



Application

04775 - 2016 Roadway System Management

05200 - Arterial Corridor Management (Snelling and Lexington)

Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
Submitted Date: 07/14/2016 7:47 PM

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City State/Province Postal Code/Zip

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

Organization Information

Name: ST PAUL, CITY OF

Jurisdictional Agency (if different):

Organization Type:

City

Organization Website:

Address:

DEPT OF PUBLIC WORKS-CITY HALL ANNEX
25 W 4TH ST #1500

*

ST PAUL

Minnesota

55101

City

State/Province

Postal Code/Zip

County:

Ramsey

Phone:*

651-266-9700

Ext.

Fax:

PeopleSoft Vendor Number

0000003222A22

Project Information

Project Name

Arterial Corridor Management (Snelling and Lexington)

Primary County where the Project is Located

Ramsey

Jurisdictional Agency (If Different than the Applicant):

This project aims to relieve congestion and improve traffic signal operations, incident, emergency and event management along two key arterials in the City of Saint Paul through the installation of new signal controllers, robust detection, interconnect, changeable message signs (CMS), implementation of adaptive traffic signal control, travel time monitoring, and signal timing optimization. Snelling Avenue (TH 51) and Lexington Parkway (CR 51) each carry upwards of 30,000 vehicles per day with an average signal spacing of one quarter mile. These conditions place an emphasis on the need for effective traffic signal coordination and optimization on these corridors.

- The implementation of adaptive traffic signal control at multiple signals along Snelling and Lexington will maximize the capacity of the intersection by optimizing splits in real time based on the powerful data collection capabilities of modern controllers, robust vehicle detection, and the City's advanced traffic management system (ATMS). Adaptive control will also increase the ability of the City to manage event traffic for the proposed soccer stadium on Snelling Avenue, as well as reducing delay during times of unpredictable traffic demands.

- Many traffic signal controllers along Lexington Parkway in Saint Paul are legacy 170 controllers, which have limited functionality and reliability. Additionally, most are not a part of the City's fiber optic network. Through this project, modern controllers would be installed and connected to the City's existing fiber optic backbone, allowing for holistic management and operation of the roadway.

- The ability to provide real-time information to commuters, visitors, and residents is a key component of any emergency or incident management plan. This project proposes to place CMS at key locations along Snelling and Lexington

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

to provide information about emergencies, road closures, snow emergencies, and events. The signs would be placed at strategic locations to manage vehicle routing and maximize the dissemination of important alerts when issues arise.

- The installation of cameras and travel time monitoring equipment will allow the City to observe the conditions at congested intersections from the traffic management center, make signal timing modifications in real time, observe the impacts of those changes without making site visits, and quantify the benefits of the system with detailed reports on performance.

- On average, signal timing optimization of coordinated signal systems result in a 13.8% reduction in delay (ITS Benefits: The Case of Traffic Signal Control Systems, Skabardonis, Alexander). As this reduction is based on static time of day plans, the delay reduction could be much greater when adaptive traffic signal control is implemented.

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)

TH 51, FROM MSAS 168 TO HEWITT AVE & CR 51 FROM CR 38 TO MSAS 142 IN ST. PAUL, INTERCONNECT, SIGNAL UPGRADES, ADAPTIVE SIGNAL TIMING, DYNAMIC MESSAGE SIGNS, AND DEPLOYMENT OF CCTV CAMERAS

Project Length (Miles)

8.2

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

\$2,001,320.00

Match Amount

\$500,330.00

Minimum of 20% of project total

Project Total

\$2,501,650.00

Match Percentage 20.0%

Minimum of 20%

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

Source of Match Funds Local

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: 2021

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 Saint Paul Department of Public Works

Functional Class of Road A Minor Arterial, B Minor Arterial

Road System TH, CSAH

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

Road/Route No. 51

i.e., 53 for CSAH 53

Name of Road Snelling Avenue, Lexington Parkway

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed 55104

(Approximate) Begin Construction Date 03/01/2021

(Approximate) End Construction Date 11/19/2021

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

From:
(Intersection or Address) Snelling & Montreal/Lexington & Randolph

To:
(Intersection or Address) Snelling & Hewitt/Lexington & Hoyt

DO NOT INCLUDE LEGAL DESCRIPTION

Or At

Primary Types of Work Installation of interconnect, vehicle detection, CMS, CCTV cameras, etc.

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)	\$113,711.00
Removals (approx. 5% of total cost)	\$113,711.00
Roadway (grading, borrow, etc.)	\$0.00
Roadway (aggregates and paving)	\$0.00
Subgrade Correction (muck)	\$0.00
Storm Sewer	\$0.00
Ponds	\$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	\$100,000.00
Traffic Control	\$100,000.00
Striping	\$0.00
Signing	\$420,000.00
Lighting	\$0.00
Turf - Erosion & Landscaping	\$0.00
Bridge	\$0.00
Retaining Walls	\$0.00
Noise Wall (do not include in cost effectiveness measure)	\$0.00
Traffic Signals	\$1,654,228.00
Wetland Mitigation	\$0.00
Other Natural and Cultural Resource Protection	\$0.00
RR Crossing	\$0.00
Roadway Contingencies	\$0.00
Other Roadway Elements	\$0.00
Totals	\$2,501,650.00

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	\$0.00

Sidewalk Construction	\$0.00
On-Street Bicycle Facility Construction	\$0.00
Right-of-Way	\$0.00
Pedestrian Curb Ramps (ADA)	\$0.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	\$0.00
Pedestrian-scale Lighting	\$0.00
Streetscaping	\$0.00
Wayfinding	\$0.00
Bicycle and Pedestrian Contingencies	\$0.00
Other Bicycle and Pedestrian Elements	\$0.00
Totals	\$0.00

Specific Transit and TDM Elements

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

Transit Operating Costs

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

Totals

Total Cost	\$2,501,650.00
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Construction Cost Total	\$2,501,650.00
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.

- A. Operate the regional transportation system to efficiently and cost-effectively connect people and freight to destinations. Pg. 2.6

- B. Reduce the transportation system's vulnerability to natural and manmade incidents and threats. Pg. 2.7

- B2. Regional transportation partners should work with local, state, and federal public safety officials, including emergency responders, to protect and strengthen the role of the regional transportation system in providing security and effective emergency response to serious incidents and threats. Pg. 2.7

- B3. Regional transportation partners should monitor and routinely analyze safety and security data by mode and severity to identify priorities and progress. Pg. 2.7

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

- C. Increase travel time reliability and predictability for travel on highway and transit systems. Pg. 2.8

- C2. Local units of government should provide a system of interconnected arterial roads, streets, bicycle facilities, and pedestrian facilities to meet local travel needs using Complete Streets principles. Pg. 2.8

- C7. Regional transportation partners will manage and optimize the performance of the principal arterial system as measured by person throughput. Pg. 2.9

- C9. The Council will support investments in A-minor arterials that build, manage, or improve the system's ability to supplement the capacity of the principal arterial system and support access to the region's job, activity, and industrial and manufacturing concentrations. Pg. 2.9

- D. Improve multimodal access to regional job concentrations identified in Thrive MSP 2040. Pg. 2.11

- D4. The Council, MnDOT, and local governments will invest in a transportation system that provides travel conditions that compete well with peer metropolitan areas. Pg. 2.11

- E. Reduce transportation related air emissions. Pg. 2.12

- E. Reduce impacts of transportation construction, operations, and use on the natural, cultural, and developed environments. Pg 2.12

- E. Increase the availability and attractiveness of transit, bicycling, and walking to encourage healthy communities and active car-free lifestyles. Pg 2.12

- F2. Local governments should plan for increased density and a diversification of uses in job concentrations, nodes along corridors, and local centers to maximize the effectiveness of the transportation system. Pg. 2.14

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.

- Page T5 of the City's Comprehensive Plan expresses a need to '[e]xamine alternatives to enhance safety through right-of-way design, including narrowing or removing lanes on roads.'

- Page T13 of the City's Comprehensive Plan declares that the City's parking

management toolbox must be expanded.

- Page T23 of the City's Comprehensive Plan discusses the importance and potential of the City's fiber optic cable system.

- Page T27 of the City's Comprehensive Plan directs the City to improve access to information about construction, detours, and events.

List the applicable documents and 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.

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 MnDOT's Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities manual. In the case of a federally funded trunk highway project, the policy guidelines should be read as if the funded trunk highway route is under local jurisdiction.

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

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

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

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

Measure A: Functional Classification

Area	13.919
Project Length	11.409
Average Distance	1.22
Upload Map	1467397464695_20160701-Roadway Area Definition.pdf

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

Existing Employment within 1 Mile:	77167.0
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	8596.0
Existing Students:	37184.0
Upload Map	1467397516091_20160701-Regional Economy.pdf

Measure C: Current Heavy Commercial Traffic

Location:	Snelling Avenue (TH 51) between Summit Avenue and Selby Avenue
Current daily heavy commercial traffic volume:	1050
Date heavy commercial count taken:	2012

Measure D: Freight Elements

Response (Limit 1,400 characters; approximately 200 words)	TH 51 has an HCAADT of 1050 and connects TH 94 with rail lines to the north. Increasing efficiency and travel time reliability on TH 51 will allow for increased efficiency.
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Measure A: Current Daily Person Throughput

Location	Snelling Avenue (TH 51), Snelling to Concordia
Current AADT Volume	42500.0
Existing Transit Routes on the Project	3, 16, 21, 53, 63, 67, 70, 74, 83, 84, 94, 353, 355, 365, 375, 452, 480, 484, 489, 902-METRO Green Line
Upload Transit Map	1467398403546_20160701-Transit Connections.pdf

Response - Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	55250.0

Measure B: 2040 Forecast ADT

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

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

OR

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

Forecast (2040) ADT volume

Measure A: Project Location and Impact to Disadvantaged Populations

Select one:

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

Project located in Area of Concentrated Poverty:

Projects census tracts are above the regional average for population in poverty or population of color:

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

This project will benefit the noted populations in several ways, some of which are noted below:

- Current technologies have provided new avenues of connecting with the public, but often times information posted to websites, sent via text message, or released via social media do not reach impoverished or elderly populations as effectively. The installation of changeable message signs in will allow for the distribution of information regarding emergencies, incidents, or events to those who don't have unfettered access to modern technology.
- Upgrading existing traffic signal controllers will allow for easier accommodation of future BRT routes and bicycle facilities. Transit is an essential public service for households without automobiles.
- The installation of APS pedestrian push buttons will aid those with hearing or visual impairments safely traverse intersections.

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

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

Upload Map

1467400687726_20160701-Socio Economic Conditions.pdf

Measure B: Affordable Housing

City/Township	Segment Length in Miles (Population)
Saint Paul	3.7
Saint Paul	4.5
	8

Total Project Length

Total Project Length (Total Population) 8.2

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)	8.2
Total Housing Score	0

Measure A: Equipment Improvements and Installation Year

Equipment to be Improved	Traffic signal controllers, interconnect
Date of Equipment Installation (year)	1989 (average of controllers to be replaced)

Measure A: Congestion Reduction/Air Quality

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:	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable.	Synchro or HCM Reports
44.0	36.8	7.2	3575	25740.0	Lexington & University	14683403994 49_ See full Synchro reports in final entry.pdf
37.8	27.9	9.9	3750	37125.0	Snelling & Marshall	14683404522 96_ See full Synchro reports in final entry.pdf
24.8	23.3	1.5	3135	4702.5	Snelling & Selby	14683405080 67_ See full Synchro reports in final entry.pdf

24.5	19.5	5.0	3525	17625.0	Snelling & St. Anthony	14683405605 63_ See full Synchro reports in final entry.pdf
36.5	31.5	5.0	3329	16645.0	Snelling & University	14683406089 96_ See full Synchro reports in final entry.pdf
27.8	14.3	13.5	3235	43672.5	Snelling & Concordia	14683406536 92_ See full Synchro reports in final entry.pdf
28.0	24.7	3.3	3819	12602.7	Lexington & St. Anthony	14683407106 57_ See full Synchro reports in final entry.pdf
31.2	27.7	3.5	4002	14007.0	Lexington & Concordia	14683407640 45_ See full Synchro reports in final entry.pdf
9.5	7.5	2.0	2573	5146.0	Snelling & Spruce Tree	14685048840 78_20160712- Synchro Reports for Arterial Corridor Management Project.pdf

Total Delay

Total Peak Hour Delay Reduced

177265.7

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):
7.3	6.7	0.6	1.0	0.6
7.0	6.1	0.9	1.0	0.9
4.2	4.5	-0.3	1.0	-0.3
4.3	4.0	0.3	1.0	0.3
4.9	4.4	0.5	1.0	0.5
4.4	3.1	1.3	1.0	1.3
5.5	5.0	0.5	1.0	0.5
5.3	4.8	0.5	1.0	0.5
2.2	2.1	0.1	1.0	0.1
45	41		9	4

Total

Total Emissions Reduced: 4.4

[Upload Synchro Report](#)

1468504911062_20160712-Synchro Reports for Arterial Corridor Management Project.pdf

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

Total (CO, NOX, 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 Parallel Roadways

Emissions Reduced on Parallel Roadways 0

[Upload Synchro Report](#)

New Roadway Portion:

Cruise speed in miles per hour with the project:	0
Vehicle miles traveled with the project:	0
Total delay in hours with the project:	0
Total stops in vehicles per hour with the project:	0
Fuel consumption in gallons:	0
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced or Produced on New Roadway (Kilograms):	0
EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)	
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	0.0

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

Cruise speed in miles per hour without the project:	0
Vehicle miles traveled without the project:	0
Total delay in hours without the project:	0
Total stops in vehicles per hour without the project:	0
Cruise speed in miles per hour with the project:	0
Vehicle miles traveled with the project:	0
Total delay in hours with the project:	0
Total stops in vehicles per hour with the project:	0
Fuel consumption in gallons (F1)	0
Fuel consumption in gallons (F2)	0
Fuel consumption in gallons (F3)	0
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	0
EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)	

Measure A: Roadway Projects that do not Include Railroad Grade-Separation Elements

Crash Modification Factor Used:	0
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Rationale for Crash Modification Selected:

The installation of APS push buttons is expected to increase safety for pedestrians where installed, but no existing CMFs are available for that improvement.

(Limit 1400 Characters; approximately 200 words)

Project Benefit (\$) from B/C Ratio \$0.00

Worksheet Attachment

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

As part of this project, APS push buttons will be installed at intersections where they are not in place. APS push buttons have been found to have many benefits to pedestrians, particularly those with visual impairments. Additionally, the installation of changeable message signs will provide information to pedestrians, bicyclists, and transit operators and riders of events, construction, and incidents.

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

The intersections along Snelling and Lexington included in the project serve a high volume of pedestrians, bicycles, and transit users. Users of existing bike lanes, paths, or bike boulevards on Minnehaha Avenue, Marshall Avenue, Summit Avenue, Ford Parkway, Jefferson Avenue, and Lexington Parkway would see the benefits of the increased efficiency, decreased delay, and improved air quality provided by the project, as would A Line BRT riders, Green Line riders, and those on one of the many local bus routes traveling along or across these two corridors.

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

3) Environmental Documentation (5 Percent of Points)

EIS

EA

PM

Document Status:

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

Document submitted to State Aid for review 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

07/31/2020

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

100%

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

80%

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

40%

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

Yes

0%

Anticipated date or date of completion of historic/archeological review:

07/31/2020

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

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

Yes

0%

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

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

100%

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

100%

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

75%

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

50%

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

25%

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

0%

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

0%

Anticipated date or date of acquisition

7)Railroad Involvement (25 Percent of Points)

No railroad involvement on project Yes

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 Yes

100%

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

100%

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

0%

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

Construction plans completed/approved (include signed title sheet)

100%

Construction plans submitted to State Aid for review

75%

Construction plans in progress; at least 30% completion

50%

Construction plans have not been started

Yes

0%

Anticipated date or date of completion

03/31/2021

10)Letting

Anticipated Letting Date

05/01/2021

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form): \$2,501,650.00

Enter Amount of the Noise Walls: \$0.00

Total Project Cost subtract the amount of the noise walls: \$2,501,650.00

Points Awarded in Previous Criteria

Cost Effectiveness \$0.00

Other Attachments

File Name	Description	File Size
Other Attachments.pdf	LIST OF ATTACHMENTS - Project location map - Project overview map - Letter of support from Scott McBride, MnDOT Metro District Engineer - Letter of support from James Tolaas, Ramsey County Director of Public Works and County Engineer - Resolution committing the City of Saint Paul to provide the required 20% match if the project is awarded funding	1.5 MB

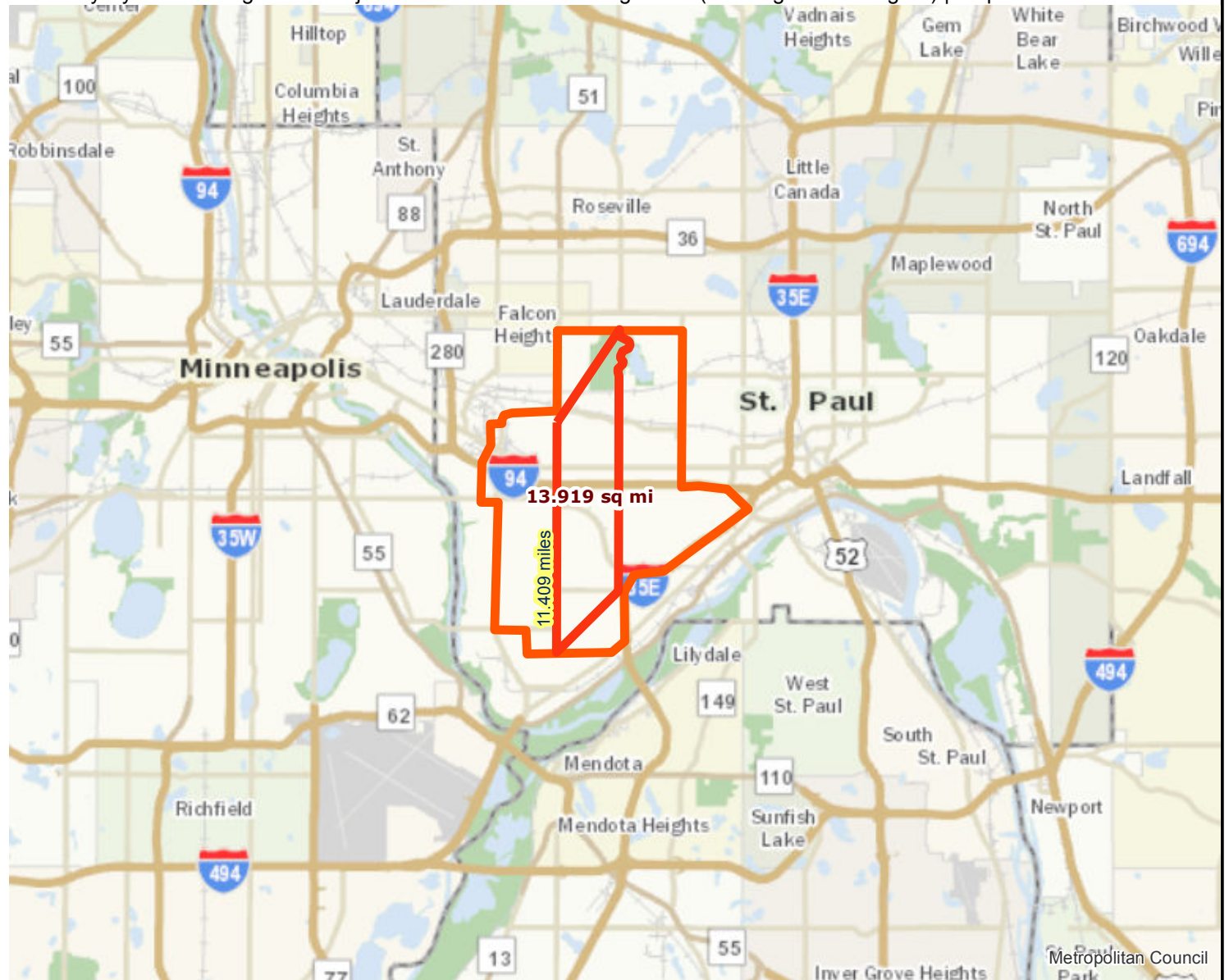
Roadway Area Definition

Roadway System Management Project: Arterial Corridor Management (Snelling and Lexington) | Map ID: 1467396274813

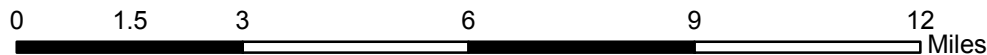
Results

Project Length: 11.409 miles

Project Area: 13.919 sq mi



-  Project
-  Project Area



Created: 7/1/2016
LandscapeRSA1



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



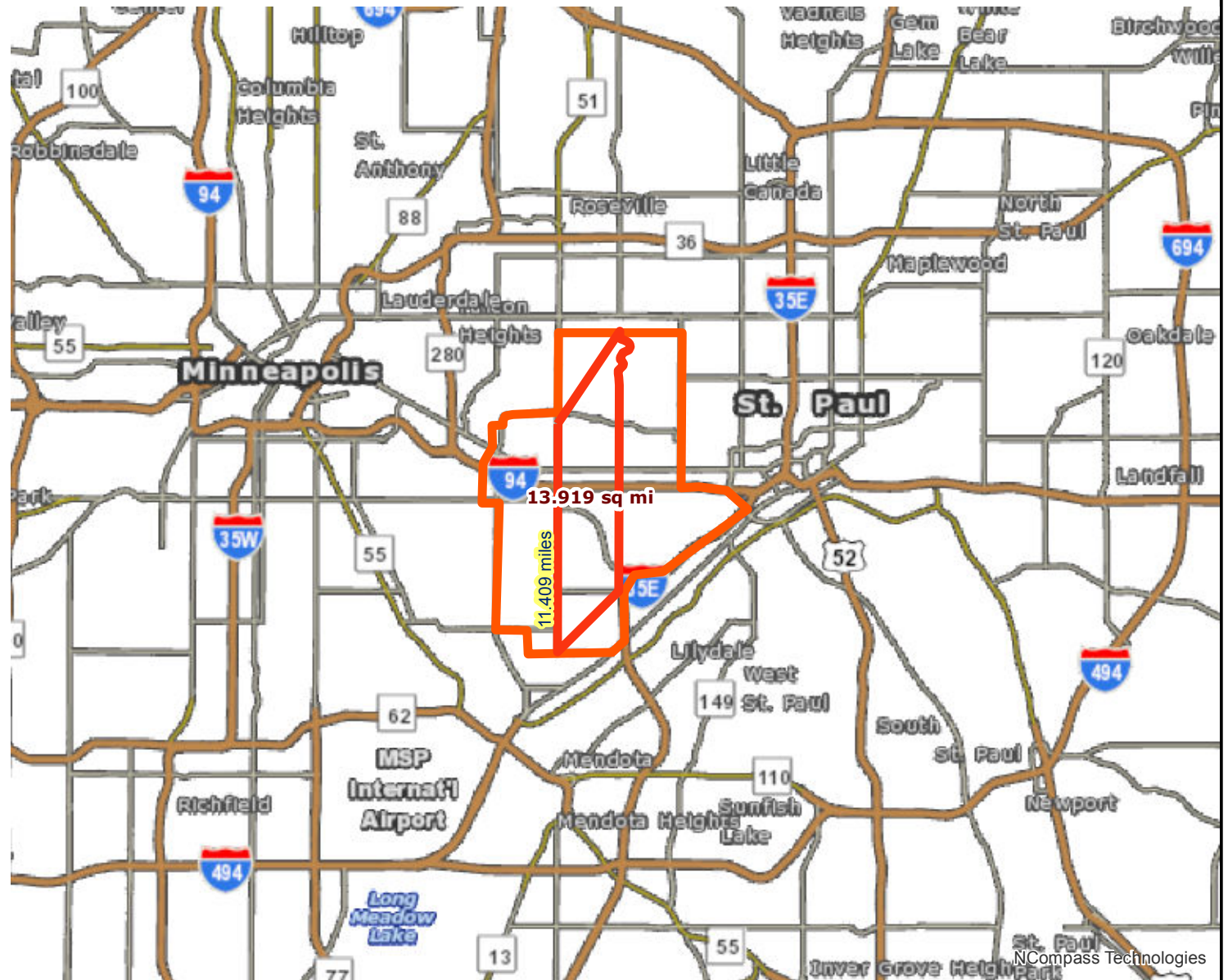
Regional Economy

Results

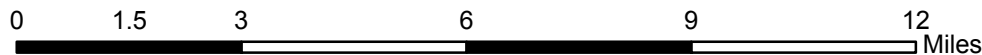
WITHIN ONE MI of project:

Total Population: 150495
Total Employment: 77167
Mfg and Dist Employment: 8596

Postsecondary Students:
37184



- Project
- Project Area

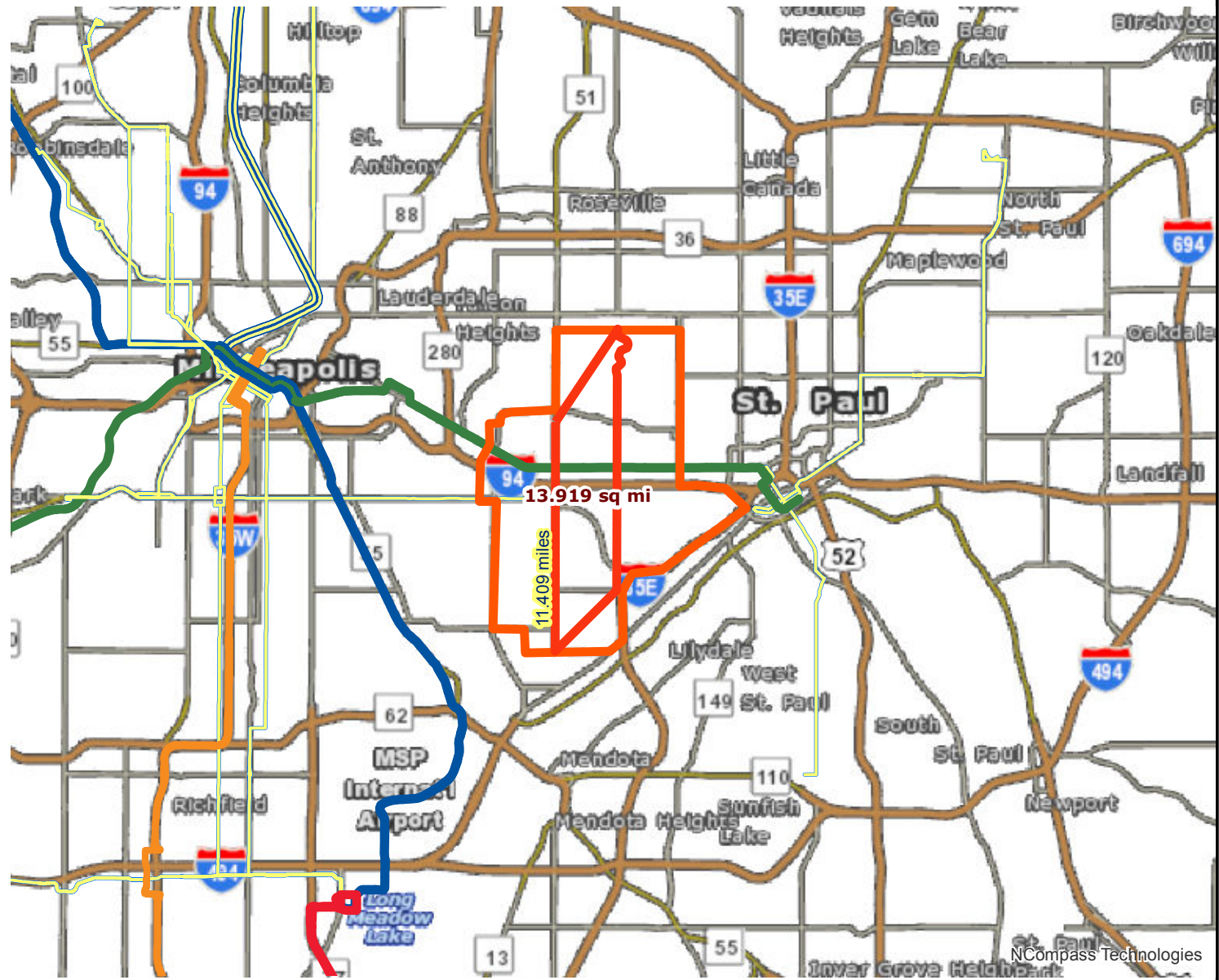


Created: 7/1/2016
LandscapeRSA5



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





Results

Transit with a Direct Connection to project:

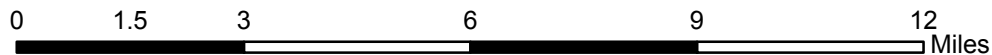
- 3 16 21 53 63 67 70 74 83 84 94
- 353 355 365 375 452 480 484 489 902 921

*Lake

*indicates Planned Alignments

- ▬ Project
- ▬ Blue Line
- ▬ Green Line
- ▬ Red Line
- ▬ Light Rail, Blue Line Extension
- ▬ Light Rail, Green Line Extension
- ▬ Arterial BRT
- ▬ BRT, Orange Line
- ▬ Light Rail, Blue Line Extension
- ▬ Blue / Green Line
- ▬ Northstar Line
- ▬ Light Rail, Blue Line Extension

Transitway



Created: 7/1/2016
LandscapeRSA3



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

NCompass Technologies



Results

Project located IN
 Area of Concentrated Poverty
 with 50% or more of residents
 are people of color (ACP50):
 (0 to 30 Points)



- Project
- Project Area
- Area of Concentrated Poverty > 50% residents of color

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



See full Synchro reports in final entry.

See full Synchro reports in final entry.

See full Synchro reports in final entry.

See full Synchro reports in final entry.

See full Synchro reports in final entry.

See full Synchro reports in final entry.

See full Synchro reports in final entry.

See full Synchro reports in final entry.

SYNCHRO REPORTS

ARTERIAL CORRIDOR MANAGEMENT (SNELLING & LEXINGTON)

SYNCHRO METHODOLOGY

In order to simulate the benefits to delay and reduction of emissions anticipated with the implementation of adaptive signal timing and optimization, the Synchro analysis performed for this application attempted to imitate the behavior of an adaptive system using the following methodology:

- Turning movement counts at fifteen minute intervals in the PM peak hour were obtained for nine traffic signals where adaptive control is expected to be implemented, on TH 51 (Snelling Avenue between University Avenue and Selby Avenue), and CR 51 (Lexington Parkway between University Avenue and Concordia Avenue).
- Each fifteen minute interval was modeled separately, and the fifteen minute volumes were extrapolated to hourly rates. A PHF of 1 was used for each interval. The intervals were evaluated for two scenarios:
 - **Existing** – Models for each of the four fifteen minute intervals were analyzed individually using the existing signal timing plan for the PM peak hour.
 - **Adaptive** – Each of the four fifteen minute intervals were analyzed individually using optimized timings for their individual volumes, in order to imitate the adaptive system.
- The results were formulated by adjusting the results from the Synchro models to levels appropriate for the aggregate hourly volumes.
 - The delay per vehicle for each interval was multiplied by the actual fifteen minute counts for that interval, and then divided by the actual hourly volume to derive the average delay per vehicle per hour.
 - One quarter of the hourly emissions outputs for each interval were summed to derive the emissions totals for the peak hour.

The City of Saint Paul believes that this modeling depicts a reasonable approximation of the benefits likely to be achieved by the implementation of adaptive signal timing along this corridor.

Please contact Mike Klobucar at 651.266.6208 or mike.klobucar@ci.stpaul.mn.us if you have any questions.

