a description of these programs and services, please see PROGRAM EVALUATION.

1. PROGRAM EVALUATION

A program evaluation for Courts was completed in 1993 and updated in December, 1996. The results of the evaluation, summarized along with a brief description of each program and service, follows. Deficiencies in the programs and services were identified in the initial evaluation and the necessary changes have been made to eliminate them or handle them administratively.

Domestic Abuse/Harassment Office: This office assists victims of domestic abuse in obtaining and filing orders for protection and harassment restraining orders. Interpreters are provided for the hearing impaired at all stages of the process. Relay Service is available as well. The office supplies written information about the office and process and gives information on the telephone. Occasionally the supervisor gives informational presentations (when requested) regarding the issues. The clerks assist everyone in filling out the forms and read all documents to the parties if they are not able to do so. All clerks explain/review the contents of documents and handouts. The petitioner must meet the statutory requirements to obtain the restraining order. The program does no recruiting. People in wheelchairs can easily access the office without the hindrance of steps.

A video tape showing the process has been produced and will be close captioned. The Domestic Abuse/Harassment forms are being revised in January 1997 and when that occurs the petition and orders will be available in large print format. The program is located in the West Building.

Jury Office: Ramsey County residents are summoned for jury service. Interpreters are provided for the hearing impaired and readers are provided for the visually impaired. The orientation handbook is on tape. The Courthouse is newly renovated and physical access issues aren't a problem. Jurors are summoned randomly according to State law. Relay Service is available. Jurors must fulfill statutory requirements to serve (such as Ramsey County resident).

Criminal Division: This office processes all criminal records. They provide terminals for people to access scheduling and record information in Ramsey County. Fines and bail money are paid and kept by this office. They provide the forms used in the courtroom such as pay or appear forms, warrants of commitment, probation referrals and no-contact orders. They notify the interpreter program if an interpreter is needed for the hearing impaired. People inquire over the phone for scheduling

information and case outcome information. This office also provides touch-tone telephone inquiries on an interactive voice response system for citation information. They do not recruit participants nor advertise. Clerks fill out the paper work. Relay Service is available. A TDD is in place in both rooms 700 and 130 (Violations Bureau) of the Court House.

Civil Division - Vital Services: This office does not recruit or advertise. They do assist people seeking passports, driver's license, state identification cards and marriage applications. They also record birth and death certificates for suburban locations in Ramsey County. There is a general information line with taped information on applying for a marriage license, a drivers license, passports and birth and death records. There is a TDD and employees have been trained on it. Statutory requirements must be met to get a license such as a driver's license. Counters are low for the wheelchair bound. Interpreters are provided and Relay Service is available as well. Readers are available.

Divorce Mediation Project - Special Courts: Litigants are given an alternative to litigation. Participants are targeted, that is, parties that are going through contested divorces (property, financial, visitation) are referred to the Program. Parties can ask to be admitted as well. A mediator brings the parties together and they try to reach a settlement. Interpreters for the hearing impaired are utilized as is the Relay Service. One of the parties must be a resident of Ramsey County. If a disability is known, the Program will accommodate. Eligibility is determined by the court documents filed. Financial disclosure information must be filled out once a party is in the Program. Mediators meet with the parties and if someone has a special need, the mediator notifies the Program Director. Written information is provided describing the Program.

Civil and Vital Statistics (Accounting): The accounting division receipts general filing fees and other fees rendered for service. They escrow court deposits and maintain those records. Most financial forms utilized are filled out by the accounting staff. Relay Service is available and interpreters can be provided as well. Participants are not recruited but the case must be venued in Ramsey County. Staff will read information to the parties and walk them through the form (minor settlements) if needed. Receipts are provided for payments made and forms are filed for minor settlements. Generally if someone were disabled it would be made known to the staff. Post inquiries are not applicable. Forms generally require a signature only. Staff assists anyone who needs help in filling out the financial worksheet. TDD is available in the conciliation office area several feet away.

Juvenile Court - Special Courts: Courts handles case scheduling, record keeping for juvenile court, calendaring, checking the parties in for court, conducts hearings, maintain court files and sends out court orders. Interpreters are provided for all court appearances. Relay Service is also available. Participants are not recruited and there are no eligibility requirements as it is commonly thought of. Usually the crime took place in Ramsey County. Taped information is not appropriate in this case.

Conciliation , Evictions and Housing Court - Civil Division: This office handles the filings for small claims court, filing eviction notices, filing actions against landlords, and filing code violations for housing court. All of the above are described on tape. Interpreters are made available for the hearing impaired and relay service is available as well. Participants are not recruited but the property must be in Ramsey County for evictions and generally the parties filing for conciliation are residents of Ramsey County. There is a tape that describes the housing court eviction and conciliation court processes. Participants fill out a form to file for conciliation, evictions, rent escrow, counter claims and appeals. Staff will assist people in filling out the forms. TDD equipment is installed and operational. Staff will read documents to participants.

Civil Division Room 600 Court House: This office opens all new cases and handles all subsequent filings including calendaring and processing Torrens and Trust matters; filing tax petitions; follow up paperwork from harassment proceedings; process appeals to Appellate CT, preparation of Writs of Execution and orders to Show Cause regarding collections on judgments. Default and transcript judgments as well as Pursuant judgments are processed in this office as well. Stipulations of dismissal, foreign judgments, writs of attachment, unsatisfied civil judgments and transcripts to and from other counties are processed. Sign interpreters are made available and Relay Service is available as well. There is a taped message that explains the process for a name change and the filing fees. Participants are not recruited but litigants are likely Ramsey County residents. There are forms that need to be filled out depending upon the matter brought to the court. Staff will read information to individuals if necessary. Many parties are represented by counsel. TDD is available in the conciliation office several feet away.

Family Court Assignment Filings - Special Courts: This office assigns court dates; schedules all calendaring for judges/referees; does file preparation; schedules petit court trials; responds to questions from the public; updates TCIS; provides copies of litigation papers, file orders and affidavits; and provides forms to those parties who are handling their own divorce. Interpreters are provided for the hearing impaired. Relay Service is available as well. Participants are not recruited, however one of the parties must be a Ramsey County resident. Filings are for family related matters such as divorce, change of custody, contempt motions and modification of visitation schedule, etc. Staff will explain which form to fill out and how to do so. If someone is unable to read the form the ombudsman will read the form to that person and help him/her complete it. Several forms are in the process of being revised, and when they are complete (estimated April 1997) large print versions will be prepared.

Assignment Division - Criminal and Civil Cases: This office schedules court dates for various criminal and civil court proceedings. This office is responsible for the assignment and allocation of judicial, parajudicial and administrative resources. Sign interpreters are made available for court appearances and Relay Service is available as well. Information is provided over the telephone to callers and written notices are sent

to the parties. Staff will read information to a litigant if they are visually impaired. Most people are represented by counsel.

Settlement conferences are conducted in the civil arena. Parties file a lawsuit and rule 16 conferences are then set up (settlement conferences) to avoid an actual trial. A notice is sent to the parties by mail as to the settlement conference date and telephone conferences are conducted as well. The parties do exchange forms through the discovery process. Sign interpreters are available as is the Relay Service. Staff will read documents to parties when necessary.

Maplewood Branch - Criminal Division: This Court serves the suburban municipalities of Ramsey County by handling many of the same matters held in as the main branch in St. Paul. They have a Violations Bureau which deals with parking and petty moving violations. There is a hearing officer available to hear and issue rulings on these matters. Arraignment court is conducted at this location with more serious traffic and criminal matters. This office is also responsible for maintaining accurate dispositional, financial and case history records. Interpreters for the hearing impaired are provided for court appearances. Participants are not recruited nor are their eligibility requirements per se. The accused is purported to have committed the crime in Ramsey County. Information regarding court dates, fines dispositions etc. is given out to the public via the telephone if an inquiry is made. Information is also given out at the front desk. The office collects fine payments and grants fine payment extensions. The hearing officer meets with defendants to discuss possible resolutions to lesser traffic offenses. Written notices concerning court appearances is provided to the litigant. The information is communicated verbally upon request, or if someone has a visual impairment. Defendants may fill out a financial eligibility form to determine if they qualify for a public defender to represent them. Pay or Appear type forms are filled out by court staff. Relay Service is available as well.

Violations Bureau - Criminal Division: The Violations Bureau is the initial point of contact for all City of St. Paul and ordinance offenders. It provides citation information to the public for all traffic and ordinance citations. The Violations Bureau collects fines, sets up court dates for offenders and provides an appeal option for non-moving petty misdemeanors. Permanent records for traffic and ordinance violations are kept in the Violation Bureau. The Bureau refers cases for collection and requests suspension of drivers licenses when an offender fails to meet the obligation of the citation. Sign interpreters are available when meeting with a hearing officer and for court appearances. There is an operational TDD. Relay Service is available as well. Employees will read information to litigants. Participants are not recruited but the offense would have to have occurred in Ramsey County.

Guardian ad Litem Program - Special Courts: Volunteers are recruited and trained to act as Guardian ad Litem for abused and neglected children. The volunteers gather information concerning the child and provide an independent report to the Court that focuses on the best interests of the child. Participants are not recruited. Once a family has been brought into the system as a result of an allegation of abuse or neglect, a

Guardian ad Litem is assigned . The volunteer interviews relevant parties and makes a recommendation to the court. Participants are not recruited and the cases assigned to the program are families already in the juvenile court system. Interpreters for the hearing impaired are provided. Relay Service is available as well. Taped information is not applicable. There is printed material that describes the Program and it is used in an effort to recruit volunteers. The volunteers must meet certain requirements - 21 years of age, have 3 references, etc. Volunteers are interviewed and their criminal history is checked. Volunteers receive an orientation regarding the Program and the training consists of 40 hours of pre-service training, a 250 p. manual, viewing 6 video tapes and more. Volunteers conduct interviews, provide written reports to the Court, appear in court and make recommendations verbally.

Interpreter Office - Admin. Services: This office arranges interpreters for persons with communication issues. This includes the hearing impaired as well as the non-English speaking population. Interpreters are provided for court appearances, appearances with a hearing officer, interviews for restraining orders and interviews conducted by the court visitor. Relay Service is available and there is a TDD in the office.

New Brighton Court - Criminal Division: This office serves specifically as a mail payment center for payable fines that have occurred in Ramsey County. No court cases are heard in New Brighton. Targeted participants are those persons accused of offenses within the Court's jurisdictional limit and geographic boundaries. Litigants are not recruited but the crime would have occurred in Ramsey County. Relay Service is available. Staff will read information to individuals and answer questions over the telephone. The hearing officer meets with defendants to discuss possible resolution to lesser traffic offenses. Arrangements are made for sign language interpreters when requested. Permanent records for traffic and ordinance violations are kept in New Brighton. Information regarding fine disposition is given out to the public via the telephone or in person upon request.

Civil Commitment - Special Courts: The Civil Commitment Office handles commitment petitions filed with the Court by the County Attorney's office for persons who are alleged to be mentally ill, chemically dependent, mentally retarded, mentally ill and dangerous, or have psychopathic personalities. Interpreters are provided at all stages of the court process and Relay Service is also available. The proceedings are conducted primarily at Ramsey Hospital, but the Court will relocate to other hospitals if the patient cannot be transported to court. Parties are not recruited but those committed must meet the statutory requirements as determined by the judiciary. Documents are read and explained by the person's attorney and a Guardian ad Litem who is appointed. The hospital staff or the Human Services Department notifies the Court if there is a need for an interpreter at any point.

