Application

04751 - 2016 Roadway Expansion

05149 - Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange

Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
Submitted Date:	07/14/2016 2:24 PM

Primary Contact

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

Organization Information

Name:	BROOKLYN PARK, CITY OF

Jurisdictional Agency (if different):

Organization Type: City

Organization Website:

Address: 5200 85TH AVE N

*	BROOKLYN PARK	Minnesota	55443
	City	State/Province	Postal Code/Zip

County: Hennepin

Phone:* 763-493-8185 Ext.

Fax:

PeopleSoft Vendor Number 0000020926A1

Project Information

Project Name US Hwy 169/101st Avenue North Interchange

Primary County where the Project is Located Hennepin

Jurisdictional Agency (If Different than the Applicant): MnDOT

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

The proposed US Highway (US Hwy) 169/ 101st Avenue North Interchange project will enhance traffic operations, improve roadway safety, and provide bicycle and pedestrian facilities for a 0.7 mile segment of 101st Avenue North between Jefferson Highway and future Xylon Avenue. Access to Grace Fellowship church will be moved to future Xylon Avenue as part of this project (see attached Layout). The project will provide regional access to the area by constructing a folded diamond interchange for US Hwy 169. US Hwy 169 connects north and south to regional connectors such as Trunk Highway 610, Interstate 94/694, Trunk Highway 55, and Interstate 494. The project will benefit Hennepin County and the cities of Brooklyn Park, Osseo, Maple Grove, and Champlin with improved access. Furthermore, local traffic operations are improved in the area by connecting neighborhoods divided by US Hwy 169. Bicycle and pedestrian travel is supported by the proposed multiuse trail.

US Hwy 169 is a Principal Arterial roadway, which provides regional access to Hennepin County and Brooklyn Park. It is a critical roadway for development occurring in the project area. Over 3,200,000 square feet of industrial and manufacturing is being constructed in the project area's three large business parks. In all, 25,000 jobs are expected to be added to the area. Also in development is the METRO Blue Line Light Rail Operations and Maintenance Facility and Oak Grove Transit Station. The project will provide direct access to the facilities for transit users living in the North Metro Area. The project is also located in a census tract that is above the regional average for population in poverty or population of color. Underserved residents will benefit from the improved access to the area's proposed jobs and improved transit facilities.

This project complements the recently completed US Hwy 169/CSAH 30 interchange, which only provides access to and from the south. It will remove the existing northbound and southbound right in/right out access at 101st Avenue North which is a traffic operations and safety problem.

The project will support recent and anticipated investment within and adjacent to the project area (see attached Figure 1) including:

-METRO Blue Line Oak Grove Transit Station and park-and-ride facility

-Enhancements at the Rush Creek Trail will provide grade separated crossings at Winnetka Avenue North (CSAH 103) and Xylon Avenue

-The Gateway Business Park will provide nearly 1,500,000 SF of retail, commercial, industrial, and office space, and 510 residential units

-The NorthPark Business Park will provide over 3,000,000 SF of industrial, office, and warehouse space, and 600 residential units

-Target Northern Campus expansion will increase employment by 3,000 to 4,000 employees

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

TIP Description Guidance (will be used in TIP if the project is selected for funding)	101st Ave N at US Hwy 169 in Brooklyn Park, Construct Interchange
Project Length (Miles)	0.7

Project Funding

Are you applying for funds from another source(s) to implement this project?	No
If yes, please identify the source(s)	

Federal Amount	$7,000,000.00
Match Amount	$17,451,739.00
Minimum of 20% of project total	
Project Total	$24,451,740.00
Match Percentage	71.37%
Minimum of 20% *Compute the match percentage by dividing the match amount by the project total*	
Source of Match Funds	Provisional Municpal State Aid
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:	2020
For TDM projects, select 2018 or 2019. For Roadway, Transit, or Trail/Pedestrian projects, select 2020 or 2021.	
Additional Program Years:	
Select all years that are feasible if funding in an earlier year becomes available.	

Project Information: Roadway Projects

County, City, or Lead Agency	City of Brooklyn Park
Functional Class of Road	A Minor Expander
Road System	City Street
TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET	
Road/Route No.	
i.e., 53 for CSAH 53	
Name of Road	101st Avenue North
Example; 1st ST., MAIN AVE	
Zip Code where Majority of Work is Being Performed	55445
(Approximate) Begin Construction Date	01/01/2021
(Approximate) End Construction Date	06/01/2022

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

From: **(Intersection or Address)**	Jefferson Highway
To: **(Intersection or Address)**	Xylon Avenue
DO NOT INCLUDE LEGAL DESCRIPTION	
Or At	
Primary Types of Work	Grade, Agg Base, Curb and Gutter, Storm Sewer, Signals, Lighting

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.:

New Bridge/Culvert No.:

Structure is Over/Under (Bridge or culvert name):

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$727,000.00
Removals (approx. 5% of total cost)	$203,690.00
Roadway (grading, borrow, etc.)	$3,043,184.00
Roadway (aggregates and paving)	$3,157,777.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$79,000.00
Ponds	$400,000.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$429,776.00
Traffic Control	$436,000.00
Striping	$13,250.00
Signing	$1,127,750.00
Lighting	$150,000.00
Turf - Erosion & Landscaping	$859,000.00
Bridge	$3,387,040.00
Retaining Walls	$0.00
Noise Wall (do not include in cost effectiveness measure)	$0.00
Traffic Signals	$400,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$1,933,000.00
Other Roadway Elements	$7,859,000.00
Totals	**$24,205,467.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$238,772.00
Sidewalk Construction	$0.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$7,500.00
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	$0.00
Totals	**$246,272.00**

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

Substotal	$0.00
Other Costs - Administration, Overhead,etc.	$0.00

Totals

Total Cost	$24,451,740.00
Construction Cost Total	$24,451,740.00
Transit Operating Cost Total	$0.00

Requirements - All Projects

All Projects

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

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

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

List the goals, objectives, strategies, and associated pages:

Goal B. Safety and Security:

Objective: Reduce crashes and improve safety and security for all modes of passenger travel and freight transport.
Strategies: B1, B6 (Page 2.7)

The project has considered safety for all modes of transportation including a new trail facility for bicyclists and pedestrians.

C. Access to Destinations:
Objective: Increase the availability of multimodal travel options, especially in congested highway corridors.
Objective: Increase travel time reliability and predictability for travel on highway and transit systems.

Objective: Improve multimodal travel options for people of all ages and abilities to connect to jobs and other opportunities, particularly for historically underrepresented populations.
Strategies: C2, C4, C8 (Page 2.8 and 2.9)

The project connects neighborhoods and provides a complete streets approach to its design. Besides bicycle elements, the interchange supports transit connections to employment in the area. The project helps advance the goals of the Thrive MSP 2040 plan.

D. Competitive Economy:

Objective: Invest in a multimodal transportation system to attract and retain businesses and residents.

Objective: Support the region's economic competitiveness through the efficient movement of

freight.
Strategies: D1, D3 (Page 2.11)

The project supports a multimodal transportation system by supporting transit and bicycle/pedestrian connections to an area growing in employment.

E. Healthy Environment:
Objective: Increase the availability and attractiveness of transit, bicycling, and walking to encourage healthy communities and active car-free lifestyles.
Objective: Provide a transportation system that promotes community cohesion and connectivity for people of all ages and abilities, particularly for historically underrepresented populations.
Strategies: E3, E7 (Page 2-12 and 2-13)

The project supports all potential users by providing safe pedestrian and bicycle facilities and connecting to transit options. It will preserve the natural environment of the adjacent regional trail and parks. The project will avoid, minimize, and mitigate disproportionately high and adverse impacts of the project for the surrounding community.

Page 5.35 2040 TPP "Conversion of the intersection at U.S. Highway 169 at 101st Avenue in Brooklyn Park to an interchange has been found consistent with the qualifying criteria in Appendix F, although funding has not been identified."

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.

System Statement (page 9)

2040 TPP (page 5.35)

List the applicable documents and pages:

Brooklyn Park Comprehensive Plan (page 5.24)

TH 169/101st Avenue Interchange Study, December 2014 (all pages)

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

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

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

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

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

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

7.The requested funding amount must be more than or equal to the minimum award and less than or equal to the maximum award. The cost of preparing a project for funding authorization can be substantial. For that reason, minimum federal amounts apply. Other federal funds may be combined with the requested funds for projects exceeding the maximum award, but the source(s) must be identified in the application. Funding amounts by application category are listed below.
Roadway Expansion: *$1,000,000 to $7,000,000*
Roadway Reconstruction/ Modernization: *$1,000,000 to $7,000,000*
Roadway System Management *$250,000 to $7,000,000*
Bridges Rehabilitation/ Replacement: *$1,000,000 to $7,000,000*

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

8.The project must comply with the Americans with Disabilities Act.

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

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

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

10.The owner/operator of the facility must operate and maintain the project for the useful life of the improvement.

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

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

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

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

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

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

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

Roadways Including Multimodal Elements

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

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

Roadway Expansion and Reconstruction/Modernization projects only:

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

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

Bridge Rehabilitation/Replacement projects only:

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

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

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

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

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

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

6. The bridge must have a sufficiency rating less than 80 for rehabilitation projects and less than 50 for replacement projects. Additionally, the bridge must also be classified as structurally deficient or functionally obsolete.

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

Requirements - Roadways Including Multimodal Elements

Expander/Augmentor/Non-Freeway Principal Arterial

Select one:	Expander
Area	3.424
Project Length	0.729
Average Distance	4.6968

Upload Map	1468262497523_Roadway Area Definition - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf

Reliever: Relieves a Principle Arterial that is a Freeway Facility

Facility being relieved	
Number of hours per day volume exceeds capacity (based on the Congestion Report)	0

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

Facility being relieved	
Number of hours per day volume exceeds capacity (based on the table below)	0

Non-Freeway Facility Volume/Capacity Table

Hour	NB/EB Volume	SB/WB Volume	Capacity	Volume exceeds capacity
12:00am - 1:00am			0	
1:00am - 2:00am			0	
2:00am - 3:00am			0	
3:00am - 4:00am			0	
4:00am - 5:00am			0	
5:00am - 6:00am			0	
6:00am - 7:00am			0	
7:00am - 8:00am			0	
8:00am - 9:00am			0	
9:00am - 10:00am			0	
10:00am - 11:00am			0	
11:00am - 12:00pm			0	
12:00pm - 1:00pm			0	
1:00pm - 2:00pm			0	
2:00pm - 3:00pm			0	
3:00pm - 4:00pm			0	
4:00pm - 5:00pm			0	
5:00pm - 6:00pm			0	
6:00pm - 7:00pm			0	

7:00pm - 8:00pm	0
8:00pm - 9:00pm	0
9:00pm - 10:00pm	0
10:00pm - 11:00pm	0
11:00pm - 12:00am	0

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

Existing Employment within 1 Mile:	4436
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	1622
Existing Students:	0
Upload Map	1468262539968_Regional Economy - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf

Measure C: Current Heavy Commercial Traffic

Location:	North of Trunk Highway 610
Current daily heavy commercial traffic volume:	1150
Date heavy commercial count taken:	2013

Measure D: Freight Elements

Response (Limit 1,400 characters; approximately 200 words)	Regional access for freight is a driving factor for the interchange at US Hwy 169 and 101st Avenue North. Over a third of all jobs within a mile of the project area are in the manufacturing and distribution sector. Furthermore, the interchange will serve three business parks. Combined, they account for over 3,200,000 square feet of industrial, manufacturing, and warehouse space. The movement of goods from these developments benefit from direct access to US Hwy 169, which serves as a major freight route for the region and connects to regional transportation networks. This regional connection is vital to the growth of the freight industry. In its current configuration, trucks looking to access US Hwy 169 are required to take circuitous routes through local neighborhoods. Access to US Hwy 169 is currently limited at the 101st Avenue North Intersection. Given the large volumes of freight being generated by the project area, accessing US Highway 169 at other locations is not desirable. The proposed interchange separates freight traffic from local roads and residential neighborhoods, and provides direct access to the highway.

Measure A: Current Daily Person Throughput

Location	North of Trunk Highway 610, South of 109th Avenue
Current AADT Volume	41000
Existing Transit Routes on the Project	687
For New Roadways only, list transit routes that will be moved to the new roadway	
Upload Transit Map	1468262670533_Transit Connections - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	53300.0

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	Hennepin County 2030 Travel Demand Model
Forecast (2040) ADT volume	80100

Measure A: Project Location and Impact to Disadvantaged Populations

Select one:

Project located in Area of Concentrated Poverty with 50% or more of residents are people of color (ACP50):	
Project located in Area of Concentrated Poverty:	
Projects census tracts are above the regional average for population in poverty or population of color:	Yes
Project located in a census tract that is below the regional average for population in poverty or populations of color or includes children, people with disabilities, or the elderly:	

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

The interchange supports regional connection to expanding employment opportunities for low-income and underrepresented populations. While located in an area above the regional average for population in poverty or population of color, the project also serves the region by providing access to an area experiencing strong employment growth. As part of this growth, full access at US Hwy 169 and 101st Avenue North was closed as a result of traffic volumes and unsafe conditions. An interchange was found to be the most effective way to improve traffic operations and address safety.

The project provides access to jobs and enhances safety, which are two place based opportunities for low-income residents identified in the Metropolitan Council's Choice, Place and Opportunity: An Equity Assessment of the Twin Cities Region. Safety is enhanced for users by providing a well-designed on ramp for all movements on and off US Hwy 169. The intersect was found to have an elevated crash rate in the 2014 US 169/ 101st Avenue North Interchange Study.

The proposed project will provide direct access to the expected 25,000 jobs in the project area. Improved travel times for vehicles, transit, bicyclists, and pedestrians benefits underserved residents especially those living in the Area of Concentrated Poverty directly north of the project in the City of Anoka.

Vehicular access in and out of the project area is important for low-income residents who have access to a vehicle. In its current layout, accessing the project area requires convoluted or indirect routes through local neighborhoods or by adjacent highways. The direct access to US Hwy 169 improves travel times to those entering or leaving

the area for employment.

The project also supports job growth by improving transit opportunities including:
-Improved access and routing for the four current transit routes (687, 724, 765, 782)

-Improved access to future transit routes serving new employment and residential growth

-Direct access to the planned Oak Grove Transit Station and park-and-ride facility

Pedestrian and bicycle safety is also addressed by the addition of a trail located south of the roadway. Currently there are no pedestrian or bicycle facilities on 101st Avenue North. The trail will provide a safe and conflict free pedestrian/bicycle passage over the highway by limiting driveway access. The additional facilities will encourage all users, including the elderly and disabled to walk or bike to area amenities such as parks, transit, or employment.

The project construction will incorporate proper noise, dust, and traffic mitigation and will not negatively impact disadvantaged populations present in the project area by maintaining access to businesses, housing, and minimizing construction nuisances.

The response should address the benefits, impacts, and mitigation for the populations affected by the project.

Upload Map

1468262971525_Socio-Economic Conditions - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf

Measure B: Affordable Housing

City/Township	Segment Length in Miles (Population)
Brooklyn Park	0.729
	1

Total Project Length

Total Project Length (Total Population)	0.7

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

City/Township	Segment Length (Miles)	Total Length (Miles)	Score	Segment Length/Total Length	Housing Score Multiplied by Segment percent
		0	**0**	**0**	**0**

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles)	0.729
Total Housing Score	0

Measure A: Infrastructure Age

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
1984.0	0.729	1446.336	1984.0
	1	**1446**	**1984**

Average Construction Year

Weighted Year	1984.0

Total Segment Length (Miles)

Total Segment Length	0.729

Measure A: Vehicle Delay Reduction

Total Peak Hour Delay Per Vehicle Without The Project	Total Peak Hour Delay Per Vehicle With The Project	Total Peak Hour Delay Per Vehicle Reduced by Project	Volume (Vehicles Per Hour)	Total Peak Hour Delay Reduced by the Project (Seconds)	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable:	Synchro or HCM Reports
58.0	43.0	15.0	4061.0	60915.0		1468500233031_HCM Report - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf
19.0	18.0	1.0	1598.0	1598.0		1468500252687_HCM Report - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf
20.0	17.0	3.0	1292.0	3876.0		1468500268531_HCM Report - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf

Total Delay

Total Peak Hour Delay Reduced	66389.0

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

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

Total

Total Emissions Reduced: 0

Upload Synchro Report

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 Per Vehicle without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Per Vehicle with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced Per Vehicle by the Project (Kilograms):	Volume (Vehicles Per Hour):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
14.13	11.77	3	4061.0	12183.0
2.59	2.55	3	1598.0	4794.0
3.25	2.65	3	1292.0	3876.0
20	**17**		**6951**	**20853**

Total Parallel Roadways

Emissions Reduced on Parallel Roadways 20853.0

Upload Synchro Report 1468500189890_HCM Report - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf

New Roadway Portion:

Cruise speed in miles per hour with the project: 30.0

Vehicle miles traveled with the project: 844.0

Total delay in hours with the project: 11.0

Total stops in vehicles per hour with the project: 1567.0

Fuel consumption in gallons:	3142.062
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced or Produced on New Roadway (Kilograms):	313.264
EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)	Methodology consistent with application guidelines. Please see attachment for further information.
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	20539.736

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:

(Limit 700 Characters; approximately 100 words)

Rationale for Crash Modification Selected:

Based on the results of the benefit cost analysis, the 101st Avenue/169 Interchange project is expected to result in a net increase in crashes within the study area. While the traffic volumes shifting from the other parallel routes are expected to reduce crashes at the intersections or segments by 10 crashes, there is expected to be 17 new crashes created as part of the new interchange with 169/101st Avenue, based on the project crash methodology. However, based on our engineering judgement, the lower than future year 2040 design volumes expected on the new interchange during the opening year of the roadway will likely reduce the overall number of crashes through the project area. It should be noted that this project is more related to congestion issues than safety issues. It is our estimate that these are not high crash areas due to the slow moving nature of traffic during high volume periods. Because the traffic is not flowing, speeds are reduced and crashes have a lower chance of occurring.