ATTACHED REPORTS

EXISTING SYNCHRO MEASURES OF EFFECTIVENESS (HOURLY)

- 4:30-4:45 PM
- 4:45-5:00 PM
- 5:00-5:15 PM
- 5:15-5:30 PM

PROPOSED SYNCHRO MEASURES OF EFFECTIVENESS WITH ADAPTIVE TIMINGS (HOURLY)

- 4:30-4:45 PM
- 4:45-5:00 PM
- 5:00-5:15 PM
- 5:15-5:30 PM

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Future Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.970			0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3493	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.114			0.241		
Satd. Flow (perm)	1770	3433	0	1770	3493	0	212	3539	1583	449	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			8				118			118
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		624			899			1330			681	
Travel Time (s)		14.2			20.4			30.2			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	656	0	104	284	0	120	856	132	36	1024	32
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1630-1645
TOD Plan 3

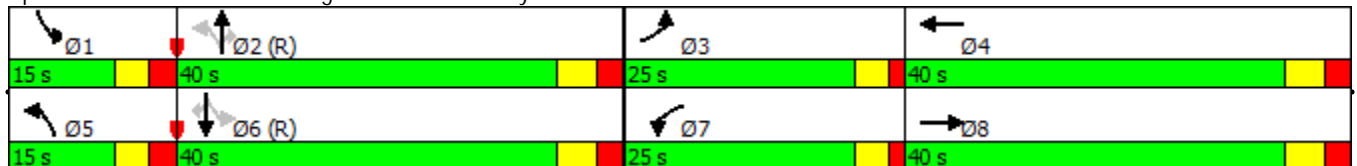


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	25.0	40.0		25.0	40.0		15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	20.8%	33.3%		20.8%	33.3%		12.5%	33.3%	33.3%	12.5%	33.3%	33.3%
Maximum Green (s)	20.5	34.0		20.5	34.0		9.5	34.0	34.0	9.5	34.0	34.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	16.4	30.2		12.4	26.2		59.6	53.0	53.0	54.2	46.3	46.3
Actuated g/C Ratio	0.14	0.25		0.10	0.22		0.50	0.44	0.44	0.45	0.39	0.39
v/c Ratio	0.71	0.74		0.57	0.37		0.54	0.55	0.17	0.13	0.75	0.05
Control Delay	65.4	44.7		63.0	39.2		34.4	40.1	17.1	19.2	38.0	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	44.7		63.0	39.2		34.4	40.1	17.1	19.2	38.0	0.1
LOS	E	D		E	D		C	D	B	B	D	A
Approach Delay		49.0			45.6			36.8			36.3	
Approach LOS		D			D			D			D	
Stops (vph)	162	562		97	226		90	725	108	22	812	0
Fuel Used(gal)	4	12		3	6		3	20	2	0	18	0
CO Emissions (g/hr)	281	857		182	385		180	1389	170	32	1247	12
NOx Emissions (g/hr)	55	167		35	75		35	270	33	6	243	2
VOC Emissions (g/hr)	65	199		42	89		42	322	39	7	289	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 40.6
 Intersection LOS: D
 Intersection Capacity Utilization 77.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Future Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.336			0.373			0.068			0.195		
Satd. Flow (perm)	626	1863	1583	695	1863	1583	127	3539	1583	363	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			101			101
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	16.0	36.0	36.0	16.0	36.0	36.0	13.0	65.0	65.0	13.0	65.0	65.0
Total Split (%)	12.3%	27.7%	27.7%	12.3%	27.7%	27.7%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	11.5	30.0	30.0	11.5	30.0	30.0	8.5	59.5	59.5	8.5	59.5	59.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	45.7	35.0	35.0	40.6	30.2	30.2	69.7	62.8	62.8	71.0	65.2	65.2
Actuated g/C Ratio	0.35	0.27	0.27	0.31	0.23	0.23	0.54	0.48	0.48	0.55	0.50	0.50
v/c Ratio	0.56	0.64	0.12	0.19	0.62	0.20	0.20	0.55	0.09	0.14	0.79	0.18
Control Delay	37.3	50.1	2.4	29.0	52.0	7.4	24.4	34.5	7.8	13.4	40.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	50.1	2.4	29.0	52.0	7.4	24.4	34.5	7.8	13.4	40.5	12.2
LOS	D	D	A	C	D	A	C	C	A	B	D	B
Approach Delay		40.9			39.4			32.3			37.1	
Approach LOS		D			D			C			D	
Stops (vph)	130	281	2	37	238	12	17	696	18	25	1314	99
Fuel Used(gal)	3	7	0	1	6	1	0	16	1	1	30	2
CO Emissions (g/hr)	230	493	25	61	412	45	30	1084	42	40	2092	149
NOx Emissions (g/hr)	45	96	5	12	80	9	6	211	8	8	407	29
VOC Emissions (g/hr)	53	114	6	14	96	10	7	251	10	9	485	35
Dilemma Vehicles (#)	0	12	0	0	10	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 36.6
 Intersection LOS: D
 Intersection Capacity Utilization 76.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Future Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.911			0.989			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1833	0	1770	1697	0	1770	3500	0	1770	3504	0
Flt Permitted	0.222			0.322			0.236			0.249		
Satd. Flow (perm)	414	1833	0	600	1697	0	440	3500	0	464	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			54			8			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	304	0	32	364	0	28	788	0	468	1196	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1630-1645
TOD Plan 3

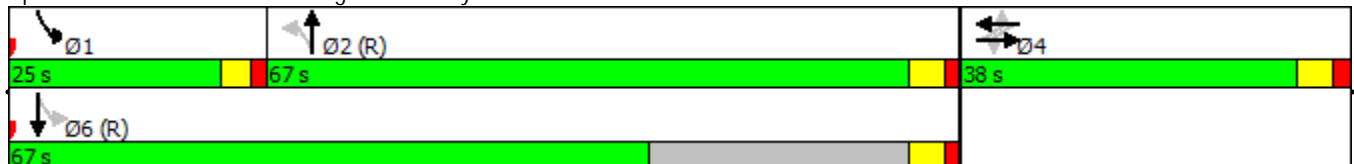


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	38.0	38.0		38.0	38.0		67.0	67.0		25.0	67.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%		51.5%	51.5%		19.2%	51.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		62.0	62.0		20.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	32.5	32.5		32.5	32.5		62.4	62.4		87.5	87.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.48	0.48		0.67	0.67	
v/c Ratio	0.66	0.66		0.21	0.78		0.13	0.47		0.91	0.51	
Control Delay	75.1	51.1		43.2	51.7		21.2	23.6		39.9	2.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.5	
Total Delay	75.1	51.1		43.2	51.7		21.2	23.6		39.9	3.3	
LOS	E	D		D	D		C	C		D	A	
Approach Delay		55.5			51.0			23.6			13.6	
Approach LOS		E			D			C			B	
Stops (vph)	59	267		27	286		16	507		342	252	
Fuel Used(gal)	2	6		1	8		0	10		8	8	
CO Emissions (g/hr)	120	433		47	572		24	718		572	591	
NOx Emissions (g/hr)	23	84		9	111		5	140		111	115	
VOC Emissions (g/hr)	28	100		11	133		6	166		133	137	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 70 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 25.5
 Intersection LOS: C
 Intersection Capacity Utilization 96.1%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Future Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.990		0.950					
Satd. Flow (prot)	0	0	0	1610	3356	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.990		0.174					
Satd. Flow (perm)	0	0	0	1610	3356	1583	629	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						273						152
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Shared Lane Traffic (%)				29%								
Lane Group Flow (vph)	0	0	0	187	393	300	620	728	0	0	1148	276
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1630-1645
TOD Plan 3

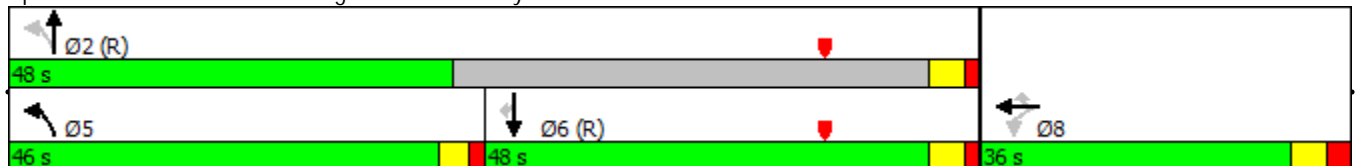


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				36.0	36.0	36.0	46.0	48.0			48.0	48.0
Total Split (%)				27.7%	27.7%	27.7%	35.4%	36.9%			36.9%	36.9%
Maximum Green (s)				30.0	30.0	30.0	41.5	43.0			43.0	43.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				30.0	30.0	30.0	89.5	89.0			65.2	65.2
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.68			0.50	0.50
v/c Ratio				0.50	0.51	0.52	0.73	0.30			0.36	0.32
Control Delay				49.1	46.3	10.3	30.9	18.8			20.4	10.7
Queue Delay				0.0	0.0	0.0	0.2	2.0			0.0	0.0
Total Delay				49.1	46.3	10.3	31.1	20.9			20.4	10.7
LOS				D	D	B	C	C			C	B
Approach Delay					34.6			25.6			18.5	
Approach LOS					C			C			B	
Stops (vph)				161	334	45	452	370			613	114
Fuel Used(gal)				3	6	2	8	6			17	3
CO Emissions (g/hr)				220	445	105	545	453			1201	238
NOx Emissions (g/hr)				43	87	20	106	88			234	46
VOC Emissions (g/hr)				51	103	24	126	105			278	55
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 11 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 25.0 Intersection LOS: C
 Intersection Capacity Utilization 60.2% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1630-1645
 TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Future Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.92	0.98		0.96	0.96		0.99		0.96	1.00		0.92
Frt		0.968			0.961				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3351	0	1770	3274	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.192			0.161		
Satd. Flow (perm)	1621	3351	0	1695	3274	0	353	3539	1523	298	3539	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			36				101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	568	0	124	336	0	108	884	96	132	840	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1630-1645
TOD Plan 3

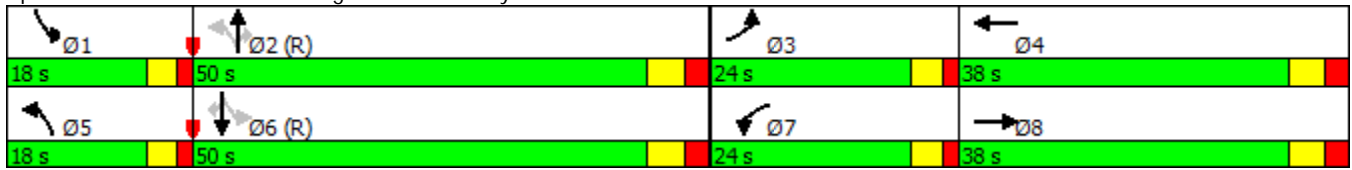


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	24.0	38.0		24.0	38.0		18.0	50.0	50.0	18.0	50.0	50.0
Total Split (%)	18.5%	29.2%		18.5%	29.2%		13.8%	38.5%	38.5%	13.8%	38.5%	38.5%
Maximum Green (s)	19.5	32.0		19.5	32.0		13.5	44.0	44.0	13.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	14.3	37.2		14.3	37.2		58.2	46.8	46.8	59.8	47.6	47.6
Actuated g/C Ratio	0.11	0.29		0.11	0.29		0.45	0.36	0.36	0.46	0.37	0.37
v/c Ratio	0.64	0.58		0.64	0.35		0.41	0.69	0.16	0.51	0.65	0.09
Control Delay	69.5	41.5		69.5	34.7		15.3	28.5	4.5	25.9	37.4	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	2.0	0.0	0.0	0.0	0.0
Total Delay	69.5	41.5		69.5	34.7		15.3	30.5	4.5	25.9	37.4	0.8
LOS	E	D		E	C		B	C	A	C	D	A
Approach Delay		46.5			44.1			26.7			34.0	
Approach LOS		D			D			C			C	
Stops (vph)	116	459		116	235		49	726	33	73	685	1
Fuel Used(gal)	3	9		3	4		1	11	1	2	14	0
CO Emissions (g/hr)	190	615		178	285		61	791	35	124	1013	21
NOx Emissions (g/hr)	37	120		35	55		12	154	7	24	197	4
VOC Emissions (g/hr)	44	143		41	66		14	183	8	29	235	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	35.6
Intersection LOS:	D
Intersection Capacity Utilization:	80.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Future Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.260		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	940	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									162			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		260			284			1025				289
Travel Time (s)		5.9			6.5			23.3				6.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	238	494	0	0	0	0	0	888	204	492	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				32
Link Offset(ft)		0			18			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1630-1645
TOD Plan 3

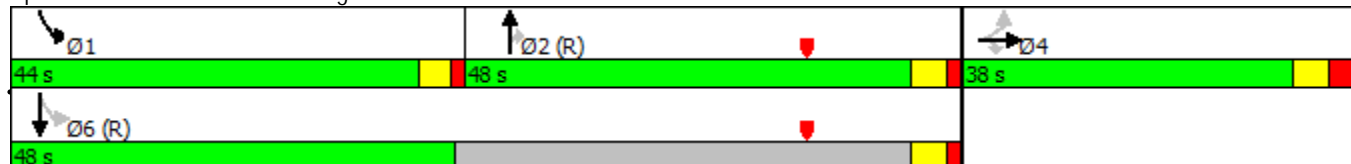


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	44.0	48.0	
Total Split (%)	29.2%	29.2%	29.2%					36.9%	36.9%	33.8%	36.9%	
Maximum Green (s)	32.0	32.0	32.0					43.0	43.0	39.5	43.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	27.0	27.0						74.9	74.9	92.5	92.0	
Actuated g/C Ratio	0.21	0.21						0.58	0.58	0.71	0.71	
v/c Ratio	0.71	0.70						0.24	0.21	0.54	0.38	
Control Delay	59.7	53.2						29.5	19.4	14.7	15.7	
Queue Delay	0.0	0.0						0.0	0.0	0.1	1.2	
Total Delay	59.7	53.2						29.5	19.4	14.9	16.9	
LOS	E	D						C	B	B	B	
Approach Delay		55.3						27.6			16.2	
Approach LOS		E						C			B	
Stops (vph)	217	446						654	157	244	568	
Fuel Used(gal)	5	9						16	3	4	8	
CO Emissions (g/hr)	320	616						1122	231	275	585	
NOx Emissions (g/hr)	62	120						218	45	54	114	
VOC Emissions (g/hr)	74	143						260	53	64	136	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 28.8
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Future Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1610	3333	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.983		0.158					
Satd. Flow (perm)	0	0	0	1610	3333	1583	571	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						169						263
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	0	0	165	343	420	452	912	0	0	1300	352
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4			1	6			2
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1630-1645
TOD Plan 3

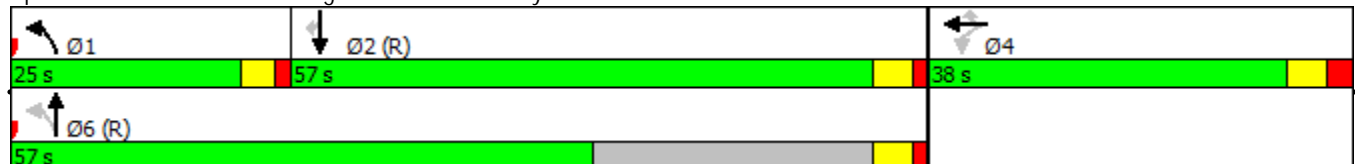


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				38.0	38.0	38.0	25.0	57.0			57.0	57.0
Total Split (%)				31.7%	31.7%	31.7%	20.8%	47.5%			47.5%	47.5%
Maximum Green (s)				32.0	32.0	32.0	20.5	52.0			52.0	52.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				18.9	18.9	18.9	90.6	90.1			74.3	74.3
Actuated g/C Ratio				0.16	0.16	0.16	0.76	0.75			0.62	0.62
v/c Ratio				0.65	0.65	1.07	0.65	0.34			0.33	0.33
Control Delay				59.0	53.0	94.9	22.6	4.6			20.9	13.5
Queue Delay				0.0	0.0	0.0	0.3	0.7			0.0	0.0
Total Delay				59.0	53.0	94.9	22.9	5.3			20.9	13.5
LOS				E	D	F	C	A			C	B
Approach Delay					73.0			11.1			19.3	
Approach LOS					E			B			B	
Stops (vph)				151	313	236	349	255			750	158
Fuel Used(gal)				3	6	10	5	4			23	5
CO Emissions (g/hr)				221	429	718	350	298			1618	384
NOx Emissions (g/hr)				43	83	140	68	58			315	75
VOC Emissions (g/hr)				51	99	166	81	69			375	89
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 29.1
 Intersection Capacity Utilization 68.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Future Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1610	3377	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.996								0.218		
Satd. Flow (perm)	1610	3377	1583	0	0	0	0	6408	1583	788	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109						82			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		263			111			870			282	
Travel Time (s)		6.0			2.5			19.8			6.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Shared Lane Traffic (%)	13%											
Lane Group Flow (vph)	296	616	456	0	0	0	0	1000	168	480	1116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28			30	
Link Offset(ft)		0			-4			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1630-1645
 TOD Plan 3

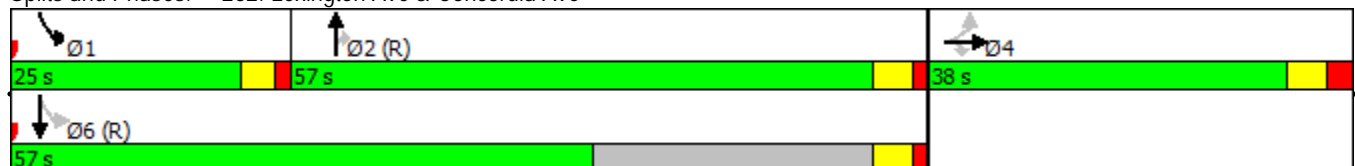


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	38.0	38.0	38.0					57.0	57.0	25.0	57.0	
Total Split (%)	31.7%	31.7%	31.7%					47.5%	47.5%	20.8%	47.5%	
Maximum Green (s)	32.0	32.0	32.0					52.0	52.0	20.5	52.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	30.1	30.1	30.1					62.6	62.6	79.4	78.9	
Actuated g/C Ratio	0.25	0.25	0.25					0.52	0.52	0.66	0.66	
v/c Ratio	0.73	0.73	0.95					0.30	0.19	0.62	0.48	
Control Delay	52.6	46.5	64.5					17.1	9.1	9.8	10.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.3	
Total Delay	52.6	46.5	64.5					17.1	9.1	9.8	10.6	
LOS	D	D	E					B	A	A	B	
Approach Delay		53.8						15.9			10.4	
Approach LOS		D						B			B	
Stops (vph)	266	548	327					548	47	226	630	
Fuel Used(gal)	5	10	9					13	2	3	8	
CO Emissions (g/hr)	367	708	610					929	120	228	579	
NOx Emissions (g/hr)	71	138	119					181	23	44	113	
VOC Emissions (g/hr)	85	164	141					215	28	53	134	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 26.3
 Intersection LOS: C
 Intersection Capacity Utilization 68.3%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Future Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.971			0.968		0.950			0.950		
Satd. Flow (prot)	0	1809	1583	0	1803	1583	1770	3539	1583	1770	3516	0
Flt Permitted		0.701			0.746		0.273			0.244		
Satd. Flow (perm)	0	1300	1521	0	1367	1551	509	3539	1541	455	3516	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			60			88			4
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	120	0	108	60	12	1004	88	48	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1630-1645
TOD Plan 3

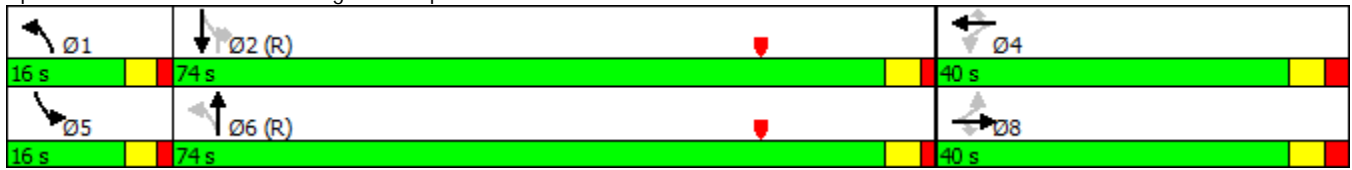


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	16.0	74.0	74.0	16.0	74.0	
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	12.3%	56.9%	56.9%	12.3%	56.9%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	69.0	69.0	11.5	69.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		16.7	16.7		16.7	16.7	99.1	93.0	97.7	101.1	97.7	
Actuated g/C Ratio		0.13	0.13		0.13	0.13	0.76	0.72	0.75	0.78	0.75	
v/c Ratio		0.53	0.40		0.62	0.24	0.03	0.40	0.07	0.11	0.37	
Control Delay		62.5	11.6		67.2	12.8	2.1	5.9	0.7	2.9	3.9	
Queue Delay		0.0	0.0		0.0	0.1	0.0	0.2	0.0	0.0	0.3	
Total Delay		62.5	11.6		67.2	12.9	2.1	6.0	0.7	2.9	4.2	
LOS		E	B		E	B	A	A	A	A	A	
Approach Delay		33.1			47.8			5.6			4.2	
Approach LOS		C			D			A			A	
Stops (vph)		79	17		99	12	1	257	4	7	168	
Fuel Used(gal)		2	1		3	1	0	11	1	0	4	
CO Emissions (g/hr)		138	66		181	38	7	735	51	13	288	
NOx Emissions (g/hr)		27	13		35	7	1	143	10	3	56	
VOC Emissions (g/hr)		32	15		42	9	2	170	12	3	67	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	10 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	10.1
Intersection LOS:	B
Intersection Capacity Utilization:	66.6%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3416
Total Delay / Veh (s/v)	41
Total Delay (hr)	38
Fuel Consumed (gal)	68
Fuel Economy (mpg)	8.6
CO Emissions (kg)	4.74
NOx Emissions (kg)	0.92
VOC Emissions (kg)	1.10

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3608
Total Delay / Veh (s/v)	37
Total Delay (hr)	37
Fuel Consumed (gal)	67
Fuel Economy (mpg)	8.5
CO Emissions (kg)	4.70
NOx Emissions (kg)	0.91
VOC Emissions (kg)	1.09

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3248
Total Delay / Veh (s/v)	25
Total Delay (hr)	23
Fuel Consumed (gal)	44
Fuel Economy (mpg)	9.7
CO Emissions (kg)	3.09
NOx Emissions (kg)	0.60
VOC Emissions (kg)	0.72

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3652
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	46
Fuel Economy (mpg)	8.5
CO Emissions (kg)	3.23
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3268
Total Delay / Veh (s/v)	36
Total Delay (hr)	32
Fuel Consumed (gal)	48
Fuel Economy (mpg)	5.2
CO Emissions (kg)	3.34
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.77

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	29
Total Delay (hr)	26
Fuel Consumed (gal)	45
Fuel Economy (mpg)	7.2
CO Emissions (kg)	3.17
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.73

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3944
Total Delay / Veh (s/v)	29
Total Delay (hr)	32
Fuel Consumed (gal)	58
Fuel Economy (mpg)	9.3
CO Emissions (kg)	4.03
NOx Emissions (kg)	0.78
VOC Emissions (kg)	0.93

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	4132
Total Delay / Veh (s/v)	26
Total Delay (hr)	30
Fuel Consumed (gal)	51
Fuel Economy (mpg)	6.8
CO Emissions (kg)	3.54
NOx Emissions (kg)	0.69
VOC Emissions (kg)	0.82

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2508
Total Delay / Veh (s/v)	10
Total Delay (hr)	7
Fuel Consumed (gal)	22
Fuel Economy (mpg)	14.6
CO Emissions (kg)	1.52
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.35

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	29
Total Delay (hr)	251
Fuel Consumed (gal)	449
Fuel Economy (mpg)	8.4
CO Emissions (kg)	31.36
NOx Emissions (kg)	6.10
VOC Emissions (kg)	7.27
Performance Index	306.0

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Future Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.970			0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3493	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.114			0.241		
Satd. Flow (perm)	1770	3433	0	1770	3493	0	212	3539	1583	449	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			8				118			118
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		624			899			1330			681	
Travel Time (s)		14.2			20.4			30.2			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	656	0	104	284	0	120	856	132	36	1024	32
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1645-1700
TOD Plan 3

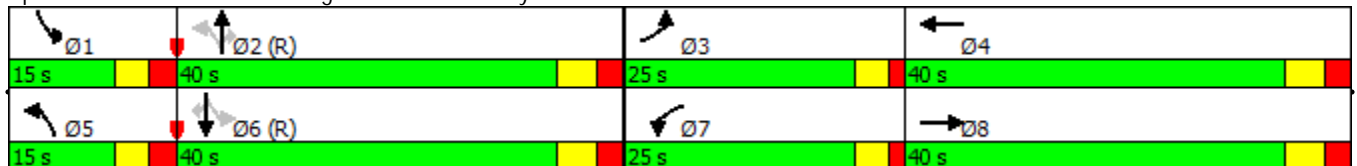


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	25.0	40.0		25.0	40.0		15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	20.8%	33.3%		20.8%	33.3%		12.5%	33.3%	33.3%	12.5%	33.3%	33.3%
Maximum Green (s)	20.5	34.0		20.5	34.0		9.5	34.0	34.0	9.5	34.0	34.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	16.4	30.2		12.4	26.2		59.6	53.0	53.0	54.2	46.3	46.3
Actuated g/C Ratio	0.14	0.25		0.10	0.22		0.50	0.44	0.44	0.45	0.39	0.39
v/c Ratio	0.71	0.74		0.57	0.37		0.54	0.55	0.17	0.13	0.75	0.05
Control Delay	65.4	44.7		63.0	39.2		34.4	40.1	17.1	19.2	38.0	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	44.7		63.0	39.2		34.4	40.1	17.1	19.2	38.0	0.1
LOS	E	D		E	D		C	D	B	B	D	A
Approach Delay		49.0			45.6			36.8			36.3	
Approach LOS		D			D			D			D	
Stops (vph)	162	562		97	226		90	725	108	22	812	0
Fuel Used(gal)	4	12		3	6		3	20	2	0	18	0
CO Emissions (g/hr)	281	857		182	385		180	1389	170	32	1247	12
NOx Emissions (g/hr)	55	167		35	75		35	270	33	6	243	2
VOC Emissions (g/hr)	65	199		42	89		42	322	39	7	289	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 40.6
 Intersection LOS: D
 Intersection Capacity Utilization 77.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Future Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.336			0.373			0.068			0.195		
Satd. Flow (perm)	626	1863	1583	695	1863	1583	127	3539	1583	363	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			101			101
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	16.0	36.0	36.0	16.0	36.0	36.0	13.0	65.0	65.0	13.0	65.0	65.0
Total Split (%)	12.3%	27.7%	27.7%	12.3%	27.7%	27.7%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	11.5	30.0	30.0	11.5	30.0	30.0	8.5	59.5	59.5	8.5	59.5	59.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	45.7	35.0	35.0	40.6	30.2	30.2	69.7	62.8	62.8	71.0	65.2	65.2
Actuated g/C Ratio	0.35	0.27	0.27	0.31	0.23	0.23	0.54	0.48	0.48	0.55	0.50	0.50
v/c Ratio	0.56	0.64	0.12	0.19	0.62	0.20	0.20	0.55	0.09	0.14	0.79	0.18
Control Delay	37.3	50.1	2.4	29.0	52.0	7.4	24.4	34.5	7.8	13.4	40.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	50.1	2.4	29.0	52.0	7.4	24.4	34.5	7.8	13.4	40.5	12.2
LOS	D	D	A	C	D	A	C	C	A	B	D	B
Approach Delay		40.9			39.4			32.3			37.1	
Approach LOS		D			D			C			D	
Stops (vph)	130	281	2	37	238	12	17	696	18	25	1314	99
Fuel Used(gal)	3	7	0	1	6	1	0	16	1	1	30	2
CO Emissions (g/hr)	230	493	25	61	412	45	30	1084	42	40	2092	149
NOx Emissions (g/hr)	45	96	5	12	80	9	6	211	8	8	407	29
VOC Emissions (g/hr)	53	114	6	14	96	10	7	251	10	9	485	35
Dilemma Vehicles (#)	0	12	0	0	10	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 36.6
 Intersection LOS: D
 Intersection Capacity Utilization 76.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Future Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.911			0.989			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1833	0	1770	1697	0	1770	3500	0	1770	3504	0
Flt Permitted	0.222			0.322			0.236			0.249		
Satd. Flow (perm)	414	1833	0	600	1697	0	440	3500	0	464	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			54			8			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	304	0	32	364	0	28	788	0	468	1196	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1645-1700
TOD Plan 3

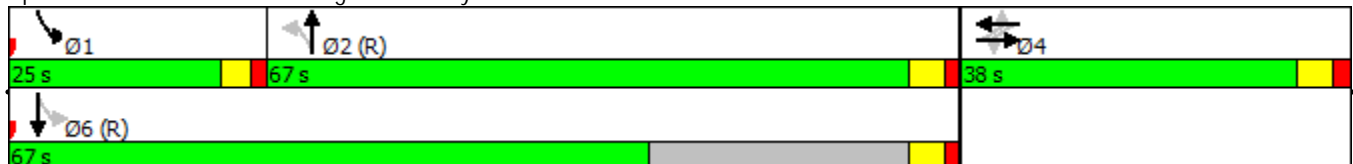


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	38.0	38.0		38.0	38.0		67.0	67.0		25.0	67.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%		51.5%	51.5%		19.2%	51.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		62.0	62.0		20.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	32.5	32.5		32.5	32.5		62.4	62.4		87.5	87.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.48	0.48		0.67	0.67	
v/c Ratio	0.66	0.66		0.21	0.78		0.13	0.47		0.91	0.51	
Control Delay	75.1	51.1		43.2	51.7		21.2	23.6		39.9	2.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.5	
Total Delay	75.1	51.1		43.2	51.7		21.2	23.6		39.9	3.3	
LOS	E	D		D	D		C	C		D	A	
Approach Delay		55.5			51.0			23.6			13.6	
Approach LOS		E			D			C			B	
Stops (vph)	59	267		27	286		16	507		342	252	
Fuel Used(gal)	2	6		1	8		0	10		8	8	
CO Emissions (g/hr)	120	433		47	572		24	718		572	591	
NOx Emissions (g/hr)	23	84		9	111		5	140		111	115	
VOC Emissions (g/hr)	28	100		11	133		6	166		133	137	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 70 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 25.5
 Intersection LOS: C
 Intersection Capacity Utilization 96.1%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Traffic Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Future Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.990		0.950					
Satd. Flow (prot)	0	0	0	1610	3356	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.990		0.174					
Satd. Flow (perm)	0	0	0	1610	3356	1583	629	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						273						152
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Shared Lane Traffic (%)				29%								
Lane Group Flow (vph)	0	0	0	187	393	300	620	728	0	0	1148	276
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1645-1700
TOD Plan 3