Personnel Office - District Court: The Personnel Office sends out job postings and accepts applications for various positions. Training for employees is coordinated through this office. All personnel records are located in this office for both State and

County employees of District Court as are medical records and First Reports of Injury etc. All personnel type related matters are handled through this office. Interviews are conducted for various positions. There is a TDD and Relay Service available. The application form is available in Braille. Employees will read information to people upon request.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

Courts has four facilities that are used for its operations. These facilities include Ramsey County's Courthouse, the Juvenile Service Center located at 480 St. Peter Street, New Brighton Court at 803-5th Avenue, and Maplewood Court at 2785 White Bear Ave. Building surveys were conducted at each facility in 1993 and reviewed in 1996. All deficiencies initially identified have been removed.

Courthouse: The major renovation of the Courthouse from 1991 - 1996 addressed issues of accessibility and made the necessary modifications. Nine of the twenty-five courtrooms were redesigned to fully accommodate persons with disabilities. Department staff work with the various parties to ensure that accessible courtrooms are available when necessary.

Juvenile Center: The Center is used to conduct juvenile court proceedings. There are some barriers in the building that still need to be addressed for full compliance. The removal of these barriers are the responsibility of Corrections and are addressed in that portion of the report.

New Brighton Court: Clerk of Court service counter is 42" high. A small table 29" high has been provided for customer use to accommodate persons with disabilities.

Maplewood Court: The service counter height in the Court Offices is at 41-1/2". A low table has been provided for customer use to overcome this barrier. The private restrooms in the jury deliberation room are noncompliant. Accessible restrooms are available in the building that can be used by jury members if necessary.

3. COMMUNITY COMMENTS

In the public meeting on June 10, 1997, a comment was made that both individuals present had wanted all of the courtrooms fully accessible to meet possible future needs. When the Courthouse was renovated in 1992 - 1996, ADA requirements were used to

design the courtrooms. Nine of the twenty-six courtrooms are fully accessible. This meets the requirements of the ADA in effect at the time of renovation. No further action is necessary.

EMERGENCY SERVICES

3383 N. Rice St.

Emergency Services is a department which deals with state and federal emergency management office and local units of government in Ramsey County. Emergency Services has minimal contact with the public. They are set up to help local government units when a disaster occurs. Services may include assistance with completing small business administration forms and reports to state and federal offices in order to obtain funds for affected communities.

1. PROGRAM EVALUATION

Emergency Services was evaluated for program accessibility on 1/6/92 and updated on 12/2/96. According to the evaluation, Emergency Services does not have access to a TDD but uses a Relay System to communicate with persons with hearing and speech impairments. The department rarely receives calls from the general public. It is not involved in recruitment, eligibility, admission or participation in its program, services or activities, since its main operation is dealing with other units of government.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

A building evaluation was completed as part of the Public Works building since Emergency Services is located in the lower level of the building. There is no elevator access to the lower level. Although the public may seek shelter in the building in case of an emergency, there is usually no public contact with this agency.

Deficiencies: No elevator access to lower level. See Public Works for additional detail.

Transition Plan: Since there is little, if any, contact with the public on premises, there is no recommendation to modify this barrier at the present time. Any other accommodations will be handled administratively as needs arise.

3. COMMUNITY COMMENTS

None.

EXTENSION SERVICES

2020 White Bear Avenue, Maplewood

The Extension Service is part of the University of Minnesota, Metro Area Cluster Program. The program is found in the seven county metropolitan area. Its mission is to involve people in improving the quality of life and enhancing the economy and environment through education, applied research and the resources of the University. Its programs include Expanded Food and Nutrition Education Program, Job \$ense, yard waste reduction, and Dads Make a Difference Project.

1. PROGRAM EVALUATION

An evaluation of Extension Services was conducted in 1993 and reevaluated in 1996. The results of this evaluation are found under Deficiencies.

Deficiencies: Printed materials do not contain language regarding ADA or publicize the availability of services for persons with special needs.

Action Plan: Add ADA compliance and special needs language to literature at next printing.

2. BUILDING EVALUATION

Extension Services is located in the Ramsey County Barn built in 1918. A property survey was completed in May, 1992 and updated in October, 1996. Since the original survey, public restrooms have been renovated to ADA standards but lack the proper signage.

Deficiencies:

1. Inadequate signage to identify accessible entrance at exterior doors and from parking area.
2. Teller/Service counters do not have optional lower height for wheel chair accessibility.
3. Self-service displays are too high.
4. Restrooms do not have signage to indicate accessibility.
5. No access to second floor.
6. Main exit door closes too fast.

Transition Plan:

1. Add signage to identify accessible entrances, directions to that entrance, restrooms, emergency and non-entrance doors and non-accessible entrances.

2. Teller/Service Counter is a permanent structure. Staff can overcome this barrier by having a service table off to the side to assist persons with disabilities.
3. Staff will be trained in assisting and responding to customers with disabilities
4. Displays will be lowered to be serviced by persons in wheelchairs.
5. Department will limit use of second floor. Programs and training will be offered on lower level to ensure accessibility.

3. COMMUNITY COMMENTS

None.

INFORMATION SERVICES

550 Government Center-West Building

Information Services is an internal operation serving all County departments and divisions. It provides computer assistance and training to County departments. It develops computer applications and helps identify future computer hardware and software needs for the County.

1. PROGRAM EVALUATION

Since Information Services is an internal department, there are no public issues. The program evaluation conducted on 2/11/92 and reviewed in December of 1996 showed that there are no programs, services or activities issues for this department.

Although not a public issue, the department does hold computer training classes for Ramsey County employees and employees of the City of St. Paul. Classes are held in accessible locations and accommodations are made as necessary. These classes are not open to the general public. The department complies with the ADA and no action plan is necessary.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

Information Services is located in the Ramsey County Government Center-West Building. Physical barriers of this building and its transition plan are addressed under the Property Management Department.

Deficiencies: Accessibility of Ramsey County Government Center—West.

Transition Plan: See Property Management Report.

3. COMMUNITY COMMENTS

None.

JOB TRAINING

1945 Manton
Maplewood, MN

Ramsey County Job Training (RCJT) provides vocational assessment, case management, training, job seeking skills, supportive services, and placement to individuals who are public assistance recipients, dislocated workers, low income youth, and low income older workers. RCJT strives to provide individuals in need of employment a chance to gain and retain employment at a livable wage.

1. PROGRAM EVALUATION

An ADA program evaluation was conducted in December of 1992 and updated in December of 1996. The program provides sign interpreters and qualified readers on an as needed basis. Clients with speech and hearing impairments have access to programs through Ramsey County Human Services Department Relay System.

Recruitment and advertising materials are usually in written form. Readers are available for persons with visual impairments. Eligibility and admission requirements depend on the specific program requirements. Written math and reading tests may have a negative impact on persons with visual impairments. For some programs, readers are provided for tests and some written tests can be waived for persons with disabilities according to Federal JTPA policies.

Deficiencies:

1. Forms do not contain notice of ADA compliance.
2. Some forms refer to persons as handicapped.
3. Relay System is used to answer phone inquiries instead of TDD. Although this is acceptable, if there is a frequent use of relay system, department should consider purchase of TDD.

Action Plan:

1. ADA compliance statement or disability disclaimer should be added to all application forms and to "Participants Rights and Responsibilities".
2. Any reference to handicapped should be changed to disability on all forms and handouts.

2. BUILDING EVALUATION

A building evaluation was conducted on 10/19/92 and updated on 12/12/96. According to the evaluation, the building has several deficiencies that do not meet

ADA guidelines. RCJT has met with the owner of the building and discussed proposed changes to make the building ADA accessible. At the present time, the owner does not plan to update the building. RCJT along with several State and local programs is in the process of looking for new office space. The move is scheduled to take place in the Fall of 1997. In the interim, RCJT has temporarily located a site at the Ramsey County Workforce Center Office in St. Paul. This office is ADA compliant and can be used by the general public seeking job training services.

Deficiencies: Numerous in Gladstone Community Center.

Transition Plan: Relocate offices in Fall of 1997 to ADA compliant location.

3. COMMUNITY COMMENTS

None.

LAKE OWASSO RESIDENCE

210 N. Owasso Boulevard

Lake Owasso Residence is a residential treatment service for ambulatory people who are developmentally delayed and with related conditions. It serves a population of persons ages 16 through adult. The facility is licensed as a Class B Supervised Living Facility by the State Department of Health.

1. PROGRAM EVALUATION

An evaluation of Lake Owasso was conducted in 1992 and updated in December, 1996. The facility recruits residents through Ramsey County Social Services. Eligibility and admission requirements are limited to serve only those meeting license criteria. Any pre-admission screening conducted is to ensure Lake Owasso can fit the needs of the client, since each program is specifically designed to meet those needs. The program evaluation indicates that Lake Owasso uses a Relay System for the hearing impaired. There is little use of this service and appears to be adequate for this operation; therefore, it is not recommended that Lake Owasso purchase a TDD at this time.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

A building evaluation for Lake Owasso was completed in December of 1996. This facility did not conduct an original evaluation since it was scheduled for closure by the State. Since the initial report was completed, the facility has remained open with no definite date of closure planned; therefore, it was necessary to evaluate the public areas of this operation for accessibility.

There are four (4) buildings at Lake Owasso Residence. The three residence halls (upstairs Main Building, Taylor and Davis) along with the school house are not open to the public. The administration offices (downstairs Main Building) have limited public access. Visitors must go to the administration area to sign in and can meet with resident and staff in its conference room or cafeteria.

Deficiencies: The following deficiencies were found in the public portion of the Administration Building and surrounding area:

1. Noncompliant passenger loading zone.
2. Obstructive entrance threshold.

3. Non-compliant entry door latch hardware.
4. Undesignated accessible entrance.
5. Absence of directional signage to accessible entrance.
6. Inadequate clear usable opening for common passage doors (not in public areas; nurse's office, bathrooms).
1. Noncompliant door latch hardware for common passage doors.

Transition Plan: In 1997, Lake Owasso will:

1. Stripe parking area to show pedestrian aisle.
2. Building supervisor to adjust door threshold.
3. Change front door and common door hardware to lever handle or push/pull mechanism.
4. Add signage to mark accessible entry door and direct people from parking lot to entrance.

Deficiency #6 addresses non-public areas that may on occasion be entered by the public under certain circumstances. This item will not be addressed until closure decision of the facility has been firmly decided because of the age and general condition of the building.

3. COMMUNITY COMMENTS

None.

LAW LIBRARY

1815 Courthouse

The Law Library provides a collection of law books for the use of lawyers and the public.

1. PROGRAM EVALUATION

The Law Library was evaluated in 1992 and updated in December, 1996. There are no eligibility, recruitment or admission requirements to use the library. Parties interested in using the library have access to all the materials available. Staff are available to assist persons with physical disabilities in retrieving books and periodicals. Books in the library are in written forms. Alternative forms are not available. Because of the nature of this services, there are no auxiliary aids to accommodate persons with visual impairments. The department can use the relay service to provide information to callers . No action plan is necessary at this time.

Deficiencies: Texts are available in written form only.

Action Plan: The nature of the law library does not allow for books to be available in alternate formats without changing the intent and purpose of the service. Individuals that seek to convert information into alternative formats would do so at their own expense.

2. BUILDING EVALUATION

The Law Library is located in the Courthouse. The major renovation of the building from 1991-1996 addressed issues of accessibility and made the necessary modifications.

Deficiencies: Doors into library and restrooms are extremely heavy.

Transition Plan: Building Services will adjust door closers to reduce pull needed to open. They will also check into leaving library doors open during business hours taking into account fire codes and HVAC accommodations.

3. COMMUNITY COMMENTS

None.