(Limit 1400 Characters; approximately 200 words)

Project Benefit ($) from B/C Ratio: 0

Worksheet Attachment 1468264768705_Complete Crash Analysis - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf

Roadway projects that include railroad grade-separation elements:

Current AADT volume: 0

Average daily trains: 0

Crash Risk Exposure eliminated: 0

Measure A: Multimodal Elements and Existing Connections

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

The project area is well served by active modes of transportation. The project enhances safety for pedestrians and facilitates better access to transit options. This is important as the area is projected to experience extreme growth with an expected 25,000 additional jobs and 5,000 new households. Transit, vehicles, bicyclists, and pedestrians will benefit from the access provided from the project.

The direct connection to US Hwy 169 at this location will provide more efficient vehicle and transit routing. Benefits to transit include:
-Improved routing for Metro Transit bus routes (687, 724, 765, 782)

-Improved access to future transit routes serving new employment and residential growth

-Direct access to the planned Oak Grove Transit Station, part of the METRO Blue Line extension
-Direct access to a planned park-and-ride facility

These transit improvements will serve both area residents and regional users. The enhanced transit facilities provide much needed regional transit options for residents living north of the project area; including commuters from Maple Grove, Anoka, Ramsey, Osseo, and Champlin. The existing routes connect to downtown Minneapolis, Brooklyn Center, Eden Prairie, Maple Grove, Chaska, Chanhassen. The project will provide direct access to these facilities from US Hwy 169.

Additionally, the project includes a multiuse trail that will connect to the 9.64 mile Rush Creek Regional Trail, a Regional Bicycle Transportation Network Tier 2 alignment that feeds into the Elm Creek Park Reserve, and the three mile Jefferson Highway Trail. These trail connections provide safe bicycle and pedestrian access to variety of

locations including:

-Employment Centers (Target Northern Campus, NorthPark Business Park)

-Schools (Elm Creek Elementary, Champlin Park High School, and Oxbow Elementary)
-Recreational Opportunities (Oak Grove Park, Orchard Trail Park, Coon Rapids Dam Regional Park, Elm Creek Park Reserve)
-Commercial (Park Place Promenade)
-Transit (four bus routes, future Oak Grove Transit Station)

The location of the trail on the south side of the roadway provides additional safety for users. There is only one driveway access point, which greatly reduces the likelihood of conflict between vehicles and pedestrians/bicyclists. The trail serves as an essential connection over the highway for the expected population growth and business expansion.

Transit Projects Not Requiring Construction

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

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment

1)Project Scope (5 Percent of Points)

Meetings or contacts with stakeholders have occurred Yes

100%

Stakeholders have been identified

40%

Stakeholders have not been identified or contacted

0%

2)Layout or Preliminary Plan (5 Percent of Points)

Layout or Preliminary Plan completed

100%

Layout or Preliminary Plan started Yes

50%

Layout or Preliminary Plan has not been started

0%

Anticipated date or date of completion 01/01/2017

3)Environmental Documentation (5 Percent of Points)

EIS

EA Yes

PM

Document Status:

Document approved (include copy of signed cover sheet)

100%

Document submitted to State Aid for review Yes 04/13/2016

75% date submitted

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

50%

Document not started

0%

Anticipated date or date of completion/approval 12/01/2016

4)Review of Section 106 Historic Resources (10 Percent of Points)

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

100%

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

80%

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

40%

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

0%

Anticipated date or date of completion of historic/archeological review: 04/13/2016

Project is located on an identified historic bridge

5)Review of Section 4f/6f Resources (10 Percent of Points)

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

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

100%

No impact to 4f property. The project is an independent bikeway/walkway project covered by the bikeway/walkway Negative Declaration statement; letter of support received Yes

100%

Section 4f resources present within the project area, but no known adverse effects

80%

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

50%

Project impacts to Section 4f/6f resources likely coordination/documentation has not begun

30%

Unsure if there are any impacts to Section 4f/6f resources in the project area

0%

6)Right-of-Way (15 Percent of Points)

Right-of-way, permanent or temporary easements not required

100%

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

100%

Right-of-way, permanent or temporary easements required, offers made Yes

75%

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

50%

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

25%

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

0%

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

0%

Anticipated date or date of acquisition

7)Railroad Involvement (25 Percent of Points)

No railroad involvement on project Yes

100%

Railroad Right-of-Way Agreement is executed (include signature page) 100%

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

60%

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

40%

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

0%

Anticipated date or date of executed Agreement

8)Interchange Approval (15 Percent of Points)*

**Please contact Karen Scheffing at MnDOT (Karen.Scheffing@state.mn.us or 651-234-7784) to determine if your project needs to go through the Metropolitan Council/MnDOT Highway Interchange Request Committee.*

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

100%

Interchange project has been approved by the Metropolitan Council/MnDOT Highway Interchange Request Committee Yes

100%

Interchange project has not been approved by the Metropolitan Council/MnDOT Highway Interchange Request Committee

0%

9)Construction Documents/Plan (10 Percent of Points)

Construction plans completed/approved (include signed title sheet)

100%

Construction plans submitted to State Aid for review

75%

Construction plans in progress; at least 30% completion Yes

50%

Construction plans have not been started

0%

Anticipated date or date of completion	01/01/2020

10)Letting

Anticipated Letting Date	01/01/2020

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	$24,451,740.00
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$24,451,740.00
Points Awarded in Previous Criteria	
Cost Effectiveness	$0.00

Other Attachments

File Name	Description	File Size
Complete Crash Analysis - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf	Crash analysis.	127 KB
Figure 1 - Issues Map - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf	This map identifies various elements of the project area referenced throughout the application.	2.2 MB
HCM Report - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf	Reports for congestion and emissions reduction analysis.	182 KB
Layout - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf	Preliminary layout for the proposed project.	5.8 MB
Met Council Maps - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf	The Metropolitan Council generated maps including Roadway Area Definition, Regional Economy, Socio-Economic Conditions, and Transit Connections.	1.1 MB
MnDOT Letter of Support - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf	Letter of support from the Minnesota Department of Transportation.	106 KB
Photos - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf	Photos of project area.	1.7 MB
Three Rivers Park District LOS - Brooklyn Park - US Hwy 169-101st Avenue North Interchange.pdf	Letter of support from Three Rivers Park District.	91 KB

Roadway Area Definition

Roadway Expansion Project: Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange | Map ID: 1466084348993

Results

Project Length: 0.729 miles

Project Area: 3.424 sq mi

Project Points Project Area

Project

0 1 2 4 6 8 Miles

Created: 6/16/2016
LandscapeRSA1

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

METROPOLITAN COUNCIL

Regional Economy

Roadway Expansion Project: Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange | Map ID: 1466084348993

Results

WITHIN ONE MI of project:

Totals by City:

Brooklyn Park
Population: 924
Employment: 2086
Mfg and Dist Employment: 680

Champlin
Population: 4138
Employment: 1418
Mfg and Dist Employment: 911

Maple Grove
Population: 6589
Employment: 364
Mfg and Dist Employment: 22

Osseo
Population: 2052
Employment: 568
Mfg and Dist Employment: 9

Postsecondary Students:
0

Project Points
Project Area
Project

0 1 2 4 6 8 Miles

Created: 6/16/2016
LandscapeRSA5

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

METROPOLITAN COUNCIL

Transit Connections

Roadway Expansion Project: Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange | Map ID: 1466084348993

Results

Transit with a Direct Connection to project:
-- NONE --

**indicates Planned Alignments*

Project Points
Project
Project Area

Transitway
Northstar Line
Light Rail, Blue Line Extension

Planned Alignments
Arterial BRT

0 1 2 4 6 8 Miles

Created: 6/16/2016
LandscapeRSA3

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

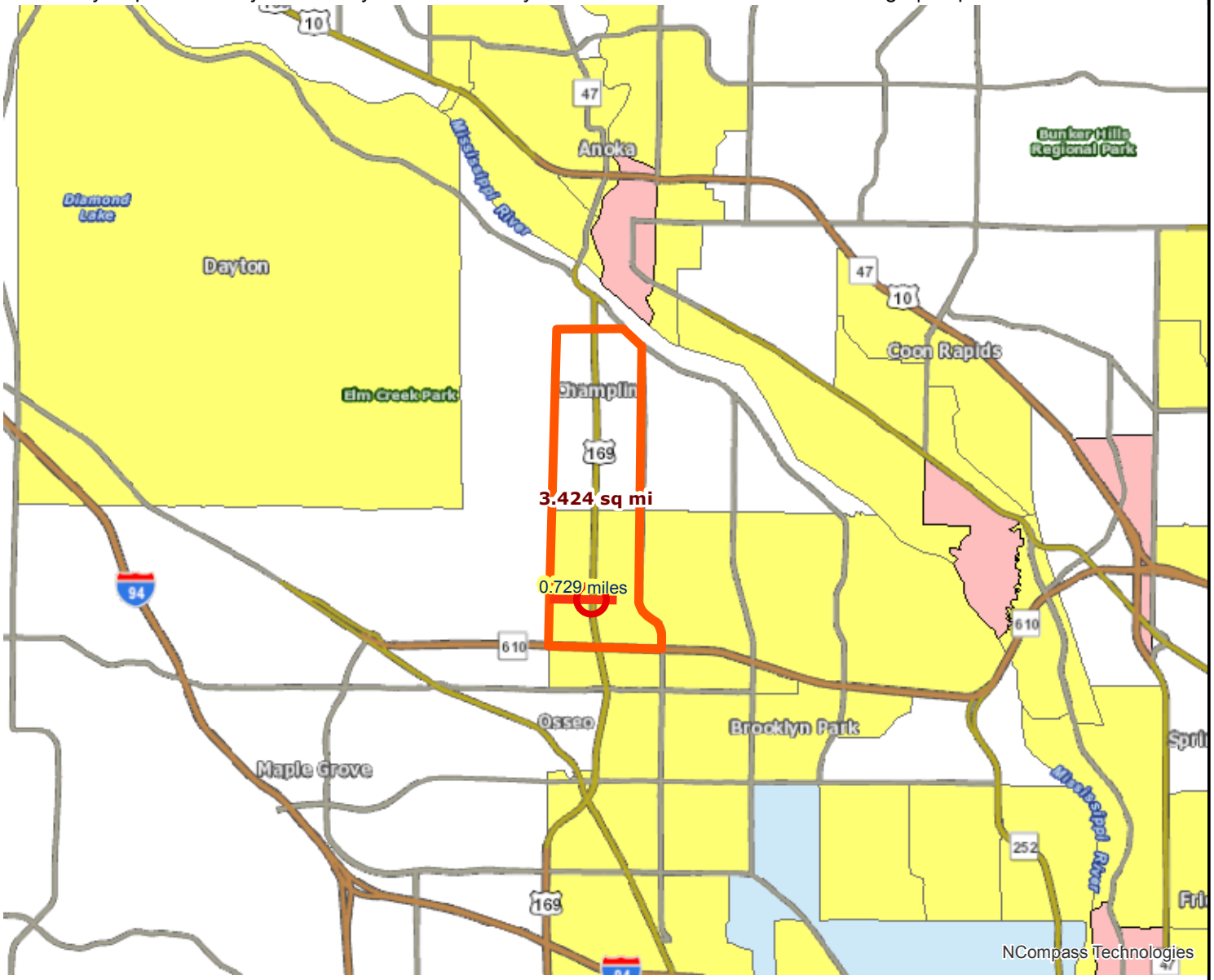
METROPOLITAN COUNCIL

Socio-Economic Conditions

Roadway Expansion Project: Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange | Map ID: 1466084348993

Results

Project census tracts are above the regional average for population in poverty or population of color:
(0 to 18 Points)



Project Points
Project
Project Area
Area of Concentrated Povertry > 50% residents of color
Area of Concentrated Poverty
Above reg'l avg conc of race/poverty

0 1 2 4 6 8 Miles

Created: 6/16/2016
LandscapeRSA2

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

METROPOLITAN COUNCIL

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	4061
Total Delay / Veh (s/v)	58
CO Emissions (kg)	9.90
NOx Emissions (kg)	1.93
VOC Emissions (kg)	2.30

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1598
Total Delay / Veh (s/v)	19
CO Emissions (kg)	1.82
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.42

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1292
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.28
NOx Emissions (kg)	0.44
VOC Emissions (kg)	0.53

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	3778
Total Delay / Veh (s/v)	43
CO Emissions (kg)	8.25
NOx Emissions (kg)	1.61
VOC Emissions (kg)	1.91

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1599
Total Delay / Veh (s/v)	18
CO Emissions (kg)	1.79
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.41

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1080
Total Delay / Veh (s/v)	17
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

3: 101st Avenue & NB TH 169

Direction	All
Future Volume (vph)	1578
Total Delay (hr)	5
Stops (#)	643
Average Speed (mph)	22
Total Travel Time (hr)	12
Distance Traveled (mi)	261

5: 101st Avenue & SB TH 169

Direction	All
Future Volume (vph)	1143
Total Delay (hr)	2
Stops (#)	296
Average Speed (mph)	30
Total Travel Time (hr)	7
Distance Traveled (mi)	197

9: Xylon Avenue & 101st Avenue

Direction	All
Future Volume (vph)	1348
Total Delay (hr)	4
Stops (#)	628
Average Speed (mph)	28
Total Travel Time (hr)	14
Distance Traveled (mi)	386

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

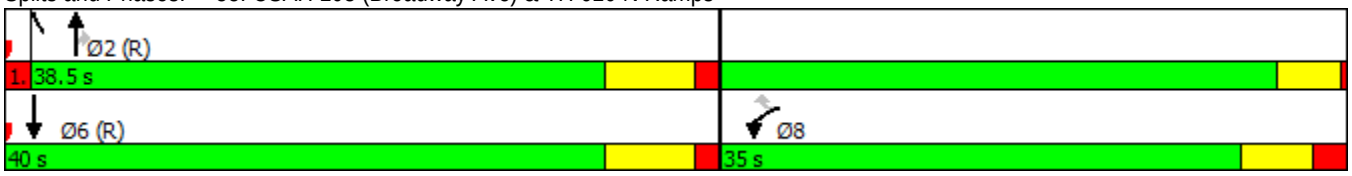
Intersection Summary	
Cycle Length	180
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	29.5	28	68
End Time (s)	29.5	68	68	28
Yield/Force Off (s)	24	61.5	61.5	22
Yield/Force Off 170(s)	24	32.5	61.5	64
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 28 (37%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

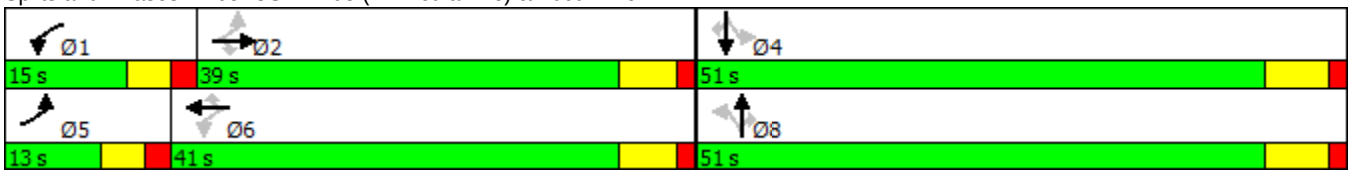
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

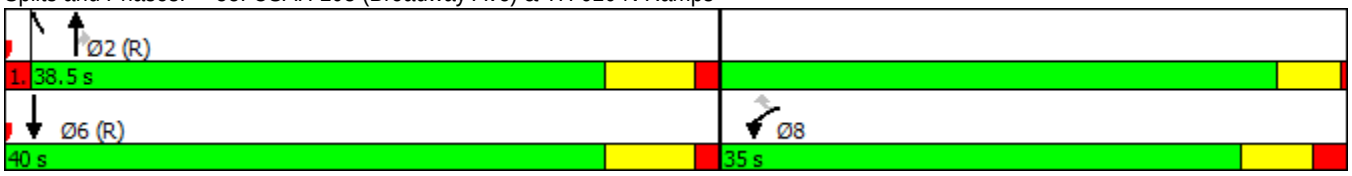
Intersection Summary		
Cycle Length	180	
Control Type	Actuated-Coordinated	
Natural Cycle	145	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	1.5	0	40
End Time (s)	1.5	40	40	0
Yield/Force Off (s)	71	33.5	33.5	69
Yield/Force Off 170(s)	71	4.5	33.5	36
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

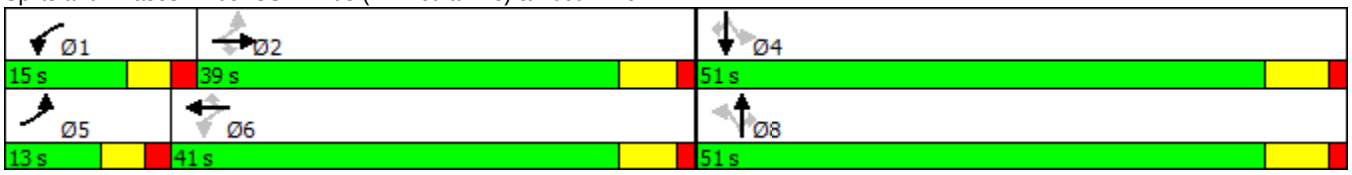
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	20	28	27	48
Maximum Split (%)	26.7%	37.3%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5	5	5
Flash Dont Walk (s)		11	11	11
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	16	63	36	63
End Time (s)	36	16	63	36
Yield/Force Off (s)	31	10.5	58	30.5
Yield/Force Off 170(s)	31	74.5	47	19.5
Local Start Time (s)	28	0	48	0
Local Yield (s)	43	22.5	70	42.5
Local Yield 170(s)	43	11.5	59	31.5