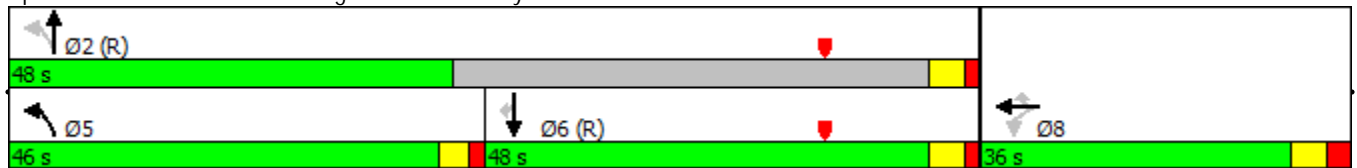


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				36.0	36.0	36.0	46.0	48.0			48.0	48.0
Total Split (%)				27.7%	27.7%	27.7%	35.4%	36.9%			36.9%	36.9%
Maximum Green (s)				30.0	30.0	30.0	41.5	43.0			43.0	43.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				30.0	30.0	30.0	89.5	89.0			65.2	65.2
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.68			0.50	0.50
v/c Ratio				0.50	0.51	0.52	0.73	0.30			0.36	0.32
Control Delay				49.1	46.3	10.3	30.9	18.8			20.4	10.7
Queue Delay				0.0	0.0	0.0	0.2	2.0			0.0	0.0
Total Delay				49.1	46.3	10.3	31.1	20.9			20.4	10.7
LOS				D	D	B	C	C			C	B
Approach Delay					34.6			25.6			18.5	
Approach LOS					C			C			B	
Stops (vph)				161	334	45	452	370			613	114
Fuel Used(gal)				3	6	2	8	6			17	3
CO Emissions (g/hr)				220	445	105	545	453			1201	238
NOx Emissions (g/hr)				43	87	20	106	88			234	46
VOC Emissions (g/hr)				51	103	24	126	105			278	55
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 11 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 25.0
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

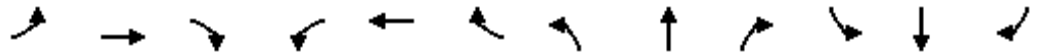
1645-1700
 TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Future Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.92	0.98		0.96	0.96		0.99		0.96	1.00		0.92
Frt		0.968			0.961				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3351	0	1770	3274	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.192			0.161		
Satd. Flow (perm)	1621	3351	0	1695	3274	0	353	3539	1523	298	3539	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			36				101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	568	0	124	336	0	108	884	96	132	840	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1645-1700
TOD Plan 3

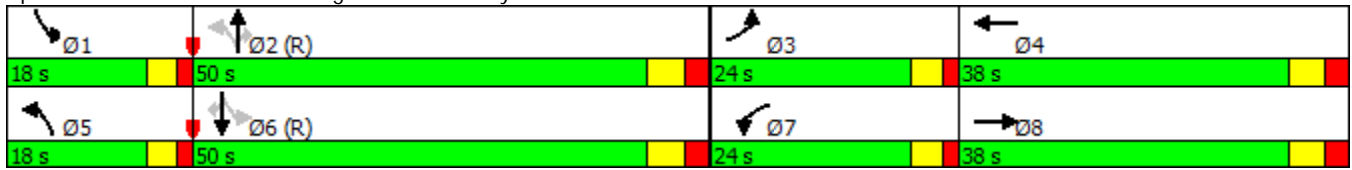


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	24.0	38.0		24.0	38.0		18.0	50.0	50.0	18.0	50.0	50.0
Total Split (%)	18.5%	29.2%		18.5%	29.2%		13.8%	38.5%	38.5%	13.8%	38.5%	38.5%
Maximum Green (s)	19.5	32.0		19.5	32.0		13.5	44.0	44.0	13.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	14.3	37.2		14.3	37.2		58.2	46.8	46.8	59.8	47.6	47.6
Actuated g/C Ratio	0.11	0.29		0.11	0.29		0.45	0.36	0.36	0.46	0.37	0.37
v/c Ratio	0.64	0.58		0.64	0.35		0.41	0.69	0.16	0.51	0.65	0.09
Control Delay	69.5	41.5		69.5	34.7		15.3	28.5	4.5	25.9	37.4	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	2.0	0.0	0.0	0.0	0.0
Total Delay	69.5	41.5		69.5	34.7		15.3	30.5	4.5	25.9	37.4	0.8
LOS	E	D		E	C		B	C	A	C	D	A
Approach Delay		46.5			44.1			26.7			34.0	
Approach LOS		D			D			C			C	
Stops (vph)	116	459		116	235		49	726	33	73	685	1
Fuel Used(gal)	3	9		3	4		1	11	1	2	14	0
CO Emissions (g/hr)	190	615		178	285		61	791	35	124	1013	21
NOx Emissions (g/hr)	37	120		35	55		12	154	7	24	197	4
VOC Emissions (g/hr)	44	143		41	66		14	183	8	29	235	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 35.6
 Intersection LOS: D
 Intersection Capacity Utilization 80.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Future Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.260		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	940	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									162			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		260			284			1025				289
Travel Time (s)		5.9			6.5			23.3				6.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	238	494	0	0	0	0	0	888	204	492	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				32
Link Offset(ft)		0			18			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1645-1700
TOD Plan 3

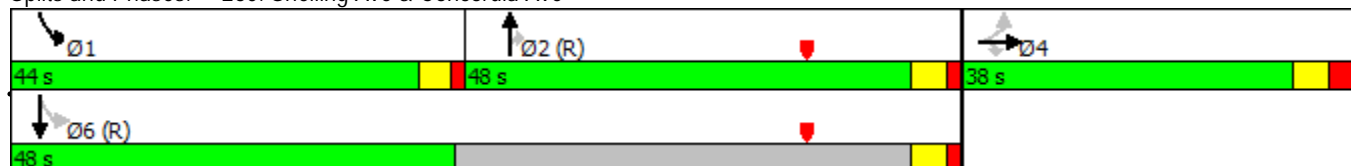


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	44.0	48.0	
Total Split (%)	29.2%	29.2%	29.2%					36.9%	36.9%	33.8%	36.9%	
Maximum Green (s)	32.0	32.0	32.0					43.0	43.0	39.5	43.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	27.0	27.0						74.9	74.9	92.5	92.0	
Actuated g/C Ratio	0.21	0.21						0.58	0.58	0.71	0.71	
v/c Ratio	0.71	0.70						0.24	0.21	0.54	0.38	
Control Delay	59.7	53.2						29.5	19.4	14.7	15.7	
Queue Delay	0.0	0.0						0.0	0.0	0.1	1.2	
Total Delay	59.7	53.2						29.5	19.4	14.9	16.9	
LOS	E	D						C	B	B	B	
Approach Delay		55.3						27.6			16.2	
Approach LOS		E						C			B	
Stops (vph)	217	446						654	157	244	568	
Fuel Used(gal)	5	9						16	3	4	8	
CO Emissions (g/hr)	320	616						1122	231	275	585	
NOx Emissions (g/hr)	62	120						218	45	54	114	
VOC Emissions (g/hr)	74	143						260	53	64	136	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 28.8
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Future Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1610	3333	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.983		0.158					
Satd. Flow (perm)	0	0	0	1610	3333	1583	571	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						169						263
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		166			263			282			1330	
Travel Time (s)		3.8			6.0			6.4			30.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	0	0	165	343	420	452	912	0	0	1300	352
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30			24	
Link Offset(ft)		-8			4			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1645-1700
TOD Plan 3

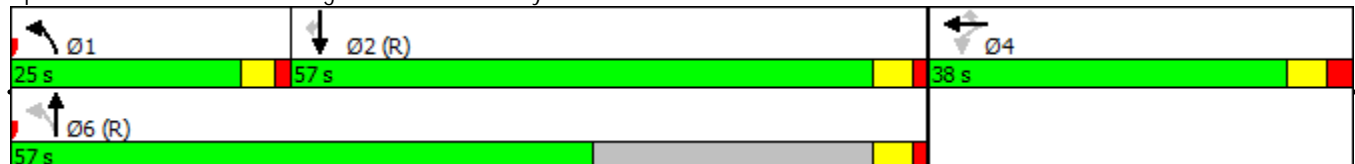


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				38.0	38.0	38.0	25.0	57.0			57.0	57.0
Total Split (%)				31.7%	31.7%	31.7%	20.8%	47.5%			47.5%	47.5%
Maximum Green (s)				32.0	32.0	32.0	20.5	52.0			52.0	52.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				18.9	18.9	18.9	90.6	90.1			74.3	74.3
Actuated g/C Ratio				0.16	0.16	0.16	0.76	0.75			0.62	0.62
v/c Ratio				0.65	0.65	1.07	0.65	0.34			0.33	0.33
Control Delay				59.0	53.0	94.9	22.6	4.6			20.9	13.5
Queue Delay				0.0	0.0	0.0	0.3	0.7			0.0	0.0
Total Delay				59.0	53.0	94.9	22.9	5.3			20.9	13.5
LOS				E	D	F	C	A			C	B
Approach Delay					73.0			11.1			19.3	
Approach LOS					E			B			B	
Stops (vph)				151	313	236	349	255			750	158
Fuel Used(gal)				3	6	10	5	4			23	5
CO Emissions (g/hr)				221	429	718	350	298			1618	384
NOx Emissions (g/hr)				43	83	140	68	58			315	75
VOC Emissions (g/hr)				51	99	166	81	69			375	89
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 29.1
 Intersection Capacity Utilization 68.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Future Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1610	3377	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.996								0.218		
Satd. Flow (perm)	1610	3377	1583	0	0	0	0	6408	1583	788	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109						82			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Shared Lane Traffic (%)	13%											
Lane Group Flow (vph)	296	616	456	0	0	0	0	1000	168	480	1116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1645-1700
TOD Plan 3

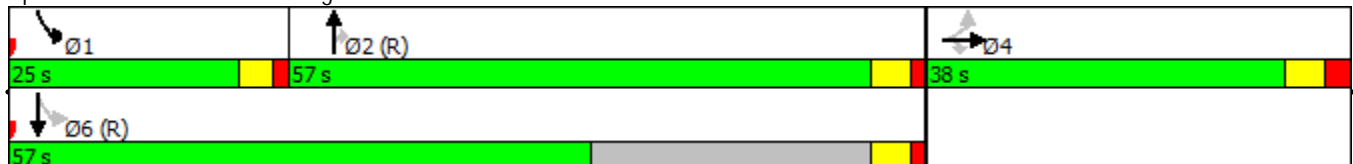


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	38.0	38.0	38.0					57.0	57.0	25.0	57.0	
Total Split (%)	31.7%	31.7%	31.7%					47.5%	47.5%	20.8%	47.5%	
Maximum Green (s)	32.0	32.0	32.0					52.0	52.0	20.5	52.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	30.1	30.1	30.1					62.6	62.6	79.4	78.9	
Actuated g/C Ratio	0.25	0.25	0.25					0.52	0.52	0.66	0.66	
v/c Ratio	0.73	0.73	0.95					0.30	0.19	0.62	0.48	
Control Delay	52.6	46.5	64.5					17.1	9.1	9.8	10.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.3	
Total Delay	52.6	46.5	64.5					17.1	9.1	9.8	10.6	
LOS	D	D	E					B	A	A	B	
Approach Delay		53.8						15.9			10.4	
Approach LOS		D						B			B	
Stops (vph)	266	548	327					548	47	226	630	
Fuel Used(gal)	5	10	9					13	2	3	8	
CO Emissions (g/hr)	367	708	610					929	120	228	579	
NOx Emissions (g/hr)	71	138	119					181	23	44	113	
VOC Emissions (g/hr)	85	164	141					215	28	53	134	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 26.3
 Intersection Capacity Utilization 68.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Future Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.971			0.968		0.950			0.950		
Satd. Flow (prot)	0	1809	1583	0	1803	1583	1770	3539	1583	1770	3516	0
Flt Permitted		0.701			0.746		0.273			0.244		
Satd. Flow (perm)	0	1300	1521	0	1367	1551	509	3539	1541	455	3516	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			60			88			4
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	120	0	108	60	12	1004	88	48	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1645-1700
TOD Plan 3

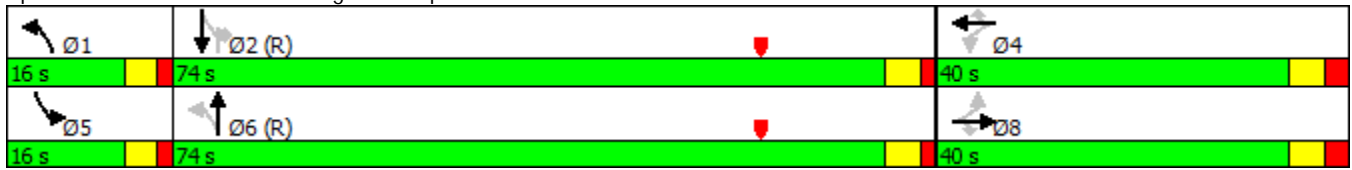


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	16.0	74.0	74.0	16.0	74.0	
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	12.3%	56.9%	56.9%	12.3%	56.9%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	69.0	69.0	11.5	69.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effct Green (s)		16.7	16.7		16.7	16.7	99.1	93.0	97.7	101.1	97.7	
Actuated g/C Ratio		0.13	0.13		0.13	0.13	0.76	0.72	0.75	0.78	0.75	
v/c Ratio		0.53	0.40		0.62	0.24	0.03	0.40	0.07	0.11	0.37	
Control Delay		62.5	11.6		67.2	12.8	2.1	5.9	0.7	2.9	3.9	
Queue Delay		0.0	0.0		0.0	0.1	0.0	0.2	0.0	0.0	0.3	
Total Delay		62.5	11.6		67.2	12.9	2.1	6.0	0.7	2.9	4.2	
LOS		E	B		E	B	A	A	A	A	A	
Approach Delay		33.1			47.8			5.6			4.2	
Approach LOS		C			D			A			A	
Stops (vph)		79	17		99	12	1	257	4	7	168	
Fuel Used(gal)		2	1		3	1	0	11	1	0	4	
CO Emissions (g/hr)		138	66		181	38	7	735	51	13	288	
NOx Emissions (g/hr)		27	13		35	7	1	143	10	3	56	
VOC Emissions (g/hr)		32	15		42	9	2	170	12	3	67	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	10 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	10.1
Intersection LOS:	B
Intersection Capacity Utilization	66.6%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3416
Total Delay / Veh (s/v)	41
Total Delay (hr)	38
Fuel Consumed (gal)	68
Fuel Economy (mpg)	8.6
CO Emissions (kg)	4.74
NOx Emissions (kg)	0.92
VOC Emissions (kg)	1.10

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3608
Total Delay / Veh (s/v)	37
Total Delay (hr)	37
Fuel Consumed (gal)	67
Fuel Economy (mpg)	8.5
CO Emissions (kg)	4.70
NOx Emissions (kg)	0.91
VOC Emissions (kg)	1.09

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3248
Total Delay / Veh (s/v)	25
Total Delay (hr)	23
Fuel Consumed (gal)	44
Fuel Economy (mpg)	9.7
CO Emissions (kg)	3.09
NOx Emissions (kg)	0.60
VOC Emissions (kg)	0.72

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3652
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	46
Fuel Economy (mpg)	8.5
CO Emissions (kg)	3.23
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3268
Total Delay / Veh (s/v)	36
Total Delay (hr)	32
Fuel Consumed (gal)	48
Fuel Economy (mpg)	5.2
CO Emissions (kg)	3.34
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.77

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	29
Total Delay (hr)	26
Fuel Consumed (gal)	45
Fuel Economy (mpg)	7.2
CO Emissions (kg)	3.17
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.73

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3944
Total Delay / Veh (s/v)	29
Total Delay (hr)	32
Fuel Consumed (gal)	58
Fuel Economy (mpg)	9.3
CO Emissions (kg)	4.03
NOx Emissions (kg)	0.78
VOC Emissions (kg)	0.93

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	4132
Total Delay / Veh (s/v)	26
Total Delay (hr)	30
Fuel Consumed (gal)	51
Fuel Economy (mpg)	6.8
CO Emissions (kg)	3.54
NOx Emissions (kg)	0.69
VOC Emissions (kg)	0.82

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2508
Total Delay / Veh (s/v)	10
Total Delay (hr)	7
Fuel Consumed (gal)	22
Fuel Economy (mpg)	14.6
CO Emissions (kg)	1.52
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.35

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	29
Total Delay (hr)	251
Fuel Consumed (gal)	449
Fuel Economy (mpg)	8.4
CO Emissions (kg)	31.36
NOx Emissions (kg)	6.10
VOC Emissions (kg)	7.27
Performance Index	306.0

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Future Volume (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.976			0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3454	0	1770	3497	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.128			0.178		
Satd. Flow (perm)	1770	3454	0	1770	3497	0	238	3539	1583	332	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			7				118			118
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		624			899			1330			681	
Travel Time (s)		14.2			20.4			30.2			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	784	0	192	308	0	80	852	76	40	932	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1700-1715
TOD Plan 3

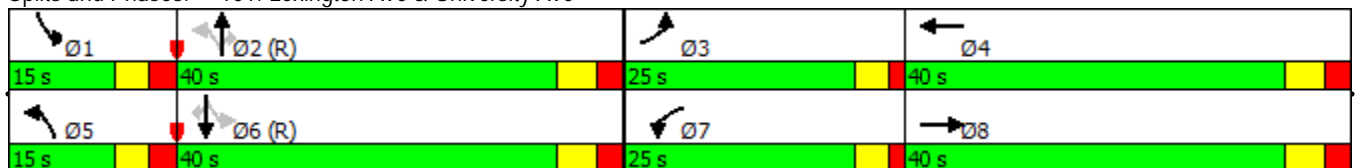


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	25.0	40.0		25.0	40.0		15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	20.8%	33.3%		20.8%	33.3%		12.5%	33.3%	33.3%	12.5%	33.3%	33.3%
Maximum Green (s)	20.5	34.0		20.5	34.0		9.5	34.0	34.0	9.5	34.0	34.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	17.4	32.6		17.3	32.5		50.6	43.0	43.0	48.8	42.2	42.2
Actuated g/C Ratio	0.14	0.27		0.14	0.27		0.42	0.36	0.36	0.41	0.35	0.35
v/c Ratio	0.76	0.82		0.75	0.32		0.39	0.67	0.12	0.18	0.75	0.09
Control Delay	68.1	48.0		67.5	34.8		32.6	46.4	8.0	22.9	41.2	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	48.0		67.5	34.8		32.6	46.4	8.0	22.9	41.2	0.3
LOS	E	D		E	C		C	D	A	C	D	A
Approach Delay		52.0			47.4			42.5			38.2	
Approach LOS		D			D			D			D	
Stops (vph)	185	703		181	232		55	744	27	24	777	0
Fuel Used(gal)	5	15		5	6		2	21	1	1	17	0
CO Emissions (g/hr)	328	1074		348	393		116	1468	74	37	1192	21
NOx Emissions (g/hr)	64	209		68	76		23	286	14	7	232	4
VOC Emissions (g/hr)	76	249		81	91		27	340	17	9	276	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 44.6
 Intersection LOS: D
 Intersection Capacity Utilization 82.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Future Volume (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.270			0.360			0.065			0.175		
Satd. Flow (perm)	503	1863	1583	671	1863	1583	121	3539	1583	326	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			101			101
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1700-1715
TOD Plan 3

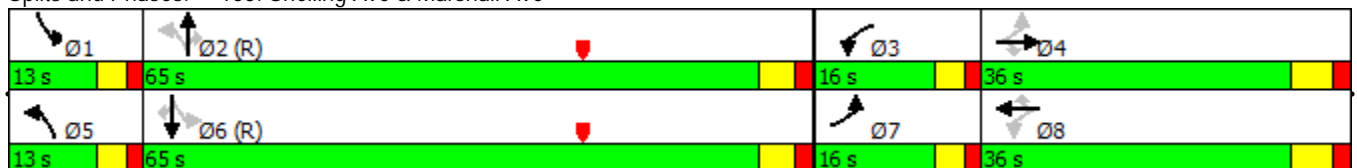


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	16.0	36.0	36.0	16.0	36.0	36.0	13.0	65.0	65.0	13.0	65.0	65.0
Total Split (%)	12.3%	27.7%	27.7%	12.3%	27.7%	27.7%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	11.5	30.0	30.0	11.5	30.0	30.0	8.5	59.5	59.5	8.5	59.5	59.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	43.8	31.2	31.2	42.2	30.4	30.4	69.5	62.6	62.6	71.2	65.3	65.3
Actuated g/C Ratio	0.34	0.24	0.24	0.32	0.23	0.23	0.53	0.48	0.48	0.55	0.50	0.50
v/c Ratio	0.56	0.64	0.13	0.34	0.74	0.21	0.18	0.59	0.08	0.20	0.82	0.15
Control Delay	37.5	52.1	2.5	31.3	57.5	8.1	24.5	35.0	7.9	14.0	40.5	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	52.1	2.5	31.3	57.5	8.1	24.5	35.0	7.9	14.0	40.5	10.4
LOS	D	D	A	C	E	A	C	C	A	B	D	B
Approach Delay		41.6			43.4			33.0			37.3	
Approach LOS		D			D			C			D	
Stops (vph)	110	254	2	71	291	13	17	707	15	31	1357	67
Fuel Used(gal)	3	6	0	2	7	1	0	16	1	1	31	2
CO Emissions (g/hr)	198	448	25	118	521	48	27	1147	39	51	2172	116
NOx Emissions (g/hr)	39	87	5	23	101	9	5	223	8	10	423	23
VOC Emissions (g/hr)	46	104	6	27	121	11	6	266	9	12	503	27
Dilemma Vehicles (#)	0	11	0	0	12	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 37.5
 Intersection LOS: D
 Intersection Capacity Utilization 82.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Future Volume (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.976			0.910			0.996			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1818	0	1770	1695	0	1770	3525	0	1770	3504	0
Flt Permitted	0.262			0.236			0.285			0.250		
Satd. Flow (perm)	488	1818	0	440	1695	0	531	3525	0	466	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			55			3			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	356	0	64	340	0	24	792	0	432	1004	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1700-1715
TOD Plan 3

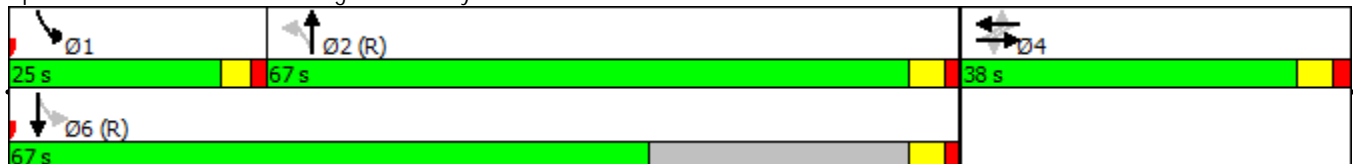


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	38.0	38.0		38.0	38.0		67.0	67.0		25.0	67.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%		51.5%	51.5%		19.2%	51.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		62.0	62.0		20.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	32.5	32.5		32.5	32.5		63.3	63.3		87.5	87.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.49	0.49		0.67	0.67	
v/c Ratio	0.36	0.78		0.58	0.73		0.09	0.46		0.85	0.43	
Control Delay	50.4	57.2		66.0	47.7		19.9	23.3		31.8	1.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	50.4	57.2		66.0	47.7		19.9	23.3		31.8	1.6	
LOS	D	E		E	D		B	C		C	A	
Approach Delay		56.5			50.6			23.2			10.7	
Approach LOS		E			D			C			B	
Stops (vph)	37	316		56	266		14	507		272	112	
Fuel Used(gal)	1	8		2	7		0	10		7	6	
CO Emissions (g/hr)	62	539		116	515		20	716		462	441	
NOx Emissions (g/hr)	12	105		23	100		4	139		90	86	
VOC Emissions (g/hr)	14	125		27	119		5	166		107	102	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 70 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 25.3
 Intersection LOS: C
 Intersection Capacity Utilization 92.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Future Volume (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.991		0.950					
Satd. Flow (prot)	0	0	0	1610	3360	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.991		0.224					
Satd. Flow (perm)	0	0	0	1610	3360	1583	809	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						232						198
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Shared Lane Traffic (%)				27%								
Lane Group Flow (vph)	0	0	0	219	457	356	460	812	0	0	996	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1700-1715
TOD Plan 3

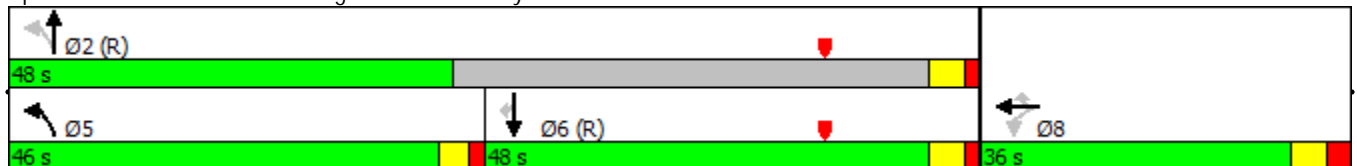


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				36.0	36.0	36.0	46.0	48.0			48.0	48.0
Total Split (%)				27.7%	27.7%	27.7%	35.4%	36.9%			36.9%	36.9%
Maximum Green (s)				30.0	30.0	30.0	41.5	43.0			43.0	43.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				30.0	30.0	30.0	89.5	89.0			72.2	72.2
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.68			0.56	0.56
v/c Ratio				0.59	0.59	0.66	0.57	0.34			0.28	0.23
Control Delay				52.0	48.2	21.7	26.5	21.1			15.9	5.7
Queue Delay				0.0	0.0	0.0	0.1	2.3			0.0	0.0
Total Delay				52.0	48.2	21.7	26.6	23.4			15.9	5.7
LOS				D	D	C	C	C			B	A
Approach Delay					39.9			24.6			14.0	
Approach LOS					D			C			B	
Stops (vph)				193	399	122	287	427			400	47
Fuel Used(gal)				4	8	3	5	8			13	2
CO Emissions (g/hr)				269	534	209	357	536			927	157
NOx Emissions (g/hr)				52	104	41	69	104			180	31
VOC Emissions (g/hr)				62	124	48	83	124			215	36
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 11 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 25.4
 Intersection LOS: C
 Intersection Capacity Utilization 54.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Future Volume (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.93	0.99		0.95	0.96		0.99		0.96			0.92
Frt		0.979			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3414	0	1770	3241	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.204			0.084		
Satd. Flow (perm)	1638	3414	0	1681	3241	0	375	3539	1523	156	3539	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			47				101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	448	0	112	420	0	104	1040	108	184	836	24
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1700-1715
TOD Plan 3

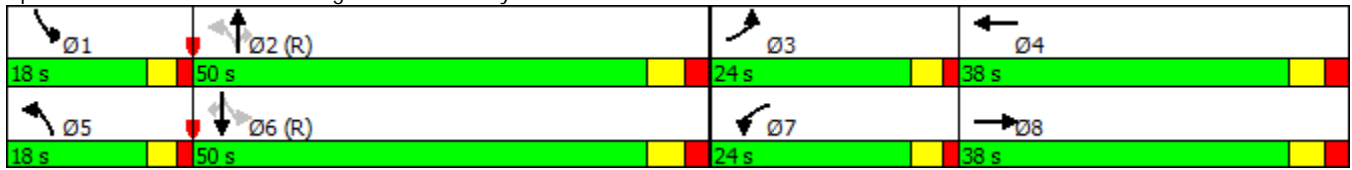


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	24.0	38.0		24.0	38.0		18.0	50.0	50.0	18.0	50.0	50.0
Total Split (%)	18.5%	29.2%		18.5%	29.2%		13.8%	38.5%	38.5%	13.8%	38.5%	38.5%
Maximum Green (s)	19.5	32.0		19.5	32.0		13.5	44.0	44.0	13.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	14.9	38.0		13.5	36.6		56.2	45.0	45.0	61.8	47.8	47.8
Actuated g/C Ratio	0.11	0.29		0.10	0.28		0.43	0.35	0.35	0.48	0.37	0.37
v/c Ratio	0.67	0.44		0.61	0.44		0.39	0.85	0.18	0.80	0.64	0.04
Control Delay	70.8	38.6		69.2	36.3		14.1	36.2	6.1	54.5	37.2	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	6.0	0.0	0.0	0.0	0.0
Total Delay	70.8	38.6		69.2	36.3		14.1	42.1	6.1	54.5	37.2	0.1
LOS	E	D		E	D		B	D	A	D	D	A
Approach Delay		46.1			43.3			36.7			39.4	
Approach LOS		D			D			D			D	
Stops (vph)	127	348		105	303		48	934	51	117	678	0
Fuel Used(gal)	3	7		2	5		1	15	1	4	14	0
CO Emissions (g/hr)	211	461		160	369		57	1075	48	254	1003	9
NOx Emissions (g/hr)	41	90		31	72		11	209	9	49	195	2
VOC Emissions (g/hr)	49	107		37	86		13	249	11	59	233	2
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	40.2
Intersection LOS:	D
Intersection Capacity Utilization:	87.3%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Future Volume (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.241		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	871	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									164			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		260			284			1025				289
Travel Time (s)		5.9			6.5			23.3				6.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	216	476	0	0	0	0	0	952	232	488	1040	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				32
Link Offset(ft)		0			18			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1700-1715
TOD Plan 3

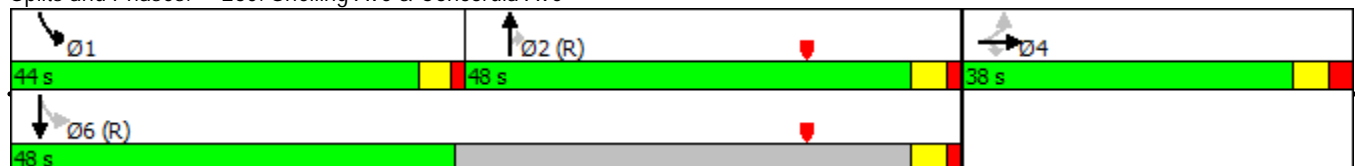


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	44.0	48.0	
Total Split (%)	29.2%	29.2%	29.2%					36.9%	36.9%	33.8%	36.9%	
Maximum Green (s)	32.0	32.0	32.0					43.0	43.0	39.5	43.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	25.8	25.8						76.3	76.3	93.7	93.2	
Actuated g/C Ratio	0.20	0.20						0.59	0.59	0.72	0.72	
v/c Ratio	0.68	0.71						0.25	0.23	0.56	0.41	
Control Delay	58.6	54.3						28.9	20.4	15.5	15.2	
Queue Delay	0.0	0.0						0.0	0.0	0.1	1.7	
Total Delay	58.6	54.3						28.9	20.4	15.6	16.9	
LOS	E	D						C	C	B	B	
Approach Delay		55.6						27.3			16.5	
Approach LOS		E						C			B	
Stops (vph)	195	431						715	202	207	500	
Fuel Used(gal)	4	9						17	4	4	8	
CO Emissions (g/hr)	286	602						1200	275	265	582	
NOx Emissions (g/hr)	56	117						233	54	51	113	
VOC Emissions (g/hr)	66	139						278	64	61	135	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 28.2
 Intersection LOS: C
 Intersection Capacity Utilization 54.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Future Volume (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.987		0.950					
Satd. Flow (prot)	0	0	0	1610	3346	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.987		0.176					
Satd. Flow (perm)	0	0	0	1610	3346	1583	636	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						214						161
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Shared Lane Traffic (%)				36%								
Lane Group Flow (vph)	0	0	0	243	501	400	420	800	0	0	1188	324
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4			1	6		2	
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1700-1715
TOD Plan 3