LIBRARIES

4570 N. Victoria St.
Shoreview, MN

The libraries are a system of seven locations that offers library services to the residents of Ramsey County and the surrounding metropolitan area. Its mission is to assure that all persons can easily obtain, without charge, the cultural, recreational, and factual resources they need to improve or enrich their lives.

1. PROGRAM EVALUATION

A program evaluation was conducted on the various activities performed at the seven libraries. The evaluations were initially conducted in 1992 and updated in July, 1996.

Deficiencies:

1. Libraries use Relay System to communicate by telephone with the hearing impaired.
2. Most of the advertising and information about the libraries is available in print only.
3. Program registration materials do not offer place to indicate special accommodations.
4. Brochures do not properly identify which libraries are fully accessible.
5. No visual alarm in building.

Action Plan:

1. Libraries should consider purchase of TDD to provide more efficient communication with clients who are hearing or speech impaired.
2. Advertisements and information about the libraries should utilize multi-media formats.
3. Registration materials shall include place to indicate if special accommodations are needed.
4. Brochures on the libraries will indicate which libraries are fully accessible.
5. Emergency procedures will be amended to address evacuation of persons with disabilities.

2. BUILDING EVALUATION

The libraries, as a whole, meet ADA accessibility requirements although individual libraries have physical barriers that may limit accessibility at some locations. The new Roseville, Maplewood and Shoreview libraries have eliminated almost all barriers found in the surveys. Those barriers that remain will be handled administratively.

Mounds View library has some minor barriers that are scheduled to be corrected in the

near future. North St. Paul, White Bear Lake and Arden Hills libraries have many barriers that need to be corrected. These deficiencies are addressed in the Transition Plan and staff at these libraries are actively seeking funds to address these issues.

Deficiencies:

1. Need power-assisted door openers at Arden Hills, North St. Paul and Moundsview.
2. Public counters do not have accessible area (Arden Hills, North St. Paul and Moundsview).
3. Exposed pipes under sinks needs insulation - All locations.
4. Drinking fountains not accessible (Arden Hills, North St. Paul and White Bear Lake).
5. Restrooms not fully accessible (Arden Hills, North St. Paul and White Bear Lake).
6. Curb cuts do not have different texture (Arden Hills, North St. Paul).

Transition Plan:

1. Power doors added 1996/1997.
2. Counters modified 1996/1997. Specific areas near counters designated for use for persons with disabilities.
3. Pipes will be insulated 1996/1997.
4. Drinking fountains will be modified 1996/1997.
5. Funds for remodeling restrooms to be requested in 1998 Grant/Capital Improvement Applications.
6. Funds to modify curb cuts requested in 1997 Grant/Capital Improvement Applications.

3. COMMUNITY COMMENTS

At the public meeting on June 10, 1997, a person made that comment that he does not like the wording under the Building Evaluation section of this report that states: "The libraries, as a whole, meet ADA accessibility requirements...." He felt this gave the County Commissioners the impression that everything is okay and that nothing further needed to be done at the libraries.

In addition, the Roseville library was made for easy access from cars but not directly accessible from both sides of the library for someone walking or in a wheelchair.

MEDICAL EXAMINER'S OFFICE

300 East University Avenue

The Medical Examiner's Office was established for the purpose of investigating deaths occurring within Ramsey County, as mandated by Minnesota State Law. One of its objectives is to provide information and assistance to surviving family members at the time of death including identification of bodies and autopsy results.

1. PROGRAM EVALUATION

A program evaluation of the Medical Examiner's Office was completed on 8/24/92 and updated on 11/19/96. The evaluation reveals that this department's public access is limited to the identification of bodies by family members. From an ADA perspective, the department assists families as needed who may have a member with a disability and will get personal aides if necessary. The department complies with the ADA and there are no recommendations at this time.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

The Medical Examiner's Office moved to its new location at 300 University Avenue in March of 1994. The new facility was built incorporating ADA guidelines in existence at the time of the construction.

Deficiencies: None

Transition Plan: N/A

3. COMMUNITY COMMENTS

None.

PARK AND RECREATION

2015 North Van Dyke Street
Maplewood

The Park and Recreation Department offers a variety of activities for people of all ages. Biking, hiking, swimming, boating, fishing, picnicking, golfing, skating, and cross country skiing are just a few of the activities enjoyed by the public and offered by this department.

The County has five regional parks, a nature center, four golf courses, a golf dome, ten public ice arenas and numerous picnic and beach areas. The department offers classes to the public including cross country ski lessons, skating and golf instruction. The department is dedicated to providing recreational facilities and programs to all guests of its park system.

1. PROGRAM EVALUATION

An ADA program evaluation was conducted in 1992/93 and updated in December, 1997. The following is a brief overview of the programs and activities offered by this department.

Archery, bicycling, cross country skiing, golf, hiking, horseshoes, skating, swimming and interpretive programs are some of the activities open to the public. For all these activities, there are no eligibility or participation requirements. The department produces a variety of brochures, flyers and other publications to advertise and promote these activities. Persons interested in activities can call the administration office for any information. Inherent in these programs are areas that may limit accessibility to persons with disabilities. Archery, bicycling, cross country skiing and golf require persons with minimum visual ability to perform these activities safely. No individual aids are provided to individuals to overcome these barriers and none are required under the ADA guidelines. For some activities the terrain may present barriers to individuals with limited mobility. Again the nature of the activities makes some programs inaccessible; however, for the hiking and nature interpretive trails, the County provides some trails that are fully accessible.

The department offers concerts at the various parks. These events are advertised in multi-media formats including radio and television. Concerts are open to all. There is no permanent seating offered for these concerts. Most are held in grassy areas that may offer challenges to persons with mobility impairments; however, there are paved trails at most concert sites.

The department also rents out its arenas for “dry floor” events. The arenas have some physical barriers which will be discussed under the Building Evaluation section of this

report.

There is a nature center that offers programs on nature interpretation. No aids are provided for these programs although they are available upon request. The department has use of a TDD and the Relay System to answer questions by phone. Because of the nature of these programs, there are some accessibility issues. The County and the department try to offer these programs in the most accessible settings while retaining the nature and intent of the programs. Information on the programs are not available in braille or large print. Interpretive signs are not in braille. Some of the trails used in the interpretive programs are difficult for persons with mobility impairments and provide poor traction for wheel chairs. Volunteers are used in the program and are trained to assist persons with disabilities.

Picnic areas, children's play areas and beaches are not all fully accessible. Some picnic areas have accessible shelters and accessible scattered free-standing tables (see schedule). The department plans to have all play areas fully accessible by 1999 (see schedule). Persons with mobility impairments may have limited access to certain facilities.

People interested in fishing can use the fishing piers on Island, Long and Beaver Lake along with the lake at Keller Regional Park. Shoreline fishing has no paved path to the designated shoreline which may limit access to persons with physical impairments.

Watercraft launching requires participants to be capable of launching their own boat. The department offers no assistance in using this service.

On the whole, the programs, services and activities offered by the Parks & Recreation Department are moving toward maximum accessibility within the fundamental nature of the programs offered.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

Deficiencies: Evaluations of the various facilities are presented in the following pages.

Transition Plan: The plan developed by the Parks and Recreation Department is outlined in the following pages.

3. COMMUNITY COMMENTS

At the public meeting on June 10, 1997, the comment was made that the department should make sure that all picnic tables are spaced so that persons in wheelchairs are able to move in close to the table.

PERSONNEL

430 Government Center-West Building

The Personnel Department is responsible for recruiting job applicants for employment positions in the County personnel system, administering employment tests, and referring candidates for consideration by employing departments. They are also responsible for dealing with the on-going personnel issues of employees.

1. PROGRAM EVALUATION

A review of the ADA Program Evaluation for the Personnel Department was completed in August, 1992 and updated in December, 1996. The County does not discriminate against persons with disabilities in the recruitment, application and eligibility requirements for employment. Applications for employment are available at Ramsey County Government Center West. An applicant has the option of completing a job application on site. If help is needed completing the application, staff are available to assist.

Deficiencies: Applications for employment do not have a statement showing compliance with ADA.

Action Plan: All applications should have a statement regarding Ramsey County compliance with ADA.

Note: Any ADA issues relating to employment are not covered in this report. Risk Management and Personnel have addressed employment issues separately.

2. BUILDING EVALUATION

The Personnel Department is located in the Ramsey County Government Center-West Building. The physical barriers within the department and in the building are addressed under the Property Management report. To overcome these barriers, the department uses alternate accessible sites to ensure applicants have equal access to employment opportunities.

Deficiencies: Accessibility of Ramsey County Government Center-West.

Transition Plan: See Property Management report.

3. COMMUNITY COMMENT

At the public meeting on June 10, 1997, there were some questions raised about employment issues. It was explained that this report dealt with public accessibility of programs, services and activities offered by the County. Employment issues were handled separately by the Personnel Department.

PROPERTY RECORDS AND REVENUE

845 Government Center-West Building

The Property Records and Revenue Department of Ramsey County deals with recording and taxation of real property located in Ramsey County and elections/voter registration. With respect to the property, the department is responsible to properly value and classify all property in the County for the purpose of assessing property taxes. It collects property taxes and processes tax payments, deed taxes and mortgage registration taxes. The department also notifies property owners of any tax delinquencies. It provides information by phone or in person regarding taxes, values, classification and ownership of property. The department is also involved in public auctions of those properties that have been forfeited to the State for non-payment of real estate taxes.

In addition, the department is responsible for elections and voter registration. It conducts elections either at specified polling places or by providing an opportunity for all eligible voters to vote by mail or at the County Auditor's Office. It also offers the opportunity for citizens who are eligible to vote to register to do so.

1. PROGRAM EVALUATION

A program evaluation for this department was conducted in 1992 and completely redone in 1997 to provide a more comprehensive evaluation of the programs, services and activities it offers. Comprised of three major divisions, Valuation, Revenue Records and Property Records, the department is set up with various functions related to property taxation in Ramsey County. It values properties for taxation purposes, sends out tax notifications, holds public Truth In Taxation hearings, records property information in County records, and conducts public auctions for tax forfeited lands. The division has daily contact with the public either by phone or in person. There is a person on staff who can sign and is available to assist persons with hearing impairments. Staff are trained to meet customers' needs and will assist customers with disabilities. The division has access to a TDD and also uses Relay and fax systems to communicate. Information is advertised in the newspaper and through the County Board cable program. Meetings for the public are held at accessible sites. The department has no eligibility or admission requirements to its programs and services and there are no barriers to participation in these programs.

Revenue: Information on property taxes and valuations are mailed to each property owner. A Board of Equalization has been established to afford property owners the chance to appeal values. There is a special classification for properties owned and occupied by persons who are physically impaired. To be eligible for the special tax classification, the owner must obtain certification from his/her doctor and submit a request to the state. The state determines eligibility for this program. All property

owners who seek this special classification must be re-certified every year.

Deficiencies: None

Action Plan: N/A

Elections/Voter Registration: This division is responsible for elections and offers voter registration to all eligible citizens. Requirements for voter eligibility are determined by the state. The County does not discriminate against persons with disabilities.

Elections are held at various polling places throughout the County. These sites are chosen by the various cities. Ramsey County is responsible for verifying site accessibility and providing the necessary equipment and judges at the sites. Accessible voter stations are available at each precinct polling location. No voter materials are available in braille or taped formats, although some large type material is available. The election judges and election staff are trained to assist voters with disabilities that are unable to vote unassisted. Ballots are marked and an affidavit of assistance is signed when assistance is given to voters.

Deficiencies:

1. Some individuals need assistance of election judges to vote. Ballots are marked accordingly and an affidavit is signed by the assisting judge as required by statute.
2. Large print material is available for elections only.