Intersection Summary				
Cycle Length			75	
Control Type	Actuated-Coordinated			
Natural Cycle			55	
Offset: 63 (84%), Referenced to phase 2:WBT and 6:EBTL, Start of Green				

Splits and Phases: 3: 101st Avenue & NB TH 169

Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	19	29	27	48
Maximum Split (%)	25.3%	38.7%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	56	0	29	56
End Time (s)	0	29	56	29
Yield/Force Off (s)	70	23.5	51	23.5
Yield/Force Off 170(s)	70	23.5	51	23.5
Local Start Time (s)	56	0	29	56
Local Yield (s)	70	23.5	51	23.5
Local Yield 170(s)	70	23.5	51	23.5

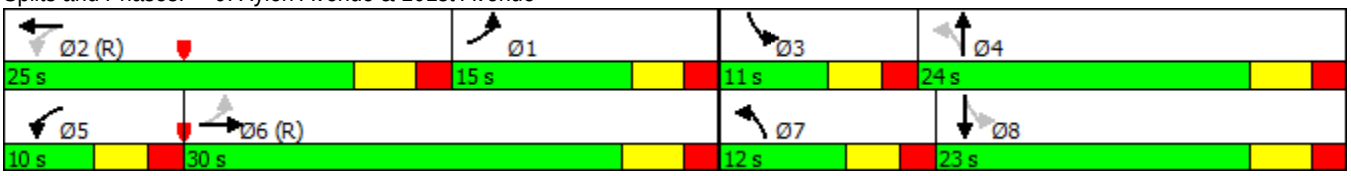
Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green, Master Intersection	

Splits and Phases: 5: 101st Avenue & SB TH 169

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	25	11	24	10	30	12	23
Maximum Split (%)	20.0%	33.3%	14.7%	32.0%	13.3%	40.0%	16.0%	30.7%
Minimum Split (s)	9.5	21.5	9.5	21.5	9.5	21.5	9.5	21.5
Yellow Time (s)	3	3.5	3	3.5	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	4	4	4	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	74	49	14	25	49	59	14	26
End Time (s)	14	74	25	49	59	14	26	49
Yield/Force Off (s)	9	68.5	20	43.5	54	8.5	21	43.5
Yield/Force Off 170(s)	9	57.5	20	32.5	54	72.5	21	32.5
Local Start Time (s)	15	65	30	41	65	0	30	42
Local Yield (s)	25	9.5	36	59.5	70	24.5	37	59.5
Local Yield 170(s)	25	73.5	36	48.5	70	13.5	37	48.5

Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 59 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 9: Xylon Avenue & 101st Avenue



Congestion Reduction			
Existing AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	4,061	58	235,538
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,598	19	30,362
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,292	20	25,840
Total	6,951	97	291,740

Improved AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	3,778	43	162,454
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,599	18	28,782
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,080	17	18,360
Total	6,457	78	209,596

Reduction	Total Delay Reduced (Seconds)
35: 169 (124) & 109th Ave	73,084
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,580
65: CSAH 103 (Winnetka Ave) & 109th Ave	7,480
Total	82,144

Emissions Improvements				
Existing AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	9.90	1.93	2.30	14.13
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.82	0.35	0.42	2.59
65: CSAH 103 (Winnetka Ave) & 109th Ave	2.28	0.44	0.53	3.25
Total	14.00	2.72	3.25	19.97

Improved AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	8.25	1.61	1.91	11.77
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.79	0.35	0.41	2.55
65: CSAH 103 (Winnetka Ave) & 109th Ave	1.86	0.36	0.43	2.65
Total	11.90	2.32	2.75	16.97

Emissions Reduction	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	1.65	0.32	0.39	2.36
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	0.03	0.00	0.01	0.04
65: CSAH 103 (Winnetka Ave) & 109th Ave	0.42	0.08	0.10	0.60
Total	2.10	0.40	0.50	3.00

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	4061
Total Delay / Veh (s/v)	58
CO Emissions (kg)	9.90
NOx Emissions (kg)	1.93
VOC Emissions (kg)	2.30

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1598
Total Delay / Veh (s/v)	19
CO Emissions (kg)	1.82
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.42

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1292
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.28
NOx Emissions (kg)	0.44
VOC Emissions (kg)	0.53

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	3778
Total Delay / Veh (s/v)	43
CO Emissions (kg)	8.25
NOx Emissions (kg)	1.61
VOC Emissions (kg)	1.91

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1599
Total Delay / Veh (s/v)	18
CO Emissions (kg)	1.79
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.41

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1080
Total Delay / Veh (s/v)	17
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

3: 101st Avenue & NB TH 169

Direction	All
Future Volume (vph)	1578
Total Delay (hr)	5
Stops (#)	643
Average Speed (mph)	22
Total Travel Time (hr)	12
Distance Traveled (mi)	261

5: 101st Avenue & SB TH 169

Direction	All
Future Volume (vph)	1143
Total Delay (hr)	2
Stops (#)	296
Average Speed (mph)	30
Total Travel Time (hr)	7
Distance Traveled (mi)	197

9: Xylon Avenue & 101st Avenue

Direction	All
Future Volume (vph)	1348
Total Delay (hr)	4
Stops (#)	628
Average Speed (mph)	28
Total Travel Time (hr)	14
Distance Traveled (mi)	386

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

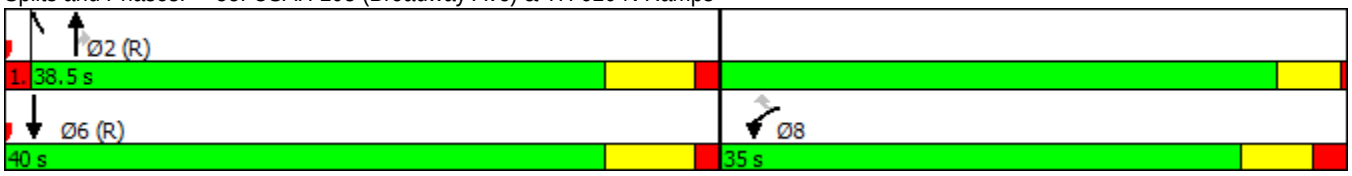
Intersection Summary	
Cycle Length	180
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	29.5	28	68
End Time (s)	29.5	68	68	28
Yield/Force Off (s)	24	61.5	61.5	22
Yield/Force Off 170(s)	24	32.5	61.5	64
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 28 (37%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

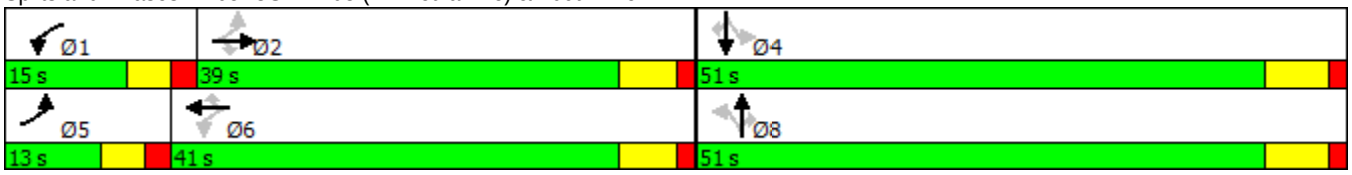
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

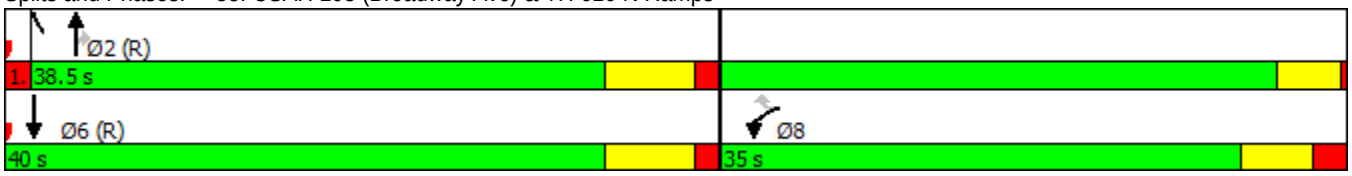
Intersection Summary		
Cycle Length	180	
Control Type	Actuated-Coordinated	
Natural Cycle	145	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	1.5	0	40
End Time (s)	1.5	40	40	0
Yield/Force Off (s)	71	33.5	33.5	69
Yield/Force Off 170(s)	71	4.5	33.5	36
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

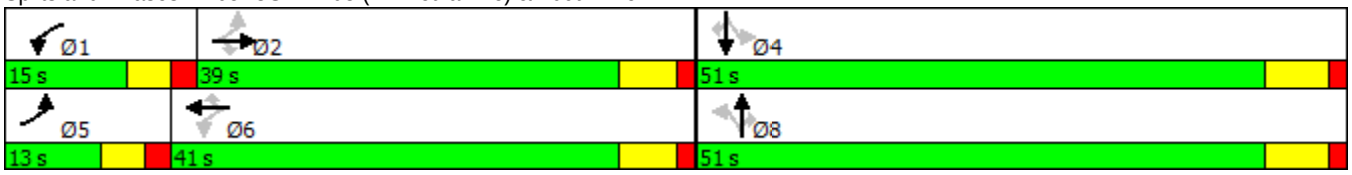
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	20	28	27	48
Maximum Split (%)	26.7%	37.3%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5	5	5
Flash Dont Walk (s)		11	11	11
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	16	63	36	63
End Time (s)	36	16	63	36
Yield/Force Off (s)	31	10.5	58	30.5
Yield/Force Off 170(s)	31	74.5	47	19.5
Local Start Time (s)	28	0	48	0
Local Yield (s)	43	22.5	70	42.5
Local Yield 170(s)	43	11.5	59	31.5

Intersection Summary				
Cycle Length			75	
Control Type	Actuated-Coordinated			
Natural Cycle			55	
Offset: 63 (84%), Referenced to phase 2:WBT and 6:EBTL, Start of Green				

Splits and Phases: 3: 101st Avenue & NB TH 169

Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	19	29	27	48
Maximum Split (%)	25.3%	38.7%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	56	0	29	56
End Time (s)	0	29	56	29
Yield/Force Off (s)	70	23.5	51	23.5
Yield/Force Off 170(s)	70	23.5	51	23.5
Local Start Time (s)	56	0	29	56
Local Yield (s)	70	23.5	51	23.5
Local Yield 170(s)	70	23.5	51	23.5

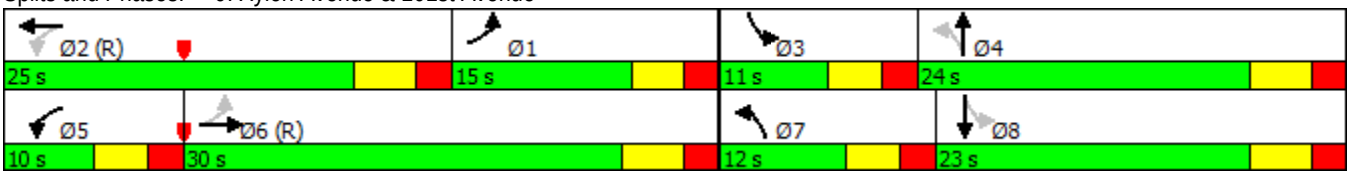
Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green, Master Intersection	

Splits and Phases: 5: 101st Avenue & SB TH 169

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	25	11	24	10	30	12	23
Maximum Split (%)	20.0%	33.3%	14.7%	32.0%	13.3%	40.0%	16.0%	30.7%
Minimum Split (s)	9.5	21.5	9.5	21.5	9.5	21.5	9.5	21.5
Yellow Time (s)	3	3.5	3	3.5	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	4	4	4	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	74	49	14	25	49	59	14	26
End Time (s)	14	74	25	49	59	14	26	49
Yield/Force Off (s)	9	68.5	20	43.5	54	8.5	21	43.5
Yield/Force Off 170(s)	9	57.5	20	32.5	54	72.5	21	32.5
Local Start Time (s)	15	65	30	41	65	0	30	42
Local Yield (s)	25	9.5	36	59.5	70	24.5	37	59.5
Local Yield 170(s)	25	73.5	36	48.5	70	13.5	37	48.5

Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 59 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 9: Xylon Avenue & 101st Avenue



Congestion Reduction			
Existing AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	4,061	58	235,538
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,598	19	30,362
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,292	20	25,840
Total	6,951	97	291,740

Improved AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	3,778	43	162,454
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,599	18	28,782
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,080	17	18,360
Total	6,457	78	209,596

Reduction	Total Delay Reduced (Seconds)
35: 169 (124) & 109th Ave	73,084
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,580
65: CSAH 103 (Winnetka Ave) & 109th Ave	7,480
Total	82,144

Emissions Improvements				
Existing AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	9.90	1.93	2.30	14.13
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.82	0.35	0.42	2.59
65: CSAH 103 (Winnetka Ave) & 109th Ave	2.28	0.44	0.53	3.25
Total	14.00	2.72	3.25	19.97

Improved AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	8.25	1.61	1.91	11.77
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.79	0.35	0.41	2.55
65: CSAH 103 (Winnetka Ave) & 109th Ave	1.86	0.36	0.43	2.65
Total	11.90	2.32	2.75	16.97

Emissions Reduction	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	1.65	0.32	0.39	2.36
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	0.03	0.00	0.01	0.04
65: CSAH 103 (Winnetka Ave) & 109th Ave	0.42	0.08	0.10	0.60
Total	2.10	0.40	0.50	3.00

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	4061
Total Delay / Veh (s/v)	58
CO Emissions (kg)	9.90
NOx Emissions (kg)	1.93
VOC Emissions (kg)	2.30

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1598
Total Delay / Veh (s/v)	19
CO Emissions (kg)	1.82
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.42

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1292
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.28
NOx Emissions (kg)	0.44
VOC Emissions (kg)	0.53

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	3778
Total Delay / Veh (s/v)	43
CO Emissions (kg)	8.25
NOx Emissions (kg)	1.61
VOC Emissions (kg)	1.91

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1599
Total Delay / Veh (s/v)	18
CO Emissions (kg)	1.79
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.41

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1080
Total Delay / Veh (s/v)	17
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

3: 101st Avenue & NB TH 169

Direction	All
Future Volume (vph)	1578
Total Delay (hr)	5
Stops (#)	643
Average Speed (mph)	22
Total Travel Time (hr)	12
Distance Traveled (mi)	261

5: 101st Avenue & SB TH 169

Direction	All
Future Volume (vph)	1143
Total Delay (hr)	2
Stops (#)	296
Average Speed (mph)	30
Total Travel Time (hr)	7
Distance Traveled (mi)	197

9: Xylon Avenue & 101st Avenue

Direction	All
Future Volume (vph)	1348
Total Delay (hr)	4
Stops (#)	628
Average Speed (mph)	28
Total Travel Time (hr)	14
Distance Traveled (mi)	386

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

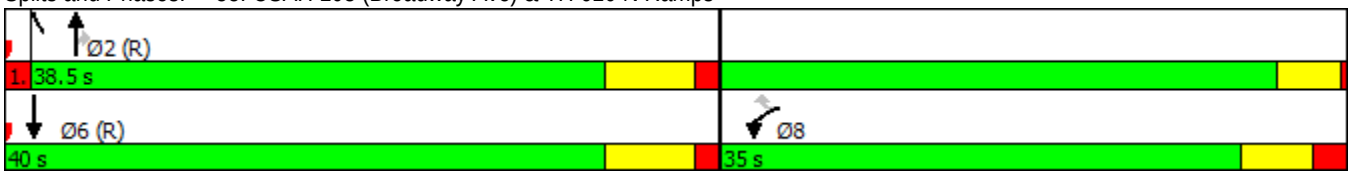
Intersection Summary	
Cycle Length	180
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	29.5	28	68
End Time (s)	29.5	68	68	28
Yield/Force Off (s)	24	61.5	61.5	22
Yield/Force Off 170(s)	24	32.5	61.5	64
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 28 (37%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

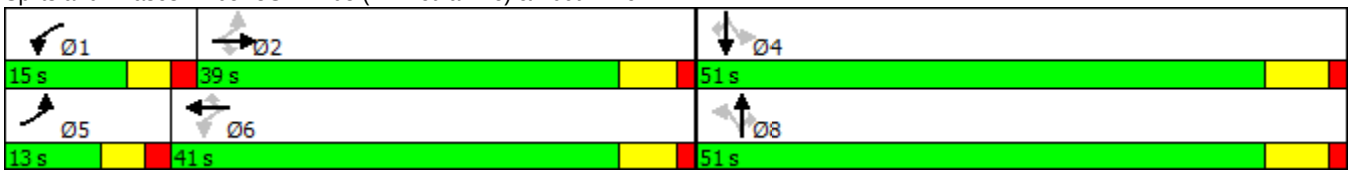
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

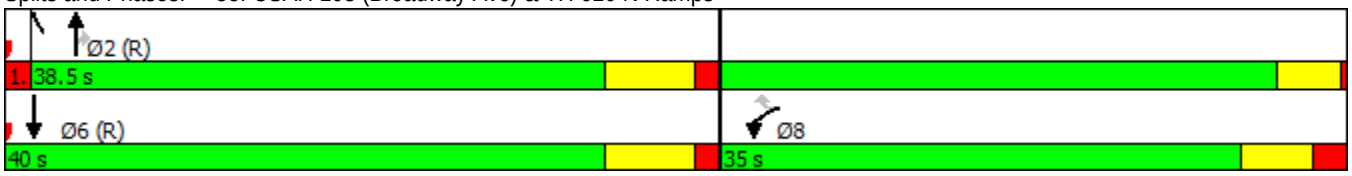
Intersection Summary		
Cycle Length	180	
Control Type	Actuated-Coordinated	
Natural Cycle	145	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	1.5	0	40
End Time (s)	1.5	40	40	0
Yield/Force Off (s)	71	33.5	33.5	69
Yield/Force Off 170(s)	71	4.5	33.5	36
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