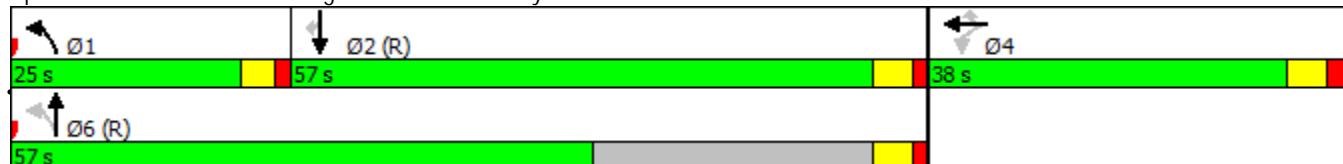


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				38.0	38.0	38.0	25.0	57.0			57.0	57.0
Total Split (%)				31.7%	31.7%	31.7%	20.8%	47.5%			47.5%	47.5%
Maximum Green (s)				32.0	32.0	32.0	20.5	52.0			52.0	52.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				25.5	25.5	25.5	84.0	83.5			68.3	68.3
Actuated g/C Ratio				0.21	0.21	0.21	0.70	0.70			0.57	0.57
v/c Ratio				0.71	0.71	0.79	0.60	0.32			0.33	0.33
Control Delay				55.2	49.1	32.0	21.1	6.1			27.6	21.8
Queue Delay				0.0	0.0	0.0	0.2	0.8			0.0	0.0
Total Delay				55.2	49.1	32.0	21.3	6.9			27.6	21.8
LOS				E	D	C	C	A			C	C
Approach Delay					44.4			11.8			26.3	
Approach LOS					D			B			C	
Stops (vph)				220	449	189	289	255			832	308
Fuel Used(gal)				4	9	4	4	4			24	6
CO Emissions (g/hr)				311	595	313	302	291			1649	454
NOx Emissions (g/hr)				60	116	61	59	57			321	88
VOC Emissions (g/hr)				72	138	72	70	67			382	105
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 27.1
 Intersection Capacity Utilization 90.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Future Volume (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.270		
Satd. Flow (perm)	1610	3383	1583	0	0	0	0	6408	1583	976	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89						112			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	263	581	408	0	0	0	0	844	164	420	1208	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1700-1715
 TOD Plan 3

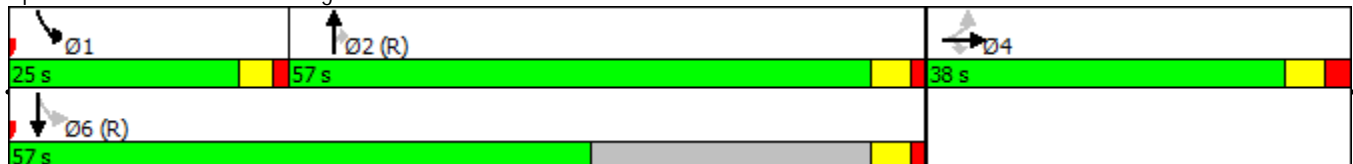


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	38.0	38.0	38.0					57.0	57.0	25.0	57.0	
Total Split (%)	31.7%	31.7%	31.7%					47.5%	47.5%	20.8%	47.5%	
Maximum Green (s)	32.0	32.0	32.0					52.0	52.0	20.5	52.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	29.4	29.4	29.4					64.5	64.5	80.1	79.6	
Actuated g/C Ratio	0.24	0.24	0.24					0.54	0.54	0.67	0.66	
v/c Ratio	0.67	0.70	0.90					0.25	0.18	0.48	0.51	
Control Delay	49.5	46.0	57.4					15.6	6.2	6.6	10.7	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.3	
Total Delay	49.5	46.0	57.4					15.6	6.2	6.7	11.0	
LOS	D	D	E					B	A	A	B	
Approach Delay		50.5						14.1			9.9	
Approach LOS		D						B			A	
Stops (vph)	233	516	302					436	31	174	753	
Fuel Used(gal)	4	9	7					11	1	2	9	
CO Emissions (g/hr)	313	663	509					757	104	171	661	
NOx Emissions (g/hr)	61	129	99					147	20	33	129	
VOC Emissions (g/hr)	73	154	118					175	24	40	153	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 24.1
 Intersection Capacity Utilization 90.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↗	
Traffic Volume (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Future Volume (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.996	
Flt Protected		0.968			0.967		0.950			0.950		
Satd. Flow (prot)	0	1803	1583	0	1801	1583	1770	3539	1583	1770	3524	0
Flt Permitted		0.739			0.772		0.253			0.226		
Satd. Flow (perm)	0	1370	1521	0	1412	1551	471	3539	1541	421	3524	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172			55			92			3
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	172	0	128	48	32	1092	92	32	1004	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1700-1715
TOD Plan 3

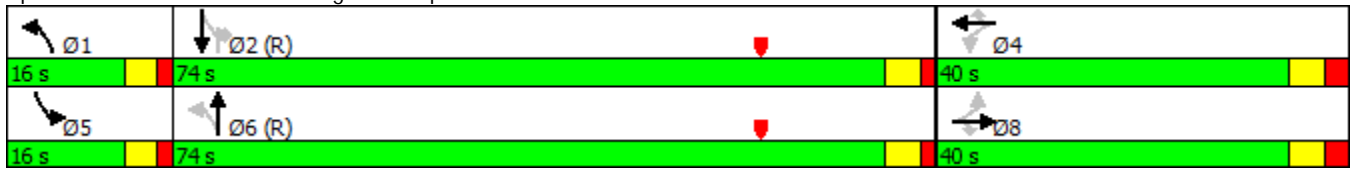


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	16.0	74.0	74.0	16.0	74.0	
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	12.3%	56.9%	56.9%	12.3%	56.9%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	69.0	69.0	11.5	69.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		17.9	17.9		17.9	17.9	98.9	94.2	94.2	98.9	94.2	
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.76	0.72	0.72	0.76	0.72	
v/c Ratio		0.19	0.48		0.66	0.18	0.07	0.43	0.08	0.08	0.39	
Control Delay		48.9	11.0		67.9	10.8	2.4	6.2	1.4	3.0	4.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.3	0.0	0.0	0.2	
Total Delay		48.9	11.0		67.9	10.8	2.4	6.5	1.4	3.0	4.7	
LOS		D	B		E	B	A	A	A	A	A	
Approach Delay		17.5			52.4			6.0			4.6	
Approach LOS		B			D			A			A	
Stops (vph)		30	21		119	8	5	339	9	4	170	
Fuel Used(gal)		1	1		3	0	0	12	1	0	4	
CO Emissions (g/hr)		48	91		217	28	21	828	56	8	302	
NOx Emissions (g/hr)		9	18		42	5	4	161	11	2	59	
VOC Emissions (g/hr)		11	21		50	6	5	192	13	2	70	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	10 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	9.5
Intersection LOS:	A
Intersection Capacity Utilization:	69.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3516
Total Delay / Veh (s/v)	45
Total Delay (hr)	44
Fuel Consumed (gal)	72
Fuel Economy (mpg)	8.1
CO Emissions (kg)	5.05
NOx Emissions (kg)	0.98
VOC Emissions (kg)	1.17

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3748
Total Delay / Veh (s/v)	37
Total Delay (hr)	39
Fuel Consumed (gal)	70
Fuel Economy (mpg)	8.4
CO Emissions (kg)	4.91
NOx Emissions (kg)	0.96
VOC Emissions (kg)	1.14

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3056
Total Delay / Veh (s/v)	25
Total Delay (hr)	21
Fuel Consumed (gal)	41
Fuel Economy (mpg)	9.8
CO Emissions (kg)	2.87
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3520
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	43
Fuel Economy (mpg)	8.2
CO Emissions (kg)	3.02
NOx Emissions (kg)	0.59
VOC Emissions (kg)	0.70

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3412
Total Delay / Veh (s/v)	40
Total Delay (hr)	38
Fuel Consumed (gal)	53
Fuel Economy (mpg)	4.8
CO Emissions (kg)	3.73
NOx Emissions (kg)	0.73
VOC Emissions (kg)	0.87

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3404
Total Delay / Veh (s/v)	28
Total Delay (hr)	27
Fuel Consumed (gal)	46
Fuel Economy (mpg)	7.5
CO Emissions (kg)	3.23
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3876
Total Delay / Veh (s/v)	27
Total Delay (hr)	29
Fuel Consumed (gal)	56
Fuel Economy (mpg)	9.0
CO Emissions (kg)	3.92
NOx Emissions (kg)	0.76
VOC Emissions (kg)	0.91

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	3888
Total Delay / Veh (s/v)	24
Total Delay (hr)	26
Fuel Consumed (gal)	46
Fuel Economy (mpg)	6.9
CO Emissions (kg)	3.18
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.74

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2636
Total Delay / Veh (s/v)	9
Total Delay (hr)	7
Fuel Consumed (gal)	23
Fuel Economy (mpg)	14.8
CO Emissions (kg)	1.61
NOx Emissions (kg)	0.31
VOC Emissions (kg)	0.37

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	30
Total Delay (hr)	256
Fuel Consumed (gal)	451
Fuel Economy (mpg)	8.2
CO Emissions (kg)	31.54
NOx Emissions (kg)	6.14
VOC Emissions (kg)	7.31
Performance Index	311.2

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Future Volume (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.964			0.993				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3412	0	1770	3514	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.138			0.131		
Satd. Flow (perm)	1770	3412	0	1770	3514	0	257	3539	1583	244	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			4				118			118
Link Speed (mph)		30			30			30				30
Link Distance (ft)		624			899			1330				681
Travel Time (s)		14.2			20.4			30.2				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	220	792	0	184	340	0	152	960	72	64	856	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1715-1730
TOD Plan 3

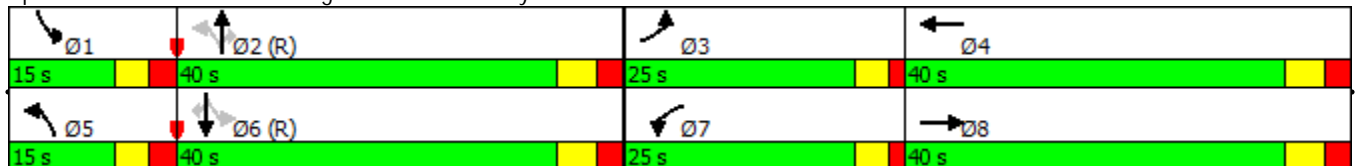


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	25.0	40.0		25.0	40.0		15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	20.8%	33.3%		20.8%	33.3%		12.5%	33.3%	33.3%	12.5%	33.3%	33.3%
Maximum Green (s)	20.5	34.0		20.5	34.0		9.5	34.0	34.0	9.5	34.0	34.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	18.5	32.7		17.0	31.2		51.3	42.7	42.7	47.2	38.6	38.6
Actuated g/C Ratio	0.15	0.27		0.14	0.26		0.43	0.36	0.36	0.39	0.32	0.32
v/c Ratio	0.81	0.83		0.74	0.37		0.66	0.76	0.11	0.32	0.75	0.12
Control Delay	71.1	47.4		66.4	36.7		44.7	50.8	8.1	25.4	42.7	1.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	47.4		66.4	36.7		44.7	50.8	8.1	25.4	42.7	1.1
LOS	E	D		E	D		D	D	A	C	D	A
Approach Delay		52.5			47.1			47.4			38.7	
Approach LOS		D			D			D			D	
Stops (vph)	205	697		172	266		130	817	24	40	743	1
Fuel Used(gal)	5	15		5	6		4	24	1	1	16	0
CO Emissions (g/hr)	377	1073		331	447		257	1706	70	62	1125	27
NOx Emissions (g/hr)	73	209		64	87		50	332	14	12	219	5
VOC Emissions (g/hr)	87	249		77	104		60	395	16	14	261	6
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 46.5
 Intersection LOS: D
 Intersection Capacity Utilization 83.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Future Volume (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.379			0.183			0.063			0.166		
Satd. Flow (perm)	706	1863	1583	341	1863	1583	117	3539	1583	309	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			101			101
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	16.0	36.0	36.0	16.0	36.0	36.0	13.0	65.0	65.0	13.0	65.0	65.0
Total Split (%)	12.3%	27.7%	27.7%	12.3%	27.7%	27.7%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	11.5	30.0	30.0	11.5	30.0	30.0	8.5	59.5	59.5	8.5	59.5	59.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	43.7	30.8	30.8	42.3	30.0	30.0	71.1	65.4	65.4	69.6	62.8	62.8
Actuated g/C Ratio	0.34	0.24	0.24	0.33	0.23	0.23	0.55	0.50	0.50	0.54	0.48	0.48
v/c Ratio	0.62	0.86	0.14	0.56	0.60	0.20	0.25	0.60	0.12	0.10	0.89	0.19
Control Delay	39.5	67.8	3.2	38.3	51.2	7.4	26.1	33.0	11.1	13.2	46.9	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	39.5	67.8	3.2	38.3	51.2	7.4	26.1	33.1	11.1	13.2	46.9	12.0
LOS	D	E	A	D	D	A	C	C	B	B	D	B
Approach Delay		52.5			39.6			31.1			43.3	
Approach LOS		D			D			C			D	
Stops (vph)	156	340	3	88	226	12	23	766	36	15	1420	102
Fuel Used(gal)	4	10	0	2	6	1	1	17	1	0	34	2
CO Emissions (g/hr)	272	685	28	159	390	45	39	1202	67	24	2402	150
NOx Emissions (g/hr)	53	133	5	31	76	9	8	234	13	5	467	29
VOC Emissions (g/hr)	63	159	6	37	90	10	9	279	16	5	557	35
Dilemma Vehicles (#)	0	14	0	0	10	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 40.6
 Intersection LOS: D
 Intersection Capacity Utilization 82.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Future Volume (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.979			0.920			0.992			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1824	0	1770	1714	0	1770	3511	0	1770	3504	0
Flt Permitted	0.203			0.255			0.280			0.236		
Satd. Flow (perm)	378	1824	0	475	1714	0	522	3511	0	440	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			42			6			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	344	0	60	376	0	24	828	0	416	1024	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1715-1730
TOD Plan 3

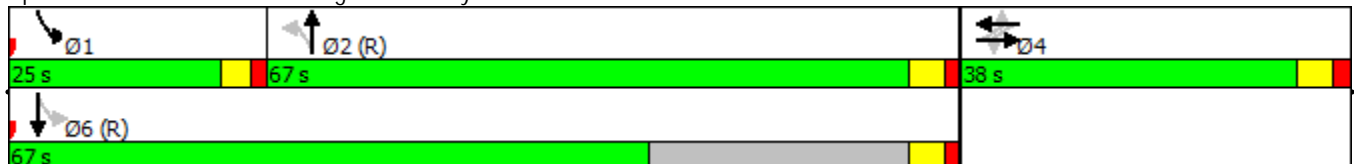


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	38.0	38.0		38.0	38.0		67.0	67.0		25.0	67.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%		51.5%	51.5%		19.2%	51.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		62.0	62.0		20.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	32.5	32.5		32.5	32.5		63.6	63.6		87.5	87.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.49	0.49		0.67	0.67	
v/c Ratio	0.55	0.75		0.51	0.82		0.09	0.48		0.85	0.44	
Control Delay	66.9	55.5		59.1	56.1		19.9	23.4		33.1	1.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	66.9	55.5		59.1	56.1		19.9	23.4		33.1	1.4	
LOS	E	E		E	E		B	C		C	A	
Approach Delay		57.0			56.5			23.3			10.6	
Approach LOS		E			E			C			B	
Stops (vph)	45	307		52	306		14	533		272	71	
Fuel Used(gal)	1	7		1	9		0	11		7	6	
CO Emissions (g/hr)	86	513		103	619		20	752		456	430	
NOx Emissions (g/hr)	17	100		20	120		4	146		89	84	
VOC Emissions (g/hr)	20	119		24	143		5	174		106	100	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 70 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 26.4
 Intersection LOS: C
 Intersection Capacity Utilization 94.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Future Volume (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.992		0.950					
Satd. Flow (prot)	0	0	0	1610	3363	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.992		0.215					
Satd. Flow (perm)	0	0	0	1610	3363	1583	777	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						247						178
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Shared Lane Traffic (%)				26%								
Lane Group Flow (vph)	0	0	0	225	471	324	488	780	0	0	1024	256
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1715-1730
TOD Plan 3

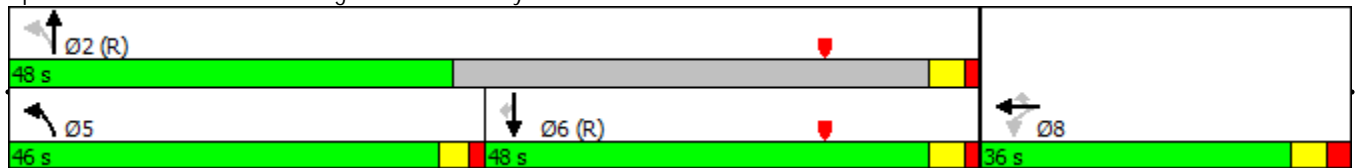


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				36.0	36.0	36.0	46.0	48.0			48.0	48.0
Total Split (%)				27.7%	27.7%	27.7%	35.4%	36.9%			36.9%	36.9%
Maximum Green (s)				30.0	30.0	30.0	41.5	43.0			43.0	43.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				30.0	30.0	30.0	89.5	89.0			71.3	71.3
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.68			0.55	0.55
v/c Ratio				0.61	0.61	0.58	0.61	0.32			0.29	0.27
Control Delay				52.7	48.6	15.9	27.2	18.8			15.7	6.9
Queue Delay				0.0	0.0	0.0	0.1	2.0			0.0	0.0
Total Delay				52.7	48.6	15.9	27.3	20.9			15.7	6.9
LOS				D	D	B	C	C			B	A
Approach Delay					39.1			23.3			14.0	
Approach LOS					D			C			B	
Stops (vph)				200	414	80	325	368			405	66
Fuel Used(gal)				4	8	2	6	7			14	3
CO Emissions (g/hr)				279	554	151	391	474			948	191
NOx Emissions (g/hr)				54	108	29	76	92			185	37
VOC Emissions (g/hr)				65	128	35	91	110			220	44
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 11 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 24.5
 Intersection LOS: C
 Intersection Capacity Utilization 55.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1715-1730
 TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Future Volume (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.93	0.97		0.95	0.96		0.99		0.96	1.00		0.92
Frt		0.960			0.958				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3304	0	1770	3254	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.203			0.154		
Satd. Flow (perm)	1646	3304	0	1683	3254	0	373	3539	1523	285	3539	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			43				101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	464	0	88	468	0	96	868	132	180	840	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1715-1730
TOD Plan 3

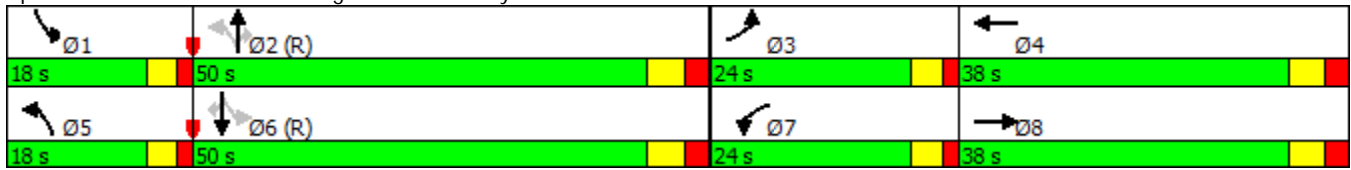


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	24.0	38.0		24.0	38.0		18.0	50.0	50.0	18.0	50.0	50.0
Total Split (%)	18.5%	29.2%		18.5%	29.2%		13.8%	38.5%	38.5%	13.8%	38.5%	38.5%
Maximum Green (s)	19.5	32.0		19.5	32.0		13.5	44.0	44.0	13.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effct Green (s)	12.7	39.7		11.8	38.8		56.3	45.4	45.4	61.7	48.1	48.1
Actuated g/C Ratio	0.10	0.31		0.09	0.30		0.43	0.35	0.35	0.47	0.37	0.37
v/c Ratio	0.58	0.45		0.55	0.47		0.37	0.70	0.22	0.66	0.64	0.07
Control Delay	68.9	35.4		68.8	36.0		12.8	28.1	7.6	31.5	36.9	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	2.0	0.0	0.0	0.0	0.0
Total Delay	68.9	35.4		68.8	36.0		12.8	30.1	7.6	31.5	36.9	0.2
LOS	E	D		E	D		B	C	A	C	D	A
Approach Delay		41.4			41.2			25.9			34.6	
Approach LOS		D			D			C			C	
Stops (vph)	93	338		82	343		43	735	76	101	681	0
Fuel Used(gal)	2	6		2	6		1	11	1	3	14	0
CO Emissions (g/hr)	152	448		125	411		51	780	66	184	1005	14
NOx Emissions (g/hr)	30	87		24	80		10	152	13	36	196	3
VOC Emissions (g/hr)	35	104		29	95		12	181	15	43	233	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	34.0
Intersection LOS:	C
Intersection Capacity Utilization:	82.5%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Future Volume (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.230		
Satd. Flow (perm)	1610	3383	1863	0	0	0	0	6408	1583	831	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									184			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	205	475	0	0	0	0	0	996	184	356	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1715-1730
TOD Plan 3

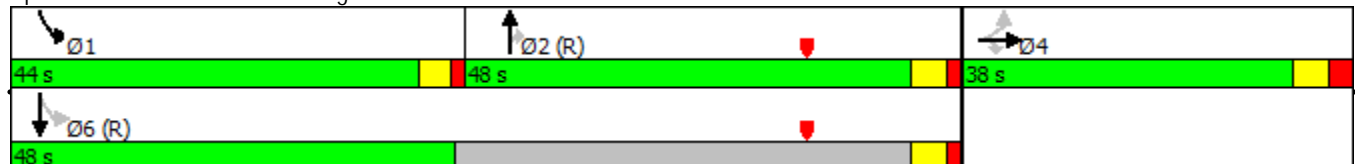


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	44.0	48.0	
Total Split (%)	29.2%	29.2%	29.2%					36.9%	36.9%	33.8%	36.9%	
Maximum Green (s)	32.0	32.0	32.0					43.0	43.0	39.5	43.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	25.8	25.8						78.4	78.4	93.7	93.2	
Actuated g/C Ratio	0.20	0.20						0.60	0.60	0.72	0.72	
v/c Ratio	0.64	0.71						0.26	0.18	0.44	0.38	
Control Delay	56.9	54.3						24.3	13.2	14.9	16.1	
Queue Delay	0.0	0.0						0.0	0.0	0.1	1.4	
Total Delay	56.9	54.3						24.3	13.2	15.0	17.5	
LOS	E	D						C	B	B	B	
Approach Delay		55.1						22.6			16.8	
Approach LOS		E						C			B	
Stops (vph)	184	429						650	110	153	485	
Fuel Used(gal)	4	9						16	3	3	8	
CO Emissions (g/hr)	266	600						1152	180	191	559	
NOx Emissions (g/hr)	52	117						224	35	37	109	
VOC Emissions (g/hr)	62	139						267	42	44	129	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 27.1
 Intersection Capacity Utilization 55.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Traffic Volume (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Future Volume (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.989		0.950					
Satd. Flow (prot)	0	0	0	1610	3353	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.989		0.205					
Satd. Flow (perm)	0	0	0	1610	3353	1583	741	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						190						179
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Shared Lane Traffic (%)				31%								
Lane Group Flow (vph)	0	0	0	218	454	452	396	856	0	0	1080	316
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2				2
Detector Template				Left	Thru	Right	Left	Thru				Thru
Leading Detector (ft)				20	100	20	20	100				100
Trailing Detector (ft)				0	0	0	0	0				0
Detector 1 Position(ft)				0	0	0	0	0				0
Detector 1 Size(ft)				20	6	20	20	6				6
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 2 Position(ft)					94			94				94
Detector 2 Size(ft)					6			6				6
Detector 2 Type					Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				0.0
Turn Type				Perm	NA	Perm	pm+pt	NA				NA
Protected Phases					4			1				2
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1715-1730
TOD Plan 3

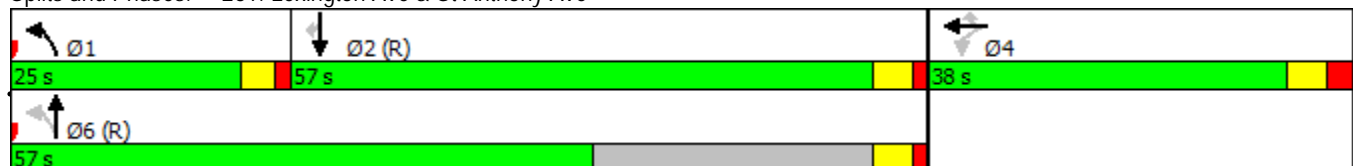


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				38.0	38.0	38.0	25.0	57.0			57.0	57.0
Total Split (%)				31.7%	31.7%	31.7%	20.8%	47.5%			47.5%	47.5%
Maximum Green (s)				32.0	32.0	32.0	20.5	52.0			52.0	52.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				23.8	23.8	23.8	85.7	85.2			70.6	70.6
Actuated g/C Ratio				0.20	0.20	0.20	0.71	0.71			0.59	0.59
v/c Ratio				0.68	0.68	0.97	0.52	0.34			0.29	0.31
Control Delay				55.0	49.5	62.3	17.9	6.1			25.6	19.6
Queue Delay				0.0	0.0	0.0	0.2	0.6			0.0	0.0
Total Delay				55.0	49.5	62.3	18.1	6.7			25.6	19.6
LOS				E	D	E	B	A			C	B
Approach Delay					55.7			10.3			24.2	
Approach LOS					E			B			C	
Stops (vph)				196	406	274	256	287			735	279
Fuel Used(gal)				4	8	8	4	5			21	6
CO Emissions (g/hr)				278	542	572	260	317			1459	425
NOx Emissions (g/hr)				54	105	111	51	62			284	83
VOC Emissions (g/hr)				64	126	132	60	73			338	99
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 29.0 Intersection LOS: C
 Intersection Capacity Utilization 74.2% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Future Volume (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.221		
Satd. Flow (perm)	1610	3383	1583	0	0	0	0	6408	1583	799	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146						122			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	245	571	612	0	0	0	0	1000	152	364	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1715-1730
 TOD Plan 3

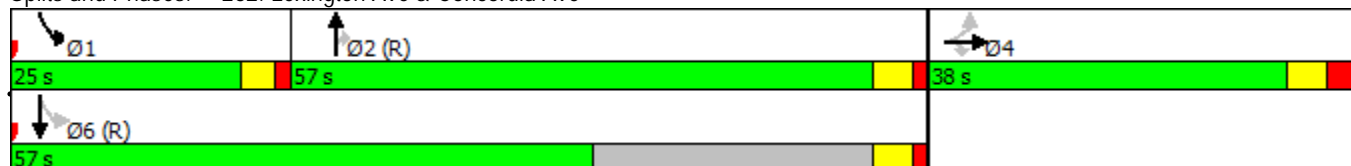


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	38.0	38.0	38.0					57.0	57.0	25.0	57.0	
Total Split (%)	31.7%	31.7%	31.7%					47.5%	47.5%	20.8%	47.5%	
Maximum Green (s)	32.0	32.0	32.0					52.0	52.0	20.5	52.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	29.0	29.0	29.0					65.6	65.6	80.5	80.0	
Actuated g/C Ratio	0.24	0.24	0.24					0.55	0.55	0.67	0.67	
v/c Ratio	0.63	0.70	1.24					0.29	0.17	0.48	0.42	
Control Delay	48.1	46.2	155.4					15.4	4.7	7.3	9.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.3	
Total Delay	48.1	46.2	155.4					15.4	4.7	7.4	10.1	
LOS	D	D	F					B	A	A	B	
Approach Delay		93.3						14.0			9.4	
Approach LOS		F						B			A	
Stops (vph)	215	506	394					520	21	185	621	
Fuel Used(gal)	4	9	23					13	1	2	8	
CO Emissions (g/hr)	286	653	1593					895	90	165	528	
NOx Emissions (g/hr)	56	127	310					174	18	32	103	
VOC Emissions (g/hr)	66	151	369					207	21	38	122	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.24
 Intersection Signal Delay: 41.3
 Intersection Capacity Utilization 74.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Future Volume (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.999	
Flt Protected		0.982			0.959		0.950			0.950		
Satd. Flow (prot)	0	1829	1583	0	1786	1583	1770	3539	1583	1770	3535	0
Flt Permitted		0.864			0.727		0.229			0.247		
Satd. Flow (perm)	0	1605	1521	0	1324	1551	427	3539	1541	460	3535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			100			132			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	164	0	132	100	28	996	132	44	1088	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1715-1730
TOD Plan 3

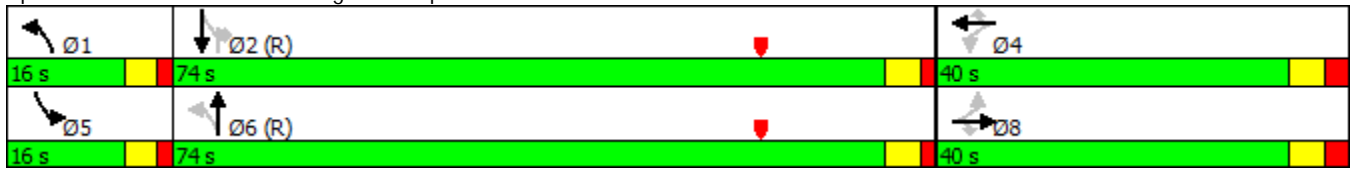


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	16.0	74.0	74.0	16.0	74.0	
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	12.3%	56.9%	56.9%	12.3%	56.9%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	69.0	69.0	11.5	69.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effct Green (s)		18.7	18.7		18.7	18.7	97.1	91.0	93.4	98.2	93.4	
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.75	0.70	0.72	0.76	0.72	
v/c Ratio		0.19	0.46		0.69	0.32	0.07	0.40	0.12	0.11	0.43	
Control Delay		48.0	10.6		70.6	11.0	3.0	8.1	2.0	3.0	4.8	
Queue Delay		0.0	0.0		0.0	0.1	0.0	0.2	0.0	0.0	0.2	
Total Delay		48.0	10.6		70.6	11.1	3.0	8.2	2.0	3.0	5.0	
LOS		D	B		E	B	A	A	A	A	A	
Approach Delay		18.5			44.9			7.4			4.9	
Approach LOS		B			D			A			A	
Stops (vph)		37	21		123	16	7	323	15	7	209	
Fuel Used(gal)		1	1		3	1	0	11	1	0	5	
CO Emissions (g/hr)		59	87		228	58	19	787	82	12	342	
NOx Emissions (g/hr)		11	17		44	11	4	153	16	2	67	
VOC Emissions (g/hr)		14	20		53	14	4	182	19	3	79	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	10 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	10.4
Intersection LOS:	B
Intersection Capacity Utilization:	72.0%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3708
Total Delay / Veh (s/v)	46
Total Delay (hr)	48
Fuel Consumed (gal)	78
Fuel Economy (mpg)	8.1
CO Emissions (kg)	5.47
NOx Emissions (kg)	1.06
VOC Emissions (kg)	1.27

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	4024
Total Delay / Veh (s/v)	41
Total Delay (hr)	45
Fuel Consumed (gal)	78
Fuel Economy (mpg)	8.1
CO Emissions (kg)	5.46
NOx Emissions (kg)	1.06
VOC Emissions (kg)	1.27

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3124
Total Delay / Veh (s/v)	26
Total Delay (hr)	23
Fuel Consumed (gal)	43
Fuel Economy (mpg)	9.7
CO Emissions (kg)	2.98
NOx Emissions (kg)	0.58
VOC Emissions (kg)	0.69

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3568
Total Delay / Veh (s/v)	24
Total Delay (hr)	24
Fuel Consumed (gal)	43
Fuel Economy (mpg)	8.5
CO Emissions (kg)	3.01
NOx Emissions (kg)	0.59
VOC Emissions (kg)	0.70

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	34
Total Delay (hr)	31
Fuel Consumed (gal)	47
Fuel Economy (mpg)	5.3
CO Emissions (kg)	3.26
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.76

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3176
Total Delay / Veh (s/v)	27
Total Delay (hr)	24
Fuel Consumed (gal)	42
Fuel Economy (mpg)	7.9
CO Emissions (kg)	2.97
NOx Emissions (kg)	0.58
VOC Emissions (kg)	0.69

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3772
Total Delay / Veh (s/v)	29
Total Delay (hr)	30
Fuel Consumed (gal)	55
Fuel Economy (mpg)	8.6
CO Emissions (kg)	3.86
NOx Emissions (kg)	0.75
VOC Emissions (kg)	0.90