Action Plan:

1. The process to assist voters with disabilities has been established by Minnesota Statute and includes wheel chair height voting booths and election judge assistance. Any changes in this process need to come from the State level.
2. Review operations to see where additional large print or braille materials should be used.

2. BUILDING EVALUATION

Property Records and Revenue is located in the Ramsey County Government Center-West Building. Physical barriers in the building are addressed under the Property Management report.

Deficiencies: Accessibility of Ramsey County Government Center-West.

Transition Plan: See Property Management report.

3. COMMUNITY COMMENTS

An individual responded to the County's request for public comment by interoffice memo. He stated that the Department of Property, Records and Revenue should have an action plan since they administer programs such as This Old House Law along with appeals of property values. The department also sends out tax notices, valuation forms and notifications of public meetings. A visually impaired person could not possibly take advantage of these programs or know of the information provided by the department unless they make things available in some manner other than print. He also felt that voting should be totally independent of assistance and the election section of the department should research and implement law changes to accomplish this.

As an employee of this department, he was not aware who the ADA representative for the department is or that the employees have had any training on assistance to a person covered under the ADA.

PROPERTY MANAGEMENT

660 Government Center-West Building

The Property Management Department is an internal operation serving the various departments and tenants of Ramsey County-owned buildings. It is responsible for maintaining the various properties and ensuring the buildings are safe and usable for all people entering the buildings.

1. PROGRAM EVALUATION

No program evaluation was conducted for the department. All issues related to program, services, and activities fall under the physical barriers of the various buildings. These issues are addressed under BUILDING EVALUATION.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

Property Management is responsible for the operation and maintenance of three County-owned facilities; Courthouse, Government Center-West, and Government Center-East. In addition, the department consults with various departments in acquiring, constructing, renovating and leasing properties. Building issues related to the various departments are found under the appropriate departments. The three main building are discussed below.

For the Courthouse and Government Center-East, major renovations occurred from 1991 - 1996. Issues of accessibility and the necessary modifications were addressed at that time based upon the ADA guidelines in effect during that period.

The Government Center-West was not part of a major building renovation, however, an evaluation of the building was performed by Wold Architects where accessibility issues were identified. Since that time, the following ADA upgrades have been completed at this facility:

- Lobby was remodeled, new accessible power doors were added to the main entrance.
- New fire alarm system with audio and visual assists is currently being installed. Estimated completion date is July 1997.
- Twenty-two handicap parking spaces were added near the rear entrance of the building.

- Signage in some areas of the building were upgraded and include braille identifications.
- One hand/one motion or lever handle door hardware was installed in remodeled areas.
- Wheel chair accessible ramp/tunnel was installed connecting ADC and West.
- Wheel chair accessible ramp was installed connecting E and F buildings of West.
- Wheel chair accessible ramp was installed connecting cafeteria and roof deck.
- Kellogg Plaza Deck was remodeled removing gates and barriers and installing curb cuts for wheel chair access.

Deficiencies:

1. Signage in portions of the building does not meet ADA guidelines.
2. Each floor should have accessible restrooms with accessible routes within building to those restrooms.
3. Drinking fountains are not all accessible. At a minimum, one on each floor should meet ADA Guidelines.
4. No accessible entry from Shepard Road into building.
5. Provide signage at Shepard Road entry showing location of accessible entry.
 - 6 Provide directional signage in building F identifying accessible routes to other buildings within West.
 7. Upgrade remaining bathrooms, drinking fountains, door hardware, signage and directories to remove all barriers within the building.

Transition Plan : **West Building**

1997 - \$125,000 budgeted for ADA modifications to restrooms.

2001 - \$254,544 budgeted for design and construction of accessible entrance on Shepard Road, drinking fountain upgrades and signage.

2002 - \$254,544 budgeted for additional restrooms, drinking fountains and signage modifications.

3. COMMUNITY COMMENTS

At the public meeting on June 10, 1997, a comment was made that there is no direct access from the two sets of doors in the lobby of the West Building at the Kellogg Main Entrance. Why were the two power doors placed at different ends of the entrance.

In addition, the two people attending the meeting did not like the direct path accessibility of the West Building. They both felt more money needs to be spent to ensure that the building is as accessible as possible.

It was also noted that the drinking fountains that are scheduled for replacement should be looked at carefully to ensure that the replacements are the most accessible ones available. Some of the “accessible” fountains offer only limited accessibility.

The final comment that deals with all property owned by the County is that this self-evaluation was conducted by employees. One of the respondents felt that an outside consultant should be hired to do all the building evaluations again to make sure that the employees did it correctly. This comment was noted but no action will be taken on it.

One individual who responded in writing commented that he has worked in the West Building for many years and sees little if any improvement to the things in the building that would assist blind persons such as braille labels on elevators, braille designations on bathroom doors and making the cafeteria machines etc. accessible to a blind person.

PUBLIC DEFENDERS OFFICE

1808 Firststar Bank Building

The Public Defenders Office is a criminal defense office representing indigent persons charged with crimes in Ramsey County. It provides the necessary legal services for those individuals that qualify for assistance under the program.

1. PROGRAM EVALUATION

A program evaluation for the Public Defender's Office was conducted in September, 1992 and updated in December, 1996. The report revealed that the department does not recruit participants or set eligibility requirements that would discriminate based on a person's disabilities. The Department accommodates clients with limitations and provides the necessary aids and accommodations to ensure that individuals are given adequate legal service under this program.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

An individual building evaluation was completed at this location in September, 1992 and updated in December, 1996. The Department reported that the building and office are accessible. Although there are not fully accessible bathrooms on the 18th floor, access is available on the 19th floor through elevator service.

Deficiencies: None

Transition Plan: N/A

3. COMMUNITY COMMENTS

None.

PUBLIC HEALTH

Suite 930, RCGC-West

Ramsey County Public Health Department is responsible for Public Health Nursing, Nutrition, Environmental Health and Solid Waste. The Program Evaluation section offers a brief description of the various programs offered along with identifying any deficiencies found within the programs.

1. PROGRAM EVALUATION

Program Evaluation of the various divisions of Public Health were conducted in 1992 and re-evaluated in February 1997 to reflect the current organizational structure of the department. The department is entering into a Joint Powers Agreement with St. Paul Public Health Department effective July 1, 1997 and its impact is not reflected in this report.

Public Health Administration: Administrative offices of Public health are located in the West Building. Department staff may use (a) the telecommunication device (TDD) located at the West Building reception, (b) Administration funds for American Sign Language interpreters, or (c) the Minnesota Relay System to serve hearing impaired clients.

Deficiencies: Some information is only available in written form.

Action Plan: Have alternate formats (written and verbal) available for clients.

Community Health Development Division: In 1993 and 1994 the Health Education Division became the Community Health Development Division (CHD) with two major programs - Community Services and Correctional Health Services. CHD creates and participates in partnerships which address specific community or institutional health needs by using a community health promotion model and approach and by recognizing and reflecting cultural competence in health promotion.

Community Services staff are housed at RCGC West. Services include adolescent health education, family violence initiatives, HIV/AIDS prevention activities, and other community health education activities. Services are delivered at RCGC West and at other community sites by invitation. Ramsey County Corrections Department contracts with CHD for health services for the Adult Detention Center, Workhouse, Boys Totem Town and Juvenile Detention Center. The Corrections Department is responsible for Correctional Health program and site surveys.

Deficiencies: None

Action Plan: N/A

Environmental Health Division: The Environmental Health Division is located in the basement of the Ramsey County Maplewood Branch Library. The Division enforces Ramsey County ordinances pertaining to hazardous waste, food establishments, lodging facilities, public swimming pools, manufactured home parks, childrens camps, and abatement of public health nuisances.

Training sites include conference rooms at the Maplewood Library and the New Brighton Community Center. The Maplewood Library is used for hazardous waste seminars, the Hazardous Waste Advisory Council, and the Food Protection Advisory Council. The New Brighton Community Center site is used for the pool operators and artification course.

Deficiencies:

1. Forms including results of reports, license applications, and licenses and seminar notices are not available in alternative formats, but the nature of the program is unlikely to require alternatives.
2. Food license forms and seminar schedules do not include a statement regarding ADA II compliance.

Action Plan:

1. When the public calls in for program reservations, staff will ask if special arrangements are needed.
2. Add ADA compliance statement to forms and brochures.

Solid Waste Division: The Solid Waste Division is co-located with Environmental Health in the basement of the Ramsey County Maplewood Branch Library. Solid waste management includes:

- yard waste collection and composting
- household hazardous waste collection
- processing of recyclables
- regulation of licensed haulers and facilities and non-licensed solid waste activities
- public information in all the above areas

Solid waste programs include:

1. Public information through meetings and written materials.
2. Yard waste collection and composting at 8 drive-in sites. Site monitors can assist the disabled with dumping and have cellular phones for emergencies.
3. Drive-in hazardous waste collection at one year-round and four seasonal sites.
4. Collection and processing of recyclables at Ramsey County Recycling Center

which is leased to Supercycle and Greenwing. Only Greenwing is open to the public.

5. Information on solid waste management through telephone, TDD, and written media.
6. Regulation.

Public meetings are held in accessible public buildings such as Maplewood Library, park buildings, and city halls. Information regarding solid waste programs is mailed to Ramsey County residents or distributed as city news inserts or at meetings.

Information is also available by phone. Minnesota Relay Service can be utilized for the hearing impaired. Recruitment for boards is through standard county recruitment efforts.

Deficiencies: None

Action Plan: N/A

Nursing Division: Programs and service delivery sites of the Division of Nursing change regularly. Currently the three major programs of the Division are Family Health, Adult Health Management, and Disease Prevention and Control (DP&C). Increasingly, the focus of services is on assessment and referral of individuals and health education to groups. Family Health, Adult Health, and DP&C services are provided in homes or at shelters, clinics, schools, family centers, and other community sites. When Nursing is invited to do a presentation, the host group is responsible for assuring accessibility. If Nursing sponsors activities, meetings are held in accessible spaces and materials are available in different formats upon request. For in-home services, Nursing assesses the physical limitations by phone at intake and on the first visit. In-home services include assessment, nursing care, and health teaching. Immunization clinic services include injections and health teaching. For these services, clients would need to call in to request special services such as interpreters.

Written communication, TDD, sign language interpreters, and MN Relay Services are used for the hearing impaired. Verbal communication is the primary method for the visually impaired. Staff training includes orientation to Department services for hearing impaired.

Deficiencies: The client's Bill of Rights uses the term handicapped.

Action Plan: Change use of the term handicapped to disabled in next printing.

Nutrition Division: The Division provides nutrition services and professional training at community locations. Their mission is to alleviate hunger and improve the health of county residents through nutrition services at public clinics; professional training on

request; and provision of nutrition information via media and community programs and home visits. Services are targeted to low income, minority groups. Services include counseling on doctors orders; small group presentations; and advice to parents and interpretation of children's growth data. Currently St. Paul/Ramsey County WIC Program services and sites are managed by City of St. Paul Nutrition staff, and other Ramsey County nutrition services and sites are managed by Ramsey County Nutrition Division staff.

Programs provide sign language interpreters as needed. Assessment tools for the elderly are tape recorded and mention the nutrition program. The tape is marketed and housed for loan by St. Paul Society for the Blind. They also have large print materials for visually impaired. The Division has the use of the Department's TDD. When groups invite Nutrition Division to speak, the group is responsible for their own recruitment and arrangements for interpreters, etc.

If disabled persons seek services at Main Street Health and have other assigned clinics for health care, Nutrition cannot counsel them but will assist with hunger issues or answer questions about nutrition.