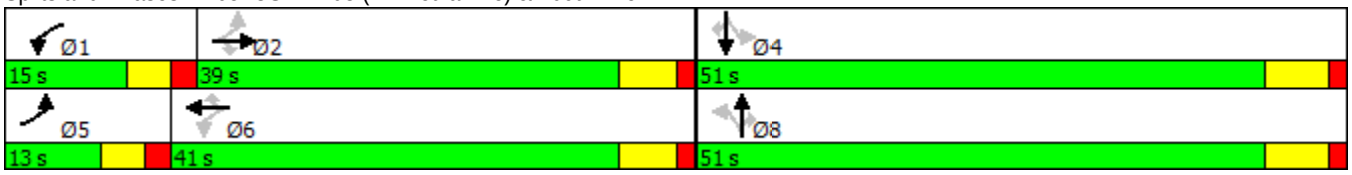
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	20	28	27	48
Maximum Split (%)	26.7%	37.3%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5	5	5
Flash Dont Walk (s)		11	11	11
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	16	63	36	63
End Time (s)	36	16	63	36
Yield/Force Off (s)	31	10.5	58	30.5
Yield/Force Off 170(s)	31	74.5	47	19.5
Local Start Time (s)	28	0	48	0
Local Yield (s)	43	22.5	70	42.5
Local Yield 170(s)	43	11.5	59	31.5

Intersection Summary				
Cycle Length			75	
Control Type	Actuated-Coordinated			
Natural Cycle			55	
Offset: 63 (84%), Referenced to phase 2:WBT and 6:EBTL, Start of Green				

Splits and Phases: 3: 101st Avenue & NB TH 169

Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	19	29	27	48
Maximum Split (%)	25.3%	38.7%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	56	0	29	56
End Time (s)	0	29	56	29
Yield/Force Off (s)	70	23.5	51	23.5
Yield/Force Off 170(s)	70	23.5	51	23.5
Local Start Time (s)	56	0	29	56
Local Yield (s)	70	23.5	51	23.5
Local Yield 170(s)	70	23.5	51	23.5

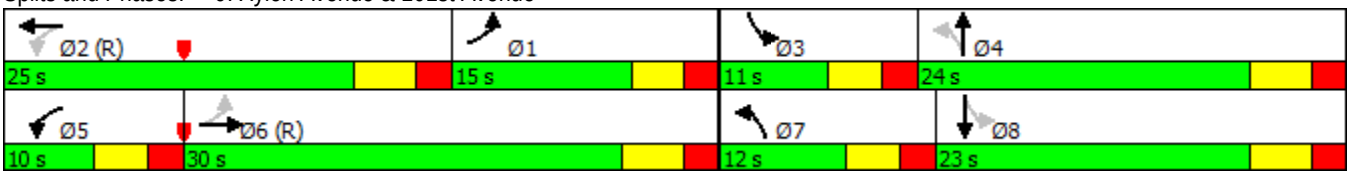
Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green, Master Intersection	

Splits and Phases: 5: 101st Avenue & SB TH 169

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	25	11	24	10	30	12	23
Maximum Split (%)	20.0%	33.3%	14.7%	32.0%	13.3%	40.0%	16.0%	30.7%
Minimum Split (s)	9.5	21.5	9.5	21.5	9.5	21.5	9.5	21.5
Yellow Time (s)	3	3.5	3	3.5	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	4	4	4	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	74	49	14	25	49	59	14	26
End Time (s)	14	74	25	49	59	14	26	49
Yield/Force Off (s)	9	68.5	20	43.5	54	8.5	21	43.5
Yield/Force Off 170(s)	9	57.5	20	32.5	54	72.5	21	32.5
Local Start Time (s)	15	65	30	41	65	0	30	42
Local Yield (s)	25	9.5	36	59.5	70	24.5	37	59.5
Local Yield 170(s)	25	73.5	36	48.5	70	13.5	37	48.5

Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 59 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 9: Xylon Avenue & 101st Avenue



Congestion Reduction			
Existing AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	4,061	58	235,538
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,598	19	30,362
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,292	20	25,840
Total	6,951	97	291,740

Improved AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	3,778	43	162,454
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,599	18	28,782
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,080	17	18,360
Total	6,457	78	209,596

Reduction	Total Delay Reduced (Seconds)
35: 169 (124) & 109th Ave	73,084
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,580
65: CSAH 103 (Winnetka Ave) & 109th Ave	7,480
Total	82,144

Emissions Improvements				
Existing AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	9.90	1.93	2.30	14.13
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.82	0.35	0.42	2.59
65: CSAH 103 (Winnetka Ave) & 109th Ave	2.28	0.44	0.53	3.25
Total	14.00	2.72	3.25	19.97

Improved AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	8.25	1.61	1.91	11.77
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.79	0.35	0.41	2.55
65: CSAH 103 (Winnetka Ave) & 109th Ave	1.86	0.36	0.43	2.65
Total	11.90	2.32	2.75	16.97

Emissions Reduction	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	1.65	0.32	0.39	2.36
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	0.03	0.00	0.01	0.04
65: CSAH 103 (Winnetka Ave) & 109th Ave	0.42	0.08	0.10	0.60
Total	2.10	0.40	0.50	3.00

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	4061
Total Delay / Veh (s/v)	58
CO Emissions (kg)	9.90
NOx Emissions (kg)	1.93
VOC Emissions (kg)	2.30

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1598
Total Delay / Veh (s/v)	19
CO Emissions (kg)	1.82
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.42

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1292
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.28
NOx Emissions (kg)	0.44
VOC Emissions (kg)	0.53

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	3778
Total Delay / Veh (s/v)	43
CO Emissions (kg)	8.25
NOx Emissions (kg)	1.61
VOC Emissions (kg)	1.91

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1599
Total Delay / Veh (s/v)	18
CO Emissions (kg)	1.79
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.41

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1080
Total Delay / Veh (s/v)	17
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

3: 101st Avenue & NB TH 169

Direction	All
Future Volume (vph)	1578
Total Delay (hr)	5
Stops (#)	643
Average Speed (mph)	22
Total Travel Time (hr)	12
Distance Traveled (mi)	261

5: 101st Avenue & SB TH 169

Direction	All
Future Volume (vph)	1143
Total Delay (hr)	2
Stops (#)	296
Average Speed (mph)	30
Total Travel Time (hr)	7
Distance Traveled (mi)	197

9: Xylon Avenue & 101st Avenue

Direction	All
Future Volume (vph)	1348
Total Delay (hr)	4
Stops (#)	628
Average Speed (mph)	28
Total Travel Time (hr)	14
Distance Traveled (mi)	386

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

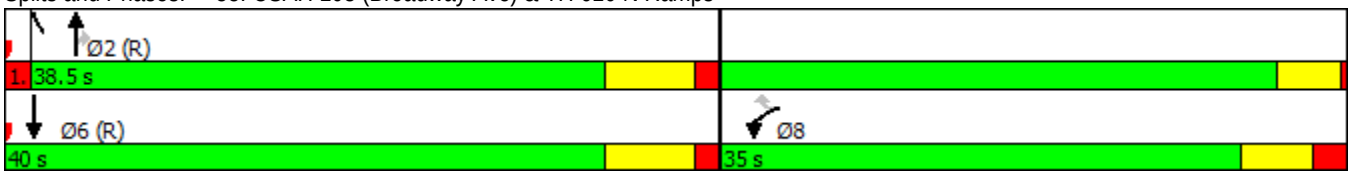
Intersection Summary	
Cycle Length	180
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	29.5	28	68
End Time (s)	29.5	68	68	28
Yield/Force Off (s)	24	61.5	61.5	22
Yield/Force Off 170(s)	24	32.5	61.5	64
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 28 (37%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

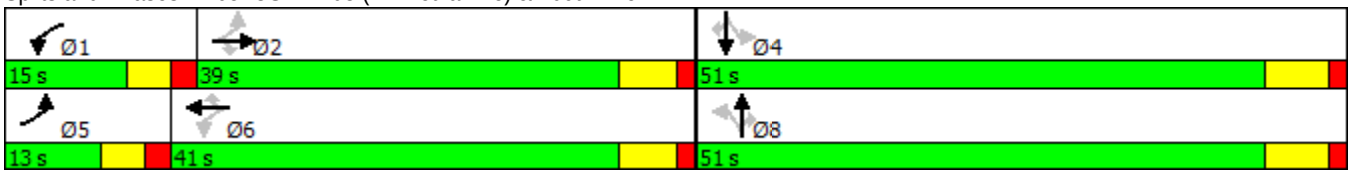
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

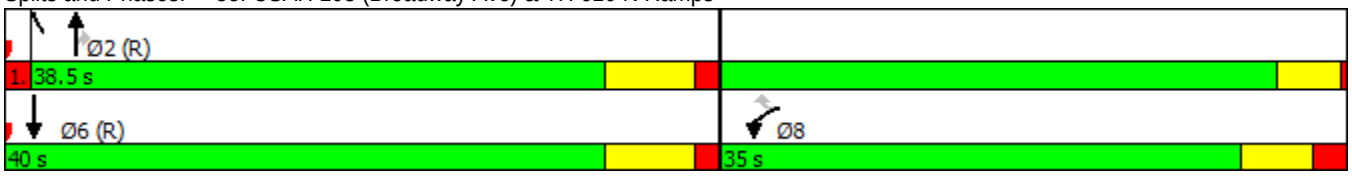
Intersection Summary		
Cycle Length	180	
Control Type	Actuated-Coordinated	
Natural Cycle	145	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	1.5	0	40
End Time (s)	1.5	40	40	0
Yield/Force Off (s)	71	33.5	33.5	69
Yield/Force Off 170(s)	71	4.5	33.5	36
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

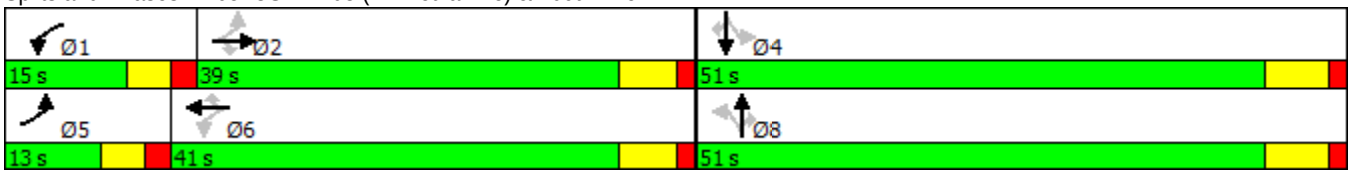
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	20	28	27	48
Maximum Split (%)	26.7%	37.3%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5	5	5
Flash Dont Walk (s)		11	11	11
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	16	63	36	63
End Time (s)	36	16	63	36
Yield/Force Off (s)	31	10.5	58	30.5
Yield/Force Off 170(s)	31	74.5	47	19.5
Local Start Time (s)	28	0	48	0
Local Yield (s)	43	22.5	70	42.5
Local Yield 170(s)	43	11.5	59	31.5

Intersection Summary				
Cycle Length			75	
Control Type	Actuated-Coordinated			
Natural Cycle			55	
Offset: 63 (84%), Referenced to phase 2:WBT and 6:EBTL, Start of Green				

Splits and Phases: 3: 101st Avenue & NB TH 169

Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	19	29	27	48
Maximum Split (%)	25.3%	38.7%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	56	0	29	56
End Time (s)	0	29	56	29
Yield/Force Off (s)	70	23.5	51	23.5
Yield/Force Off 170(s)	70	23.5	51	23.5
Local Start Time (s)	56	0	29	56
Local Yield (s)	70	23.5	51	23.5
Local Yield 170(s)	70	23.5	51	23.5

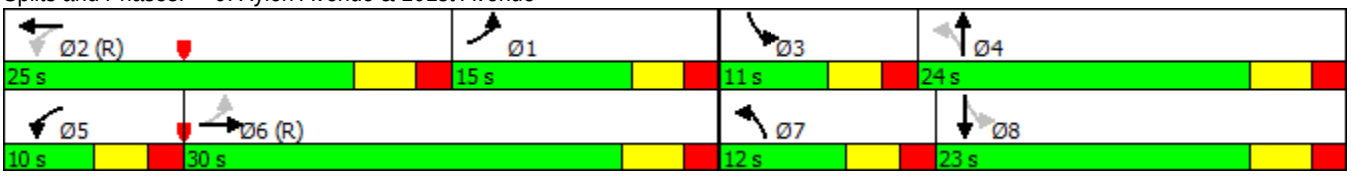
Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green, Master Intersection	

Splits and Phases: 5: 101st Avenue & SB TH 169

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	25	11	24	10	30	12	23
Maximum Split (%)	20.0%	33.3%	14.7%	32.0%	13.3%	40.0%	16.0%	30.7%
Minimum Split (s)	9.5	21.5	9.5	21.5	9.5	21.5	9.5	21.5
Yellow Time (s)	3	3.5	3	3.5	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	4	4	4	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	74	49	14	25	49	59	14	26
End Time (s)	14	74	25	49	59	14	26	49
Yield/Force Off (s)	9	68.5	20	43.5	54	8.5	21	43.5
Yield/Force Off 170(s)	9	57.5	20	32.5	54	72.5	21	32.5
Local Start Time (s)	15	65	30	41	65	0	30	42
Local Yield (s)	25	9.5	36	59.5	70	24.5	37	59.5
Local Yield 170(s)	25	73.5	36	48.5	70	13.5	37	48.5

Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 59 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 9: Xylon Avenue & 101st Avenue



Congestion Reduction			
Existing AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	4,061	58	235,538
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,598	19	30,362
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,292	20	25,840
Total	6,951	97	291,740

Improved AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	3,778	43	162,454
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,599	18	28,782
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,080	17	18,360
Total	6,457	78	209,596

Reduction	Total Delay Reduced (Seconds)
35: 169 (124) & 109th Ave	73,084
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,580
65: CSAH 103 (Winnetka Ave) & 109th Ave	7,480
Total	82,144

Emissions Improvements				
Existing AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	9.90	1.93	2.30	14.13
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.82	0.35	0.42	2.59
65: CSAH 103 (Winnetka Ave) & 109th Ave	2.28	0.44	0.53	3.25
Total	14.00	2.72	3.25	19.97

Improved AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	8.25	1.61	1.91	11.77
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.79	0.35	0.41	2.55
65: CSAH 103 (Winnetka Ave) & 109th Ave	1.86	0.36	0.43	2.65
Total	11.90	2.32	2.75	16.97

Emissions Reduction	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	1.65	0.32	0.39	2.36
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	0.03	0.00	0.01	0.04
65: CSAH 103 (Winnetka Ave) & 109th Ave	0.42	0.08	0.10	0.60
Total	2.10	0.40	0.50	3.00

169/101st
Crash Analysis
June 2016

	Intersections	Total Number of Accidents	Years of Data	ADT*	Calculated Crash Rate (Million Entering Vehicles)	Type of Intersection: Vol < 15K ADT; Speed < 45 mph — Low	Average Crash Rate for Similar Intersections, Ra	Vehicle Exposure During Study Period, m
Existing	TH 169 and 101st Ave	4	3	43585	**0.09**	Other	0.15	47.73
Future	TH 169 and 101st Ave	0	0	0	**0.00**	Removed	0	0.00
Existing	TH 169 and 109th Ave	26	3	51600	**0.47**	Signalized; High Volume, High Speed	0.46	56.50
Future	TH 169 and 109th Ave	25	3	48600	**0.47**	Signalized; High Volume, High Speed	0.46	53.22
Existing	109th Ave and Winnetka Ave	12	3	15600	**0.71**	Signalized; High Volume, Low Speed	0.68	17.08
Future	109th Ave and Winnetka Ave	9	3	12600	**0.66**	Signalized; High Volume, Low Speed	0.68	13.80
Existing	Winnetka and North 610 Ramps	4	3	17225	**0.22**	Signalized; High Volume, Low Speed	0.68	18.86
Future	Winnetka and North 610 Ramps	3	3	15225	**0.18**	Signalized; High Volume, Low Speed	0.68	16.67

	Segments	Total Number of Accidents	Years of Data	ADT	Segment Length (Miles)	Calculated Crash Rate (Million Entering Vehicles)	Type of Segment: 2-, 3-, 4-, or 5-Lane; Urban vs Rural; Divided vs Undivided	Average Crash Rate for Similar Segments, Ra
Existing	Winnetka from 109th to 610 Ramps	4	3	6900	1.5	0.35	2 Lane Undivided Rural	0.61
Future	Winnetka from 109th to 610 Ramps	3	3	4900	1.5	0.37	2 Lane Undivided Rural	0.61
New Road	101st Ave Interchange	17	3	11000	1.0	2.82	4-Lane Divided Urban	2.84

Notes:

* ADT: used the total volume at each leg of the intersection divided by two (to only account for the vehicles entering the intersection)

A total of 10 crashes will be reduced from this project, however, 17 additional crashes will occur along the new segment of 101st Ave, resulting in an additional 7 crashes in the area.

Represents the Minnesota Average Crash Rates for the Metro Area similar roadway segments or intersections.

CSAH 103 from just north of the CSAH 130 & TH 610 interchange to just south of 1

Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.