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	3924
Total Delay / Veh (s/v)	41
Total Delay (hr)	45
Fuel Consumed (gal)	60
Fuel Economy (mpg)	5.5
CO Emissions (kg)	4.21
NOx Emissions (kg)	0.82
VOC Emissions (kg)	0.98

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2728
Total Delay / Veh (s/v)	10
Total Delay (hr)	8
Fuel Consumed (gal)	24
Fuel Economy (mpg)	14.2
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	32
Total Delay (hr)	279
Fuel Consumed (gal)	471
Fuel Economy (mpg)	8.0
CO Emissions (kg)	32.91
NOx Emissions (kg)	6.40
VOC Emissions (kg)	7.63
Performance Index	333.9

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Future Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.970			0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3493	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.109			0.240		
Satd. Flow (perm)	1770	3433	0	1770	3493	0	203	3539	1583	447	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			9				135			135
Link Speed (mph)		30			30			30				30
Link Distance (ft)		624			899			1330				681
Travel Time (s)		14.2			20.4			30.2				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	656	0	104	284	0	120	856	132	36	1024	32
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1630-1645

Adaptive

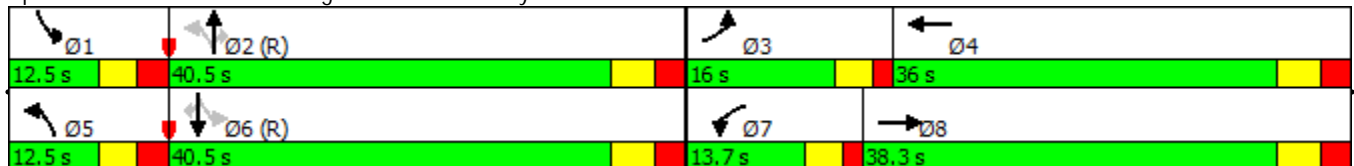


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	16.0	38.3		13.7	36.0		12.5	40.5	40.5	12.5	40.5	40.5
Total Split (%)	15.2%	36.5%		13.0%	34.3%		11.9%	38.6%	38.6%	11.9%	38.6%	38.6%
Maximum Green (s)	11.5	32.3		9.2	30.0		7.0	34.5	34.5	7.0	34.5	34.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	11.5	27.0		8.8	24.3		50.8	45.1	45.1	46.5	39.0	39.0
Actuated g/C Ratio	0.11	0.26		0.08	0.23		0.48	0.43	0.43	0.44	0.37	0.37
v/c Ratio	0.89	0.72		0.70	0.35		0.55	0.56	0.17	0.13	0.78	0.05
Control Delay	88.9	38.4		71.5	32.9		23.3	22.1	6.7	16.2	35.5	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.9	38.4		71.5	32.9		23.3	22.1	6.7	16.2	35.5	0.1
LOS	F	D		E	C		C	C	A	B	D	A
Approach Delay		48.9			43.2			20.4			33.8	
Approach LOS		D			D			C			C	
Stops (vph)	149	552		95	218		70	600	37	21	866	0
Fuel Used(gal)	5	11		3	5		2	16	2	0	18	0
CO Emissions (g/hr)	334	795		193	356		154	1121	122	30	1232	12
NOx Emissions (g/hr)	65	155		38	69		30	218	24	6	240	2
VOC Emissions (g/hr)	77	184		45	83		36	260	28	7	285	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 82 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 34.2
 Intersection LOS: C
 Intersection Capacity Utilization 77.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1630-1645

Adaptive

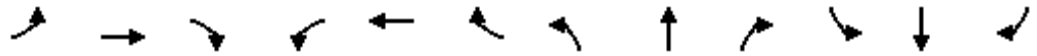


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Future Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.414			0.387			0.083			0.190		
Satd. Flow (perm)	771	1863	1583	721	1863	1583	155	3539	1583	354	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114			114			119			119
Link Speed (mph)		35			35			30				30
Link Distance (ft)		727			658			684				1025
Travel Time (s)		14.2			12.8			15.5				23.3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20				20
Link Offset(ft)		0			-6			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1630-1645

Adaptive

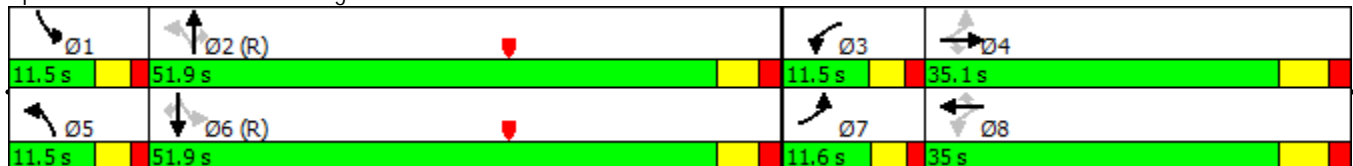


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	11.6	35.1	35.1	11.5	35.0	35.0	11.5	51.9	51.9	11.5	51.9	51.9
Total Split (%)	10.5%	31.9%	31.9%	10.5%	31.8%	31.8%	10.5%	47.2%	47.2%	10.5%	47.2%	47.2%
Maximum Green (s)	7.1	29.1	29.1	7.0	29.0	29.0	7.0	46.4	46.4	7.0	46.4	46.4
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	38.6	31.4	31.4	37.5	29.0	29.0	56.2	51.0	51.0	56.2	51.0	51.0
Actuated g/C Ratio	0.35	0.29	0.29	0.34	0.26	0.26	0.51	0.46	0.46	0.51	0.46	0.46
v/c Ratio	0.54	0.60	0.11	0.18	0.55	0.18	0.18	0.58	0.09	0.15	0.85	0.19
Control Delay	31.4	40.6	0.7	23.3	39.8	3.9	10.5	27.4	7.7	10.3	23.5	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	40.6	0.7	23.3	39.8	3.9	10.5	27.4	7.7	10.3	23.5	2.6
LOS	C	D	A	C	D	A	B	C	A	B	C	A
Approach Delay		33.4			29.9			25.5			21.1	
Approach LOS		C			C			C			C	
Stops (vph)	135	275	0	35	226	6	20	874	24	11	858	8
Fuel Used(gal)	3	6	0	1	5	1	0	15	1	0	23	1
CO Emissions (g/hr)	217	447	23	56	360	37	24	1058	44	32	1577	94
NOx Emissions (g/hr)	42	87	4	11	70	7	5	206	9	6	307	18
VOC Emissions (g/hr)	50	104	5	13	83	9	6	245	10	8	366	22
Dilemma Vehicles (#)	0	15	0	0	12	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 42 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 25.3
 Intersection LOS: C
 Intersection Capacity Utilization 76.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Future Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.911			0.989			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1833	0	1770	1697	0	1770	3500	0	1770	3504	0
Flt Permitted	0.283			0.374			0.236			0.175		
Satd. Flow (perm)	527	1833	0	697	1697	0	440	3500	0	326	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			66			7			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	304	0	32	364	0	28	788	0	468	1196	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	36.0	36.0		36.0	36.0		37.0	37.0		37.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%		33.6%	33.6%		33.6%	67.3%	
Maximum Green (s)	30.5	30.5		30.5	30.5		32.0	32.0		32.5	69.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	30.5	30.5		30.5	30.5		37.5	37.5		69.5	69.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.34	0.34		0.63	0.63	
v/c Ratio	0.47	0.59		0.17	0.70		0.19	0.66		0.84	0.54	
Control Delay	45.4	39.5		33.0	37.3		32.9	34.9		16.7	9.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.4	39.5		33.0	37.3		32.9	34.9		16.7	9.0	
LOS	D	D		C	D		C	C		B	A	
Approach Delay		40.6			37.0			34.8			11.2	
Approach LOS		D			D			C			B	
Stops (vph)	59	256		25	270		23	657		293	895	
Fuel Used(gal)	1	5		1	7		0	13		6	14	
CO Emissions (g/hr)	91	378		42	492		31	902		399	944	
NOx Emissions (g/hr)	18	74		8	96		6	175		78	184	
VOC Emissions (g/hr)	21	88		10	114		7	209		92	219	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 36 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 23.6
 Intersection LOS: C
 Intersection Capacity Utilization 96.1%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕↕↕	↗
Traffic Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Future Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.990		0.950					
Satd. Flow (prot)	0	0	0	1610	3356	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.990		0.155					
Satd. Flow (perm)	0	0	0	1610	3356	1583	560	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						235						172
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Shared Lane Traffic (%)				29%								
Lane Group Flow (vph)	0	0	0	187	393	300	620	728	0	0	1148	276
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				37.0	37.0	37.0	34.0	73.0			39.0	39.0
Total Split (%)				33.6%	33.6%	33.6%	30.9%	66.4%			35.5%	35.5%
Maximum Green (s)				31.0	31.0	31.0	29.5	68.0			34.0	34.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				31.0	31.0	31.0	68.5	68.0			44.7	44.7
Actuated g/C Ratio				0.28	0.28	0.28	0.62	0.62			0.41	0.41
v/c Ratio				0.41	0.42	0.49	0.74	0.33			0.44	0.37
Control Delay				35.5	33.8	11.0	24.5	17.7			17.7	5.8
Queue Delay				0.0	0.0	0.0	0.6	2.8			0.0	0.0
Total Delay				35.5	33.8	11.0	25.1	20.5			17.8	5.8
LOS				D	C	B	C	C			B	A
Approach Delay					26.4			22.6			15.4	
Approach LOS					C			C			B	
Stops (vph)				149	311	66	464	493			518	57
Fuel Used(gal)				3	5	2	7	7			16	3
CO Emissions (g/hr)				179	366	116	493	488			1121	196
NOx Emissions (g/hr)				35	71	23	96	95			218	38
VOC Emissions (g/hr)				42	85	27	114	113			260	46
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 20 (18%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 20.7
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Future Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.93	0.98		0.96	0.97		0.99		0.97	1.00		0.93
Frt		0.968			0.961				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3361	0	1770	3292	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.184			0.155		
Satd. Flow (perm)	1644	3361	0	1706	3292	0	338	3539	1530	287	3539	1475
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			43				119			119
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	568	0	124	336	0	108	884	96	132	840	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1630-1645

Adaptive

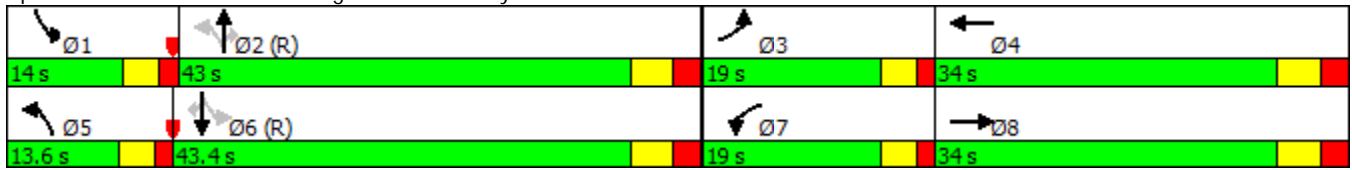


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	19.0	34.0		19.0	34.0		13.6	43.0	43.0	14.0	43.4	43.4
Total Split (%)	17.3%	30.9%		17.3%	30.9%		12.4%	39.1%	39.1%	12.7%	39.5%	39.5%
Maximum Green (s)	14.5	28.0		14.5	28.0		9.1	37.0	37.0	9.5	37.4	37.4
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	12.2	30.3		12.2	30.3		47.6	37.6	37.6	48.4	38.0	38.0
Actuated g/C Ratio	0.11	0.28		0.11	0.28		0.43	0.34	0.34	0.44	0.35	0.35
v/c Ratio	0.63	0.60		0.63	0.36		0.42	0.73	0.16	0.54	0.69	0.10
Control Delay	61.0	36.4		61.0	29.6		20.3	20.8	1.7	24.9	34.5	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.6	0.0	0.0	0.0	0.0
Total Delay	61.0	36.4		61.0	29.6		20.3	22.3	1.7	24.9	34.5	0.3
LOS	E	D		E	C		C	C	A	C	C	A
Approach Delay		40.8			38.1			20.3			31.4	
Approach LOS		D			D			C			C	
Stops (vph)	117	461		117	232		43	441	8	74	702	0
Fuel Used(gal)	3	8		2	4		1	8	0	2	14	0
CO Emissions (g/hr)	175	574		163	259		66	583	22	123	985	20
NOx Emissions (g/hr)	34	112		32	50		13	114	4	24	192	4
VOC Emissions (g/hr)	41	133		38	60		15	135	5	28	228	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 84 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 30.6
 Intersection LOS: C
 Intersection Capacity Utilization 80.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1630-1645

Adaptive

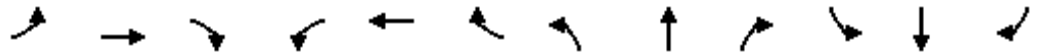


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Future Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.252		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	911	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									166			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		260			284			1025				289
Travel Time (s)		5.9			6.5			23.3				6.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	238	494	0	0	0	0	0	888	204	492	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				32
Link Offset(ft)		0			18			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1630-1645

Adaptive

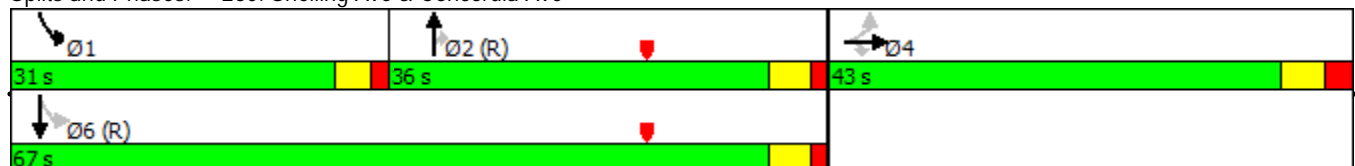


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	43.0	43.0	43.0					36.0	36.0	31.0	67.0	
Total Split (%)	39.1%	39.1%	39.1%					32.7%	32.7%	28.2%	60.9%	
Maximum Green (s)	37.0	37.0	37.0					31.0	31.0	26.5	62.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effct Green (s)	25.2	25.2						56.8	56.8	74.3	73.8	
Actuated g/C Ratio	0.23	0.23						0.52	0.52	0.68	0.67	
v/c Ratio	0.64	0.64						0.27	0.23	0.55	0.40	
Control Delay	45.7	41.4						6.3	1.0	4.0	3.5	
Queue Delay	0.1	0.0						0.0	0.0	0.1	0.3	
Total Delay	45.8	41.5						6.3	1.0	4.0	3.8	
LOS	D	D						A	A	A	A	
Approach Delay		42.9						5.3			3.9	
Approach LOS		D						A			A	
Stops (vph)	208	428						172	5	126	387	
Fuel Used(gal)	4	8						9	2	2	5	
CO Emissions (g/hr)	269	527						643	119	154	348	
NOx Emissions (g/hr)	52	102						125	23	30	68	
VOC Emissions (g/hr)	62	122						149	28	36	81	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 60 (55%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 13.1
 Intersection Capacity Utilization 60.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

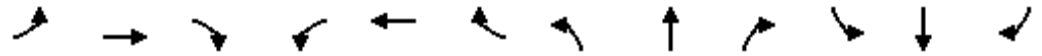
Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Future Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1610	3333	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.983		0.151					
Satd. Flow (perm)	0	0	0	1610	3333	1583	546	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						114						352
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	0	0	165	343	420	452	912	0	0	1300	352
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1630-1645
Adaptive

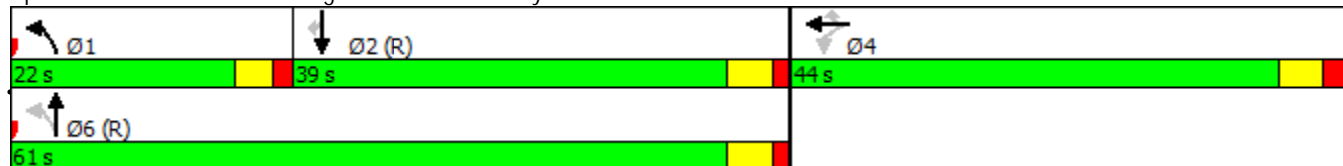


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				44.0	44.0	44.0	22.0	61.0			39.0	39.0
Total Split (%)				41.9%	41.9%	41.9%	21.0%	58.1%			37.1%	37.1%
Maximum Green (s)				38.0	38.0	38.0	17.5	56.0			34.0	34.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				17.4	17.4	17.4	77.1	76.6			59.3	59.3
Actuated g/C Ratio				0.17	0.17	0.17	0.73	0.73			0.56	0.56
v/c Ratio				0.62	0.62	1.17	0.60	0.35			0.36	0.34
Control Delay				50.1	45.1	133.1	26.8	6.3			7.3	0.8
Queue Delay				0.0	0.0	0.0	0.4	0.3			0.0	0.0
Total Delay				50.1	45.1	133.1	27.3	6.6			7.3	0.8
LOS				D	D	F	C	A			A	A
Approach Delay					85.8			13.4			5.9	
Approach LOS					F			B			A	
Stops (vph)				149	307	267	436	349			306	3
Fuel Used(gal)				3	6	14	6	5			17	4
CO Emissions (g/hr)				199	388	959	411	357			1196	260
NOx Emissions (g/hr)				39	75	187	80	69			233	51
VOC Emissions (g/hr)				46	90	222	95	83			277	60
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 98 (93%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 27.3
 Intersection LOS: C
 Intersection Capacity Utilization 68.3%
 ICU Level of Service C
 Analysis Period (min) 15

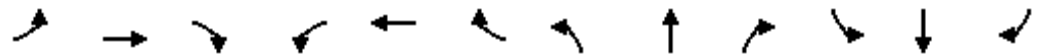
Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1630-1645

Adaptive

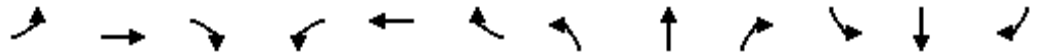


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Future Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1610	3377	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.996								0.198		
Satd. Flow (perm)	1610	3377	1583	0	0	0	0	6408	1583	716	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68						156			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		263			111			870			282	
Travel Time (s)		6.0			2.5			19.8			6.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Shared Lane Traffic (%)	13%											
Lane Group Flow (vph)	296	616	456	0	0	0	0	1000	168	480	1116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28			30	
Link Offset(ft)		0			-4			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1630-1645

Adaptive

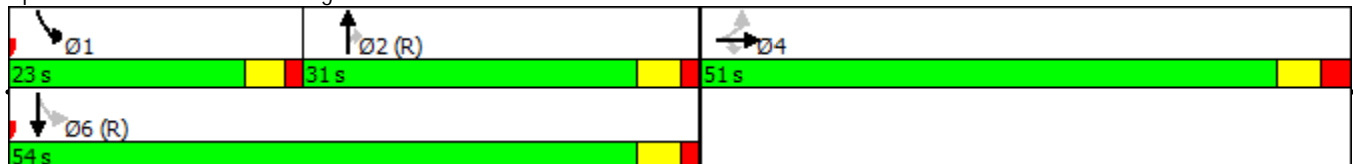


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	51.0	51.0	51.0					31.0	31.0	23.0	54.0	
Total Split (%)	48.6%	48.6%	48.6%					29.5%	29.5%	21.9%	51.4%	
Maximum Green (s)	45.0	45.0	45.0					26.0	26.0	18.5	49.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	32.6	32.6	32.6					43.8	43.8	61.9	61.4	
Actuated g/C Ratio	0.31	0.31	0.31					0.42	0.42	0.59	0.58	
v/c Ratio	0.59	0.59	0.85					0.37	0.22	0.63	0.54	
Control Delay	34.5	32.1	43.0					23.8	6.5	17.4	7.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	34.5	32.1	43.0					23.8	6.5	17.4	7.9	
LOS	C	C	D					C	A	B	A	
Approach Delay		36.2						21.3			10.7	
Approach LOS		D						C			B	
Stops (vph)	237	493	360					686	26	212	277	
Fuel Used(gal)	4	8	7					15	2	4	6	
CO Emissions (g/hr)	279	560	483					1078	105	274	403	
NOx Emissions (g/hr)	54	109	94					210	20	53	78	
VOC Emissions (g/hr)	65	130	112					250	24	64	93	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 104 (99%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 22.2
 Intersection Capacity Utilization 68.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1630-1645
Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Future Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.99	0.98	1.00		0.97		1.00	
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.971			0.968		0.950			0.950		
Satd. Flow (prot)	0	1809	1583	0	1803	1583	1770	3539	1583	1770	3516	0
Flt Permitted		0.756			0.746		0.278			0.232		
Satd. Flow (perm)	0	1403	1528	0	1370	1553	518	3539	1543	432	3516	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			64			88			5
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	120	0	108	60	12	1004	88	48	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1630-1645

Adaptive

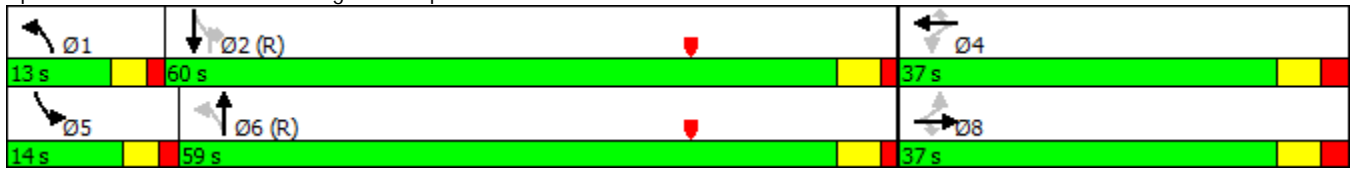


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	13.0	59.0	60.0	14.0	60.0	
Total Split (%)	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%	11.8%	53.6%	54.5%	12.7%	54.5%	
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0	31.0	8.5	54.0	55.0	9.5	55.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effct Green (s)		15.5	15.5		15.5	15.5	80.3	74.2	81.2	83.2	81.2	
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.73	0.67	0.74	0.76	0.74	
v/c Ratio		0.45	0.38		0.56	0.22	0.03	0.42	0.08	0.12	0.38	
Control Delay		48.2	10.0		53.4	10.0	2.8	5.9	0.8	2.2	2.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.2	
Total Delay		48.2	10.0		53.4	10.0	2.8	5.9	0.8	2.2	2.5	
LOS		D	A		D	A	A	A	A	A	A	
Approach Delay		26.1			37.9			5.5			2.5	
Approach LOS		C			D			A			A	
Stops (vph)		76	19		97	11	2	239	3	5	101	
Fuel Used(gal)		2	1		2	0	0	10	1	0	3	
CO Emissions (g/hr)		119	64		159	35	8	729	51	12	240	
NOx Emissions (g/hr)		23	12		31	7	2	142	10	2	47	
VOC Emissions (g/hr)		27	15		37	8	2	169	12	3	56	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 22 (20%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 8.1
 Intersection Capacity Utilization 66.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3416
Total Delay / Veh (s/v)	34
Total Delay (hr)	32
Fuel Consumed (gal)	62
Fuel Economy (mpg)	9.4
CO Emissions (kg)	4.35
NOx Emissions (kg)	0.85
VOC Emissions (kg)	1.01

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3608
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	57
Fuel Economy (mpg)	10.1
CO Emissions (kg)	3.97
NOx Emissions (kg)	0.77
VOC Emissions (kg)	0.92

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3248
Total Delay / Veh (s/v)	24
Total Delay (hr)	21
Fuel Consumed (gal)	47
Fuel Economy (mpg)	9.1
CO Emissions (kg)	3.28
NOx Emissions (kg)	0.64
VOC Emissions (kg)	0.76

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3652
Total Delay / Veh (s/v)	21
Total Delay (hr)	21
Fuel Consumed (gal)	43
Fuel Economy (mpg)	9.1
CO Emissions (kg)	3.00
NOx Emissions (kg)	0.58
VOC Emissions (kg)	0.69

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3268
Total Delay / Veh (s/v)	31
Total Delay (hr)	28
Fuel Consumed (gal)	43
Fuel Economy (mpg)	5.8
CO Emissions (kg)	2.99
NOx Emissions (kg)	0.58
VOC Emissions (kg)	0.69

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	13
Total Delay (hr)	12
Fuel Consumed (gal)	30
Fuel Economy (mpg)	11.1
CO Emissions (kg)	2.06
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3944
Total Delay / Veh (s/v)	27
Total Delay (hr)	30
Fuel Consumed (gal)	54
Fuel Economy (mpg)	9.9
CO Emissions (kg)	3.78
NOx Emissions (kg)	0.73
VOC Emissions (kg)	0.88

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	4132
Total Delay / Veh (s/v)	22
Total Delay (hr)	25
Fuel Consumed (gal)	46
Fuel Economy (mpg)	7.6
CO Emissions (kg)	3.18
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.74

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2508
Total Delay / Veh (s/v)	8
Total Delay (hr)	6
Fuel Consumed (gal)	20
Fuel Economy (mpg)	15.6
CO Emissions (kg)	1.42
NOx Emissions (kg)	0.28
VOC Emissions (kg)	0.33

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	23
Total Delay (hr)	201
Fuel Consumed (gal)	401
Fuel Economy (mpg)	9.4
CO Emissions (kg)	28.03
NOx Emissions (kg)	5.45
VOC Emissions (kg)	6.50
Performance Index	250.4

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Future Volume (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.976			0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3454	0	1770	3497	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.131			0.192		
Satd. Flow (perm)	1770	3454	0	1770	3497	0	244	3539	1583	358	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			8				129			129
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		624			899			1330			681	
Travel Time (s)		14.2			20.4			30.2			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	784	0	192	308	0	80	852	76	40	932	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1645-1700

Adaptive

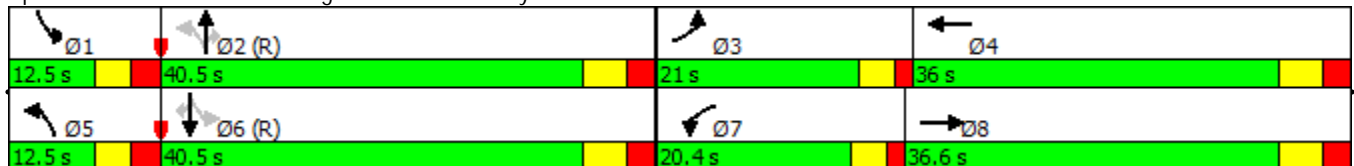


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	21.0	36.6		20.4	36.0		12.5	40.5	40.5	12.5	40.5	40.5
Total Split (%)	19.1%	33.3%		18.5%	32.7%		11.4%	36.8%	36.8%	11.4%	36.8%	36.8%
Maximum Green (s)	16.5	30.6		15.9	30.0		7.0	34.5	34.5	7.0	34.5	34.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effct Green (s)	15.3	29.5		14.9	29.1		46.3	41.6	41.6	45.2	39.1	39.1
Actuated g/C Ratio	0.14	0.27		0.14	0.26		0.42	0.38	0.38	0.41	0.36	0.36
v/c Ratio	0.80	0.83		0.81	0.33		0.40	0.64	0.11	0.17	0.74	0.09
Control Delay	69.4	45.7		71.0	32.6		22.2	27.2	4.2	20.0	37.0	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.4	45.7		71.0	32.6		22.2	27.2	4.2	20.0	37.0	0.3
LOS	E	D		E	C		C	C	A	C	D	A
Approach Delay		50.4			47.4			25.1			34.4	
Approach LOS		D			D			C			C	
Stops (vph)	179	700		175	234		46	606	18	24	797	0
Fuel Used(gal)	5	15		5	5		1	17	1	1	16	0
CO Emissions (g/hr)	329	1047		356	384		101	1182	67	36	1145	21
NOx Emissions (g/hr)	64	204		69	75		20	230	13	7	223	4
VOC Emissions (g/hr)	76	243		82	89		23	274	15	8	265	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 82 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 38.0
 Intersection LOS: D
 Intersection Capacity Utilization 82.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1645-1700

Adaptive

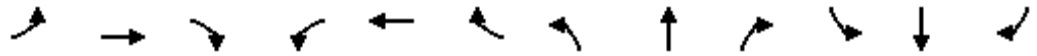


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Future Volume (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.319			0.384			0.076			0.171		
Satd. Flow (perm)	594	1863	1583	715	1863	1583	142	3539	1583	319	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109			114			114
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1645-1700

Adaptive

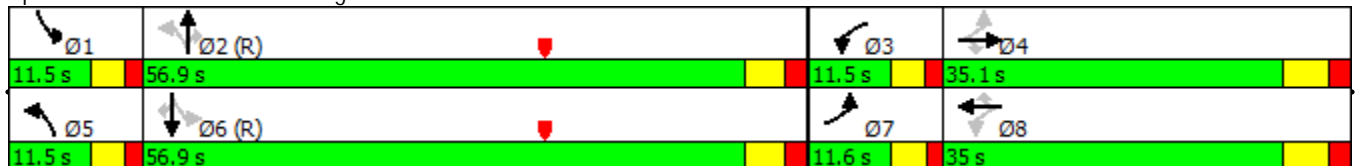


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	11.6	35.1	35.1	11.5	35.0	35.0	11.5	56.9	56.9	11.5	56.9	56.9
Total Split (%)	10.1%	30.5%	30.5%	10.0%	30.4%	30.4%	10.0%	49.5%	49.5%	10.0%	49.5%	49.5%
Maximum Green (s)	7.1	29.1	29.1	7.0	29.0	29.0	7.0	51.4	51.4	7.0	51.4	51.4
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effct Green (s)	37.7	29.1	29.1	37.5	29.0	29.0	60.3	53.7	53.7	61.2	56.0	56.0
Actuated g/C Ratio	0.33	0.25	0.25	0.33	0.25	0.25	0.52	0.47	0.47	0.53	0.49	0.49
v/c Ratio	0.58	0.60	0.12	0.35	0.68	0.19	0.16	0.61	0.09	0.20	0.84	0.15
Control Delay	36.4	44.1	1.3	28.5	47.4	5.4	10.6	30.6	7.4	11.0	25.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	44.1	1.3	28.5	47.4	5.4	10.6	30.6	7.4	11.0	25.9	4.5
LOS	D	D	A	C	D	A	B	C	A	B	C	A
Approach Delay		36.6			36.1			28.7			23.7	
Approach LOS		D			D			C			C	
Stops (vph)	119	248	1	72	285	10	18	943	23	22	1019	25
Fuel Used(gal)	3	6	0	2	7	1	0	17	1	1	25	1
CO Emissions (g/hr)	201	413	24	115	472	43	22	1176	41	46	1739	89
NOx Emissions (g/hr)	39	80	5	22	92	8	4	229	8	9	338	17
VOC Emissions (g/hr)	47	96	5	27	109	10	5	273	10	11	403	21
Dilemma Vehicles (#)	0	12	0	0	14	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 76 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 28.6
 Intersection LOS: C
 Intersection Capacity Utilization 82.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Future Volume (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.976			0.910			0.996			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1818	0	1770	1695	0	1770	3525	0	1770	3504	0
Flt Permitted	0.310			0.286			0.285			0.200		
Satd. Flow (perm)	577	1818	0	533	1695	0	531	3525	0	373	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			65			2			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	356	0	64	340	0	24	792	0	432	1004	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	37.0	37.0		37.0	37.0		41.0	41.0		37.0	78.0	
Total Split (%)	32.2%	32.2%		32.2%	32.2%		35.7%	35.7%		32.2%	67.8%	
Maximum Green (s)	31.5	31.5		31.5	31.5		36.0	36.0		32.5	73.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	31.5	31.5		31.5	31.5		44.0	44.0		73.5	73.0	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.38	0.38		0.64	0.63	
v/c Ratio	0.28	0.71		0.44	0.67		0.12	0.59		0.81	0.45	
Control Delay	38.7	45.6		45.9	37.0		28.7	31.7		16.7	10.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.7	45.6		45.9	37.0		28.7	31.7		16.7	10.5	
LOS	D	D		D	D		C	C		B	B	
Approach Delay		44.8			38.4			31.6			12.3	
Approach LOS		D			D			C			B	
Stops (vph)	36	311		54	247		18	624		308	759	
Fuel Used(gal)	1	7		1	7		0	12		5	12	
CO Emissions (g/hr)	54	478		97	455		25	857		383	817	
NOx Emissions (g/hr)	10	93		19	89		5	167		74	159	
VOC Emissions (g/hr)	12	111		22	106		6	199		89	189	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 72 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 25.2
 Intersection LOS: C
 Intersection Capacity Utilization 92.7%
 ICU Level of Service F
 Analysis Period (min) 15