The Division sponsors joint public health service announcements with Metro and Minnesota Department of Health WIC Programs, Children's Defense Fund, First Call For Help, and Senior News Letters.

There is one application form for this program. If applicant needs assistance to complete application, assistance will be provided by staff. Application form does not contain ADA compliance statement but does carry discrimination disclaimer. Orientation for participants is done verbally and supplemented with written information.

Deficiencies: Forms should publicize availability of auxiliary aids if needed.

Action Plan: Include place on form to indicate if applicant has special needs so that appropriate accommodations can be made.

2. BUILDING EVALUATION

Public Health has various sites throughout Ramsey County both as permanent sites and temporary locations that offer services to the general public. Evaluation of the various sites were conducted in 1992/93 and updated in early 1997. New sites were surveyed and the results are found below.

Administration: Offices are located in the West Building. Evaluation of this

building was conducted under the Property Management portion of this report.

Community Health Development Division: Services for this division are located in the West Building and at other public sites. There are no accessibility issues for this division.

Environmental Health Division: This division is located in the Maplewood Library. Physical barriers for this location was addressed under the report for the libraries. The division holds some meetings and seminars at the New Brighton Family Service Center. An evaluation of this location is found under the Nursing Division portion of the Building Evaluations.

Solid Waste Division, Ramsey County Recycling Center
Greenwing Office, 475 Rice Street, St. Paul, MN

The Recycling Center is a drop-off for various recycleables. People drive in, drop off materials and drive off. Traffic flows in a one way direction to avoid congestion. This site is an alternative to curbside recycling offered in the various communities of Ramsey County. At one time, the building on site was used as a redemption center. Now the public has no access to building, therefore, no further evaluation of this facility is necessary.

Deficiencies: None

Transition Plan: N/A

Nursing Division: This division utilizes many sites in providing services to the community. Adult Health services are currently delivered at Psychiatric Medication Clinics at Ramsey County Mental Health Center and will expand to public high rises in 1997.

Family Health services are delivered at:

- 1245 St. Anthony (clinic for residents)
- RCGC East Lobby
- Other Community sites upon invitation

Site locations were not conducted at these sites but these sites are set up to accommodate population service.

Disease Prevention and Control services are delivered at regular immunization clinics, seasonal flu clinics, and client homes, shelters, and other sites as necessary and/or upon invitation. There are 4 locations that are used as regular immunization sites. The sites are used three to six hours monthly. Sites are selected to offer convenient

locations to suburban communities. None of these sites are owned by the County. Evaluations were conducted at these sites and the results shown below:

1. **Mounds View City Hall**, 2401 Highway 10, Mounds View, MN
2. **New Brighton Family Service Center**, 400 10th St. NW, New Brighton, MN 55112

Deficiencies: None

Transition Plan: N/A

3. **Fairview Community Education Center**, 1910 West County Rd. B, Roseville, MN

Deficiencies:

1. Non-compliant door latch hardware for common passage doors.
2. Absence of compliant toilet room signage.
3. Absence of audio signals indicating elevator arrival, direction and landing.
4. No visual or no audible signal for emergency warning system.

Transition Plan: Department will request building owner to comply with ADA and remove above deficiencies. If owner is unable to comply, department should look into alternate sites for clinic, taking into account the limited use of facility and other accessible sites under program. These deficiencies do not affect the accessibility of the program, services and activities offered on site. Note: It would be helpful if this facility provided signage in County Rd. B parking lot to direct persons with disabilities to go along the (L) road to the southeast lot for accessible parking, doors and elevator.

4. **St. Stephens Lutheran Church**, 1925 E. County Rd. E, White Bear Lake, MN

Deficiencies:

1. No audible or visual signal alarm.
2. Undesignated accessible entrance(s).

Transition Plan:

1. Staff will be trained on how to respond to emergencies in building without alarm system. Staff should be knowledgeable of emergency exits and shelters within the building and be sure clients are out of the area in the event of an evacuation/emergency.
2. Owner will be asked to install signage that designates accessible entrances.

Nutrition Division: This division has 11 non-owned sites serving the County. The

site usage is limited to 3 hours/week. Evaluations were conducted and transition plans developed for each site.

1. **Face-To-Face Clinic**, 1165 Arcade St., St. Paul, MN 55106
2. **Model Cities Abrams Clinic**, 491 University Ave. W, St. Paul, MN 55103
3. **Normandy Education Center**, 2482 E. County Rd. F, White Bear Lake, MN 55110

Deficiencies: None

Transition Plan: N/A

4. **Model Cities Clinic**, 430 N. Dale St., St. Paul, MN
5. **Dorothy Day Center**, 183 Old 6th Street, St. Paul, MN 55102

Deficiencies: Nonvisual or nonaudible signal for emergency warning system.

Transition Plan: Facility is used on a very limited basis. To overcome this deficiency, staff will be trained on how to respond to emergencies in building without alarm system. Staff should be knowledgeable of emergency exits and shelters within the building and be sure clients are out of the area in the event of an evacuation/emergency.

6. **North End Medical Center**, 153 Manitoba, St. Paul, MN

Deficiencies:

1. Absence of accessible entrance to building (accessible outer door requires a helper to open door from inside as it is kept permanently locked and cannot be opened by a disabled person alone).
2. Undesignated accessible entrance(s).
3. Noncompliant entry door latch hardware.
4. Nonvisual or nonaudible signal for emergency warning system.

Transition Plan: Access to site is limited because of entry to this building. Any information in brochures or information materials should show this site as not accessible and indicate which sites are accessible. Since there are alternate sites available under this program, it is not necessary to relocate this site but the department should evaluate this area to see if there is an alternate accessible site available.

Staff will be trained on how to respond to emergencies in building without alarm system. Staff should be knowledgeable of emergency exits and shelters within the building and be sure clients are out of the area in the event of an evacuation/emergency.

7. Women's Advocates, 584 Grand Ave., St. Paul, MN

Deficiencies:

1. No accessible parking.
2. No accessible entry.
3. No accessible sanitation facilities.

Transition Plan: This location is not accessible to persons with physical impairments; however, other sites are available that are accessible. The department should evaluate this area to see if there is an alternate site available that would be more accessible. Be sure all materials and information indicate that this site is inaccessible.

8. Faith Lutheran Church, Charles Avenue & Mackubin, St. Paul, MN

Deficiencies:

1. No audible signal for elevators. (Has little impact on services at this site.)
2. People must ring bell for entry. (This deficiency is handled administratively by attendant who opens door as necessary.)
3. No audible or visual signal for fire alarms.

Transition Plan: Staff will be trained on how to respond to emergencies in building without alarm system. Staff should be knowledgeable of emergency exits and shelters within the building and be sure clients are out of the area in the event of an evacuation/emergency.

9. Naomi Family Center, 77 E. Ninth St., St. Paul, MN

10. Lowry Family Shelter, 347 N. Wabasha St., St. Paul, MN

There are many deficiencies in these buildings and these sites serve a targeted population that cannot be effectively served elsewhere. Other locations are available that are accessible and therefore no recommendations are made for these sites.

11. St. Mark's Lutheran Church, 2499 N. Helen St., No. St. Paul, MN

Deficiencies:

1. No accessible bathrooms.
2. No visual fire alarm.

Transition Plan:

1. Although the site has limited usage, the division should look for an alternative location in the area that would provide accessible bathrooms to participants in the program.

2. Staff will be trained on how to respond to emergencies in building without alarm system. Staff should be knowledgeable of emergency exits and shelters within the building and be sure clients are out of the area in the event of an evacuation/emergency.

3. COMMUNITY COMMENTS

None.

PUBLIC WORKS

910 Government Center-West Building

The Public Works Department is responsible for providing and maintaining safe and efficient road systems in Ramsey County that coordinate with the needs of other governmental agencies. The department facilitates the preservation of lakes and other water resources through effective resource management. It also provides a system of uniform land records to ensure proper recording of properties. It coordinates the public works programs with federal, state and local agencies.

The Public Works Department is responsible for developing highway systems within Ramsey County. It is involved in reviewing highway needs and planning and constructing the roads including bridges, traffic control lights and warning systems. The Department also maintains the highways including snow removal. In addition, it provides information on roads and properties within the County to the public by phone, in person or by mail.

1. PROGRAM EVALUATION

An evaluation of Public Works was conducted in 1993 and updated in November, 1996. According to the evaluation, the department uses various mediums to communicate information to the public. It has a newsletter, Second Season, that is sent to interested individuals. Calls into the department by persons with hearing and speech impairments are received through the Relay System. At the present time, there is limited use of the Relay System. Most contact with the public is very limited in nature. The public may visit one of the facilities to pick up information. If a signer is needed, the department can request the services of one through the county. At the present time, the department has not needed these services.

The Public Works Department currently is involved in constructing pedestrian curb ramps or cutting curbing to comply with ADA requirements. In the 1997 construction season, the Public Works Department will construct 122 pedestrian curb ramps. In the past five years, the Public Works Department has completed 652 curb depressions.

Deficiencies: None

Action Plan: The department has access to the Relay System for calls from persons with hearing and speech impairments. It should monitor the use of this system to see if the department should install a TDD phone.

2. BUILDING EVALUATION

The administrative offices of Public Works are located in the Government Center-West. Barriers within this building are handled by Property Management.

Public Works has limited public contact at its two locations on Rice Street. Although the current buildings have accessibility problems, the department is searching for a possible new location to house its operations. At both #3377 and #3401, there are accessibility issues in entering the building. These issues must be dealt with if the department plans to stay at these locations and public areas should be limited to portions of the buildings that are accessible.

Deficiencies: **Building 3377 Rice St. and 3401 Rice St.**

1. Path to entrance of building inadequately maintained.
2. Entrance to basement area inaccessible (16 steps and no ramp or lift).
3. Entry area inaccessible—threshold too high, landing too narrow, and hardware too high.
4. Interior signage on public doors does not comply with ADA guidelines.
5. Interior passageway obstructed.
6. Toilets and signage not in compliance.
7. No visual emergency warning system.

Transition Plan: The Public Works Rice Street facility does not meet ADA standards for accessibility. The facility, built in 1947, is in need of a major rehabilitation. Funds for the building rehabilitation have been requested for 1998. Funds for a new facility have also been requested. ADA standards will be taken into consideration if either the present building is rehabilitated or a new facility is constructed.

3. COMMUNITY COMMENTS

None.

RAMSEY NURSING HOME

2000 White Bear Avenue, Maplewood

Ramsey Nursing Home is a long term care facility providing residence and health care for adults over eighteen years of age. It is dedicated to provide quality care with compassion and respect for human dignity for those residents of Ramsey County who need long-term or rehabilitative care and cannot be cared for in their own home including those who are difficult to place in private sector nursing homes.

1. PROGRAM EVALUATION

The Nursing Home conducted a program evaluation in January, 1997. The evaluation revealed that the Nursing Home does not recruit or advertise for participants in its programs. Eligibility criteria is set by the Nursing Home's license as a long term skilled health care facility. In addition to this criteria, residents must be eighteen years old and residents of Ramsey County. The eligibility requirements do not discriminate against persons with disabilities. Residents in the program are interviewed by nursing, social services, dietary and activities to determine the needs of residents and how to best meet those needs. These interviews are not discriminating and are intended to provide residents with a custom program that meets their needs.

Large print materials are available to residents such as calendars, menus and activity announcements. Staff and volunteers are trained to assist persons with disabilities and do so as needed.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

All program, services and activities are offered at 2000 White Bear Avenue. A property survey of this location was conducted in May, 1992 and updated in January, 1997. There is one public entrance to this facility which is accessible. The loading area at this entrance is extremely wide for easy assistance to residents. There are several deficiencies noted in the report. The transition plan deals with correcting them in a timely manner.