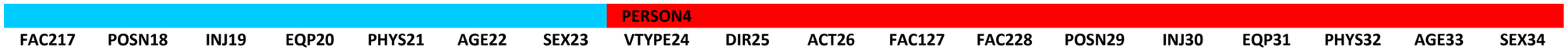
SYS	NUM	REF_POINT	GIS_ROUTE	GIS_TM	RD_DIR	ELEM	RELY	INV	R_U
04	27000103	002+00.902	0427000103	2.902	S		1	3	U
04	27000103	002+00.902	0427000103	2.902	Z		1	3	U
04	27000103	003+00.037	0427000103	3.037	S		1	3	U
04	27000103	003+00.489	0427000103	3.489	N		1	3	U

09th Avenue (2013 -2015)

ATP	CO	CITY	DOW	MONTH	DAY	YEAR	TIME	SEV
UNIT #1 WAS TRAVELING SOUTHBOUND ON WEST BROADWAY, LOST CONTROL ON SNOW/ICE AND STRUCK TREE ON WEST	27	0465	1-Sun	2	10	2013	0658	N
VEHICLE SB WINNETKA STRUCK DEER THAT ENTERED ROADWAY.	27	0465	4-Wed	9	30	2015	0731	N
BOTH VEHICLES 1 AND 2 WERE TRAVELING SOUTHBOUND CSAH 103 NEAR THE INTERSECTION OF 101ST AVE N. DRI	27	0465	5-Thu	5	22	2014	0229	C
UNIT #1 WAS DRIVING NORTHBOUND ON WINNETKA AVE AND HIT A DEER THAT RAN OUT INTO THE ROAD IN FRONT O	27	0465	1-Sun	10	5	2014	1938	N

															PERSON1				
NUM_KILLED	NUM_VEH	JUNC	SL	TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM	VTYPE	DIR	ACT	FAC1	FAC2
0	1	1	45	30	7	2	98	1	2	5	4	1	8	130410108	1	5	1	3	0
0	1	1	50	9	8	1	98	1	2	0	1	5	8	152780037	3	5	1	1	0
0	2	1	45	1	1	1	98	4	1	0	1	1	8	141430009	3	5	1	15	0
0	1	2	45	8	98	1	98	4	1	1	1	1	8	142790024	1	1	1	90	90

						PERSON2											PERSON3			
POSN	INJ	EQP	PHYS	AGE	SEX	VTYPE2	DIR3	ACT4	FAC15	FAC26	POSN7	INJ8	EQP9	PHYS10	AGE11	SEX12	VTYPE13	DIR14	ACT15	FAC116
1	N	4	1	36	F															
1	N	4	1	32	F															
1	N	4	1	27	M	1	5	1	1	0	1	N	4	1	23	M	3	5		
1	N	4	1	36	F															


PERSON4
FAC217
POSN18
INJ19
EQP20
PHYS21
AGE22
SEX23
VTYPE24
DIR25
ACT26
FAC127
FAC228
POSN29
INJ30
EQP31
PHYS32
AGE33
SEX34

CSAH 103 @ MNTH 610 (300's & 400's) 2013 -2015

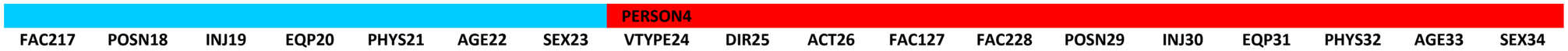
Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.

SYS	NUM	REF_POINT	GIS_ROUTE	GIS_TM	RD_DIR	ELEM	RELY	INV	R_U
04	27000103	002+00.432	0427000103	2.432	S		1	3	U
04	27000103	002+00.432	0427000103	2.432	N	351	1	1	U
04	27000103	002+00.432	0427000103	2.432	Z	352	1	0	U
04	27000103	002+00.432	0427000103	2.432	W	352	1	1	U

ATP	CO	CITY	DOW	MONTH	DAY	YEAR	TIME	SEV
DRAWING FUNCTION NOT WORKING AT TIME OF THIS REPORT. ON 3/4/13 AT 0904 HOURS VEH 1 WAS EXITING TO	27	0465	2-Mon	3	4	2013	0904	C
VEH.#1 WAS S/B ON WEST BROADWAY IN THE LEFT TURN LANE. VEH.#2 WAS N/B ON WEST BROADWAY. WHEN THE	27	0465	6-Fri	2	27	2015	0810	N
	27	0465	7-Sat	3	14	2015	2005	B
BOTH VEHICLES WERE TURNING LEFT ONTO WEST BROADWAY FROM WESTBOUND HWY 610. V1 WAS IN INSIDE LEFT T	27	0465	1-Sun	12	20	2015	1818	N

														PERSON1				
NUM_KILLED	NUM_VEH	JUNC	SL	TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM	VTYPE	DIR	ACT	FAC1	FAC2
0	1	2	45	22	7	1	1	1	4	0	3	2	3	130630050	3	5	54	3	0
0	2	2	45	1	2	1	1	1	1	0	1	2	3	150590154	3	4	6	1	0
0	3	0	50	1	1	0	1	3	1	0	1	0	0	151060053	1	5	11	0	0
0	2	2	40	1	2	1	1	4	2	0	1	1	2	153560316	1	7	6	8	0

						PERSON2											PERSON3			
POSN	INJ	EQP	PHYS	AGE	SEX	VTYPE2	DIR3	ACT4	FAC15	FAC26	POSN7	INJ8	EQP9	PHYS10	AGE11	SEX12	VTYPE13	DIR14	ACT15	FAC116
1	C	4	1	24	M	3	5	54	3	0	15	N	0	98	901	Z				
1	N	4	1	46	F	4	2	3	15	2	1	N	4	1	86	F				
1	N	4	0	50	M	1	0	0	0	0	1	N	0	0	57	F	1	5		
1	N	1	1	85	M	1	7	6	1	0	1	N	4	1	35	M				


PERSON4
FAC217
POSN18
INJ19
EQP20
PHYS21
AGE22
SEX23
VTYPE24
DIR25
ACT26
FAC127
FAC228
POSN29
INJ30
EQP31
PHYS32
AGE33
SEX34

USTH 169 @ 101st Ave (2013 - 2015) - created on 06-07-2016 by rile1che

Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.

SYS	NUM	REF_POINT	GIS_ROUTE	GIS_TM	ELEM	RELY	INV	CO	CITY	DOW	MONTH	DAY	YEAR	TIME	SEV	NUM_VEH	JUNC
02	00000169	141+00.765	0200000169	139.532		3	1	27	465	7-Sat	2	22	2014	1833	N	3	01
02	00000169	141+00.807	0200000169	139.574		1	1	27	465	6-Fri	7	25	2014	820	N	2	07
02	00000169	141+00.815	0200000169	139.582		1	1	27	465	1-Sun	3	16	2014	1346	N	2	02
02	00000169	141+00.815	0200000169	139.582		1	3	27	465	3-Tue	6	24	2014	538	N	1	01

												PERSON1						
SL	**TYPE**	**DIAG**	**LOC1**	**TCD**	**LIT**	**WTHR1**	**WTHR2**	**SURF**	**CHAR**	**DESGN**	**ACC_NUM**	**VTYPE**	**DIR**	**ACT**	**FAC1**	**FAC2**	**PHYS**	**AGE**
55	1	90	1	98	4	2	0	5	1	1	140600350	1	1	1	15	3	1	18
55	1	1	1	98	1	1	0	1	1	3	142220170	3	4	5	01	0	1	49
30	1	1	1	5	1	1	0	1	5	8	140760257	1	4	5	15	0	1	29
60	8	8	1	98	1	1	1	1	1	1	141750046	4	1	1	01	1	1	82

	PERSON2							PERSON3								PERSON4		
SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT
F	1	1	10	1	0	1	48	F	2	1	1	15	3	1	73	M	2	1	1
F	1	4	5	15	0	1	56	F											
M	3	4	5	1	0	1	43	F											
M																			

					PERSON5							PERSON5							
FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE
15	3	98	51	F															

SEX

TH 169 @ 109th Ave (2013 - 2015) Crash Listing

Time run: 6/28/2016 2:04:43 PM

Crash Year	DPS Crash ID
2014	140100022
2013	132120181
2013	133520369
2014	142430143
2015	152130097
2015	152330026
2013	130970122
2013	131720048
2013	131980201
2014	141640069
2014	142170051
2014	142450052
2014	142560140
2015	150500216
2015	152120053
2015	152260243
2015	152730115
2015	152770206
2015	153360069
2015	151610099
2014	140110022
2013	130810125
2013	131600205
2013	133180033
2013	133640054
2015	151660146

	Intersect Route ID is equal to **0200000169**
and	Constr Dist Code is equal to **M**
and	Intersect MPost Offset is between **142** and **143**
and	Crash Year is equal to **2015** , **2014** , **2013**

v1

Intersect Route ID	Intersect Element Code	Intersect Desc	Leg Direction	Leg Route ID	MPost Offset	Route Mileage	Crash Date	Crash Hour	ATP	County Name	City Township Name	Crash Severity	Fatality Sum	Vehicle Involved Sum
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.744	140.511	1/9/2014	15	M	HENNEPIN	BROOKLYN PARK	Non-Incapacitating Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.763	140.530	6/25/2013	17	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.770	140.537	12/14/2013	12	M	HENNEPIN	BROOKLYN PARK	Possible Injury Crash	0	3
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.791	140.558	8/28/2014	6	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.800	140.567	8/1/2015	14	M	HENNEPIN	BROOKLYN PARK	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.800	140.567	8/20/2015	19	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	3
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	4/7/2013	21	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	6/21/2013	8	M	HENNEPIN	BROOKLYN PARK	Non-Incapacitating Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	7/10/2013	22	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	5/14/2014	15	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	7/1/2014	9	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	7/28/2014	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	9/12/2014	12	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	2/19/2015	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	6/30/2015	6	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	8/5/2015	17	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	9/29/2015	20	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	10/3/2015	12	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	10/30/2015	11	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	West	0506300106	001+00.449	1.449	5/10/2015	12	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	West	0506300106	001+00.450	1.450	1/10/2014	23	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0506300106	001+00.458	1.458	3/22/2013	7	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0506300106	001+00.458	1.458	6/7/2013	6	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0506300106	001+00.458	1.458	11/14/2013	6	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0506300106	001+00.458	1.458	11/26/2013	7	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	East	0506300106	001+00.465	1.465	6/15/2015	15	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2

Rows 1 - 26 (All Rows)

Crash Diagram	Crash Type	First Event Location	Intersection Relation	Light Condition	Road Characteristics	Road Surface	Speed Limit	Weather Primary	Weather Secondary	Work Zone Location	Work Zone Type
Rear End	Motor Vehicle in Transport	ON ROADWAY	Intersection-Related	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Intersection-Related	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Intersection-Related	DAYLIGHT	STRAIGHT AND LEVEL	WET	55	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	5-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DARK - STREET LIGHTS ON	STRAIGHT AND LEVEL	WET	55	RAIN	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Right Angle	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLOUDY	RAIN	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DARK - STREET LIGHTS ON	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Intersection-Related	DAYLIGHT	NOT SPECIFIED	DRY	55	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Specified
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	4-Legged Intersection	DAYLIGHT	NOT SPECIFIED	DRY	55	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Right Angle	Motor Vehicle in Transport	NOT SPECIFIED	4-Legged Intersection	DAYLIGHT	NOT SPECIFIED	DRY	0	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DAYLIGHT	NOT SPECIFIED	WET	30	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Sideswipe - Same Direction	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Sideswipe - Same Direction	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DARK - STREET LIGHTS ON	STRAIGHT AND LEVEL	DRY	55	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DAYLIGHT	NOT SPECIFIED	DRY	55	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DAYLIGHT	NOT SPECIFIED	DRY	55	CLOUDY	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Left Turn	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DARK - STREET LIGHTS ON	STRAIGHT AND LEVEL	ICE/PACKED SNOW	45	FOG/SMOG/SMOKE	CLOUDY	NOT APPLICABLE	Not Applicable
Left Turn	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	SUNRISE	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Left Turn	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	SUNRISE	STRAIGHT AND LEVEL	DRY	45	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Intersection-Related	DAYLIGHT	NOT SPECIFIED	DRY	35	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable

Workers Present	Traffic Control Device	Traffic Device Working	Impaired User Focus Area	Inattentive Driver Focus Area	Speed Related Focus Area	Unbelted Occupants Focus Area
No	Traffic Signals	Signal - Working OK	False	True	False	False
No	Not applicable	Not Applicable	False	False	False	False
No	Traffic Signals	Signal - Working OK	False	True	False	False
No	Not applicable	Not Applicable	False	True	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
Not Applicable	Stop Sign - All approaches	Signal - Working OK	False	True	False	False
Not Applicable	Not applicable	Not Applicable	False	False	False	False
Not Applicable	Traffic Signals	Signal - Not Working OK	False	True	False	False
No	Traffic Signals	Signal - Working OK	False	True	False	False
Not Specified	Traffic Signals	Not Specified	False	False	False	False
Not Specified	Traffic Signals	Not Specified	False	False	False	False
Unknown	Traffic Signals	Not Specified	False	False	False	False
Not Applicable	Traffic Signals	Signal - Modified	False	True	False	False
No	Not applicable	Not Applicable	False	False	True	False
Not Specified	Traffic Signals	Not Specified	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
No	Traffic Signals	Signal - Working OK	False	False	True	False
No	Not applicable	Not Applicable	False	True	True	False
No	Traffic Signals	Not Specified	False	False	False	False
No	Traffic Signals	Not Specified	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
No	Traffic Signals	Signal - Working OK	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
No	Traffic Signals	Not Specified	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	True	False	True

West Broadway from approx. 250' south of 109th Ave. 2013 - 2015 Crash Listing

v1

Time run: 6/28/2016 3:19:03 PM

DPS Crash ID	Route ID	MPost Offset
151590040	0427000103	004+00.008
152820127	0427000103	004+00.009

	Crash Date is between **01/01/2013** and **12/31/2015**
and	Route ID is equal to **0427000103**
and	MPost Offset is between **003+00.947** and **004+00.010**

Route Mileage	Crash Date	Crash Year	Crash Hour	ATP	County Name	City Township Name	Crash Severity	Fatality Sum	Vehicle Involved Sum	Crash Diagram	Crash Type	First Event Location	Intersection Relation	Light Condition
4.008	6/7/2015	2015	15	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2	Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT
4.009	10/8/2015	2015	9	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2	Left Turn	Motor Vehicle in Transport	ON ROADWAY	Intersection-Related	DAYLIGHT

Road Characteristics	Road Surface	Weather Primary	Weather Secondary	Work Zone Location	Work Zone Type	Workers Present	Traffic Control Device	Traffic Device Working	Impaired User Focus Area	Inattentive Driver Focus Area	Speed Related Focus Area
STRAIGHT AND LEVEL	DRY	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable	No	Traffic Signals	Signal - Working OK	False	True	False
STRAIGHT AND LEVEL	DRY	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable	Not Applicable	Traffic Signals	Signal - Working OK	False	False	False

Unbelted Occupants Focus Area
False
False

Winnetka Ave from approx. 250' north of 109th Ave. 2013 - 2015 Crash Listing

v1

Time run: 6/28/2016 3:22:18 PM

DPS Crash ID	Route ID	MPost Offset
131750061	0727000103	000+00.000
131700041	0727000103	000+00.000
133500244	0727000103	000+00.000
140570233	0727000103	000+00.000
140310351	0727000103	000+00.000
141190030	0727000103	000+00.000

Crash Date is between **01/01/2013** and **12/31/2015**

and Route ID is equal to **0727000103**

and MPost Offset is between **000+00.000** and **000+00.065**

Route Mileage	Crash Date	Crash Year	Crash Hour	ATP	County Name	City Township Name	Crash Severity	Fatality Sum	Vehicle Involved Sum	Crash Diagram	Crash Type	First Event Location	Intersection Relation	Light Condition
0.000	5/20/2013	2013	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2	Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DAYLIGHT
0.000	6/17/2013	2013	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2	Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT
0.000	12/15/2013	2013	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2	Other	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT
0.000	1/24/2014	2014	22	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2	Left Turn	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DARK - STREET LIGHTS ON
0.000	1/31/2014	2014	6	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	3	Right Angle	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DARK - STREET LIGHTS OFF
0.000	4/29/2014	2014	7	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2	Head-On	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	SUNRISE

Road Characteristics	Road Surface	Weather Primary	Weather Secondary	Work Zone Location	Work Zone Type	Workers Present	Traffic Control Device	Traffic Device Working	Impaired User Focus Area	Inattentive Driver Focus Area	Speed Related Focus Area
NOT SPECIFIED	DRY	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable	Not Specified	Traffic Signals	Not Specified	False	False	False
STRAIGHT AND LEVEL	DRY	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable	Not Applicable	Traffic Signals	Signal - Working OK	False	True	False
STRAIGHT AND LEVEL	DRY	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable	No	Traffic Signals	Signal - Working OK	False	False	False
NOT SPECIFIED	ICE/PACKED SNOW	SNOW	NOT SPECIFIED	NOT SPECIFIED	Not Applicable	Not Specified	Traffic Signals	Not Specified	False	False	False
STRAIGHT AND LEVEL	ICE/PACKED SNOW	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable	Not Applicable	Traffic Signals	Signal - Not Working OK	False	False	False
STRAIGHT AND LEVEL	WET	RAIN	SNOW	NOT APPLICABLE	Not Applicable	Not Applicable	Traffic Signals	Signal - Working OK	False	False	False

Unbelted Occupants Focus Area
False
False
False
False
False
True

169/101st
Crash Analysis
June 2016

	Intersections	Total Number of Accidents	Years of Data	ADT*	Calculated Crash Rate (Million Entering Vehicles)	Type of Intersection: Vol < 15K ADT; Speed < 45 mph — Low	Average Crash Rate for Similar Intersections, Ra	Vehicle Exposure During Study Period, m
Existing	TH 169 and 101st Ave	4	3	43585	**0.09**	Other	0.15	47.73
Future	TH 169 and 101st Ave	0	0	0	**0.00**	Removed	0	0.00
Existing	TH 169 and 109th Ave	26	3	51600	**0.47**	Signalized; High Volume, High Speed	0.46	56.50
Future	TH 169 and 109th Ave	25	3	48600	**0.47**	Signalized; High Volume, High Speed	0.46	53.22
Existing	109th Ave and Winnetka Ave	12	3	15600	**0.71**	Signalized; High Volume, Low Speed	0.68	17.08
Future	109th Ave and Winnetka Ave	9	3	12600	**0.66**	Signalized; High Volume, Low Speed	0.68	13.80
Existing	Winnetka and North 610 Ramps	4	3	17225	**0.22**	Signalized; High Volume, Low Speed	0.68	18.86
Future	Winnetka and North 610 Ramps	3	3	15225	**0.18**	Signalized; High Volume, Low Speed	0.68	16.67

	Segments	Total Number of Accidents	Years of Data	ADT	Segment Length (Miles)	Calculated Crash Rate (Million Entering Vehicles)	Type of Segment: 2-, 3-, 4-, or 5-Lane; Urban vs Rural; Divided vs Undivided	Average Crash Rate for Similar Segments, Ra
Existing	Winnetka from 109th to 610 Ramps	4	3	6900	1.5	0.35	2 Lane Undivided Rural	0.61
Future	Winnetka from 109th to 610 Ramps	3	3	4900	1.5	0.37	2 Lane Undivided Rural	0.61
New Road	101st Ave Interchange	17	3	11000	1.0	2.82	4-Lane Divided Urban	2.84

Notes:

* ADT: used the total volume at each leg of the intersection divided by two (to only account for the vehicles entering the intersection)

A total of 10 crashes will be reduced from this project, however, 17 additional crashes will occur along the new segment of 101st Ave, resulting in an additional 7 crashes in the area.