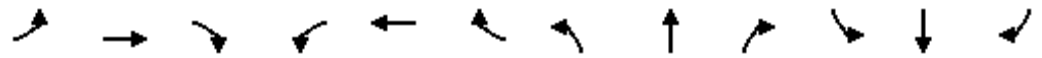
Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Future Volume (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.991		0.950					
Satd. Flow (prot)	0	0	0	1610	3360	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.991		0.184					
Satd. Flow (perm)	0	0	0	1610	3360	1583	665	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						145						220
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Shared Lane Traffic (%)				27%								
Lane Group Flow (vph)	0	0	0	219	457	356	460	812	0	0	996	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1645-1700

Adaptive

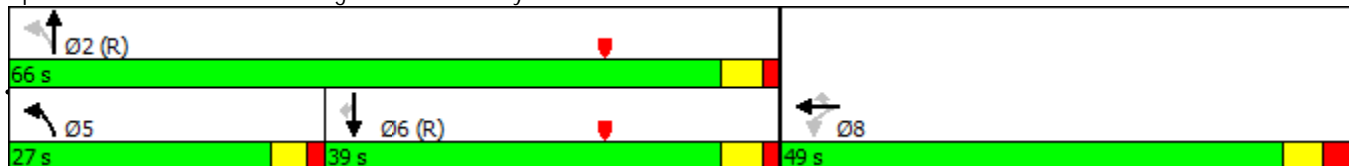


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				49.0	49.0	49.0	27.0	66.0			39.0	39.0
Total Split (%)				42.6%	42.6%	42.6%	23.5%	57.4%			33.9%	33.9%
Maximum Green (s)				43.0	43.0	43.0	22.5	61.0			34.0	34.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				43.0	43.0	43.0	61.5	61.0			42.1	42.1
Actuated g/C Ratio				0.37	0.37	0.37	0.53	0.53			0.37	0.37
v/c Ratio				0.36	0.36	0.52	0.65	0.43			0.43	0.31
Control Delay				28.3	27.1	19.1	15.9	12.5			18.7	1.9
Queue Delay				0.4	0.2	0.0	0.1	0.4			0.0	0.0
Total Delay				28.7	27.3	19.1	16.0	13.0			18.7	1.9
LOS				C	C	B	B	B			B	A
Approach Delay					24.8			14.1			15.7	
Approach LOS					C			B			B	
Stops (vph)				156	322	165	212	461			404	10
Fuel Used(gal)				3	5	3	4	6			14	2
CO Emissions (g/hr)				180	368	213	259	451			969	131
NOx Emissions (g/hr)				35	72	41	50	88			189	25
VOC Emissions (g/hr)				42	85	49	60	104			225	30
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 17.8
 Intersection LOS: B
 Intersection Capacity Utilization 54.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Future Volume (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.93	0.99		0.96	0.96		0.99		0.97	1.00		0.93
Frt		0.979			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3419	0	1770	3256	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.229			0.101		
Satd. Flow (perm)	1653	3419	0	1691	3256	0	420	3539	1528	188	3539	1471
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			53				114			114
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	448	0	112	420	0	104	1040	108	184	836	24
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1645-1700

Adaptive

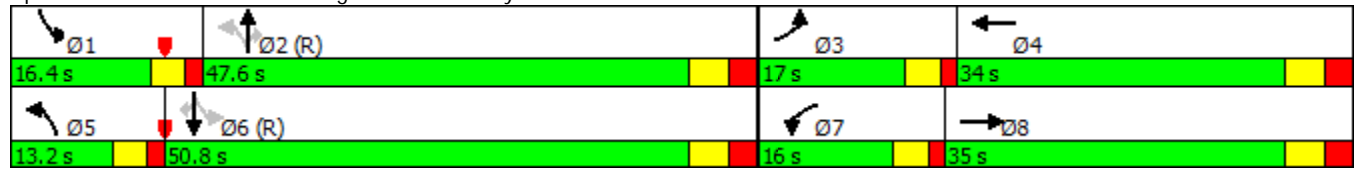


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	17.0	35.0		16.0	34.0		13.2	47.6	47.6	16.4	50.8	50.8
Total Split (%)	14.8%	30.4%		13.9%	29.6%		11.5%	41.4%	41.4%	14.3%	44.2%	44.2%
Maximum Green (s)	12.5	29.0		11.5	28.0		8.7	41.6	41.6	11.9	44.8	44.8
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effct Green (s)	11.8	29.9		10.6	28.7		52.1	42.4	42.4	57.9	45.3	45.3
Actuated g/C Ratio	0.10	0.26		0.09	0.25		0.45	0.37	0.37	0.50	0.39	0.39
v/c Ratio	0.75	0.50		0.68	0.49		0.36	0.80	0.17	0.75	0.60	0.04
Control Delay	75.0	37.4		71.6	34.6		14.3	25.7	2.7	39.8	30.0	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.8	0.0	0.0	0.0	0.0
Total Delay	75.0	37.4		71.6	34.6		14.3	27.5	2.7	39.8	30.0	0.1
LOS	E	D		E	C		B	C	A	D	C	A
Approach Delay		46.1			42.4			24.3			31.0	
Approach LOS		D			D			C			C	
Stops (vph)	126	360		105	308		30	606	8	104	645	0
Fuel Used(gal)	3	7		2	5		1	11	0	3	13	0
CO Emissions (g/hr)	218	458		164	360		51	793	26	210	905	9
NOx Emissions (g/hr)	42	89		32	70		10	154	5	41	176	2
VOC Emissions (g/hr)	51	106		38	84		12	184	6	49	210	2
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	115
Offset:	76 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	32.9
Intersection LOS:	C
Intersection Capacity Utilization:	87.3%
ICU Level of Service:	E
Analysis Period (min):	15

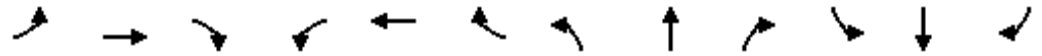
Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1645-1700

Adaptive

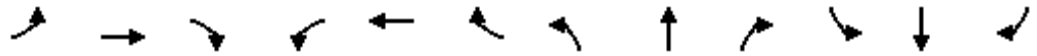


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Future Volume (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.236		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	853	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									161			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	216	476	0	0	0	0	0	952	232	488	1040	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	43.0	43.0	43.0					41.0	41.0	31.0	72.0	
Total Split (%)	37.4%	37.4%	37.4%					35.7%	35.7%	27.0%	62.6%	
Maximum Green (s)	37.0	37.0	37.0					36.0	36.0	26.5	67.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	24.5	24.5						62.8	62.8	80.0	79.5	
Actuated g/C Ratio	0.21	0.21						0.55	0.55	0.70	0.69	
v/c Ratio	0.63	0.66						0.27	0.25	0.56	0.43	
Control Delay	48.9	45.6						6.5	1.0	20.4	14.1	
Queue Delay	0.0	0.0						0.0	0.0	0.2	1.1	
Total Delay	48.9	45.6						6.5	1.0	20.6	15.1	
LOS	D	D						A	A	C	B	
Approach Delay		46.6						5.4			16.9	
Approach LOS		D						A			B	
Stops (vph)	190	421						186	9	327	584	
Fuel Used(gal)	4	8						10	2	5	9	
CO Emissions (g/hr)	254	539						691	137	345	597	
NOx Emissions (g/hr)	49	105						134	27	67	116	
VOC Emissions (g/hr)	59	125						160	32	80	138	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 108 (94%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 18.9
 Intersection Capacity Utilization 54.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

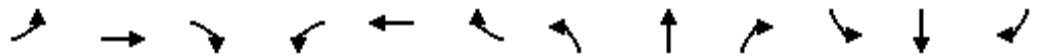
1645-1700
Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Future Volume (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.987		0.950					
Satd. Flow (prot)	0	0	0	1610	3346	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.987		0.171					
Satd. Flow (perm)	0	0	0	1610	3346	1583	618	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						153						235
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Shared Lane Traffic (%)				36%								
Lane Group Flow (vph)	0	0	0	243	501	400	420	800	0	0	1188	324
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4			1	6			2
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1645-1700
Adaptive

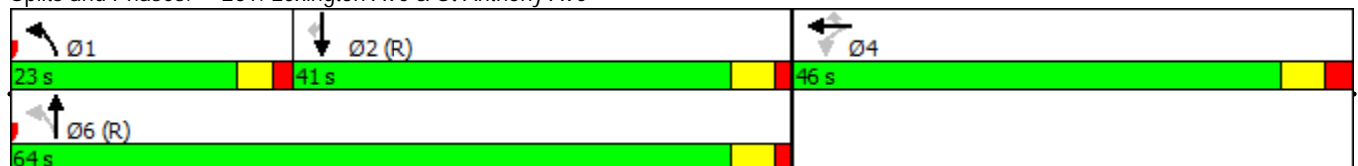


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				46.0	46.0	46.0	23.0	64.0			41.0	41.0
Total Split (%)				41.8%	41.8%	41.8%	20.9%	58.2%			37.3%	37.3%
Maximum Green (s)				40.0	40.0	40.0	18.5	59.0			36.0	36.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				24.5	24.5	24.5	75.0	74.5			58.5	58.5
Actuated g/C Ratio				0.22	0.22	0.22	0.68	0.68			0.53	0.53
v/c Ratio				0.68	0.67	0.85	0.59	0.33			0.35	0.34
Control Delay				48.2	43.1	41.6	23.7	7.5			9.9	2.4
Queue Delay				0.0	0.0	0.0	0.3	0.5			0.0	0.0
Total Delay				48.2	43.1	41.6	24.0	8.0			9.9	2.4
LOS				D	D	D	C	A			A	A
Approach Delay					43.7			13.5			8.3	
Approach LOS					D			B			A	
Stops (vph)				214	440	247	346	327			352	21
Fuel Used(gal)				4	8	6	5	5			17	4
CO Emissions (g/hr)				284	549	389	340	334			1164	254
NOx Emissions (g/hr)				55	107	76	66	65			227	49
VOC Emissions (g/hr)				66	127	90	79	78			270	59
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 88 (80%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 20.4
 Intersection Capacity Utilization 90.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1645-1700
Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Future Volume (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.260		
Satd. Flow (perm)	1610	3383	1583	0	0	0	0	6408	1583	940	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64						154			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		263			111			870			282	
Travel Time (s)		6.0			2.5			19.8			6.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	263	581	408	0	0	0	0	844	164	420	1208	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28			30	
Link Offset(ft)		0			-4			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1645-1700

Adaptive

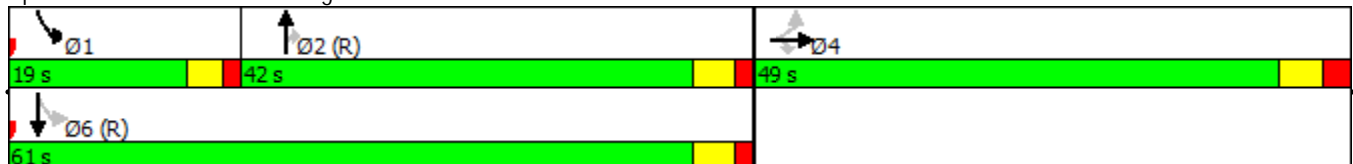


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	49.0	49.0	49.0					42.0	42.0	19.0	61.0	
Total Split (%)	44.5%	44.5%	44.5%					38.2%	38.2%	17.3%	55.5%	
Maximum Green (s)	43.0	43.0	43.0					37.0	37.0	14.5	56.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	30.9	30.9	30.9					52.4	52.4	68.6	68.1	
Actuated g/C Ratio	0.28	0.28	0.28					0.48	0.48	0.62	0.62	
v/c Ratio	0.58	0.61	0.83					0.28	0.20	0.50	0.55	
Control Delay	38.2	36.4	45.3					19.2	5.0	9.1	10.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.2	
Total Delay	38.2	36.4	45.3					19.2	5.0	9.2	10.6	
LOS	D	D	D					B	A	A	B	
Approach Delay		39.7						16.9			10.2	
Approach LOS		D						B			B	
Stops (vph)	217	482	322					501	21	91	543	
Fuel Used(gal)	4	8	6					12	1	2	8	
CO Emissions (g/hr)	265	570	446					824	98	154	575	
NOx Emissions (g/hr)	51	111	87					160	19	30	112	
VOC Emissions (g/hr)	61	132	103					191	23	36	133	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 106 (96%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 21.4
 Intersection Capacity Utilization 90.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Future Volume (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98	1.00		0.97		1.00	
Frt			0.850			0.850			0.850		0.996	
Flt Protected		0.968			0.967		0.950			0.950		
Satd. Flow (prot)	0	1803	1583	0	1801	1583	1770	3539	1583	1770	3524	0
Flt Permitted		0.758			0.772		0.248			0.221		
Satd. Flow (perm)	0	1406	1526	0	1415	1553	462	3539	1542	412	3524	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172			62			92			3
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	172	0	128	48	32	1092	92	32	1004	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1645-1700

Adaptive

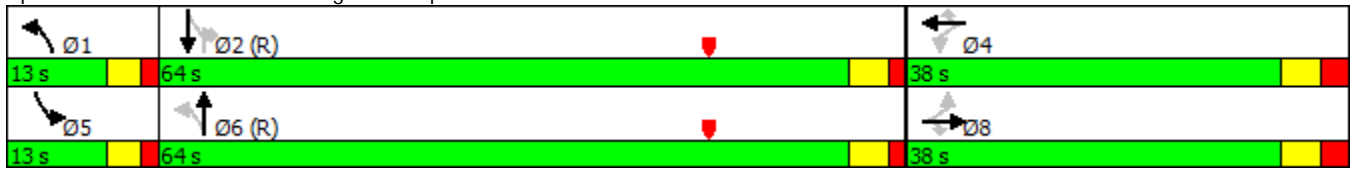


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	13.0	64.0	64.0	13.0	64.0	
Total Split (%)	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	11.3%	55.7%	55.7%	11.3%	55.7%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	8.5	59.0	59.0	8.5	59.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		16.9	16.9		16.9	16.9	84.9	80.2	80.2	84.9	80.2	
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.74	0.70	0.70	0.74	0.70	
v/c Ratio		0.17	0.46		0.62	0.17	0.08	0.44	0.08	0.08	0.41	
Control Delay		41.6	9.9		57.4	7.3	3.0	5.5	1.1	1.6	2.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.1	
Total Delay		41.6	9.9		57.4	7.3	3.0	5.5	1.1	1.6	2.2	
LOS		D	A		E	A	A	A	A	A	A	
Approach Delay		15.4			43.8			5.1			2.2	
Approach LOS		B			D			A			A	
Stops (vph)		30	23		118	6	6	260	4	2	76	
Fuel Used(gal)		1	1		3	0	0	11	1	0	3	
CO Emissions (g/hr)		45	89		197	25	21	786	54	7	232	
NOx Emissions (g/hr)		9	17		38	5	4	153	10	1	45	
VOC Emissions (g/hr)		10	21		46	6	5	182	12	2	54	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	115
Offset:	18 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	7.3
Intersection LOS:	A
Intersection Capacity Utilization:	69.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3516
Total Delay / Veh (s/v)	38
Total Delay (hr)	37
Fuel Consumed (gal)	67
Fuel Economy (mpg)	8.8
CO Emissions (kg)	4.67
NOx Emissions (kg)	0.91
VOC Emissions (kg)	1.08

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3748
Total Delay / Veh (s/v)	29
Total Delay (hr)	30
Fuel Consumed (gal)	63
Fuel Economy (mpg)	9.5
CO Emissions (kg)	4.38
NOx Emissions (kg)	0.85
VOC Emissions (kg)	1.02

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3056
Total Delay / Veh (s/v)	25
Total Delay (hr)	21
Fuel Consumed (gal)	45
Fuel Economy (mpg)	8.9
CO Emissions (kg)	3.17
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.73

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3520
Total Delay / Veh (s/v)	18
Total Delay (hr)	17
Fuel Consumed (gal)	37
Fuel Economy (mpg)	9.6
CO Emissions (kg)	2.58
NOx Emissions (kg)	0.50
VOC Emissions (kg)	0.60

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3412
Total Delay / Veh (s/v)	33
Total Delay (hr)	31
Fuel Consumed (gal)	46
Fuel Economy (mpg)	5.6
CO Emissions (kg)	3.22
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3404
Total Delay / Veh (s/v)	19
Total Delay (hr)	18
Fuel Consumed (gal)	37
Fuel Economy (mpg)	9.4
CO Emissions (kg)	2.58
NOx Emissions (kg)	0.50
VOC Emissions (kg)	0.60

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3876
Total Delay / Veh (s/v)	20
Total Delay (hr)	22
Fuel Consumed (gal)	48
Fuel Economy (mpg)	10.6
CO Emissions (kg)	3.32
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.77

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	3888
Total Delay / Veh (s/v)	21
Total Delay (hr)	23
Fuel Consumed (gal)	42
Fuel Economy (mpg)	7.5
CO Emissions (kg)	2.93
NOx Emissions (kg)	0.57
VOC Emissions (kg)	0.68

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2636
Total Delay / Veh (s/v)	7
Total Delay (hr)	5
Fuel Consumed (gal)	21
Fuel Economy (mpg)	16.3
CO Emissions (kg)	1.46
NOx Emissions (kg)	0.28
VOC Emissions (kg)	0.34

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	24
Total Delay (hr)	205
Fuel Consumed (gal)	405
Fuel Economy (mpg)	9.1
CO Emissions (kg)	28.31
NOx Emissions (kg)	5.51
VOC Emissions (kg)	6.56
Performance Index	256.1

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	668	100	124	320	40	120	964	68	52	992	44
Future Volume (vph)	168	668	100	124	320	40	120	964	68	52	992	44
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.980			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3468	0	1770	3479	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.109			0.146		
Satd. Flow (perm)	1770	3468	0	1770	3479	0	203	3539	1583	272	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			13				135			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		624			899			1330			681	
Travel Time (s)		14.2			20.4			30.2			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	168	668	100	124	320	40	120	964	68	52	992	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	768	0	124	360	0	120	964	68	52	992	44
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	384	56	72	292	96	8	804	72	36	1464	140
Future Volume (vph)	196	384	56	72	292	96	8	804	72	36	1464	140
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.415			0.334			0.104			0.211		
Satd. Flow (perm)	773	1863	1583	622	1863	1583	194	3539	1583	393	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125			125			131			131
Link Speed (mph)		35			35			30				30
Link Distance (ft)		727			658			684				1025
Travel Time (s)		14.2			12.8			15.5				23.3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	196	384	56	72	292	96	8	804	72	36	1464	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	384	56	72	292	96	8	804	72	36	1464	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20				20
Link Offset(ft)		0			-6			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1700-1715

Adaptive

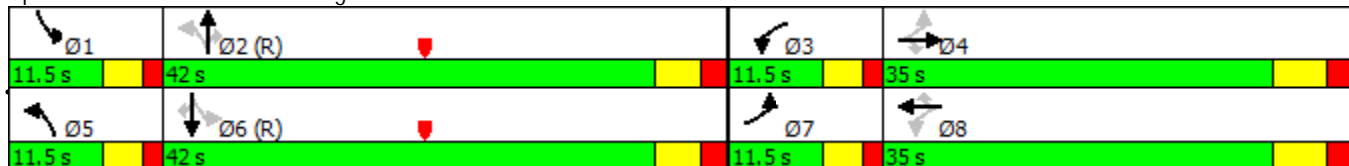


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	42.0	42.0	11.5	42.0	42.0
Total Split (%)	11.5%	35.0%	35.0%	11.5%	35.0%	35.0%	11.5%	42.0%	42.0%	11.5%	42.0%	42.0%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0	29.0	7.0	36.5	36.5	7.0	36.5	36.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	38.4	31.3	31.3	37.5	29.0	29.0	46.3	41.1	41.1	48.1	45.7	45.7
Actuated g/C Ratio	0.38	0.31	0.31	0.38	0.29	0.29	0.46	0.41	0.41	0.48	0.46	0.46
v/c Ratio	0.54	0.66	0.10	0.23	0.54	0.18	0.04	0.55	0.10	0.13	0.91	0.18
Control Delay	26.2	37.2	0.3	19.6	34.3	3.3	10.8	29.6	8.7	11.2	26.9	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	37.2	0.3	19.6	34.3	3.3	10.8	29.6	8.7	11.2	26.9	1.9
LOS	C	D	A	B	C	A	B	C	A	B	C	A
Approach Delay		30.6			25.6			27.7			24.4	
Approach LOS		C			C			C			C	
Stops (vph)	140	332	0	44	242	7	7	762	32	13	822	5
Fuel Used(gal)	3	7	0	1	5	1	0	13	1	0	24	1
CO Emissions (g/hr)	219	519	21	67	367	40	7	932	48	31	1696	84
NOx Emissions (g/hr)	43	101	4	13	71	8	1	181	9	6	330	16
VOC Emissions (g/hr)	51	120	5	16	85	9	2	216	11	7	393	19
Dilemma Vehicles (#)	0	19	0	0	15	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 28 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 26.4
 Intersection LOS: C
 Intersection Capacity Utilization 80.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	272	64	24	140	204	32	736	52	440	1000	96
Future Volume (vph)	52	272	64	24	140	204	32	736	52	440	1000	96
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.971			0.911			0.990				0.987
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1809	0	1770	1697	0	1770	3504	0	1770	3493	0
Flt Permitted	0.320			0.332			0.260			0.184		
Satd. Flow (perm)	596	1809	0	618	1697	0	484	3504	0	343	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			72			7				19
Link Speed (mph)		30			30			30				30
Link Distance (ft)		656			978			598				684
Travel Time (s)		14.9			22.2			13.6				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	272	64	24	140	204	32	736	52	440	1000	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	336	0	24	344	0	32	788	0	440	1096	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0		32.0	67.0	
Total Split (%)	33.0%	33.0%		33.0%	33.0%		35.0%	35.0%		32.0%	67.0%	
Maximum Green (s)	27.5	27.5		27.5	27.5		30.0	30.0		27.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	27.5	27.5		27.5	27.5		35.0	35.0		62.5	62.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.35	0.35		0.62	0.62	
v/c Ratio	0.32	0.66		0.14	0.66		0.19	0.64		0.82	0.50	
Control Delay	35.4	38.4		30.1	32.3		29.3	31.1		13.0	5.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.4	38.4		30.1	32.3		29.3	31.1		13.0	5.1	
LOS	D	D		C	C		C	C		B	A	
Approach Delay		38.0			32.2			31.0			7.3	
Approach LOS		D			C			C			A	
Stops (vph)	42	284		20	243		25	646		242	614	
Fuel Used(gal)	1	6		0	6		0	12		5	10	
CO Emissions (g/hr)	61	413		31	435		33	855		339	725	
NOx Emissions (g/hr)	12	80		6	85		7	166		66	141	
VOC Emissions (g/hr)	14	96		7	101		8	198		78	168	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 24 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 20.3
 Intersection Capacity Utilization 93.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	232	412	272	460	728	0	0	988	268
Future Volume (vph)	0	0	0	232	412	272	460	728	0	0	988	268
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.997		0.950					
Satd. Flow (prot)	0	0	0	1610	3380	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.997		0.200					
Satd. Flow (perm)	0	0	0	1610	3380	1583	723	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						211						167
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	232	412	272	460	728	0	0	988	268
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	0	0	0	209	435	272	460	728	0	0	988	268
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1700-1715
Adaptive

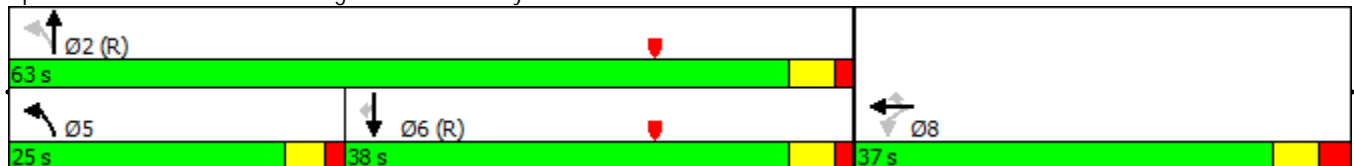


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				37.0	37.0	37.0	25.0	63.0			38.0	38.0
Total Split (%)				37.0%	37.0%	37.0%	25.0%	63.0%			38.0%	38.0%
Maximum Green (s)				31.0	31.0	31.0	20.5	58.0			33.0	33.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				31.0	31.0	31.0	58.5	58.0			40.8	40.8
Actuated g/C Ratio				0.31	0.31	0.31	0.58	0.58			0.41	0.41
v/c Ratio				0.42	0.42	0.43	0.60	0.35			0.38	0.36
Control Delay				30.5	28.8	9.3	18.8	16.6			15.8	5.8
Queue Delay				0.0	0.0	0.0	0.3	3.5			0.0	0.0
Total Delay				30.5	28.8	9.3	19.1	20.1			15.8	5.8
LOS				C	C	A	B	C			B	A
Approach Delay					23.4			19.7			13.6	
Approach LOS					C			B			B	
Stops (vph)				163	334	59	342	539			407	63
Fuel Used(gal)				3	5	1	5	7			13	3
CO Emissions (g/hr)				184	371	99	328	495			922	194
NOx Emissions (g/hr)				36	72	19	64	96			179	38
VOC Emissions (g/hr)				43	86	23	76	115			214	45
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 18.5
 Intersection LOS: B
 Intersection Capacity Utilization 55.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	420	112	104	264	136	140	908	116	176	804	40
Future Volume (vph)	140	420	112	104	264	136	140	908	116	176	804	40
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.94	0.98		0.97	0.96		0.99		0.97	1.00		0.94
Frt		0.968			0.949				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3367	0	1770	3230	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.207			0.126		
Satd. Flow (perm)	1665	3367	0	1709	3230	0	380	3539	1533	234	3539	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			91				131			131
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	420	112	104	264	136	140	908	116	176	804	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	532	0	104	400	0	140	908	116	176	804	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1700-1715

Adaptive











Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	15.0	34.6		14.4	34.0		11.5	38.0	38.0	13.0	39.5	39.5
Total Split (%)	15.0%	34.6%		14.4%	34.0%		11.5%	38.0%	38.0%	13.0%	39.5%	39.5%
Maximum Green (s)	10.5	28.6		9.9	28.0		7.0	32.0	32.0	8.5	33.5	33.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	10.2	29.3		9.2	28.3		40.5	32.0	32.0	43.5	33.5	33.5
Actuated g/C Ratio	0.10	0.29		0.09	0.28		0.40	0.32	0.32	0.44	0.34	0.34
v/c Ratio	0.78	0.53		0.64	0.41		0.56	0.80	0.20	0.76	0.68	0.07
Control Delay	72.8	30.0		61.7	23.7		28.7	32.8	6.2	39.8	32.1	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	3.0	0.0	0.0	0.0	0.0
Total Delay	72.8	30.0		61.7	23.7		28.7	35.9	6.2	39.8	32.1	0.2
LOS	E	C		E	C		C	D	A	D	C	A
Approach Delay		38.9			31.5			32.1			32.2	
Approach LOS		D			C			C			C	
Stops (vph)	126	407		98	243		79	606	26	100	671	0
Fuel Used(gal)	3	7		2	4		2	12	1	3	13	0
CO Emissions (g/hr)	219	480		138	262		112	814	40	201	914	14
NOx Emissions (g/hr)	43	93		27	51		22	158	8	39	178	3
VOC Emissions (g/hr)	51	111		32	61		26	189	9	47	212	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	64 (64%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	33.4
Intersection LOS:	C
Intersection Capacity Utilization:	84.2%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 166: Snelling Ave & University Ave

 Ø1 13 s	 Ø2 (R) 38 s	 Ø3 15 s	 Ø4 34 s
 Ø5 11.5 s	 Ø6 (R) 39.5 s	 Ø7 14.4 s	 Ø8 34.6 s

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	412	4	0	0	0	0	960	204	372	872	0
Future Volume (vph)	260	412	4	0	0	0	0	960	204	372	872	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.995								0.950		
Satd. Flow (prot)	1610	3373	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.995								0.231		
Satd. Flow (perm)	1610	3373	1583	0	0	0	0	6408	1583	835	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71						204			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	260	412	4	0	0	0	0	960	204	372	872	0
Shared Lane Traffic (%)	16%											
Lane Group Flow (vph)	218	454	4	0	0	0	0	960	204	372	872	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	39.0	39.0	39.0					38.0	38.0	23.0	61.0	
Total Split (%)	39.0%	39.0%	39.0%					38.0%	38.0%	23.0%	61.0%	
Maximum Green (s)	33.0	33.0	33.0					33.0	33.0	18.5	56.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	21.8	21.8	21.8					52.6	52.6	67.7	67.2	
Actuated g/C Ratio	0.22	0.22	0.22					0.53	0.53	0.68	0.67	
v/c Ratio	0.62	0.62	0.01					0.28	0.22	0.45	0.37	
Control Delay	42.4	38.4	0.0					7.9	1.3	5.0	5.1	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.2	0.5	
Total Delay	42.5	38.4	0.0					7.9	1.3	5.1	5.6	
LOS	D	D	A					A	A	A	A	
Approach Delay		39.5						6.7			5.4	
Approach LOS		D						A			A	
Stops (vph)	189	393	0					250	9	136	390	
Fuel Used(gal)	3	7	0					11	2	2	5	
CO Emissions (g/hr)	236	464	1					740	121	137	351	
NOx Emissions (g/hr)	46	90	0					144	24	27	68	
VOC Emissions (g/hr)	55	108	0					172	28	32	81	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 46 (46%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 13.4
 Intersection Capacity Utilization 55.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

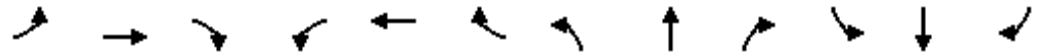
Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Traffic Volume (vph)	0	0	0	300	232	420	368	820	0	0	1272	272
Future Volume (vph)	0	0	0	300	232	420	368	820	0	0	1272	272
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1610	3333	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.983		0.159					
Satd. Flow (perm)	0	0	0	1610	3333	1583	575	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						133						272
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	300	232	420	368	820	0	0	1272	272
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	0	0	174	358	420	368	820	0	0	1272	272
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4			1	6			2
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1700-1715
Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				46.0	46.0	46.0	20.0	59.0			39.0	39.0
Total Split (%)				43.8%	43.8%	43.8%	19.0%	56.2%			37.1%	37.1%
Maximum Green (s)				40.0	40.0	40.0	15.5	54.0			34.0	34.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				18.1	18.1	18.1	76.4	75.9			60.8	60.8
Actuated g/C Ratio				0.17	0.17	0.17	0.73	0.72			0.58	0.58
v/c Ratio				0.63	0.62	1.10	0.52	0.32			0.34	0.26
Control Delay				49.9	44.7	104.0	20.1	7.8			6.8	0.7
Queue Delay				0.0	0.0	0.0	0.3	0.6			0.0	0.0
Total Delay				49.9	44.7	104.0	20.4	8.4			6.9	0.7
LOS				D	D	F	C	A			A	A
Approach Delay					71.8			12.2			5.8	
Approach LOS					E			B			A	
Stops (vph)				156	320	263	259	299			310	5
Fuel Used(gal)				3	6	11	4	5			17	3
CO Emissions (g/hr)				209	402	783	262	333			1166	202
NOx Emissions (g/hr)				41	78	152	51	65			227	39
VOC Emissions (g/hr)				48	93	182	61	77			270	47
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 80 (76%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 24.9
 Intersection LOS: C
 Intersection Capacity Utilization 74.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1700-1715