Deficiencies:

1. Signage in parking area is obscured. Need to raise the signs higher.
2. Need one additional accessible parking space.
3. Interior signage is posted at incorrect height and does not include braille text.
4. No audio signals when elevator arrives or when floors are passed.

5. Public restrooms are not fully accessible, signage at public restrooms inaccurately states accessibility.
6. There are four public phones in the building, none are TDD equipped and the handset cord length is too short.

Transition Plan:

1. Use an extender to increase height of accessible parking signs in parking lot. Target Date: Immediately. Costs: Minimal.
2. Add one additional accessible parking spot to lot. Target Date: Spring. Costs: Minimal.
3. Change signage in the building to meet ADA guidelines. Target Date: Request 1999 CIP funds. Costs: Estimated \$75/sign
4. Upgrade elevators to provide audio signals. Target Date: The Nursing Home has only two floors so that passengers are not passing floors. This issue is not critical to ensure accessibility of the Nursing Home's program, services and activities. There are no immediate plans to remedy this deficiency.
5. Remove accessible signage from public restrooms that are not fully accessible. Target Date: Immediately. Costs: None.
6. Remove one public phone or add TDD public phone. Change handset cord lengths on all public phones. Target Date: Immediately. Cost: Minimal.

3. COMMUNITY COMMENTS

None.

REGIONAL RAIL AUTHORITY
665 Government Center-West Building

The Ramsey County Regional Rail Authority (RRA) is dedicated to a long-range vision of transit services to meet changing need for today and for succeeding generations. RRA is committed to planning of integrated transportation services in cooperation with other agencies. The RRA Board consists of the seven County Commissioners. In addition to planning the rail transit system, RRA is involved in the acquisition of land for light rail corridors.

1. PROGRAM EVALUATION

A program evaluation of this operation was conducted in 1996. At the present time, the Regional Rail Authority does not offer any programs, services or activities to the public. ADA issues will be incorporated into transit systems which are operated by other agencies.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

Regional Rail Authority is located in the Ramsey County Government Center-West Building. Physical barriers in the building are addressed under the Property Management report.

Regional Rail Authority Board meetings are conducted at the Ramsey County Courthouse. The major renovation of the building from 1991-1996 addressed issues of accessibility and made the necessary modifications.

Deficiencies: Accessibility of Ramsey County Government Center-West.

Transition Plan: See Property Management report.

3. COMMUNITY COMMENTS

None.

RESOURCE RECOVERY

6989 N. 55th Street, Suite C
Oakdale, MN

The Resource Recovery Project is a multi-government agency established by Ramsey and Washington Counties to reduce the amount of municipal solid waste sent to landfills by providing a processing facility to turn waste into fuel. It works with solid waste haulers, NRG Resource Recovery and governmental agencies to ensure effective operations of the Newport facility in order to reduce dependence on landfills for waste disposal.

1. PROGRAM EVALUATION

An ADA program evaluation was conducted for Resource Recovery on 3/9/92 and updated on 11/22/96. The evaluation found that the agency has limited public contact, generating approximately 20 phone calls per month and few, if any, public visits to its location. The evaluation found that its programs, services and activities are not discriminatory to persons with disabilities. The Department complies with the ADA and no action plan is necessary.

Deficiencies: None
Action Plan: N/A

2. BUILDING EVALUATION

A building survey was conducted on this leased facility on 3/20/92 that identified several barriers under the ADA. As of 12/20/96, these barriers are still in place.

Deficiencies: The following is a list of barriers prioritized in order of importance.

1. Entrance to the building:
 - A water trough limits access to the building entrance for wheelchairs
 - Excessive force is necessary to open exterior door
2. Signage does not designate accessible entrance.
3. Substandard public service counter dimensions.

Transition Plan: The current lease at this location expires in 1997. Resource Recovery plans to move to the Maplewood Library which is fully accessible.

3. COMMUNITY COMMENTS

None.

RISK MANAGEMENT

1020 Government Center-West Building

The mission of the Risk Management Department is to preserve the financial integrity and assets of the County from the risk of fortuitous loss. It deals with issues related to liability, employee benefits, workers' compensation, safety and wellness.

1. PROGRAM EVALUATION

A program evaluation of the Risk Management Department was completed on 12/14/92 and updated 12/20/96. The evaluation indicates that the department has limited public contact. Public contact consists of interaction on claims made against the County by third parties. The department will accept claims made in writing, over the phone or in person. The department is flexible in meeting the needs of persons with disabilities.

The department deals with employee issues related to health, safety and workers compensation. The ADA issues relating to employment are not covered in this report. Personnel and Risk Management have addressed the employment issues separately.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

The Risk Management Department is located in the Ramsey County Government Center-West Building. Physical barriers in the building are addressed under the Property Management report.

Deficiencies: Accessibility of Ramsey County Government Center-West.

Transition Plan: See Property Management report.

3. COMMUNITY COMMENTS

None.

SHERIFF'S DEPARTMENT

Adult Detention Center
14 W. Kellogg Boulevard

The Ramsey County Sheriff's Department is responsible for law enforcement in the County under the direction of the Ramsey County Sheriff, an elected official. The Department is responsible for apprehending and booking suspects, and investigating crimes. It also offers programs to the public in water safety, snowmobile safety and DARE. The following is a brief description of the department by program areas:

- **911 Dispatching:** Receives emergency calls for assistance from the public and dispatches appropriate responses via radio. It is also responsible for answering queries from police officers for information on computerized criminal data bases.
- **Patrol Investigation:** Is responsible for investigating crimes within the County. They meet with victims, interrogate suspects and gather evidence at crime scenes.
- **Police Records Section:** Receives non-emergency calls from the public. They gather information, enter it into the computer and access it as necessary. They also are responsible for completing forms and issuing correspondence on this information.
- **Snowmobile Safety:** Provides snowmobile safety instruction to youth to achieve a State required certificate. Program recruitment, content and materials are provided by the Minnesota Department of Natural Resources.
- **Boat and Water Safety:** Is operated by the Ramsey County Lake and Trail Volunteers. It provides information to the public on the safe operation of boats.
- **DARE (Drug Abuse Resistance Education):** Is a drug prevention program taught by uniformed officers in elementary schools. The program targets 5th and 6th graders teaching them skills to resist peer pressure to experiment with drugs, alcohol and tobacco.
- **School Safety Program:** Involves teaching elementary school children proper behavior for riding the school bus, crossing streets and biking. Training is provided for school crossing guards and bus safety officers.

1. PROGRAM EVALUATION

Program evaluations were completed in April/May, 1992 and updated in December, 1996.

911 Dispatching, Patrol Investigation and Police Records Section all involve contact with the public to perform duties of the Sheriff's Department. The services offered have no eligibility, admission or participation restrictions. TDD and sign language interpreters are available.

Deficiencies: None

Action Plan: N/A

Snowmobile and Boat Safety classes are geared for its operators, those persons with adequate vision and the ability to properly handle the machinery. No alternate formats are available for the visually impaired. To alter the safety classes for persons with visual impairments would require a fundamental alteration in the nature of the program. The programs provide no auxiliary aids for persons with speech or hearing impairments.

Deficiencies: No auxiliary aids for speech or hearing impairments.

Action Plan: During registration for classes, give interested parties the opportunity to indicate if they have special needs and then accommodate those needs within the framework of the program.

Dare and School Safety Patrol are programs offered in conjunction with school districts. The school districts provide all classroom sites and any classroom aids. Businesses, rotary clubs, and service organizations provide financial support for these programs. The selection of participants for the School Safety Patrol is done by the schools and is not the responsibility of the Sheriff's Department.

Deficiencies: None

Action Plan: N/A

2. BUILDING EVALUATION

Property surveys were conducted for the department's two facilities in 1993 and were updated in December, 1996. According to the surveys, several deficiencies were found. Since public access to these facilities is limited, certain issues should be addressed that allow public access into the buildings. These issues are outlined below:

Adult Detention Center (ADC)

The ADC houses the administration offices of the Ramsey County Sheriff. Public access to the building is through tunnels from Ramsey County Government Center-

West and the Courthouse or from the Kellogg Street entrance. All entrances are accessible although the tunnel from the Courthouse may be difficult because of its length and slope.

Deficiencies:

1. Tunnel from Courthouse to ADC does not meet current ADA guidelines for rise and landings.
2. Elevators lack audio signaling and call buttons are too high.
3. Highest operable part of public telephone is too high.
4. Water fountain is too high.
5. Service counter has no accessible surface.
6. Public doors marked with permanent signage are not upper case nor engraved in braille.
7. Internal fire alarms are audio only, not visual.

Transition Plan:

1997:

1. Persons staffing service counter will accommodate persons that need lower service counter administratively by offering alternate table to accommodate individual needs.
2. Lower telephone to appropriate height.

1998:

1. Signage in building will be reviewed and plans implemented to change signage on public doors to meet ADA guidelines (cost \$75.00 per sign).

In 5 Years:

1. Add audio signal and change height of elevator call button to coincide with update of elevator.
2. Modify internal fire alarm for both audio and visual signage. Current evacuation plans require staff in ADC to evacuate civilians in building as part of its security program.

Note: With regard to the tunnel, since access into the building is possible through the West Building tunnel or the Kellogg Street entrance, it is recommended that no action is taken on this issue.

Patrol Station, 655 W. County Road E

The Patrol Station has one public entrance. Other entrances are for employee use only. Public access to the building is restricted to certain areas of the building.

Deficiencies:

1. Water fountain too high.
2. Unisex bathroom has following issues of non-compliance:

- a) Door hardware is round knob type.
- b) Hot water and waste water piping not insulated or shield placed under sink.
- c) Mirrors, towel dispenser and soap dispenser too high.
- d) Grab bars do not meet standards for length and offset from rear wall.

Transition Plan:

1997 - Current Operating Budget

- a) Change door hardware.
- b) Insulate hot water and waste water piping.
- c) Install new grab bars.

1998 - Future Operating Budget

- a) Adjust mirror, towel and soap dispensers.
- b) CIP - request funds to replace water fountain (est. cost \$2,000)

3. COMMUNITY COMMENTS

None.

VETERANS SERVICES

88 Courthouse

Veterans Services assists veterans and their dependents in obtaining and clarifying the various state and federal benefits associated with the multitude of Veteran's entitlement programs.

1. PROGRAM EVALUATION

A program evaluation of Veteran Services was completed on 8/11/92 and updated on 11/22/96. The evaluation indicates that Veterans Service has frequent public contact by telephone with limited in-person contact. The department has a TDD available to handle calls for the hearing and speech impaired. There are no program barriers in recruitment, eligibility admission or participation.

Deficiencies: The Department has one brochure that they mail out upon request. It does not carry an ADA statement or discrimination disclaimer.

Action Plan: Add ADA statement to next brochure printing.

2. BUILDING EVALUATION

Veterans Service is located in the Courthouse. The major renovation of the building from 1991-1996 addressed issues of accessibility and made the necessary modifications.

Deficiencies: None

Transition Plan: N/A

3. COMMUNITY COMMENTS

None.

Project Summary

I-35E/County Road J Interchange

Applicant – Ramsey County

Project Location – I-35E and County Road J in Lino Lakes, North Oaks and White Bear Township, Ramsey and Anoka County

Total Project Cost – \$10,772,753

Requested Federal Dollars - \$8,618,202

Project Description:

The proposed project will reconstruct the I-35E/County Road J Interchange to provide a full-access interchange with added ramps to and from the north on I-35E to improve overall traffic operations and roadway safety.