Represents the Minnesota Average Crash Rates for the Metro Area similar roadway segments or intersections.

CSAH 103 from just north of the CSAH 130 & TH 610 interchange to just south of 1

Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.

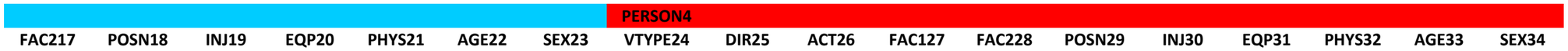
SYS	NUM	REF_POINT	GIS_ROUTE	GIS_TM	RD_DIR	ELEM	RELY	INV	R_U
04	27000103	002+00.902	0427000103	2.902	S		1	3	U
04	27000103	002+00.902	0427000103	2.902	Z		1	3	U
04	27000103	003+00.037	0427000103	3.037	S		1	3	U
04	27000103	003+00.489	0427000103	3.489	N		1	3	U

09th Avenue (2013 -2015)

ATP	CO	CITY	DOW	MONTH	DAY	YEAR	TIME	SEV
UNIT #1 WAS TRAVELING SOUTHBOUND ON WEST BROADWAY, LOST CONTROL ON SNOW/ICE AND STRUCK TREE ON WEST	27	0465	1-Sun	2	10	2013	0658	N
VEHICLE SB WINNETKA STRUCK DEER THAT ENTERED ROADWAY.	27	0465	4-Wed	9	30	2015	0731	N
BOTH VEHICLES 1 AND 2 WERE TRAVELING SOUTHBOUND CSAH 103 NEAR THE INTERSECTION OF 101ST AVE N. DRI	27	0465	5-Thu	5	22	2014	0229	C
UNIT #1 WAS DRIVING NORTHBOUND ON WINNETKA AVE AND HIT A DEER THAT RAN OUT INTO THE ROAD IN FRONT O	27	0465	1-Sun	10	5	2014	1938	N

															PERSON1				
NUM_KILLED	NUM_VEH	JUNC	SL	TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM	VTYPE	DIR	ACT	FAC1	FAC2
0	1	1	45	30	7	2	98	1	2	5	4	1	8	130410108	1	5	1	3	0
0	1	1	50	9	8	1	98	1	2	0	1	5	8	152780037	3	5	1	1	0
0	2	1	45	1	1	1	98	4	1	0	1	1	8	141430009	3	5	1	15	0
0	1	2	45	8	98	1	98	4	1	1	1	1	8	142790024	1	1	1	90	90

						PERSON2											PERSON3			
POSN	INJ	EQP	PHYS	AGE	SEX	VTYPE2	DIR3	ACT4	FAC15	FAC26	POSN7	INJ8	EQP9	PHYS10	AGE11	SEX12	VTYPE13	DIR14	ACT15	FAC116
1	N	4	1	36	F															
1	N	4	1	32	F															
1	N	4	1	27	M	1	5	1	1	0	1	N	4	1	23	M	3	5		
1	N	4	1	36	F															


PERSON4
FAC217
POSN18
INJ19
EQP20
PHYS21
AGE22
SEX23
VTYPE24
DIR25
ACT26
FAC127
FAC228
POSN29
INJ30
EQP31
PHYS32
AGE33
SEX34

CSAH 103 @ MNTH 610 (300's & 400's) 2013 -2015

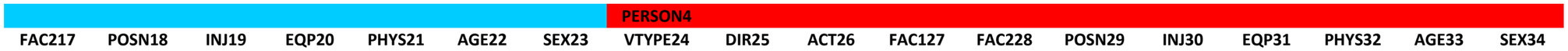
Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.

SYS	NUM	REF_POINT	GIS_ROUTE	GIS_TM	RD_DIR	ELEM	RELY	INV	R_U
04	27000103	002+00.432	0427000103	2.432	S		1	3	U
04	27000103	002+00.432	0427000103	2.432	N	351	1	1	U
04	27000103	002+00.432	0427000103	2.432	Z	352	1	0	U
04	27000103	002+00.432	0427000103	2.432	W	352	1	1	U

ATP	CO	CITY	DOW	MONTH	DAY	YEAR	TIME	SEV
DRAWING FUNCTION NOT WORKING AT TIME OF THIS REPORT. ON 3/4/13 AT 0904 HOURS VEH 1 WAS EXITING TO	27	0465	2-Mon	3	4	2013	0904	C
VEH.#1 WAS S/B ON WEST BROADWAY IN THE LEFT TURN LANE. VEH.#2 WAS N/B ON WEST BROADWAY. WHEN THE	27	0465	6-Fri	2	27	2015	0810	N
	27	0465	7-Sat	3	14	2015	2005	B
BOTH VEHICLES WERE TURNING LEFT ONTO WEST BROADWAY FROM WESTBOUND HWY 610. V1 WAS IN INSIDE LEFT T	27	0465	1-Sun	12	20	2015	1818	N

														PERSON1				
NUM_KILLED	NUM_VEH	JUNC	SL	TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM	VTYPE	DIR	ACT	FAC1	FAC2
0	1	2	45	22	7	1	1	1	4	0	3	2	3	130630050	3	5	54	3	0
0	2	2	45	1	2	1	1	1	1	0	1	2	3	150590154	3	4	6	1	0
0	3	0	50	1	1	0	1	3	1	0	1	0	0	151060053	1	5	11	0	0
0	2	2	40	1	2	1	1	4	2	0	1	1	2	153560316	1	7	6	8	0

						PERSON2											PERSON3			
POSN	INJ	EQP	PHYS	AGE	SEX	VTYPE2	DIR3	ACT4	FAC15	FAC26	POSN7	INJ8	EQP9	PHYS10	AGE11	SEX12	VTYPE13	DIR14	ACT15	FAC116
1	C	4	1	24	M	3	5	54	3	0	15	N	0	98	901	Z				
1	N	4	1	46	F	4	2	3	15	2	1	N	4	1	86	F				
1	N	4	0	50	M	1	0	0	0	0	1	N	0	0	57	F	1	5		
1	N	1	1	85	M	1	7	6	1	0	1	N	4	1	35	M				


PERSON4
FAC217
POSN18
INJ19
EQP20
PHYS21
AGE22
SEX23
VTYPE24
DIR25
ACT26
FAC127
FAC228
POSN29
INJ30
EQP31
PHYS32
AGE33
SEX34

USTH 169 @ 101st Ave (2013 - 2015) - created on 06-07-2016 by rile1che

Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.

SYS	NUM	REF_POINT	GIS_ROUTE	GIS_TM	ELEM	RELY	INV	CO	CITY	DOW	MONTH	DAY	YEAR	TIME	SEV	NUM_VEH	JUNC
02	00000169	141+00.765	0200000169	139.532		3	1	27	465	7-Sat	2	22	2014	1833	N	3	01
02	00000169	141+00.807	0200000169	139.574		1	1	27	465	6-Fri	7	25	2014	820	N	2	07
02	00000169	141+00.815	0200000169	139.582		1	1	27	465	1-Sun	3	16	2014	1346	N	2	02
02	00000169	141+00.815	0200000169	139.582		1	3	27	465	3-Tue	6	24	2014	538	N	1	01

												PERSON1						
SL	**TYPE**	**DIAG**	**LOC1**	**TCD**	**LIT**	**WTHR1**	**WTHR2**	**SURF**	**CHAR**	**DESGN**	**ACC_NUM**	**VTYPE**	**DIR**	**ACT**	**FAC1**	**FAC2**	**PHYS**	**AGE**
55	1	90	1	98	4	2	0	5	1	1	140600350	1	1	1	15	3	1	18
55	1	1	1	98	1	1	0	1	1	3	142220170	3	4	5	01	0	1	49
30	1	1	1	5	1	1	0	1	5	8	140760257	1	4	5	15	0	1	29
60	8	8	1	98	1	1	1	1	1	1	141750046	4	1	1	01	1	1	82

	PERSON2							PERSON3								PERSON4		
SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT
F	1	1	10	1	0	1	48	F	2	1	1	15	3	1	73	M	2	1	1
F	1	4	5	15	0	1	56	F											
M	3	4	5	1	0	1	43	F											
M																			

					PERSON5							PERSON5							
FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1	FAC2	PHYS	AGE
15	3	98	51	F															

SEX

TH 169 @ 109th Ave (2013 - 2015) Crash Listing

Time run: 6/28/2016 2:04:43 PM

Crash Year	DPS Crash ID
2014	140100022
2013	132120181
2013	133520369
2014	142430143
2015	152130097
2015	152330026
2013	130970122
2013	131720048
2013	131980201
2014	141640069
2014	142170051
2014	142450052
2014	142560140
2015	150500216
2015	152120053
2015	152260243
2015	152730115
2015	152770206
2015	153360069
2015	151610099
2014	140110022
2013	130810125
2013	131600205
2013	133180033
2013	133640054
2015	151660146

	Intersect Route ID is equal to **0200000169**
and	Constr Dist Code is equal to **M**
and	Intersect MPost Offset is between **142** and **143**
and	Crash Year is equal to **2015** , **2014** , **2013**

v1

Intersect Route ID	Intersect Element Code	Intersect Desc	Leg Direction	Leg Route ID	MPost Offset	Route Mileage	Crash Date	Crash Hour	ATP	County Name	City Township Name	Crash Severity	Fatality Sum	Vehicle Involved Sum
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.744	140.511	1/9/2014	15	M	HENNEPIN	BROOKLYN PARK	Non-Incapacitating Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.763	140.530	6/25/2013	17	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.770	140.537	12/14/2013	12	M	HENNEPIN	BROOKLYN PARK	Possible Injury Crash	0	3
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.791	140.558	8/28/2014	6	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.800	140.567	8/1/2015	14	M	HENNEPIN	BROOKLYN PARK	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	North	0200000169	142+00.800	140.567	8/20/2015	19	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	3
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	4/7/2013	21	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	6/21/2013	8	M	HENNEPIN	BROOKLYN PARK	Non-Incapacitating Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	7/10/2013	22	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	5/14/2014	15	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	7/1/2014	9	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	7/28/2014	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	9/12/2014	12	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	2/19/2015	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	6/30/2015	6	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	8/5/2015	17	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	9/29/2015	20	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	10/3/2015	12	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0200000169	142+00.801	140.568	10/30/2015	11	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	West	0506300106	001+00.449	1.449	5/10/2015	12	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	West	0506300106	001+00.450	1.450	1/10/2014	23	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0506300106	001+00.458	1.458	3/22/2013	7	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0506300106	001+00.458	1.458	6/7/2013	6	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0506300106	001+00.458	1.458	11/14/2013	6	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	Center	0506300106	001+00.458	1.458	11/26/2013	7	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2
0200000169	NV	109TH AV N MSAS 106/BROOK PRK	East	0506300106	001+00.465	1.465	6/15/2015	15	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2

Rows 1 - 26 (All Rows)

Crash Diagram	Crash Type	First Event Location	Intersection Relation	Light Condition	Road Characteristics	Road Surface	Speed Limit	Weather Primary	Weather Secondary	Work Zone Location	Work Zone Type
Rear End	Motor Vehicle in Transport	ON ROADWAY	Intersection-Related	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Intersection-Related	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Intersection-Related	DAYLIGHT	STRAIGHT AND LEVEL	WET	55	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	5-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DARK - STREET LIGHTS ON	STRAIGHT AND LEVEL	WET	55	RAIN	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Right Angle	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLOUDY	RAIN	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DARK - STREET LIGHTS ON	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Intersection-Related	DAYLIGHT	NOT SPECIFIED	DRY	55	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Specified
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	4-Legged Intersection	DAYLIGHT	NOT SPECIFIED	DRY	55	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Right Angle	Motor Vehicle in Transport	NOT SPECIFIED	4-Legged Intersection	DAYLIGHT	NOT SPECIFIED	DRY	0	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DAYLIGHT	NOT SPECIFIED	WET	30	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Sideswipe - Same Direction	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Sideswipe - Same Direction	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DARK - STREET LIGHTS ON	STRAIGHT AND LEVEL	DRY	55	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DAYLIGHT	NOT SPECIFIED	DRY	55	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DAYLIGHT	NOT SPECIFIED	DRY	55	CLOUDY	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Left Turn	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DARK - STREET LIGHTS ON	STRAIGHT AND LEVEL	ICE/PACKED SNOW	45	FOG/SMOG/SMOKE	CLOUDY	NOT APPLICABLE	Not Applicable
Left Turn	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	SUNRISE	STRAIGHT AND LEVEL	DRY	55	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Left Turn	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	SUNRISE	STRAIGHT AND LEVEL	DRY	45	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable
Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Intersection-Related	DAYLIGHT	NOT SPECIFIED	DRY	35	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable
Rear End	Motor Vehicle in Transport	ON ROADWAY	Not in Intersection or Junction	DAYLIGHT	STRAIGHT AND LEVEL	DRY	55	CLOUDY	NOT SPECIFIED	NOT APPLICABLE	Not Applicable

Workers Present	Traffic Control Device	Traffic Device Working	Impaired User Focus Area	Inattentive Driver Focus Area	Speed Related Focus Area	Unbelted Occupants Focus Area
No	Traffic Signals	Signal - Working OK	False	True	False	False
No	Not applicable	Not Applicable	False	False	False	False
No	Traffic Signals	Signal - Working OK	False	True	False	False
No	Not applicable	Not Applicable	False	True	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
Not Applicable	Stop Sign - All approaches	Signal - Working OK	False	True	False	False
Not Applicable	Not applicable	Not Applicable	False	False	False	False
Not Applicable	Traffic Signals	Signal - Not Working OK	False	True	False	False
No	Traffic Signals	Signal - Working OK	False	True	False	False
Not Specified	Traffic Signals	Not Specified	False	False	False	False
Not Specified	Traffic Signals	Not Specified	False	False	False	False
Unknown	Traffic Signals	Not Specified	False	False	False	False
Not Applicable	Traffic Signals	Signal - Modified	False	True	False	False
No	Not applicable	Not Applicable	False	False	True	False
Not Specified	Traffic Signals	Not Specified	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
No	Traffic Signals	Signal - Working OK	False	False	True	False
No	Not applicable	Not Applicable	False	True	True	False
No	Traffic Signals	Not Specified	False	False	False	False
No	Traffic Signals	Not Specified	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
No	Traffic Signals	Signal - Working OK	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	False	False	False
No	Traffic Signals	Not Specified	False	False	False	False
Not Applicable	Traffic Signals	Signal - Working OK	False	True	False	True

West Broadway from approx. 250' south of 109th Ave. 2013 - 2015 Crash Listing

v1

Time run: 6/28/2016 3:19:03 PM

DPS Crash ID	Route ID	MPost Offset
151590040	0427000103	004+00.008
152820127	0427000103	004+00.009

	Crash Date is between **01/01/2013** and **12/31/2015**
and	Route ID is equal to **0427000103**
and	MPost Offset is between **003+00.947** and **004+00.010**

Route Mileage	Crash Date	Crash Year	Crash Hour	ATP	County Name	City Township Name	Crash Severity	Fatality Sum	Vehicle Involved Sum	Crash Diagram	Crash Type	First Event Location	Intersection Relation	Light Condition
4.008	6/7/2015	2015	15	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2	Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT
4.009	10/8/2015	2015	9	M	HENNEPIN	BROOKLYN PARK	Property Damage Only Crash	0	2	Left Turn	Motor Vehicle in Transport	ON ROADWAY	Intersection-Related	DAYLIGHT