Adaptive

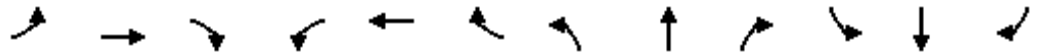


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	504	504	0	0	0	0	976	144	428	1236	0
Future Volume (vph)	272	504	504	0	0	0	0	976	144	428	1236	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.219		
Satd. Flow (perm)	1610	3380	1583	0	0	0	0	6408	1583	791	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68						144			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	272	504	504	0	0	0	0	976	144	428	1236	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	245	531	504	0	0	0	0	976	144	428	1236	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1700-1715

Adaptive

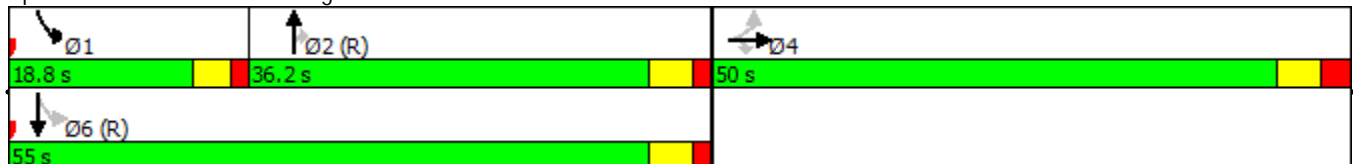


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	50.0	50.0	50.0					36.2	36.2	18.8	55.0	
Total Split (%)	47.6%	47.6%	47.6%					34.5%	34.5%	17.9%	52.4%	
Maximum Green (s)	44.0	44.0	44.0					31.2	31.2	14.3	50.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	27.8	27.8	27.8					50.9	50.9	66.7	66.2	
Actuated g/C Ratio	0.26	0.26	0.26					0.48	0.48	0.64	0.63	
v/c Ratio	0.58	0.59	1.08					0.31	0.17	0.55	0.55	
Control Delay	37.9	35.7	95.7					18.3	4.2	7.7	6.2	
Queue Delay	0.1	0.0	0.0					0.0	0.0	0.1	0.2	
Total Delay	38.0	35.8	95.7					18.3	4.2	7.8	6.4	
LOS	D	D	F					B	A	A	A	
Approach Delay		59.8						16.5			6.8	
Approach LOS		E						B			A	
Stops (vph)	204	442	413					583	16	132	419	
Fuel Used(gal)	4	7	13					13	1	2	7	
CO Emissions (g/hr)	246	517	918					942	83	164	461	
NOx Emissions (g/hr)	48	101	179					183	16	32	90	
VOC Emissions (g/hr)	57	120	213					218	19	38	107	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 104 (99%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 26.2
 Intersection LOS: C
 Intersection Capacity Utilization 74.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	20	32	144	72	32	68	16	912	100	48	968	8
Future Volume (vph)	20	32	144	72	32	68	16	912	100	48	968	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.97		0.99	0.98	1.00		0.97	1.00	1.00	
Frt			0.850			0.850			0.850		0.999	
Flt Protected		0.981			0.967		0.950			0.950		
Satd. Flow (prot)	0	1827	1583	0	1801	1583	1770	3539	1583	1770	3535	0
Flt Permitted		0.846			0.761		0.267			0.273		
Satd. Flow (perm)	0	1573	1531	0	1398	1554	497	3539	1543	508	3535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144			71			100			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	32	144	72	32	68	16	912	100	48	968	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	144	0	104	68	16	912	100	48	976	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	36.0	36.0	36.0	36.0	36.0	36.0	12.0	51.0	52.0	13.0	52.0	
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	12.0%	51.0%	52.0%	13.0%	52.0%	
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	7.5	46.0	47.0	8.5	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		14.6	13.2		14.6	13.2	74.7	71.0	73.4	75.9	73.4	
Actuated g/C Ratio		0.15	0.13		0.15	0.13	0.75	0.71	0.73	0.76	0.73	
v/c Ratio		0.23	0.44		0.51	0.26	0.03	0.36	0.09	0.10	0.38	
Control Delay		36.8	9.8		46.0	9.6	1.8	3.6	0.7	2.5	3.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.2	
Total Delay		36.8	9.8		46.0	9.6	1.8	3.6	0.7	2.5	3.1	
LOS		D	A		D	A	A	A	A	A	A	
Approach Delay		16.9			31.6			3.3			3.1	
Approach LOS		B			C			A			A	
Stops (vph)		43	21		91	13	2	163	4	6	109	
Fuel Used(gal)		1	1		2	1	0	9	1	0	4	
CO Emissions (g/hr)		61	75		141	39	10	612	57	12	251	
NOx Emissions (g/hr)		12	15		28	8	2	119	11	2	49	
VOC Emissions (g/hr)		14	17		33	9	2	142	13	3	58	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 4 (4%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 6.3
 Intersection Capacity Utilization 67.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3660
Total Delay / Veh (s/v)	36
Total Delay (hr)	37
Fuel Consumed (gal)	69
Fuel Economy (mpg)	9.1
CO Emissions (kg)	4.80
NOx Emissions (kg)	0.93
VOC Emissions (kg)	1.11

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3620
Total Delay / Veh (s/v)	26
Total Delay (hr)	27
Fuel Consumed (gal)	58
Fuel Economy (mpg)	10.0
CO Emissions (kg)	4.03
NOx Emissions (kg)	0.78
VOC Emissions (kg)	0.93

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3112
Total Delay / Veh (s/v)	20
Total Delay (hr)	18
Fuel Consumed (gal)	41
Fuel Economy (mpg)	9.9
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3360
Total Delay / Veh (s/v)	18
Total Delay (hr)	17
Fuel Consumed (gal)	38
Fuel Economy (mpg)	9.3
CO Emissions (kg)	2.63
NOx Emissions (kg)	0.51
VOC Emissions (kg)	0.61

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3360
Total Delay / Veh (s/v)	33
Total Delay (hr)	31
Fuel Consumed (gal)	46
Fuel Economy (mpg)	5.5
CO Emissions (kg)	3.23
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3084
Total Delay / Veh (s/v)	13
Total Delay (hr)	11
Fuel Consumed (gal)	29
Fuel Economy (mpg)	11.1
CO Emissions (kg)	2.06
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3684
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	48
Fuel Economy (mpg)	10.4
CO Emissions (kg)	3.37
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.78

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	4064
Total Delay / Veh (s/v)	26
Total Delay (hr)	30
Fuel Consumed (gal)	48
Fuel Economy (mpg)	7.1
CO Emissions (kg)	3.34
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.77

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2420
Total Delay / Veh (s/v)	6
Total Delay (hr)	4
Fuel Consumed (gal)	18
Fuel Economy (mpg)	16.7
CO Emissions (kg)	1.26
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.29

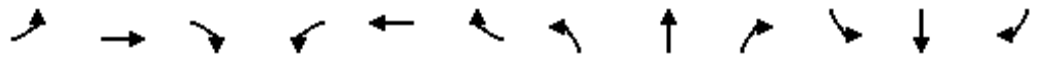
Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	24
Total Delay (hr)	200
Fuel Consumed (gal)	395
Fuel Economy (mpg)	9.3
CO Emissions (kg)	27.61
NOx Emissions (kg)	5.37
VOC Emissions (kg)	6.40
Performance Index	248.3

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Future Volume (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.964			0.993				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3412	0	1770	3514	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.152			0.133		
Satd. Flow (perm)	1770	3412	0	1770	3514	0	283	3539	1583	248	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			4				129			129
Link Speed (mph)		30			30			30				30
Link Distance (ft)		624			899			1330				681
Travel Time (s)		14.2			20.4			30.2				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	220	792	0	184	340	0	152	960	72	64	856	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1715-1730

Adaptive

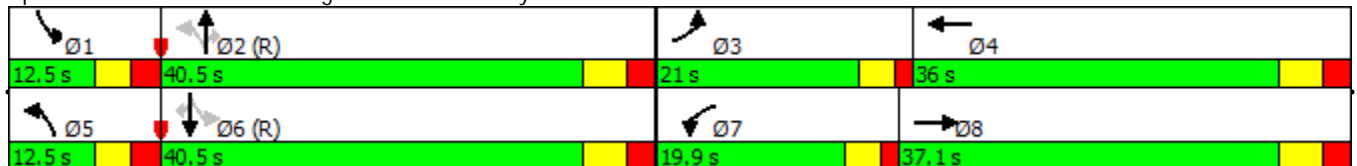


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	21.0	37.1		19.9	36.0		12.5	40.5	40.5	12.5	40.5	40.5
Total Split (%)	19.1%	33.7%		18.1%	32.7%		11.4%	36.8%	36.8%	11.4%	36.8%	36.8%
Maximum Green (s)	16.5	31.1		15.4	30.0		7.0	34.5	34.5	7.0	34.5	34.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	15.9	29.8		14.4	28.3		45.8	39.3	39.3	43.7	36.2	36.2
Actuated g/C Ratio	0.14	0.27		0.13	0.26		0.42	0.36	0.36	0.40	0.33	0.33
v/c Ratio	0.86	0.83		0.80	0.37		0.69	0.76	0.11	0.33	0.74	0.11
Control Delay	76.3	44.4		70.7	34.1		34.2	31.5	4.2	23.2	37.7	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.3	44.4		70.7	34.1		34.2	31.5	4.2	23.2	37.7	0.4
LOS	E	D		E	C		C	C	A	C	D	A
Approach Delay		51.3			47.0			30.2			34.2	
Approach LOS		D			D			C			C	
Stops (vph)	198	694		169	266		94	743	16	39	743	0
Fuel Used(gal)	6	15		5	6		3	20	1	1	15	0
CO Emissions (g/hr)	390	1037		341	434		221	1413	63	60	1064	26
NOx Emissions (g/hr)	76	202		66	85		43	275	12	12	207	5
VOC Emissions (g/hr)	90	240		79	101		51	327	15	14	247	6
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 86 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 39.4
 Intersection LOS: D
 Intersection Capacity Utilization 83.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1715-1730

Adaptive

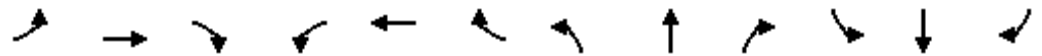


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Future Volume (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.447			0.246			0.081			0.145		
Satd. Flow (perm)	833	1863	1583	458	1863	1583	151	3539	1583	270	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114			114			119			119
Link Speed (mph)		35		35			30			30		30
Link Distance (ft)		727		658			684			1025		
Travel Time (s)		14.2		12.8			15.5			23.3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12		12			20			20		
Link Offset(ft)		0		-6			0			0		
Crosswalk Width(ft)		16		16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			94			94		94
Detector 2 Size(ft)		6		6			6			6		6
Detector 2 Type		Cl+Ex		Cl+Ex			Cl+Ex			Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0			0.0			0.0		0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1715-1730

Adaptive

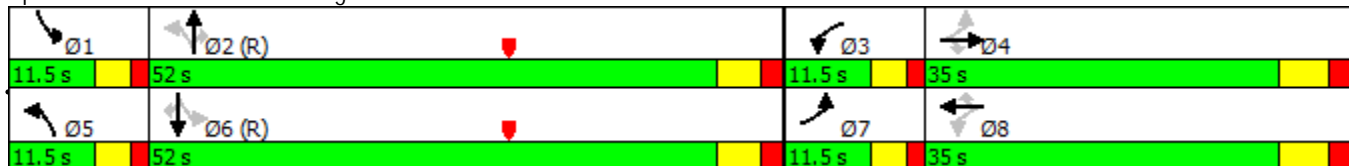


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	52.0	52.0	11.5	52.0	52.0
Total Split (%)	10.5%	31.8%	31.8%	10.5%	31.8%	31.8%	10.5%	47.3%	47.3%	10.5%	47.3%	47.3%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0	29.0	7.0	46.5	46.5	7.0	46.5	46.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effct Green (s)	37.5	29.0	29.0	37.5	29.0	29.0	56.3	51.1	51.1	56.3	51.1	51.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.51	0.46	0.46	0.51	0.46	0.46
v/c Ratio	0.59	0.77	0.13	0.54	0.52	0.18	0.22	0.65	0.13	0.10	0.92	0.19
Control Delay	33.8	49.6	1.4	32.2	39.1	3.9	11.1	27.7	8.1	14.0	35.1	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	49.6	1.4	32.2	39.1	3.9	11.1	27.7	8.1	14.0	35.1	6.7
LOS	C	D	A	C	D	A	B	C	A	B	D	A
Approach Delay		39.9			30.7			25.5			32.2	
Approach LOS		D			C			C			C	
Stops (vph)	164	341	1	89	214	6	23	971	36	11	951	31
Fuel Used(gal)	4	8	0	2	5	1	0	17	1	0	28	2
CO Emissions (g/hr)	259	587	25	148	340	37	30	1200	63	22	1967	111
NOx Emissions (g/hr)	50	114	5	29	66	7	6	234	12	4	383	22
VOC Emissions (g/hr)	60	136	6	34	79	9	7	278	15	5	456	26
Dilemma Vehicles (#)	0	17	0	0	12	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 31.2
 Intersection LOS: C
 Intersection Capacity Utilization 82.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Future Volume (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.979			0.920			0.992			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1824	0	1770	1714	0	1770	3511	0	1770	3504	0
Flt Permitted	0.265			0.313			0.280			0.184		
Satd. Flow (perm)	494	1824	0	583	1714	0	522	3511	0	343	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			51			5			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	344	0	60	376	0	24	828	0	416	1024	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	36.0	36.0		36.0	36.0		41.0	41.0		33.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%		37.3%	37.3%		30.0%	67.3%	
Maximum Green (s)	30.5	30.5		30.5	30.5		36.0	36.0		28.5	69.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	30.5	30.5		30.5	30.5		41.9	41.9		69.5	69.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.38	0.38		0.63	0.63	
v/c Ratio	0.38	0.67		0.37	0.73		0.12	0.62		0.82	0.47	
Control Delay	42.1	42.3		40.2	40.7		27.3	31.0		15.1	9.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.1	42.3		40.2	40.7		27.3	31.0		15.1	9.2	
LOS	D	D		D	D		C	C		B	A	
Approach Delay		42.2			40.7			30.9			10.9	
Approach LOS		D			D			C			B	
Stops (vph)	43	296		47	295		18	659		281	771	
Fuel Used(gal)	1	6		1	8		0	13		5	12	
CO Emissions (g/hr)	66	444		84	532		24	890		353	814	
NOx Emissions (g/hr)	13	86		16	104		5	173		69	158	
VOC Emissions (g/hr)	15	103		20	123		6	206		82	189	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 24.5
 Intersection LOS: C
 Intersection Capacity Utilization 94.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1715-1730

Adaptive

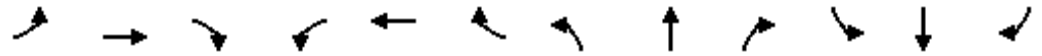


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Future Volume (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.992		0.950					
Satd. Flow (prot)	0	0	0	1610	3363	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.992		0.184					
Satd. Flow (perm)	0	0	0	1610	3363	1583	665	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						178						190
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Shared Lane Traffic (%)				26%								
Lane Group Flow (vph)	0	0	0	225	471	324	488	780	0	0	1024	256
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				43.0	43.0	43.0	29.0	67.0			38.0	38.0
Total Split (%)				39.1%	39.1%	39.1%	26.4%	60.9%			34.5%	34.5%
Maximum Green (s)				37.0	37.0	37.0	24.5	62.0			33.0	33.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				37.0	37.0	37.0	62.5	62.0			43.1	43.1
Actuated g/C Ratio				0.34	0.34	0.34	0.57	0.56			0.39	0.39
v/c Ratio				0.42	0.42	0.50	0.66	0.39			0.41	0.35
Control Delay				31.1	29.6	15.5	28.9	22.3			15.1	2.1
Queue Delay				0.0	0.0	0.0	0.4	1.9			0.0	0.0
Total Delay				31.1	29.6	15.5	29.3	24.2			15.1	2.1
LOS				C	C	B	C	C			B	A
Approach Delay					25.4			26.2			12.5	
Approach LOS					C			C			B	
Stops (vph)				170	353	117	378	529			407	18
Fuel Used(gal)				3	6	2	6	8			13	2
CO Emissions (g/hr)				198	403	164	424	575			940	155
NOx Emissions (g/hr)				39	78	32	82	112			183	30
VOC Emissions (g/hr)				46	93	38	98	133			218	36
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 21.0
 Intersection LOS: C
 Intersection Capacity Utilization 55.8%
 ICU Level of Service B
 Analysis Period (min) 15

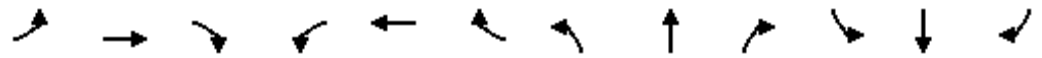
Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1715-1730

Adaptive

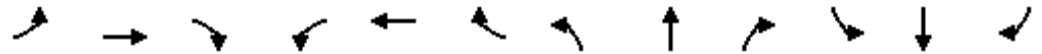


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Future Volume (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.94	0.98		0.96	0.97		0.99		0.97	1.00		0.93
Frt		0.960			0.958				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3316	0	1770	3273	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.225			0.149		
Satd. Flow (perm)	1665	3316	0	1696	3273	0	413	3539	1530	276	3539	1475
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			51				164			119
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	464	0	88	468	0	96	868	132	180	840	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1715-1730

Adaptive

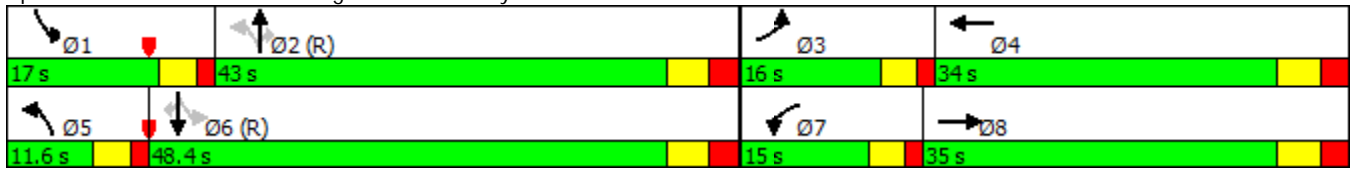


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	16.0	35.0		15.0	34.0		11.6	43.0	43.0	17.0	48.4	48.4
Total Split (%)	14.5%	31.8%		13.6%	30.9%		10.5%	39.1%	39.1%	15.5%	44.0%	44.0%
Maximum Green (s)	11.5	29.0		10.5	28.0		7.1	37.0	37.0	12.5	42.4	42.4
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	10.3	32.3		9.5	29.2		47.1	38.5	38.5	54.5	42.4	42.4
Actuated g/C Ratio	0.09	0.29		0.09	0.27		0.43	0.35	0.35	0.50	0.39	0.39
v/c Ratio	0.61	0.46		0.58	0.52		0.36	0.70	0.21	0.63	0.62	0.06
Control Delay	63.4	31.3		63.4	33.1		13.8	22.3	2.2	25.5	29.6	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.1	0.0	0.0	0.0	0.0
Total Delay	63.4	31.3		63.4	33.1		13.8	23.4	2.2	25.5	29.6	0.2
LOS	E	C		E	C		B	C	A	C	C	A
Approach Delay		37.0			37.9			20.0			27.8	
Approach LOS		D			D			C			C	
Stops (vph)	94	339		83	348		31	537	17	97	656	0
Fuel Used(gal)	2	6		2	6		1	9	0	2	13	0
CO Emissions (g/hr)	144	421		119	394		47	632	33	167	908	14
NOx Emissions (g/hr)	28	82		23	77		9	123	6	33	177	3
VOC Emissions (g/hr)	33	98		28	91		11	147	8	39	211	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 62 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 28.5
 Intersection Capacity Utilization 82.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1715-1730
Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Future Volume (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.225		
Satd. Flow (perm)	1610	3383	1863	0	0	0	0	6408	1583	813	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									184			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	205	475	0	0	0	0	0	996	184	356	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1715-1730

Adaptive

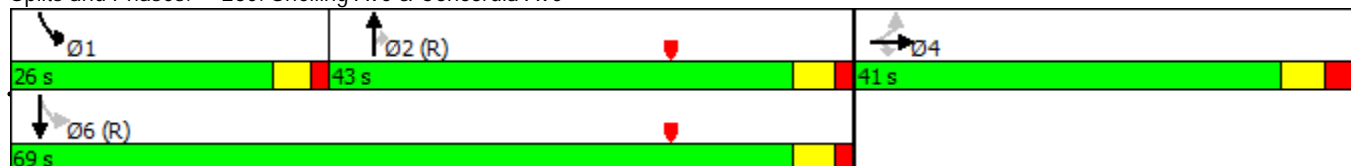


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	41.0	41.0	41.0					43.0	43.0	26.0	69.0	
Total Split (%)	37.3%	37.3%	37.3%					39.1%	39.1%	23.6%	62.7%	
Maximum Green (s)	35.0	35.0	35.0					38.0	38.0	21.5	64.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	23.1	23.1						61.3	61.3	76.4	75.9	
Actuated g/C Ratio	0.21	0.21						0.56	0.56	0.69	0.69	
v/c Ratio	0.61	0.67						0.28	0.19	0.44	0.39	
Control Delay	46.3	44.1						5.6	0.5	3.3	1.8	
Queue Delay	0.8	0.5						0.0	0.0	0.1	0.2	
Total Delay	47.0	44.6						5.6	0.5	3.4	2.0	
LOS	D	D						A	A	A	A	
Approach Delay		45.3						4.8			2.4	
Approach LOS		D						A			A	
Stops (vph)	180	420						182	3	31	101	
Fuel Used(gal)	3	8						10	2	1	3	
CO Emissions (g/hr)	234	528						706	105	85	215	
NOx Emissions (g/hr)	45	103						137	20	16	42	
VOC Emissions (g/hr)	54	122						164	24	20	50	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 34 (31%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 12.5
 Intersection LOS: B
 Intersection Capacity Utilization 55.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↷	↶	↷	↷		↷	↷
Traffic Volume (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Future Volume (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.989		0.950					
Satd. Flow (prot)	0	0	0	1610	3353	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.989		0.201					
Satd. Flow (perm)	0	0	0	1610	3353	1583	726	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						108						286
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Shared Lane Traffic (%)				31%								
Lane Group Flow (vph)	0	0	0	218	454	452	396	856	0	0	1080	316
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4			1			6	2
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1715-1730
Adaptive

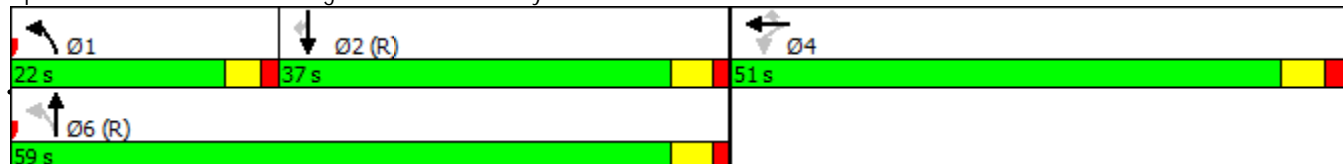


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				51.0	51.0	51.0	22.0	59.0			37.0	37.0
Total Split (%)				46.4%	46.4%	46.4%	20.0%	53.6%			33.6%	33.6%
Maximum Green (s)				45.0	45.0	45.0	17.5	54.0			32.0	32.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				22.8	22.8	22.8	76.7	76.2			61.0	61.0
Actuated g/C Ratio				0.21	0.21	0.21	0.70	0.69			0.55	0.55
v/c Ratio				0.65	0.65	1.09	0.51	0.35			0.30	0.31
Control Delay				48.5	43.9	103.1	20.0	6.5			10.2	1.4
Queue Delay				0.0	0.0	0.0	0.3	0.3			0.0	0.0
Total Delay				48.5	43.9	103.1	20.3	6.9			10.2	1.4
LOS				D	D	F	C	A			B	A
Approach Delay					68.6			11.1			8.2	
Approach LOS					E			B			A	
Stops (vph)				193	401	323	294	325			346	14
Fuel Used(gal)				4	7	12	4	5			15	3
CO Emissions (g/hr)				256	503	853	287	337			1073	241
NOx Emissions (g/hr)				50	98	166	56	65			209	47
VOC Emissions (g/hr)				59	117	198	67	78			249	56
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 100 (91%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 27.2
 Intersection LOS: C
 Intersection Capacity Utilization 74.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Future Volume (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.212		
Satd. Flow (perm)	1610	3383	1583	0	0	0	0	6408	1583	766	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64						133			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	245	571	612	0	0	0	0	1000	152	364	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1715-1730
Adaptive

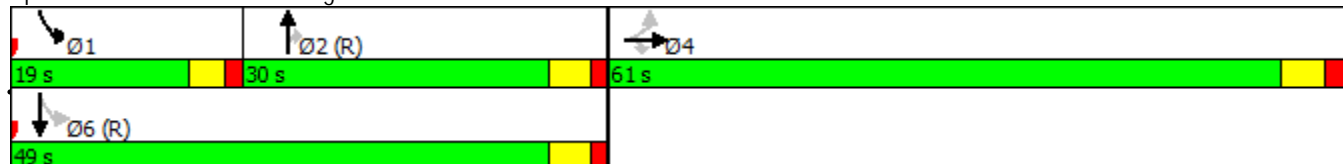


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	61.0	61.0	61.0					30.0	30.0	19.0	49.0	
Total Split (%)	55.5%	55.5%	55.5%					27.3%	27.3%	17.3%	44.5%	
Maximum Green (s)	55.0	55.0	55.0					25.0	25.0	14.5	44.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	30.6	30.6	30.6					53.4	53.4	68.9	68.4	
Actuated g/C Ratio	0.28	0.28	0.28					0.49	0.49	0.63	0.62	
v/c Ratio	0.55	0.61	1.26					0.32	0.18	0.50	0.45	
Control Delay	37.5	36.6	164.1					19.0	5.6	10.1	8.9	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.1	
Total Delay	37.5	36.6	164.1					19.0	5.6	10.1	9.0	
LOS	D	D	F					B	A	B	A	
Approach Delay		91.4						17.3			9.3	
Approach LOS		F						B			A	
Stops (vph)	198	474	455					599	23	90	408	
Fuel Used(gal)	3	8	24					14	1	2	6	
CO Emissions (g/hr)	242	563	1693					976	93	143	433	
NOx Emissions (g/hr)	47	109	329					190	18	28	84	
VOC Emissions (g/hr)	56	130	392					226	22	33	100	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.26
 Intersection Signal Delay: 41.5
 Intersection Capacity Utilization 74.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Future Volume (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.999	
Flt Protected		0.982			0.959		0.950			0.950		
Satd. Flow (prot)	0	1829	1583	0	1786	1583	1770	3539	1583	1770	3535	0
Flt Permitted		0.865			0.727		0.223			0.239		
Satd. Flow (perm)	0	1608	1528	0	1329	1553	415	3539	1543	445	3535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			100			132			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	164	0	132	100	28	996	132	44	1088	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1715-1730
Adaptive

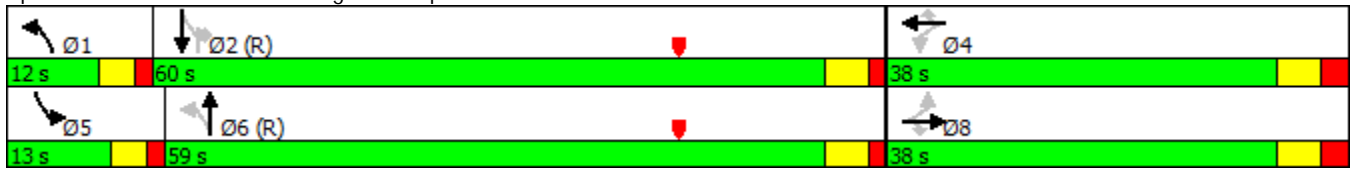


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	12.0	59.0	60.0	13.0	60.0	
Total Split (%)	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	10.9%	53.6%	54.5%	11.8%	54.5%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	7.5	54.0	55.0	8.5	55.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		17.2	17.2		17.2	17.2	78.5	72.4	74.9	79.7	74.9	
Actuated g/C Ratio		0.16	0.16		0.16	0.16	0.71	0.66	0.68	0.72	0.68	
v/c Ratio		0.18	0.43		0.63	0.31	0.07	0.43	0.12	0.11	0.45	
Control Delay		38.6	9.2		55.8	9.4	4.6	9.1	2.1	3.1	4.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.1	
Total Delay		38.6	9.2		55.8	9.4	4.6	9.1	2.1	3.1	4.4	
LOS		D	A		E	A	A	A	A	A	A	
Approach Delay		15.4			35.8			8.2			4.3	
Approach LOS		B			D			A			A	
Stops (vph)		36	21		120	16	8	365	15	6	169	
Fuel Used(gal)		1	1		3	1	0	12	1	0	5	
CO Emissions (g/hr)		52	83		200	56	20	818	82	12	318	
NOx Emissions (g/hr)		10	16		39	11	4	159	16	2	62	
VOC Emissions (g/hr)		12	19		46	13	5	190	19	3	74	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	9.5
Intersection LOS:	A
Intersection Capacity Utilization:	72.0%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3708
Total Delay / Veh (s/v)	39
Total Delay (hr)	41
Fuel Consumed (gal)	72
Fuel Economy (mpg)	8.8
CO Emissions (kg)	5.05
NOx Emissions (kg)	0.98
VOC Emissions (kg)	1.17

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	4024
Total Delay / Veh (s/v)	31
Total Delay (hr)	35
Fuel Consumed (gal)	69
Fuel Economy (mpg)	9.2
CO Emissions (kg)	4.79
NOx Emissions (kg)	0.93
VOC Emissions (kg)	1.11

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3124
Total Delay / Veh (s/v)	24
Total Delay (hr)	21
Fuel Consumed (gal)	46
Fuel Economy (mpg)	9.0
CO Emissions (kg)	3.21
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.74

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3568
Total Delay / Veh (s/v)	21
Total Delay (hr)	21
Fuel Consumed (gal)	41
Fuel Economy (mpg)	8.9
CO Emissions (kg)	2.88
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	29
Total Delay (hr)	26
Fuel Consumed (gal)	41
Fuel Economy (mpg)	6.0
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3176
Total Delay / Veh (s/v)	12
Total Delay (hr)	11
Fuel Consumed (gal)	27
Fuel Economy (mpg)	12.4
CO Emissions (kg)	1.88
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3772
Total Delay / Veh (s/v)	27
Total Delay (hr)	28
Fuel Consumed (gal)	51
Fuel Economy (mpg)	9.3
CO Emissions (kg)	3.56
NOx Emissions (kg)	0.69
VOC Emissions (kg)	0.82

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	3924
Total Delay / Veh (s/v)	42
Total Delay (hr)	45
Fuel Consumed (gal)	59
Fuel Economy (mpg)	5.6
CO Emissions (kg)	4.14
NOx Emissions (kg)	0.81
VOC Emissions (kg)	0.96

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2728
Total Delay / Veh (s/v)	9
Total Delay (hr)	7
Fuel Consumed (gal)	24
Fuel Economy (mpg)	14.5
CO Emissions (kg)	1.64
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	27
Total Delay (hr)	235
Fuel Consumed (gal)	430
Fuel Economy (mpg)	8.8
CO Emissions (kg)	30.05
NOx Emissions (kg)	5.85
VOC Emissions (kg)	6.96
Performance Index	286.0