I-35E provides regional access to communities within Ramsey and Anoka County. At the Lino Lakes/White Bear Township boundary, County Road J (Ash Street) provides access to and from the south on I-35E with a half-diamond interchange configuration. Motorists traveling along County Road J experience significant travel delays and congestion during the morning and evening peak periods due to the all-way stop control at the Centerville Road, East Ramp and Otter Lake Road intersections. During the a.m. and p.m. peak periods, there is a heavy movement from southbound Centerville Road, to eastbound County Road J to enter the southbound I-35E ramp. During the p.m. peak period, the east ramp experiences significant backups with queues regularly extending onto northbound I-35E. MnDOT has recently expressed concerns about this backup and has provided a photo from the Regional Traffic Management Center (see attached). In addition, the project segment of County Road J from Centerville Road to Otter Lake Road lack accommodations for pedestrians and bicyclists as a two-lane roadway with eight-foot wide shoulders.

Project Benefits:

The proposed project will include the following benefits to all modes of transportation:

Traffic operations improvements – The removal of the all-way and side-street stop control and replacement with roundabouts at the County Road J intersections at Centerville Road, 20th Avenue/West Ramps and Otter Lake Road/West Ramps will improve the overall peak hour operations along the corridor. In addition, the I-35E/County Road J full-access interchange will attract more traffic from and improve the overall peak hour operations at the I-35E/CSAH 14 interchange.

Safety improvements – The construction of the roundabouts will decrease overall congestion and queues at the County Road J intersections at Centerville Road and the East Ramps. The reduction of the southbound Centerville Road and northbound I-35E East Ramp queues at County Road J will provide safer conditions during the peak periods.

Pedestrian and bicycle improvements – The construction of a multiuse trail on the north side and sidewalk on the south side of the corridor provides multimodal benefits for all modes of transportation.

Roadway improvements – The replacement of a 0.3-mile segment of County Road J; an aging facility that was constructed in 1935. In addition, the correction of a vertical curve on the bridge that inhibits sight distance.

Existing Conditions:



Westbound County Road J east of I-35E West Ramp



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

May 12, 2020

Joseph Lux,
Transportation Planner
Ramsey County Public Works
1425 Paul Kirkwold Drive, Arden Hills, MN

**Re: MnDOT Letter for Ramsey County
Metropolitan Council/Transportation Advisory Board 2020 Regional Solicitation Funding
Request for County Road J, Ash St, Interchange Project**

Dear Joseph Lux,

This letter documents MnDOT Metro District's recognition for the Ramsey County to pursue funding for the Metropolitan Council/Transportation Advisory Board's (TAB) 2020 Regional Solicitation for County Road J, Ash St and I-35E Interchange Project.

As proposed, this project impacts MnDOT right-of-way on I-35E. As the agency with jurisdiction over I-35E, MnDOT will allow Ramsey County to seek improvements proposed in the application for the improvement. If funded, details of any future maintenance agreement with the County will need to be determined during the project development to define how the improvements will be maintained for the project's useful life.

There is no funding from MnDOT currently planned or programmed for this location. Due to expected loss of future state and federal transportation revenues as a result of the COVID-19 pandemic, there is likely to be significant disruptions to the current MnDOT construction program that will surface in the next year. MnDOT does not anticipate partnering on local projects related to the interchange project beyond current agreements.

In addition, the Metro District currently does not anticipate any significant discretionary funding in years 2024-25 that could fund the project, nor do we have the resources to assist with MnDOT services such as the design or construction engineering of the facility. If your project receives funding, continue to work with MnDOT Area staff to coordinate trail extension and to periodically review needs and opportunities for cooperation.

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

If you have questions or require additional information at this time, please reach out to North Area Manager Melissa Barnes at Melissa.Barnes@state.mn.us or 651-234-7718.

Sincerely,

Michael Barnes, PE
Metro District Engineer

CC: Melissa Barnes, Metro District Area Manager
Molly McCartney, Metro Program Director
Dan Erickson, Metro State Aid Engineer



Anoka County

TRANSPORTATION DIVISION

Highway

Joseph J. MacPherson, P.E.
County Engineer

April 29, 2020

Mr. Ted Schoenecker, P.E.
Ramsey County Public Works Director/Engineer
Public Works Facility
1425 Paul Kirkwood Driver
Arden Hills, MN 55112

RE: 2020 Met Council Regional Solicitation Grant Application Letter of Support
I-35E/County Road J Interchange Improvements

Dear Mr. Schoenecker:

Anoka County supports the advancement of the I-35E improvements at the County Road J interchange in the City of Lino Lakes. The County also supports Ramsey County's application for federal funding through the 2020 Met Council Regional Solicitation program to improve safety, mobility, and reduce traffic congestion at this key interchange.

The County recognizes that the impact of these interchange improvements is regionally significant. The I-35E/County Road J interchange is a critical link for commuters, with several county and city roadways converging along a short stretch of roadway to access I-35E. As such, this interchange sees high levels of traffic and frequent delays, including backups during peak PM hours which extend onto the through lanes of northbound I-35E.

Anoka County believes the proposed I-35E/County Road J interchange improvements will reduce traffic congestion at this interchange and greatly improve the safety and reliability of the I-35E corridor for the region. This project will also support the population and traffic growth expected in the region while bolstering economic development.

Sincerely,

Joe MacPherson, P.E.
Transportation Division Manager / County Engineer

Our Passion Is Your Safe Way Home

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One Vision. One Mission.

April 1, 2020

Ted Schoenecker, P.E.
Ramsey County Public Works Director/Engineer
1425 Paul Kirkwood Dr.
Arden Hills, MN 55112

RE: Support for I35E/County Road J Interchange Improvements

In effort to enhance traffic safety and emergency response on and around the I35E corridor, I strongly support constructing a full access overpass at the I35E interchange at County Road J.

The lack of adequate traffic control and current design of the I35E interchange at County Road J leads to traffic back-ups on the exit ramp from NB I35E. These back-ups occur during peak afternoon traffic which results in stopped traffic on the exit ramp and onto the interstate. This increases the risk of high speed rear-end collision when this occurs.

During the morning peak traffic, our community experiences significant traffic back-ups on Centerville Rd and Ash north of County J. These back-ups are a result of inadequate traffic control and road designs that do not meet the current volume of traffic. These back-ups also increase the risk of high speed rear-end collisions.

Most troubling for our public safety agency is the lack of access to the northbound lanes of I35E between County Road J and Main St./County Road 14. All emergency turn arounds were removed several years ago between Highway 96 and County Rd. J. This requires that our emergency vehicles go south on I35E to Highway 96 in White Bear Lake to get onto the northbound lanes. This has led to significant delays in emergency response on the northbound lanes of I35E in our City.

I respectfully request that state and federal funds be allocated to improve the I35E interchange at County Road J to a full access interchange to address these significant safety concerns.

Respectfully submitted,

John Swenson
Public Safety Director

Cc: Michael Grochala, Lino Lakes Community Development Director
Public Safety Director John Swenson

**CITY OF LINO LAKES
RESOLUTION NO. 20-28**

**RESOLUTION OF SUPPORT FOR FEDERAL FUNDING FOR INTERSTATE 35E &
COUNTY ROAD J INTERCHANGE CORRIDOR IMPROVEMENTS**

WHEREAS, the City Council passed Resolution 17-115 on October 9, 2017 approving the Intersection Control Evaluation (ICE) Report for Centerville Road (CSAH 21/CSAH 59) at Ash Street (CR J)/Wilkinson Lake Blvd; and

WHEREAS, the roadways of Interstate (I) 35E, Centerville Road (CSAH 21/CSAH 59) and Ash Street (CR J)/Wilkinson Lake Blvd are under the jurisdiction of multiple agencies including the City of Lino Lakes, the City of North Oaks, Anoka County and Ramsey County and the Minnesota Department of Transportation; and

WHEREAS, improvements are necessary to improve mobility, safety; and reduce traffic congestion at this key interchange, and

WHEREAS, the interchange is a critical link for commuters with several county and city roadways converging along a short stretch of roadway to access I-35E; and

WHEREAS, Ramsey County, in coordination with Anoka County, is applying for Federal Funding for the I-35E and CR J interchange improvements.

NOW, THEREFORE BE IT FURTHER RESOLVED by The City Council of The City of Lino Lakes that the City Council hereby supports Federal Funding for the I-35E & County Road J Interchange, and the Centerville Road & County Road J Intersection Improvements.

Adopted by the Council of the City of Lino Lakes this 23rd day of March 2020.


The motion for the adoption of the foregoing resolution was introduced by Councilmember Ruhland and was duly seconded by Councilmember Stoesz and upon vote being taken thereon, the following voted in favor thereof:

Ruhland, Stoesz, Cavegn, Lyden, Rafferty

The following voted against same: None


Rob Rafferty, Mayor

ATTEST:


Julianne Bartell, City Clerk



April 30, 2020

Ted Schoenecker
Public Works Director/County Engineer
Ramsey County
1425 Paul Kirwood Drive
Arden Hills, MN 55112

**Re: PROPOSED SURFACE TRANSPORTATION PROGRAM FUNDING
APPLICATION FOR IMPROVEMENTS TO THE COUNTY ROAD J/I-35E
INTERCHANGE**

Dear Mr. Schoenecker:

The City of North Oaks, Minnesota fully supports Ramsey County's efforts to secure federal Surface Transportation Program funding for improvements to the I-35E/County Road J interchange. North Oaks has several new subdivision projects anticipated along Centerville Road within the next 7 years, and the interchange at County Road J / I-35E is going to be an important asset to serving that area of the community.

We appreciate and support efforts to utilize this interchange as efficiently as possible and we look forward to working with you on this project as it moves forward.

Sincerely,

Kevin Kress

Kevin Kress
City Administrator
kkress@cityofnorthoaks.com



p 651-792-7750
f 651-792-7751



northoaks@cityofnorthoaks.com
www.cityofnorthoaks.com



100 Village Center Drive, Suite 230
North Oaks, MN 55127





**WHITE BEAR
TOWNSHIP**

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MINNESOTA

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Email: wbt@whitebeartownship.org

Board of Supervisors
ED M. PRUDHON, Chair
STEVEN A. RUZEK
SCOTT E. MCCUNE

March 17, 2020

Mr. Ted Schoenecker, P.E.
Ramsey County Public Works Director/Engineer
1425 Paul Kirkwold Drive
Arden Hills, Minnesota 55112

Re: Support of I-35E / County Road J Interchange Improvements

Dear Mr. Schoenecker:

White Bear Township supports Ramsey County's application for Federal Funds for the I-35E/County Road J Interchange and Centerville Road and County Road J intersection improvements.

Improvements are needed to address the longstanding and ever increasing safety and access issues related to this important segment of our regional system.