Road Characteristics	Road Surface	Weather Primary	Weather Secondary	Work Zone Location	Work Zone Type	Workers Present	Traffic Control Device	Traffic Device Working	Impaired User Focus Area	Inattentive Driver Focus Area	Speed Related Focus Area
STRAIGHT AND LEVEL	DRY	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable	No	Traffic Signals	Signal - Working OK	False	True	False
STRAIGHT AND LEVEL	DRY	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable	Not Applicable	Traffic Signals	Signal - Working OK	False	False	False

Unbelted Occupants Focus Area
False
False

Winnetka Ave from approx. 250' north of 109th Ave. 2013 - 2015 Crash Listing

v1

Time run: 6/28/2016 3:22:18 PM

DPS Crash ID	Route ID	MPost Offset
131750061	0727000103	000+00.000
131700041	0727000103	000+00.000
133500244	0727000103	000+00.000
140570233	0727000103	000+00.000
140310351	0727000103	000+00.000
141190030	0727000103	000+00.000

Crash Date is between **01/01/2013** and **12/31/2015**

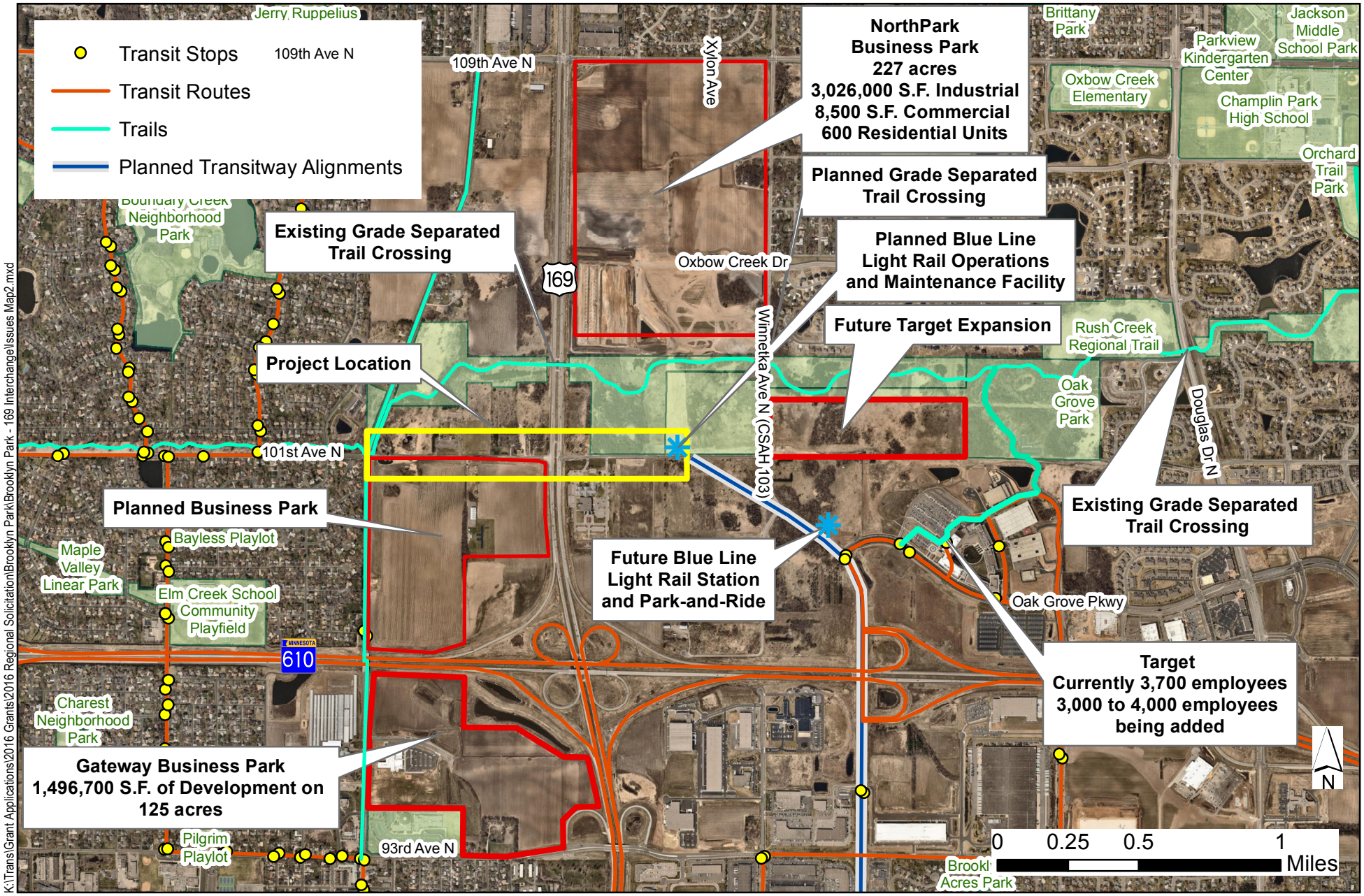
and Route ID is equal to **0727000103**

and MPost Offset is between **000+00.000** and **000+00.065**

Route Mileage	Crash Date	Crash Year	Crash Hour	ATP	County Name	City Township Name	Crash Severity	Fatality Sum	Vehicle Involved Sum	Crash Diagram	Crash Type	First Event Location	Intersection Relation	Light Condition
0.000	5/20/2013	2013	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2	Rear End	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DAYLIGHT
0.000	6/17/2013	2013	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2	Rear End	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT
0.000	12/15/2013	2013	14	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2	Other	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DAYLIGHT
0.000	1/24/2014	2014	22	M	HENNEPIN	CHAMPLIN	Property Damage Only Crash	0	2	Left Turn	Motor Vehicle in Transport	NOT SPECIFIED	Not Coded	DARK - STREET LIGHTS ON
0.000	1/31/2014	2014	6	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	3	Right Angle	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	DARK - STREET LIGHTS OFF
0.000	4/29/2014	2014	7	M	HENNEPIN	CHAMPLIN	Possible Injury Crash	0	2	Head-On	Motor Vehicle in Transport	ON ROADWAY	4-Legged Intersection	SUNRISE

Road Characteristics	Road Surface	Weather Primary	Weather Secondary	Work Zone Location	Work Zone Type	Workers Present	Traffic Control Device	Traffic Device Working	Impaired User Focus Area	Inattentive Driver Focus Area	Speed Related Focus Area
NOT SPECIFIED	DRY	CLEAR	NOT SPECIFIED	NOT SPECIFIED	Not Applicable	Not Specified	Traffic Signals	Not Specified	False	False	False
STRAIGHT AND LEVEL	DRY	CLEAR	NOT SPECIFIED	NOT APPLICABLE	Not Applicable	Not Applicable	Traffic Signals	Signal - Working OK	False	True	False
STRAIGHT AND LEVEL	DRY	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable	No	Traffic Signals	Signal - Working OK	False	False	False
NOT SPECIFIED	ICE/PACKED SNOW	SNOW	NOT SPECIFIED	NOT SPECIFIED	Not Applicable	Not Specified	Traffic Signals	Not Specified	False	False	False
STRAIGHT AND LEVEL	ICE/PACKED SNOW	CLEAR	CLEAR	NOT APPLICABLE	Not Applicable	Not Applicable	Traffic Signals	Signal - Not Working OK	False	False	False
STRAIGHT AND LEVEL	WET	RAIN	SNOW	NOT APPLICABLE	Not Applicable	Not Applicable	Traffic Signals	Signal - Working OK	False	False	False

Unbelted Occupants Focus Area
False
False
False
False
False
True



K:\Trans\Grant Applications\2016 Grants\2016 Regional Solicitation\Brooklyn Park\Brooklyn Park - 169 Interchange\Issues Map2.mxd

SRF Consulting Group, Inc.

Issues Map

Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange
City of Brooklyn Park

Figure 1

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	4061
Total Delay / Veh (s/v)	58
CO Emissions (kg)	9.90
NOx Emissions (kg)	1.93
VOC Emissions (kg)	2.30

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1598
Total Delay / Veh (s/v)	19
CO Emissions (kg)	1.82
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.42

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1292
Total Delay / Veh (s/v)	20
CO Emissions (kg)	2.28
NOx Emissions (kg)	0.44
VOC Emissions (kg)	0.53

35: 169 (124) & 109th Ave

Direction	All
Future Volume (vph)	3778
Total Delay / Veh (s/v)	43
CO Emissions (kg)	8.25
NOx Emissions (kg)	1.61
VOC Emissions (kg)	1.91

55: CSAH 103 (Broadway Ave) & TH 610 N Ramps

Direction	All
Future Volume (vph)	1599
Total Delay / Veh (s/v)	18
CO Emissions (kg)	1.79
NOx Emissions (kg)	0.35
VOC Emissions (kg)	0.41

65: CSAH 103 (Winnetka Ave) & 109th Ave

Direction	All
Future Volume (vph)	1080
Total Delay / Veh (s/v)	17
CO Emissions (kg)	1.86
NOx Emissions (kg)	0.36
VOC Emissions (kg)	0.43

3: 101st Avenue & NB TH 169

Direction	All
Future Volume (vph)	1578
Total Delay (hr)	5
Stops (#)	643
Average Speed (mph)	22
Total Travel Time (hr)	12
Distance Traveled (mi)	261

5: 101st Avenue & SB TH 169

Direction	All
Future Volume (vph)	1143
Total Delay (hr)	2
Stops (#)	296
Average Speed (mph)	30
Total Travel Time (hr)	7
Distance Traveled (mi)	197

9: Xylon Avenue & 101st Avenue

Direction	All
Future Volume (vph)	1348
Total Delay (hr)	4
Stops (#)	628
Average Speed (mph)	28
Total Travel Time (hr)	14
Distance Traveled (mi)	386

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

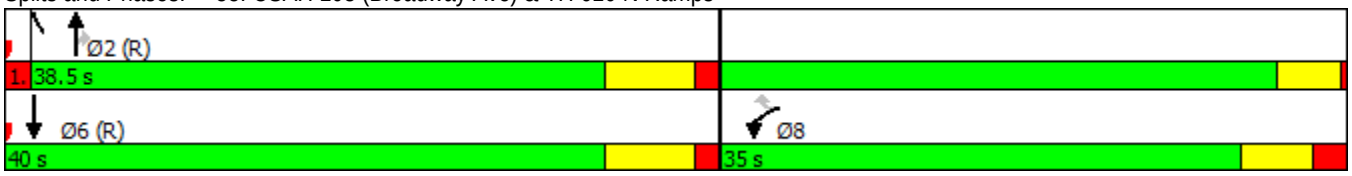
Intersection Summary	
Cycle Length	180
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	28	29.5	28	68
End Time (s)	29.5	68	68	28
Yield/Force Off (s)	24	61.5	61.5	22
Yield/Force Off 170(s)	24	32.5	61.5	64
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 28 (37%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

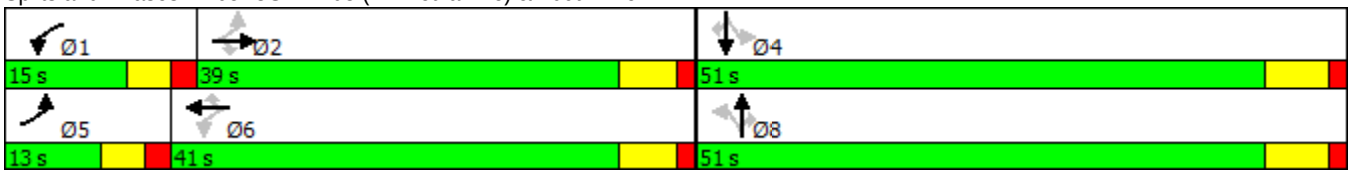
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	34	92	20	34	12	114	11	43
Maximum Split (%)	18.9%	51.1%	11.1%	18.9%	6.7%	63.3%	6.1%	23.9%
Minimum Split (s)	11	27	11	20	11	27	11	43
Yellow Time (s)	3	5.5	3	4.5	3	5.5	3	4.5
All-Red Time (s)	2	1.5	2	2.5	2	1.5	2	2.5
Minimum Initial (s)	6	20	6	10	6	20	6	10
Vehicle Extension (s)	3	5.5	3	3	4	5.5	4	3
Minimum Gap (s)	0.2	3	0.2	0.2	0.2	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								14
Flash Dont Walk (s)								22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	126	146	114	0	126	137
End Time (s)	34	126	146	0	126	114	137	0
Yield/Force Off (s)	29	119	141	173	121	107	132	173
Yield/Force Off 170(s)	29	119	141	173	121	107	132	151
Local Start Time (s)	0	34	126	146	114	0	126	137
Local Yield (s)	29	119	141	173	121	107	132	173
Local Yield 170(s)	29	119	141	173	121	107	132	151

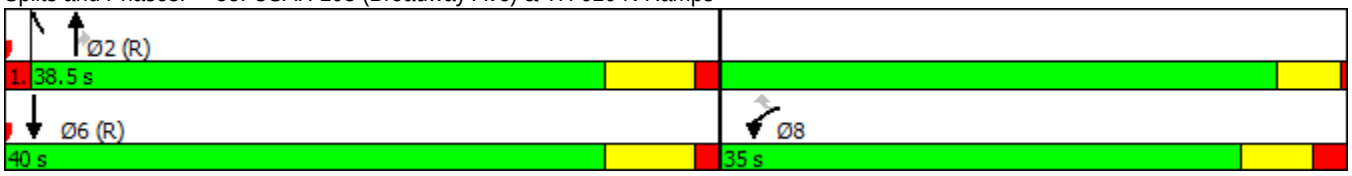
Intersection Summary		
Cycle Length	180	
Control Type	Actuated-Coordinated	
Natural Cycle	145	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

Splits and Phases: 35: 169 (124) & 109th Ave

Phase Number	1	2	6	8
Movement	SBL	NBT	SBT	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Min	C-Min	None
Maximum Split (s)	1.5	38.5	40	35
Maximum Split (%)	2.0%	51.3%	53.3%	46.7%
Minimum Split (s)	12.5	42.5	22.5	46
Yellow Time (s)	3.5	5	5	4
All-Red Time (s)	2	1.5	1.5	2
Minimum Initial (s)	7	15	15	10
Vehicle Extension (s)	3	5	5	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	15	15	0
Time To Reduce (s)	0	15	15	0
Walk Time (s)		7		7
Flash Dont Walk (s)		29		33
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	1.5	0	40
End Time (s)	1.5	40	40	0
Yield/Force Off (s)	71	33.5	33.5	69
Yield/Force Off 170(s)	71	4.5	33.5	36
Local Start Time (s)	0	1.5	0	40
Local Yield (s)	71	33.5	33.5	69
Local Yield 170(s)	71	4.5	33.5	36

Intersection Summary		
Cycle Length	75	
Control Type	Actuated-Coordinated	
Natural Cycle	105	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		

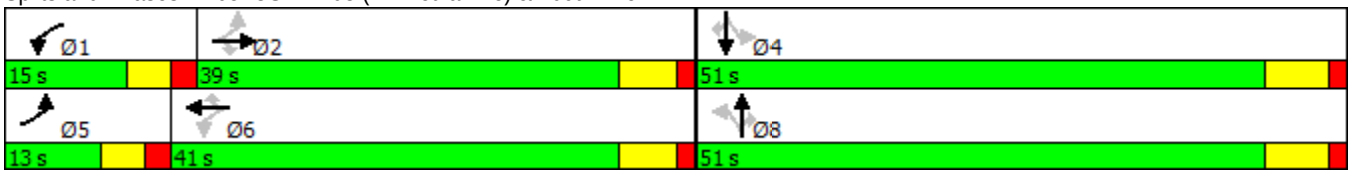
Splits and Phases: 55: CSAH 103 (Broadway Ave) & TH 610 N Ramps



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	SBTL	EBL	WBTL	NBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	15	39	51	13	41	51
Maximum Split (%)	14.3%	37.1%	48.6%	12.4%	39.0%	48.6%
Minimum Split (s)	10.5	22	22.5	10.5	35	31.5
Yellow Time (s)	3.5	4.5	5	3.5	4.5	5
All-Red Time (s)	2	1.5	1.5	2	1.5	1.5
Minimum Initial (s)	5	15	10	5	15	10
Vehicle Extension (s)	3	4	3.5	3	4	3.5
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)					7	7
Flash Dont Walk (s)					22	18
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	54	0	13	54
End Time (s)	15	54	0	13	54	0
Yield/Force Off (s)	9.5	48	98.5	7.5	48	98.5
Yield/Force Off 170(s)	9.5	48	98.5	7.5	48	80.5
Local Start Time (s)	90	0	39	90	103	39
Local Yield (s)	99.5	33	83.5	97.5	33	83.5
Local Yield 170(s)	99.5	33	83.5	97.5	33	65.5

Intersection Summary	
Cycle Length	105
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 65: CSAH 103 (Winnetka Ave) & 109th Ave



Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	20	28	27	48
Maximum Split (%)	26.7%	37.3%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5	5	5
Flash Dont Walk (s)		11	11	11
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	16	63	36	63
End Time (s)	36	16	63	36
Yield/Force Off (s)	31	10.5	58	30.5
Yield/Force Off 170(s)	31	74.5	47	19.5
Local Start Time (s)	28	0	48	0
Local Yield (s)	43	22.5	70	42.5
Local Yield 170(s)	43	11.5	59	31.5

Intersection Summary				
Cycle Length			75	
Control Type	Actuated-Coordinated			
Natural Cycle			55	
Offset: 63 (84%), Referenced to phase 2:WBT and 6:EBTL, Start of Green				

Splits and Phases: 3: 101st Avenue & NB TH 169

Phase Number	1	2	4	6
Movement	EBL	WBT	SBL	EBTL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max
Maximum Split (s)	19	29	27	48
Maximum Split (%)	25.3%	38.7%	36.0%	64.0%
Minimum Split (s)	9.5	21.5	21.5	21.5
Yellow Time (s)	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	56	0	29	56
End Time (s)	0	29	56	29
Yield/Force Off (s)	70	23.5	51	23.5
Yield/Force Off 170(s)	70	23.5	51	23.5
Local Start Time (s)	56	0	29	56
Local Yield (s)	70	23.5	51	23.5
Local Yield 170(s)	70	23.5	51	23.5

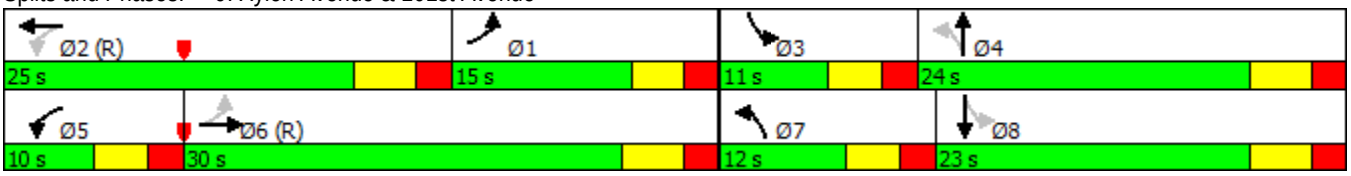
Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green, Master Intersection	

Splits and Phases: 5: 101st Avenue & SB TH 169

Phase Number	1	2	3	4	5	6	7	8
Movement	EBL	WBTL	SBL	NBTL	WBL	EBTL	NBL	SBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	25	11	24	10	30	12	23
Maximum Split (%)	20.0%	33.3%	14.7%	32.0%	13.3%	40.0%	16.0%	30.7%
Minimum Split (s)	9.5	21.5	9.5	21.5	9.5	21.5	9.5	21.5
Yellow Time (s)	3	3.5	3	3.5	3	3.5	3	3.5
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	4	4	4	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	74	49	14	25	49	59	14	26
End Time (s)	14	74	25	49	59	14	26	49
Yield/Force Off (s)	9	68.5	20	43.5	54	8.5	21	43.5
Yield/Force Off 170(s)	9	57.5	20	32.5	54	72.5	21	32.5
Local Start Time (s)	15	65	30	41	65	0	30	42
Local Yield (s)	25	9.5	36	59.5	70	24.5	37	59.5
Local Yield 170(s)	25	73.5	36	48.5	70	13.5	37	48.5

Intersection Summary	
Cycle Length	75
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 59 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	

Splits and Phases: 9: Xylon Avenue & 101st Avenue



Congestion Reduction			
Existing AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	4,061	58	235,538
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,598	19	30,362
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,292	20	25,840
Total	6,951	97	291,740

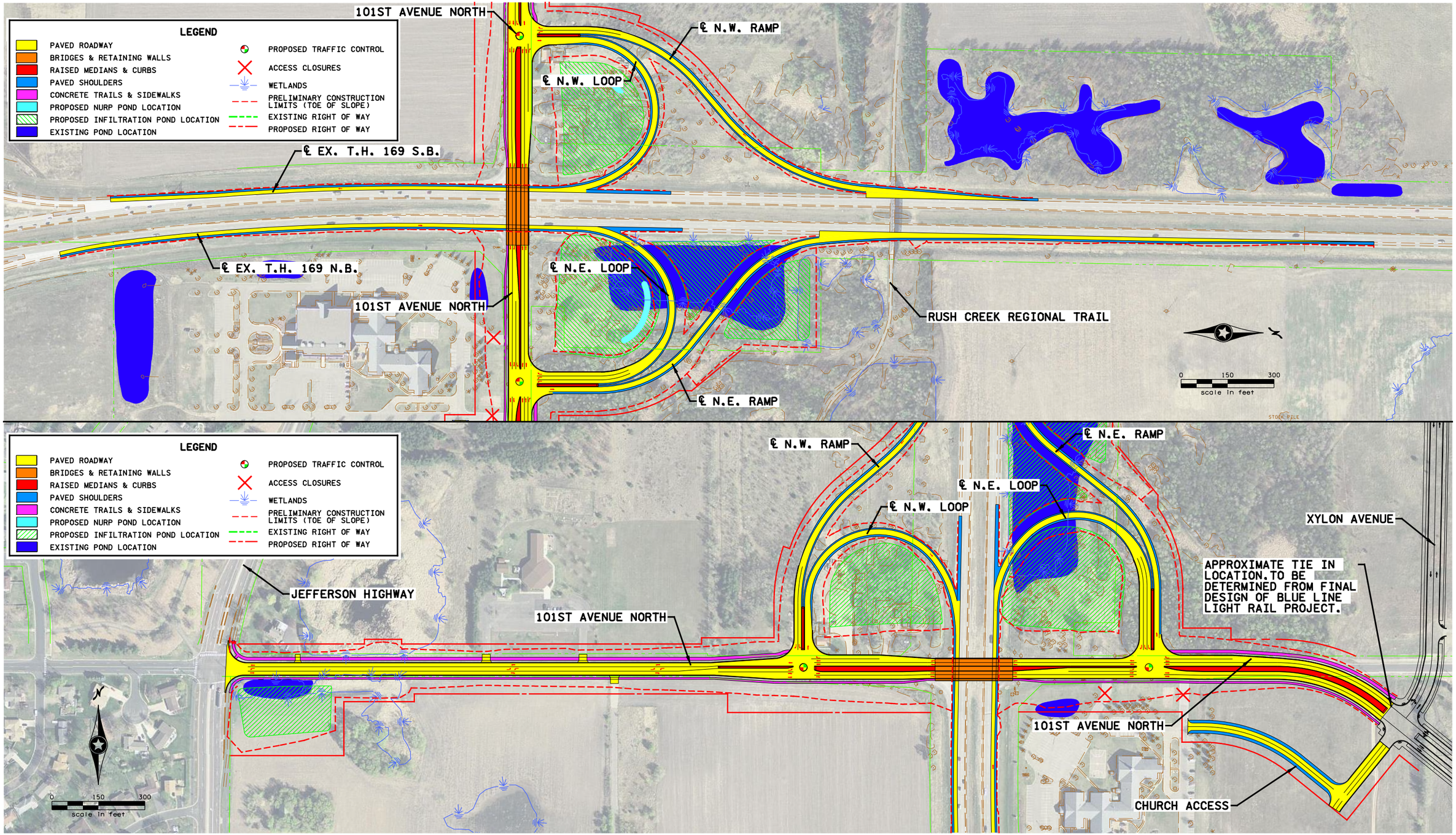
Improved AM Peak	Volume (VPH)	Total Delay/ Vehicle (S/V)	Total Delay (Seconds)
35: 169 (124) & 109th Ave	3,778	43	162,454
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,599	18	28,782
65: CSAH 103 (Winnetka Ave) & 109th Ave	1,080	17	18,360
Total	6,457	78	209,596

Reduction	Total Delay Reduced (Seconds)
35: 169 (124) & 109th Ave	73,084
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1,580
65: CSAH 103 (Winnetka Ave) & 109th Ave	7,480
Total	82,144

Emissions Improvements				
Existing AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	9.90	1.93	2.30	14.13
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.82	0.35	0.42	2.59
65: CSAH 103 (Winnetka Ave) & 109th Ave	2.28	0.44	0.53	3.25
Total	14.00	2.72	3.25	19.97

Improved AM Peak	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	8.25	1.61	1.91	11.77
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	1.79	0.35	0.41	2.55
65: CSAH 103 (Winnetka Ave) & 109th Ave	1.86	0.36	0.43	2.65
Total	11.90	2.32	2.75	16.97

Emissions Reduction	CO (kg)	NOx (kg)	VOC (kg)	Total Emissions (Kg)
35: 169 (124) & 109th Ave	1.65	0.32	0.39	2.36
55: CSAH 103 (Broadway Ave) & TH 610 N Ramps	0.03	0.00	0.01	0.04
65: CSAH 103 (Winnetka Ave) & 109th Ave	0.42	0.08	0.10	0.60
Total	2.10	0.40	0.50	3.00



I:\Projects\8757\CAD_BIM\Graphics\8757_GRAPHIC_101st Ave_Layout_3 Lane.dgn

SRF Consulting Group, Inc.

8757
6/23/2016

TH 169 / 101ST AVENUE INTERCHANGE LAYOUT

TH 169 / 101ST AVENUE INTERCHANGE PRELIMINARY DESIGN
CITY OF BROOKLYN PARK

Roadway Area Definition

Roadway Expansion Project: Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange | Map ID: 1466084348993

Results

Project Length: 0.729 miles

Project Area: 3.424 sq mi

Project Points Project Area

Project

0 1 2 4 6 8 Miles

Created: 6/16/2016
LandscapeRSA1

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

METROPOLITAN COUNCIL

Regional Economy

Roadway Expansion Project: Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange | Map ID: 1466084348993

Results

WITHIN ONE MI of project:

Totals by City:

Brooklyn Park
Population: 924
Employment: 2086
Mfg and Dist Employment: 680

Champlin
Population: 4138
Employment: 1418
Mfg and Dist Employment: 911

Maple Grove
Population: 6589
Employment: 364
Mfg and Dist Employment: 22

Osseo
Population: 2052
Employment: 568
Mfg and Dist Employment: 9

Postsecondary Students:
0

Project Points
Project Area
Project

0 1 2 4 6 8 Miles

Created: 6/16/2016
LandscapeRSA5

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http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

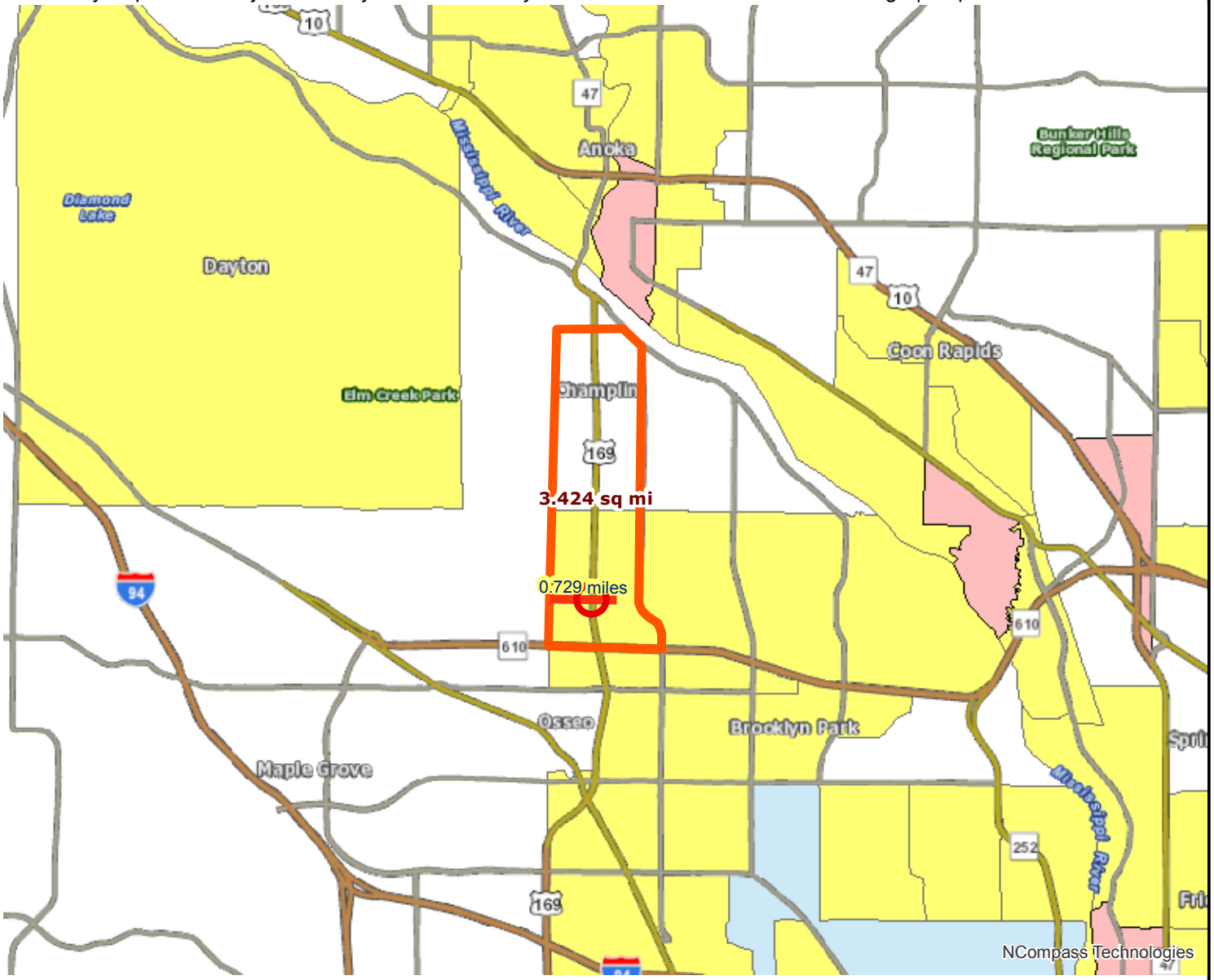
METROPOLITAN COUNCIL

Socio-Economic Conditions

Roadway Expansion Project: Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange | Map ID: 1466084348993

Results

Project census tracts are above the regional average for population in poverty or population of color:
(0 to 18 Points)



Project Points
Project
Project Area
Area of Concentrated Povertry > 50% residents of color
Area of Concentrated Poverty
Above reg'l avg conc of race/poverty

0 1 2 4 6 8 Miles

Created: 6/16/2016
LandscapeRSA2

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METROPOLITAN COUNCIL

Transit Connections

Roadway Expansion Project: Brooklyn Park - US Hwy 169 / 101st Avenue North Interchange | Map ID: 1466084348993

Results

Transit with a Direct Connection to project:
-- NONE --

**indicates Planned Alignments*

Project Points
Project
Project Area

Transitway
Northstar Line
Light Rail, Blue Line Extension

Planned Alignments
Arterial BRT

0 1 2 4 6 8 Miles

Created: 6/16/2016
LandscapeRSA3

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http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

METROPOLITAN COUNCIL

Minnesota Department of Transportation
Metro District
1500 West County Road B-2
Roseville, MN 5511

July 8, 2016

Jeff Holstein, PE, PTOE
City Transportation Engineer
City of Brooklyn Park
5200 85th Ave., N.
Brooklyn Park, MN 55443

RE: Regional Solicitation Application for US169/101st Avenue Interchange project

Dear Mr. Holstein:

Thank you for requesting a letter of support from MnDOT for the Metropolitan Council/Transportation Advisory Board (TAB) 2016 Regional Solicitation. Your application for the US169/101st Avenue Interchange project impacts MnDOT right of way on US169.

MnDOT, as the agency with jurisdiction over US169, would allow the improvements included in the application for US169/101st Avenue Interchange project. Details of a future maintenance agreement with the City would be determined during project development to define how the improvements will be maintained for the project's useful life.

This project has no funding from MnDOT. In addition, the Metro District currently has no discretionary funding in year 2020 of the State Transportation Improvement Program (STIP) or year 2021 of the Capital Highway Investment Plan (CHIP) to assist with construction or assist with MnDOT services such as the design or construction engineering of the project. Please continue to work with MnDOT Area staff to assist in identifying additional project funding if needed.

Sincerely,

Scott McBride, P.E.
Metro District Engineer

Cc: Elaine Koustsoukos, Metropolitan Council
John Griffith, MnDOT Metro District – West Area Manager

2016 Regional Solicitation Grant Application

Brooklyn Park – US Hwy 169/ 101st Avenue North Interchange

101st Avenue North – From east looking west at US Hwy 169.

101st Avenue North – From southeast looking northwest at US Hwy 169.

2016 Regional Solicitation Grant Application

Brooklyn Park – US Hwy 169/ 101st Avenue North Interchange

101st Avenue North – From east looking northwest at US Hwy 169.

101st Avenue North – From southeast looking west at US Hwy 169.

2016 Regional Solicitation Grant Application

Brooklyn Park – US Hwy 169/ 101st Avenue North Interchange

101st Avenue North – From southeast looking west at US Hwy 169.

101st Avenue North – From northwest looking southeast at US Hwy 169.

2016 Regional Solicitation Grant Application

Brooklyn Park – US Hwy 169/ 101st Avenue North Interchange

101st Avenue North – From southwest looking north at US Hwy 169.

101st Avenue North – From northwest looking south at US Hwy 169.

2016 Regional Solicitation Grant Application

Brooklyn Park – US Hwy 169/ 101st Avenue North Interchange

US Hwy 169 Pedestrian Bridge – From north looking south at project area.

US Hwy 169 Pedestrian Bridge – Looking northeast of project area. Construction of the NorthPark Business Park is underway.

ThreeRivers
PARK DISTRICT

6/14/2016

Jeff Holstein, PE, PTOE
City Transportation Engineer
City of Brooklyn Park
5200 85th Avenue, North
Brooklyn Park, MN 55443

RE: Regional Solicitation for New Interchange at US Highway 169 / 101st Avenue North

Dear Mr. Holstein:

Three Rivers Park District has been notified that the City of Brooklyn Park is submitting an application for Metropolitan Council's 2016 Regional Solicitation funding for the proposed US Highway 169 / 101st Avenue North Interchange. Three Rivers is supportive of the project, which includes providing northbound and southbound access to Highway 169 at 101st Avenue North. This project will impact Three RIvers property in this area. The city has been working with Three Rivers to identify mitigation measures for these impacts.

Three Rivers will not be providing a portion of the local match funds for this project.

Sincerely,

Jonathan Vlaming
Associate Superintendent
Planning, Design and Technology

JCV/jjs