Sincerely,

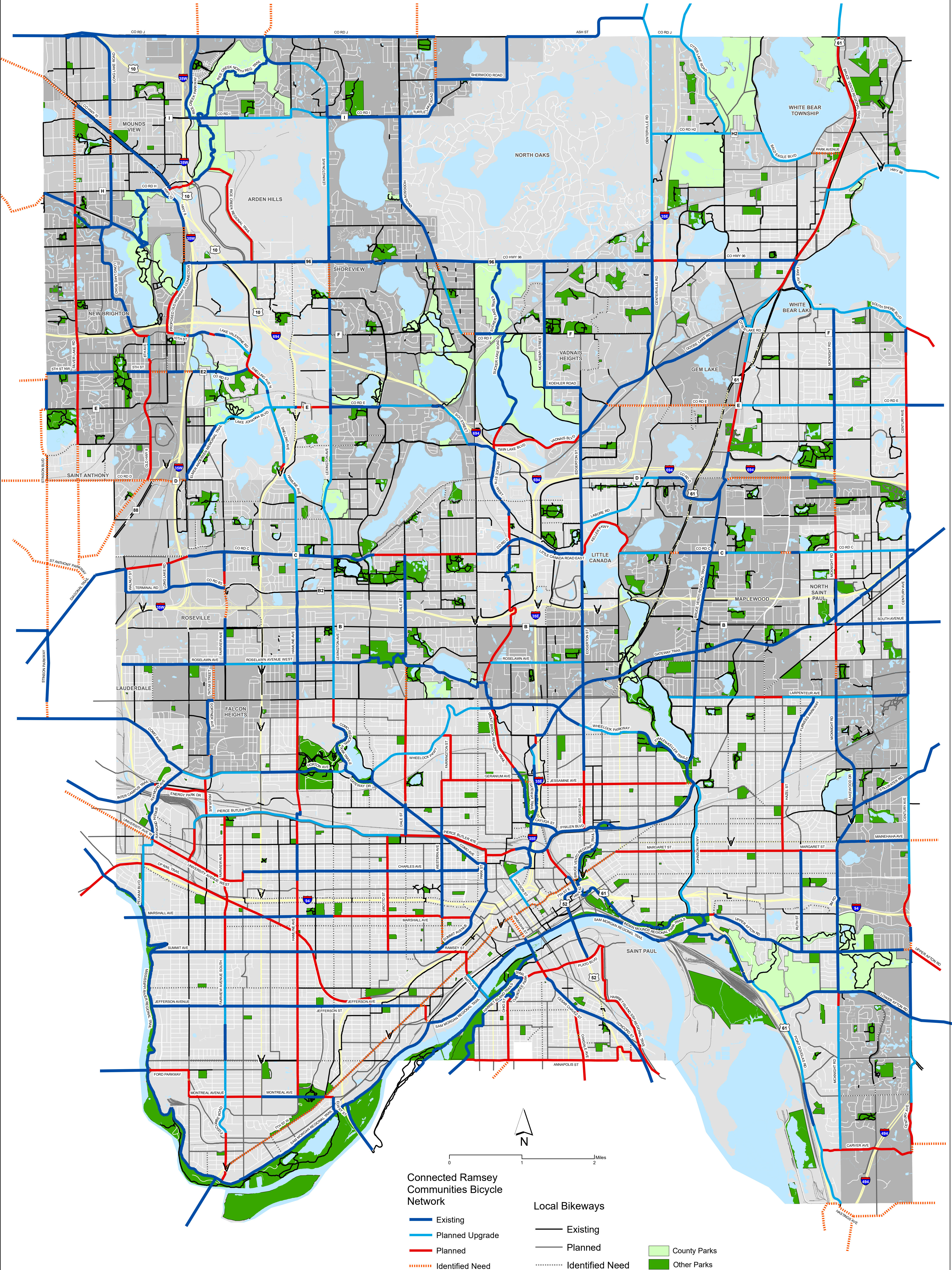
Patrick Christopherson
Town Clerk-Treasurer

PC/psw
cc:admin/add.file
b:schoenecker



recycled paper

Connected Ramsey Communities Bicycle Network



Connected Ramsey Communities Bicycle Network

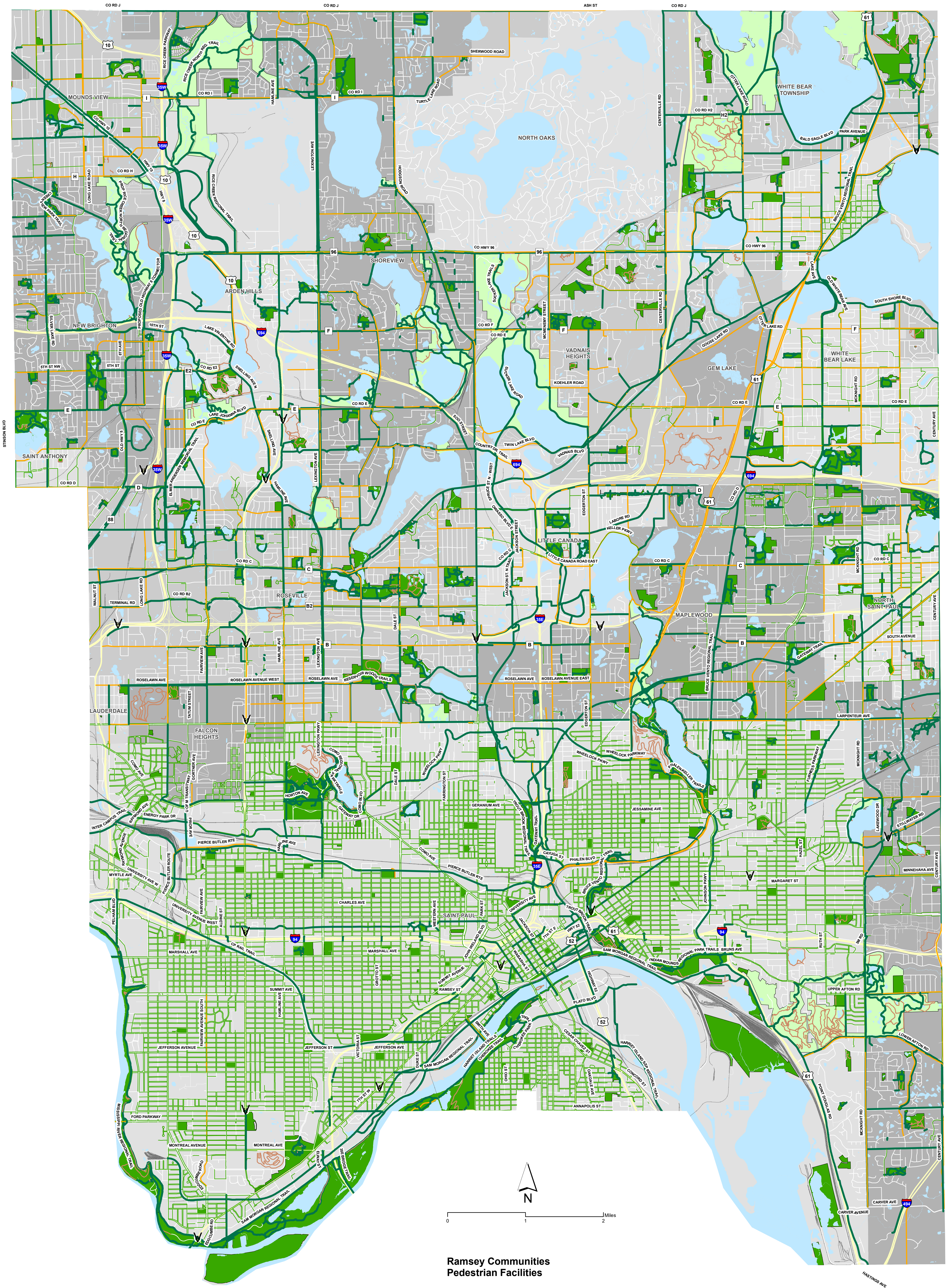
- Existing
- Planned Upgrade
- Planned
- Identified Need

Local Bikeways

- Existing
- Planned
- Identified Need

- County Parks
- Other Parks

Ramsey Communities Pedestrian Map



Ramsey Communities Pedestrian Facilities

- Footpath
- Sidewalk
- Striped Shoulder
- Trail
- County Parks
- Other Parks

Project Photos
I-35E/County Road J Interchange

Westbound County Road J east of I-35E West Ramp



Looking east from southbound Centerville Road



Bicyclists using shoulder on County Road J



Northbound I-35E queuing south of County Road J exit



Northbound I-35E Queuing south of County Road J exit



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Advancing Racial and Health Equity in All Decision-Making

Ramsey County will develop a comprehensive countywide approach to advance racial and health equity by being fair, inclusive, and transparent in how we serve and engage residents and communities.

Why this is a priority

Ramsey County's vision for a vibrant community where all are valued and thrive is dependent on being a community where all residents can experience fair outcomes and opportunities for advancement and growth. County programs and services are connected to the health and well-being of all residents. The county has an important role and responsibility to advance racial and health equity with an emphasis on fair, inclusive and transparent processes and policies. To attain equitable outcomes, shared power in decision-making and participatory methods will be used to strengthen programs and services so residents most impacted can contribute to improving outcomes. Racial equity is achieved when race can no longer be used to predict life outcomes, and outcomes for all are improved.

Building on previous work and lessons learned

Many areas of the county have been working to address racial and health equity. This work was first included as a strategic priority in 2017 and a Health Equity Officer position was created and hired to structurally and holistically advance equity across the county. In 2018, this priority evolved to place racial equity alongside health equity at the center of decision-making. This approach lifts racial and health equity as countywide principles and drives a framework for how the county operates. The Health and Wellness Service Team launched a Racial Equity Action Team, which includes cross-service team staff as well as county residents and community members, to remove barriers in the county system and advance racial equity. Formal leaders and new employees from across the county were trained in foundational "Role in Government in Racial Equity" workshops in 2018.

Ensure racial equity is applied

Ramsey County has adopted participatory methods to grow racial and health equity, which includes county-wide conversations to increase knowledge and accountability on racial equity and cultural awareness. A broad range of resources and tools to structurally advance equity is also being developed including guidance documents and equity assessment templates which help analyze critical equity factors when requesting a board action or assessing and enhancing county programs and service delivery. This analysis will foster a greater understanding of health and racial equity implications for residents and communities who have been historically underrepresented and are most negatively impacted by disparities, so progress can be made toward equitable outcomes for all.

Goals supported

Well-being, prosperity, opportunity and accountability

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Residents First: Effective, Efficient and Accessible Operations

Ramsey County will drive improvements in service delivery and facilities, with an emphasis on engaging residents and employees, process efficiency, technology, and accessible facilities.

Why this is a priority

Ramsey County is committed to be a resident-centered organization that delivers effective and efficient services that meet and exceed the expectations of the community and are accessible, welcoming, and efficient *from the perspective of the resident*. Service delivery and facilities of the future will be streamlined, refined and expanded with input received directly from the resident and customer, informed by experience and expertise of empowered employees, and enabled by technology. Facilities will be re-designed to offer a better resident experience including co-locating to allow for more services at a single location.

Building on previous work and lessons learned

A Residents First program will be put in place that expands on the current Information and Public Records Service Team's [Modernization Program](#). The Residents First program will engage with all service teams and departments and will be an outcome-focused, multi-year program that collaboratively and cohesively makes changes towards our Residents First outcomes. Building on the current Modernization Program's approach, the Residents First Program will conduct enterprise-wide analysis of operations to find gaps and overlaps in how services are provided, work directly with residents that use our services to include their input in recommended changes, and engage our employees and make changes to improve the employee experience. The 2018 [Accessible Service Delivery & Facilities Action Plan](#) reviewed the facilities planning that has been completed to date and proposed options for continued planning; these options have been presented to the County Board and will be further elaborated on and implemented as part of the Residents First Program.

Ensure racial equity is applied

Normalizing racial equity is a key outcome of the Residents First Delivery Program. As processes, practices, technology, and facilities are improved and upgraded, and as services are redesigned to make them more accessible, residents particularly those from communities most in need of county services and are disproportionately communities of color in Ramsey County, must be intentionally included in authentic community engagement and partnership efforts, from development to implementation, to ensure that all residents have equitable and fair access to services.

Goals supported



Well-being, prosperity, opportunity and accountability