SYNCHRO REPORTS

SUMMARY OF AGGREGATED DELAY AND EMISSIONS RESULTS

Summary	Existing			Adaptive	
	Volume	Delay (s/v)	Emissions	Delay (s/v)	Emissions
101: Lexington Ave & University Ave	3575	44.0	7.315	36.8	6.7
155: Snelling Ave & Marshall Ave	3750	37.8	7.0375	27.9	6.1
161: Snelling Ave & Selby Ave	3135	24.8	4.2075	23.3	4.5
162: Snelling Ave & St Anthony Ave	3525	24.5	4.2925	19.5	4.0
166: Snelling Ave & University Ave	3329	36.5	4.9175	31.5	4.4
260: Snelling Ave & Concordia Ave	3235	27.8	4.355	14.3	3.1
261: Lexington Ave & St Anthony Ave	3819	28.0	5.54	24.7	5.0
262: Lexington Ave & Concordia Ave	4002	31.2	5.2925	27.7	4.8
404: Snelling Ave & Spruce Tree Rd	2573	9.5	2.2175	7.5	2.1

HOURLY VOLUMES BY INTERVAL (4 X 15 MINUTE VOLUME)

Future Volume (vph)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	3416	3516	3660	3708	3416	3516	3660	3708
155: Snelling Ave & Marshall Ave	3608	3748	3620	4024	3608	3748	3620	4024
161: Snelling Ave & Selby Ave	3248	3056	3112	3124	3248	3056	3112	3124
162: Snelling Ave & St Anthony Ave	3652	3520	3360	3568	3652	3520	3360	3568
166: Snelling Ave & University Ave	3268	3412	3360	3276	3268	3412	3360	3276
260: Snelling Ave & Concordia Ave	3276	3404	3084	3176	3276	3404	3084	3176
261: Lexington Ave & St Anthony Ave	3944	3876	3684	3772	3944	3876	3684	3772
262: Lexington Ave & Concordia Ave	4132	3888	4064	3924	4132	3888	4064	3924
404: Snelling Ave & Spruce Tree Rd	2508	2636	2420	2728	2508	2636	2420	2728

HOURLY DELAY BY INTERVAL

Total Delay (hr)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	38	44	45	48	32	37	37	41
155: Snelling Ave & Marshall Ave	37	39	36	45	25	30	27	35
161: Snelling Ave & Selby Ave	23	21	20	23	21	21	18	21
162: Snelling Ave & St Anthony Ave	25	25	21	24	21	17	17	21
166: Snelling Ave & University Ave	32	38	34	31	28	31	31	26
260: Snelling Ave & Concordia Ave	26	26	23	24	12	18	11	11
261: Lexington Ave & St Anthony Ave	32	29	28	30	30	22	25	28
262: Lexington Ave & Concordia Ave	30	26	38	45	25	23	30	45
404: Snelling Ave & Spruce Tree Rd	7	7	6	8	6	5	4	7

SYNCHRO REPORTS

HOURLY CARBON MONOXIDE EMISSIONS BY INTERVAL (KG/HR)

CO Emissions (kg)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	4.74	5.05	5.26	5.47	4.35	4.67	4.80	5.05
155: Snelling Ave & Marshall Ave	4.70	4.91	4.66	5.46	3.97	4.38	4.03	4.79
161: Snelling Ave & Selby Ave	3.09	2.87	2.85	2.98	3.28	3.17	2.89	3.21
162: Snelling Ave & St Anthony Ave	3.23	3.03	2.76	3.01	3.00	2.58	2.63	2.88
166: Snelling Ave & University Ave	3.34	3.73	3.46	3.26	2.99	3.22	3.23	2.89
260: Snelling Ave & Concordia Ave	3.16	3.23	2.85	2.97	2.06	2.58	2.06	1.88
261: Lexington Ave & St Anthony Ave	4.04	3.94	3.69	3.86	3.78	3.32	3.37	3.56
262: Lexington Ave & Concordia Ave	3.54	3.17	3.91	4.21	3.18	2.93	3.34	4.14
404: Snelling Ave & Spruce Tree Rd	1.52	1.61	1.41	1.68	1.42	1.46	1.26	1.64

HOURLY NOX EMISSIONS BY INTERVAL (KG/HR)

NOx Emissions (kg)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	0.92	0.98	1.02	1.06	0.85	0.91	0.93	0.98
155: Snelling Ave & Marshall Ave	0.91	0.96	0.91	1.06	0.77	0.85	0.78	0.93
161: Snelling Ave & Selby Ave	0.60	0.56	0.56	0.58	0.64	0.62	0.56	0.62
162: Snelling Ave & St Anthony Ave	0.63	0.59	0.54	0.59	0.58	0.50	0.51	0.56
166: Snelling Ave & University Ave	0.65	0.73	0.67	0.63	0.58	0.63	0.63	0.56
260: Snelling Ave & Concordia Ave	0.62	0.63	0.55	0.58	0.40	0.50	0.40	0.37
261: Lexington Ave & St Anthony Ave	0.79	0.77	0.72	0.75	0.73	0.65	0.65	0.69
262: Lexington Ave & Concordia Ave	0.69	0.62	0.76	0.82	0.62	0.57	0.65	0.81
404: Snelling Ave & Spruce Tree Rd	0.30	0.31	0.27	0.33	0.28	0.28	0.25	0.32

HOURLY VOLITILE ORGANIC COMPOUND EMISSIONS BY INTERVAL (KG/HR)

VOC Emissions (kg)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	1.10	1.17	1.22	1.27	1.01	1.08	1.11	1.17
155: Snelling Ave & Marshall Ave	1.09	1.14	1.08	1.27	0.92	1.02	0.93	1.11
161: Snelling Ave & Selby Ave	0.72	0.67	0.66	0.69	0.76	0.73	0.67	0.74
162: Snelling Ave & St Anthony Ave	0.75	0.70	0.64	0.70	0.69	0.60	0.61	0.67
166: Snelling Ave & University Ave	0.77	0.87	0.80	0.76	0.69	0.75	0.75	0.67
260: Snelling Ave & Concordia Ave	0.73	0.75	0.66	0.69	0.48	0.60	0.48	0.44
261: Lexington Ave & St Anthony Ave	0.94	0.91	0.85	0.90	0.88	0.77	0.78	0.82
262: Lexington Ave & Concordia Ave	0.82	0.74	0.91	0.98	0.74	0.68	0.77	0.96
404: Snelling Ave & Spruce Tree Rd	0.35	0.37	0.33	0.39	0.33	0.34	0.29	0.38

SYNCHRO REPORTS

TOTAL EMISSIONS BY INTERVAL (KG/15 MINUTES)

Total Emissions	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	1.69	1.8	1.875	1.95	1.5525	1.665	1.71	1.8
155: Snelling Ave & Marshall Ave	1.675	1.7525	1.6625	1.9475	1.415	1.5625	1.435	1.7075
161: Snelling Ave & Selby Ave	1.1025	1.025	1.0175	1.0625	1.17	1.13	1.03	1.1425
162: Snelling Ave & St Anthony Ave	1.1525	1.08	0.985	1.075	1.0675	0.92	0.9375	1.0275
166: Snelling Ave & University Ave	1.19	1.3325	1.2325	1.1625	1.065	1.15	1.1525	1.03
260: Snelling Ave & Concordia Ave	1.1275	1.1525	1.015	1.06	0.735	0.92	0.735	0.6725
261: Lexington Ave & St Anthony Ave	1.4425	1.405	1.315	1.3775	1.3475	1.185	1.2	1.2675
262: Lexington Ave & Concordia Ave	1.2625	1.1325	1.395	1.5025	1.135	1.045	1.19	1.4775
404: Snelling Ave & Spruce Tree Rd	0.5425	0.5725	0.5025	0.6	0.5075	0.52	0.45	0.585

DELAY PER VEHICLE BY INTERVAL

Total Delay / Veh (s/v)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	41	45	44	46	34	38	36	39
155: Snelling Ave & Marshall Ave	37	37	36	41	25	29	26	31
161: Snelling Ave & Selby Ave	25	25	23	26	24	25	20	24
162: Snelling Ave & St Anthony Ave	25	26	23	24	21	18	18	21
166: Snelling Ave & University Ave	36	40	36	34	31	33	33	29
260: Snelling Ave & Concordia Ave	29	28	27	27	13	19	13	12
261: Lexington Ave & St Anthony Ave	29	27	27	29	27	20	25	27
262: Lexington Ave & Concordia Ave	26	24	34	41	22	21	26	42
404: Snelling Ave & Spruce Tree Rd	10	9	9	10	8	7	6	9

INTERVAL VOLUME (VEHICLES/15 MINUTES)

Volume	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	854	879	915	927	854	879	915	927
155: Snelling Ave & Marshall Ave	902	937	905	1006	902	937	905	1006
161: Snelling Ave & Selby Ave	812	764	778	781	812	764	778	781
162: Snelling Ave & St Anthony Ave	913	880	840	892	913	880	840	892
166: Snelling Ave & University Ave	817	853	840	819	817	853	840	819
260: Snelling Ave & Concordia Ave	819	851	771	794	819	851	771	794
261: Lexington Ave & St Anthony Ave	986	969	921	943	986	969	921	943
262: Lexington Ave & Concordia Ave	1033	972	1016	981	1033	972	1016	981
404: Snelling Ave & Spruce Tree Rd	627	659	605	682	627	659	605	682

SYNCHRO REPORTS

ARTERIAL CORRIDOR MANAGEMENT (SNELLING & LEXINGTON)

SYNCHRO METHODOLOGY

In order to simulate the benefits to delay and reduction of emissions anticipated with the implementation of adaptive signal timing and optimization, the Synchro analysis performed for this application attempted to imitate the behavior of an adaptive system using the following methodology:

- Turning movement counts at fifteen minute intervals in the PM peak hour were obtained for nine traffic signals where adaptive control is expected to be implemented, on TH 51 (Snelling Avenue between University Avenue and Selby Avenue), and CR 51 (Lexington Parkway between University Avenue and Concordia Avenue).
- Each fifteen minute interval was modeled separately, and the fifteen minute volumes were extrapolated to hourly rates. A PHF of 1 was used for each interval. The intervals were evaluated for two scenarios:
 - **Existing** – Models for each of the four fifteen minute intervals were analyzed individually using the existing signal timing plan for the PM peak hour.
 - **Adaptive** – Each of the four fifteen minute intervals were analyzed individually using optimized timings for their individual volumes, in order to imitate the adaptive system.
- The results were formulated by adjusting the results from the Synchro models to levels appropriate for the aggregate hourly volumes.
 - The delay per vehicle for each interval was multiplied by the actual fifteen minute counts for that interval, and then divided by the actual hourly volume to derive the average delay per vehicle per hour.
 - One quarter of the hourly emissions outputs for each interval were summed to derive the emissions totals for the peak hour.

The City of Saint Paul believes that this modeling depicts a reasonable approximation of the benefits likely to be achieved by the implementation of adaptive signal timing along this corridor.

Please contact Mike Klobucar at 651.266.6208 or mike.klobucar@ci.stpaul.mn.us if you have any questions.

ATTACHED REPORTS

EXISTING SYNCHRO MEASURES OF EFFECTIVENESS (HOURLY)

- 4:30-4:45 PM
- 4:45-5:00 PM
- 5:00-5:15 PM
- 5:15-5:30 PM

PROPOSED SYNCHRO MEASURES OF EFFECTIVENESS WITH ADAPTIVE TIMINGS (HOURLY)

- 4:30-4:45 PM
- 4:45-5:00 PM
- 5:00-5:15 PM
- 5:15-5:30 PM

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Future Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.970			0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3493	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.114			0.241		
Satd. Flow (perm)	1770	3433	0	1770	3493	0	212	3539	1583	449	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			8				118			118
Link Speed (mph)		30			30			30				30
Link Distance (ft)		624			899			1330				681
Travel Time (s)		14.2			20.4			30.2				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	656	0	104	284	0	120	856	132	36	1024	32
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1630-1645
TOD Plan 3

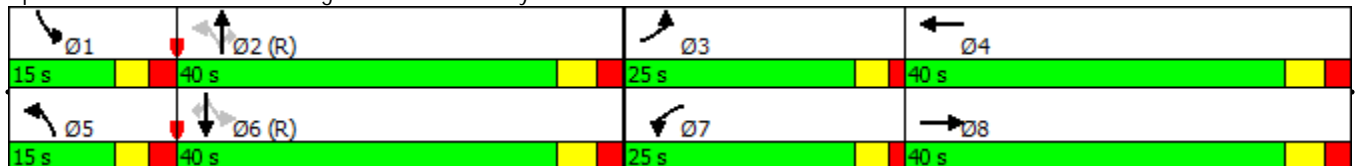


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	25.0	40.0		25.0	40.0		15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	20.8%	33.3%		20.8%	33.3%		12.5%	33.3%	33.3%	12.5%	33.3%	33.3%
Maximum Green (s)	20.5	34.0		20.5	34.0		9.5	34.0	34.0	9.5	34.0	34.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	16.4	30.2		12.4	26.2		59.6	53.0	53.0	54.2	46.3	46.3
Actuated g/C Ratio	0.14	0.25		0.10	0.22		0.50	0.44	0.44	0.45	0.39	0.39
v/c Ratio	0.71	0.74		0.57	0.37		0.54	0.55	0.17	0.13	0.75	0.05
Control Delay	65.4	44.7		63.0	39.2		34.4	40.1	17.1	19.2	38.0	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	44.7		63.0	39.2		34.4	40.1	17.1	19.2	38.0	0.1
LOS	E	D		E	D		C	D	B	B	D	A
Approach Delay		49.0			45.6			36.8			36.3	
Approach LOS		D			D			D			D	
Stops (vph)	162	562		97	226		90	725	108	22	812	0
Fuel Used(gal)	4	12		3	6		3	20	2	0	18	0
CO Emissions (g/hr)	281	857		182	385		180	1389	170	32	1247	12
NOx Emissions (g/hr)	55	167		35	75		35	270	33	6	243	2
VOC Emissions (g/hr)	65	199		42	89		42	322	39	7	289	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 40.6
 Intersection LOS: D
 Intersection Capacity Utilization 77.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Future Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.336			0.373			0.068			0.195		
Satd. Flow (perm)	626	1863	1583	695	1863	1583	127	3539	1583	363	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			101			101
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1630-1645
TOD Plan 3

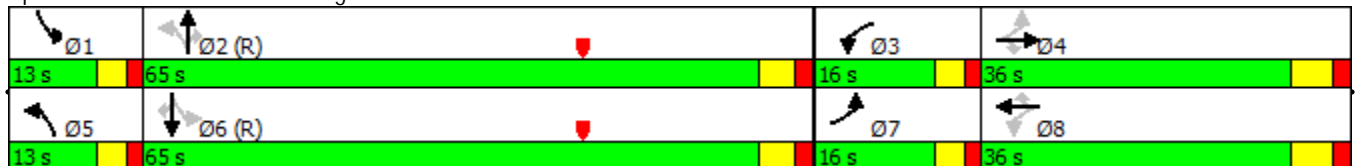


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	16.0	36.0	36.0	16.0	36.0	36.0	13.0	65.0	65.0	13.0	65.0	65.0
Total Split (%)	12.3%	27.7%	27.7%	12.3%	27.7%	27.7%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	11.5	30.0	30.0	11.5	30.0	30.0	8.5	59.5	59.5	8.5	59.5	59.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	45.7	35.0	35.0	40.6	30.2	30.2	69.7	62.8	62.8	71.0	65.2	65.2
Actuated g/C Ratio	0.35	0.27	0.27	0.31	0.23	0.23	0.54	0.48	0.48	0.55	0.50	0.50
v/c Ratio	0.56	0.64	0.12	0.19	0.62	0.20	0.20	0.55	0.09	0.14	0.79	0.18
Control Delay	37.3	50.1	2.4	29.0	52.0	7.4	24.4	34.5	7.8	13.4	40.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	50.1	2.4	29.0	52.0	7.4	24.4	34.5	7.8	13.4	40.5	12.2
LOS	D	D	A	C	D	A	C	C	A	B	D	B
Approach Delay		40.9			39.4			32.3			37.1	
Approach LOS		D			D			C			D	
Stops (vph)	130	281	2	37	238	12	17	696	18	25	1314	99
Fuel Used(gal)	3	7	0	1	6	1	0	16	1	1	30	2
CO Emissions (g/hr)	230	493	25	61	412	45	30	1084	42	40	2092	149
NOx Emissions (g/hr)	45	96	5	12	80	9	6	211	8	8	407	29
VOC Emissions (g/hr)	53	114	6	14	96	10	7	251	10	9	485	35
Dilemma Vehicles (#)	0	12	0	0	10	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 36.6
 Intersection LOS: D
 Intersection Capacity Utilization 76.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Future Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.911			0.989			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1833	0	1770	1697	0	1770	3500	0	1770	3504	0
Flt Permitted	0.222			0.322			0.236			0.249		
Satd. Flow (perm)	414	1833	0	600	1697	0	440	3500	0	464	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			54			8			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	304	0	32	364	0	28	788	0	468	1196	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1630-1645
TOD Plan 3

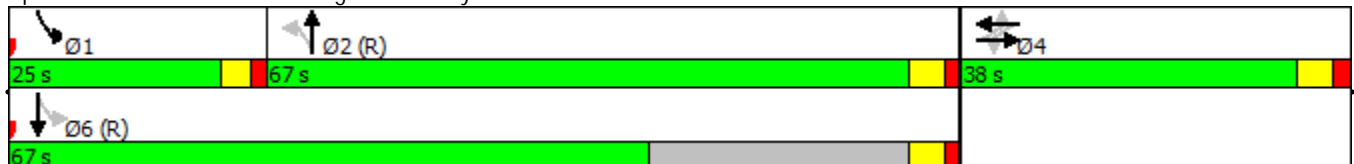


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	38.0	38.0		38.0	38.0		67.0	67.0		25.0	67.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%		51.5%	51.5%		19.2%	51.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		62.0	62.0		20.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	32.5	32.5		32.5	32.5		62.4	62.4		87.5	87.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.48	0.48		0.67	0.67	
v/c Ratio	0.66	0.66		0.21	0.78		0.13	0.47		0.91	0.51	
Control Delay	75.1	51.1		43.2	51.7		21.2	23.6		39.9	2.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.5	
Total Delay	75.1	51.1		43.2	51.7		21.2	23.6		39.9	3.3	
LOS	E	D		D	D		C	C		D	A	
Approach Delay		55.5			51.0			23.6			13.6	
Approach LOS		E			D			C			B	
Stops (vph)	59	267		27	286		16	507		342	252	
Fuel Used(gal)	2	6		1	8		0	10		8	8	
CO Emissions (g/hr)	120	433		47	572		24	718		572	591	
NOx Emissions (g/hr)	23	84		9	111		5	140		111	115	
VOC Emissions (g/hr)	28	100		11	133		6	166		133	137	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 70 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 25.5
 Intersection LOS: C
 Intersection Capacity Utilization 96.1%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕	↗		↕	↗
Traffic Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Future Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.990		0.950					
Satd. Flow (prot)	0	0	0	1610	3356	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.990		0.174					
Satd. Flow (perm)	0	0	0	1610	3356	1583	629	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						273						152
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Shared Lane Traffic (%)				29%								
Lane Group Flow (vph)	0	0	0	187	393	300	620	728	0	0	1148	276
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2				2
Detector Template				Left	Thru	Right	Left	Thru				Thru
Leading Detector (ft)				20	100	20	20	100				100
Trailing Detector (ft)				0	0	0	0	0				0
Detector 1 Position(ft)				0	0	0	0	0				0
Detector 1 Size(ft)				20	6	20	20	6				6
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 2 Position(ft)					94			94				94
Detector 2 Size(ft)					6			6				6
Detector 2 Type					Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				0.0
Turn Type				Perm	NA	Perm	pm+pt	NA				NA
Protected Phases					8			5				6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1630-1645
TOD Plan 3

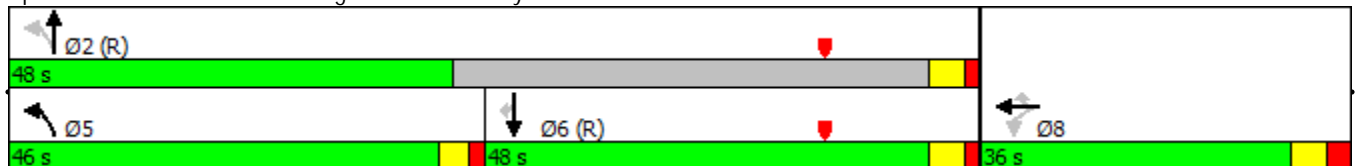


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				36.0	36.0	36.0	46.0	48.0			48.0	48.0
Total Split (%)				27.7%	27.7%	27.7%	35.4%	36.9%			36.9%	36.9%
Maximum Green (s)				30.0	30.0	30.0	41.5	43.0			43.0	43.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				30.0	30.0	30.0	89.5	89.0			65.2	65.2
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.68			0.50	0.50
v/c Ratio				0.50	0.51	0.52	0.73	0.30			0.36	0.32
Control Delay				49.1	46.3	10.3	30.9	18.8			20.4	10.7
Queue Delay				0.0	0.0	0.0	0.2	2.0			0.0	0.0
Total Delay				49.1	46.3	10.3	31.1	20.9			20.4	10.7
LOS				D	D	B	C	C			C	B
Approach Delay					34.6			25.6			18.5	
Approach LOS					C			C			B	
Stops (vph)				161	334	45	452	370			613	114
Fuel Used(gal)				3	6	2	8	6			17	3
CO Emissions (g/hr)				220	445	105	545	453			1201	238
NOx Emissions (g/hr)				43	87	20	106	88			234	46
VOC Emissions (g/hr)				51	103	24	126	105			278	55
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 11 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 25.0
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1630-1645
 TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Future Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.92	0.98		0.96	0.96		0.99		0.96	1.00		0.92
Frt		0.968			0.961				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3351	0	1770	3274	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.192			0.161		
Satd. Flow (perm)	1621	3351	0	1695	3274	0	353	3539	1523	298	3539	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			36				101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	568	0	124	336	0	108	884	96	132	840	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1630-1645
TOD Plan 3

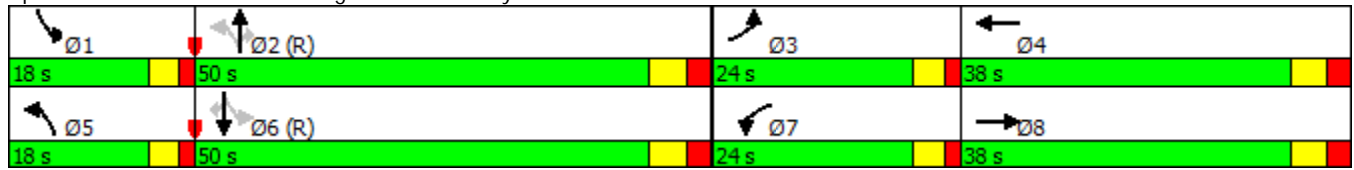


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	24.0	38.0		24.0	38.0		18.0	50.0	50.0	18.0	50.0	50.0
Total Split (%)	18.5%	29.2%		18.5%	29.2%		13.8%	38.5%	38.5%	13.8%	38.5%	38.5%
Maximum Green (s)	19.5	32.0		19.5	32.0		13.5	44.0	44.0	13.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	14.3	37.2		14.3	37.2		58.2	46.8	46.8	59.8	47.6	47.6
Actuated g/C Ratio	0.11	0.29		0.11	0.29		0.45	0.36	0.36	0.46	0.37	0.37
v/c Ratio	0.64	0.58		0.64	0.35		0.41	0.69	0.16	0.51	0.65	0.09
Control Delay	69.5	41.5		69.5	34.7		15.3	28.5	4.5	25.9	37.4	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	2.0	0.0	0.0	0.0	0.0
Total Delay	69.5	41.5		69.5	34.7		15.3	30.5	4.5	25.9	37.4	0.8
LOS	E	D		E	C		B	C	A	C	D	A
Approach Delay		46.5			44.1			26.7			34.0	
Approach LOS		D			D			C			C	
Stops (vph)	116	459		116	235		49	726	33	73	685	1
Fuel Used(gal)	3	9		3	4		1	11	1	2	14	0
CO Emissions (g/hr)	190	615		178	285		61	791	35	124	1013	21
NOx Emissions (g/hr)	37	120		35	55		12	154	7	24	197	4
VOC Emissions (g/hr)	44	143		41	66		14	183	8	29	235	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	35.6
Intersection LOS:	D
Intersection Capacity Utilization:	80.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Future Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.260		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	940	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									162			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		260			284			1025				289
Travel Time (s)		5.9			6.5			23.3				6.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	238	494	0	0	0	0	0	888	204	492	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				32
Link Offset(ft)		0			18			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1630-1645
TOD Plan 3

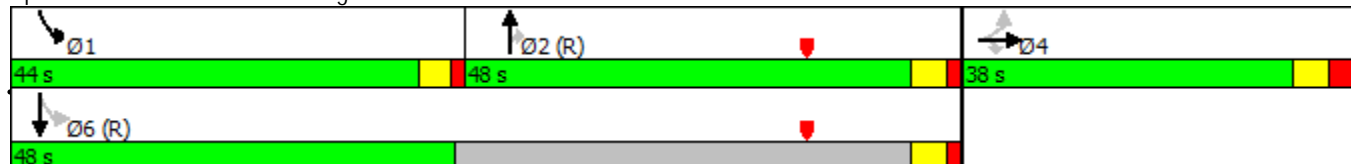


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	44.0	48.0	
Total Split (%)	29.2%	29.2%	29.2%					36.9%	36.9%	33.8%	36.9%	
Maximum Green (s)	32.0	32.0	32.0					43.0	43.0	39.5	43.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	27.0	27.0						74.9	74.9	92.5	92.0	
Actuated g/C Ratio	0.21	0.21						0.58	0.58	0.71	0.71	
v/c Ratio	0.71	0.70						0.24	0.21	0.54	0.38	
Control Delay	59.7	53.2						29.5	19.4	14.7	15.7	
Queue Delay	0.0	0.0						0.0	0.0	0.1	1.2	
Total Delay	59.7	53.2						29.5	19.4	14.9	16.9	
LOS	E	D						C	B	B	B	
Approach Delay		55.3						27.6			16.2	
Approach LOS		E						C			B	
Stops (vph)	217	446						654	157	244	568	
Fuel Used(gal)	5	9						16	3	4	8	
CO Emissions (g/hr)	320	616						1122	231	275	585	
NOx Emissions (g/hr)	62	120						218	45	54	114	
VOC Emissions (g/hr)	74	143						260	53	64	136	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 28.8
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↵	↕	↗	↖	↕			↑↑↑	↗
Traffic Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Future Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1610	3333	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.983		0.158					
Satd. Flow (perm)	0	0	0	1610	3333	1583	571	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						169						263
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	0	0	165	343	420	452	912	0	0	1300	352
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1630-1645
TOD Plan 3

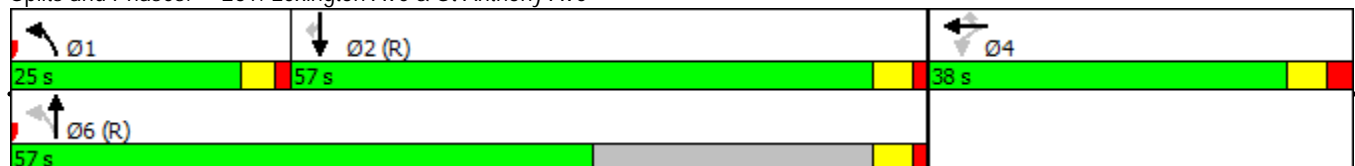


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				38.0	38.0	38.0	25.0	57.0			57.0	57.0
Total Split (%)				31.7%	31.7%	31.7%	20.8%	47.5%			47.5%	47.5%
Maximum Green (s)				32.0	32.0	32.0	20.5	52.0			52.0	52.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				18.9	18.9	18.9	90.6	90.1			74.3	74.3
Actuated g/C Ratio				0.16	0.16	0.16	0.76	0.75			0.62	0.62
v/c Ratio				0.65	0.65	1.07	0.65	0.34			0.33	0.33
Control Delay				59.0	53.0	94.9	22.6	4.6			20.9	13.5
Queue Delay				0.0	0.0	0.0	0.3	0.7			0.0	0.0
Total Delay				59.0	53.0	94.9	22.9	5.3			20.9	13.5
LOS				E	D	F	C	A			C	B
Approach Delay					73.0			11.1			19.3	
Approach LOS					E			B			B	
Stops (vph)				151	313	236	349	255			750	158
Fuel Used(gal)				3	6	10	5	4			23	5
CO Emissions (g/hr)				221	429	718	350	298			1618	384
NOx Emissions (g/hr)				43	83	140	68	58			315	75
VOC Emissions (g/hr)				51	99	166	81	69			375	89
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 29.1
 Intersection Capacity Utilization 68.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Future Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1610	3377	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.996								0.218		
Satd. Flow (perm)	1610	3377	1583	0	0	0	0	6408	1583	788	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109						82			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Shared Lane Traffic (%)	13%											
Lane Group Flow (vph)	296	616	456	0	0	0	0	1000	168	480	1116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1630-1645
TOD Plan 3

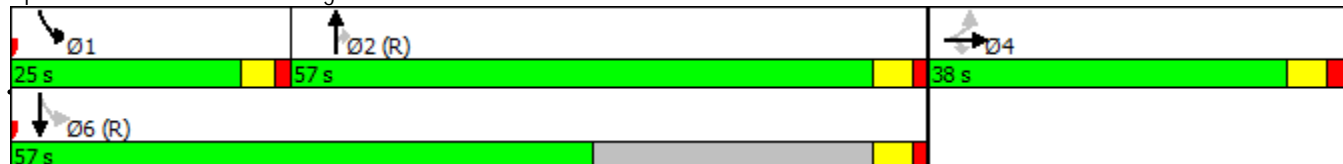


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	38.0	38.0	38.0					57.0	57.0	25.0	57.0	
Total Split (%)	31.7%	31.7%	31.7%					47.5%	47.5%	20.8%	47.5%	
Maximum Green (s)	32.0	32.0	32.0					52.0	52.0	20.5	52.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	30.1	30.1	30.1					62.6	62.6	79.4	78.9	
Actuated g/C Ratio	0.25	0.25	0.25					0.52	0.52	0.66	0.66	
v/c Ratio	0.73	0.73	0.95					0.30	0.19	0.62	0.48	
Control Delay	52.6	46.5	64.5					17.1	9.1	9.8	10.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.3	
Total Delay	52.6	46.5	64.5					17.1	9.1	9.8	10.6	
LOS	D	D	E					B	A	A	B	
Approach Delay		53.8						15.9			10.4	
Approach LOS		D						B			B	
Stops (vph)	266	548	327					548	47	226	630	
Fuel Used(gal)	5	10	9					13	2	3	8	
CO Emissions (g/hr)	367	708	610					929	120	228	579	
NOx Emissions (g/hr)	71	138	119					181	23	44	113	
VOC Emissions (g/hr)	85	164	141					215	28	53	134	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 26.3
 Intersection Capacity Utilization 68.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1630-1645
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕↕	↗	↖	↕↔	
Traffic Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Future Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.971			0.968		0.950			0.950		
Satd. Flow (prot)	0	1809	1583	0	1803	1583	1770	3539	1583	1770	3516	0
Flt Permitted		0.701			0.746		0.273			0.244		
Satd. Flow (perm)	0	1300	1521	0	1367	1551	509	3539	1541	455	3516	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			60			88			4
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	120	0	108	60	12	1004	88	48	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1630-1645
TOD Plan 3

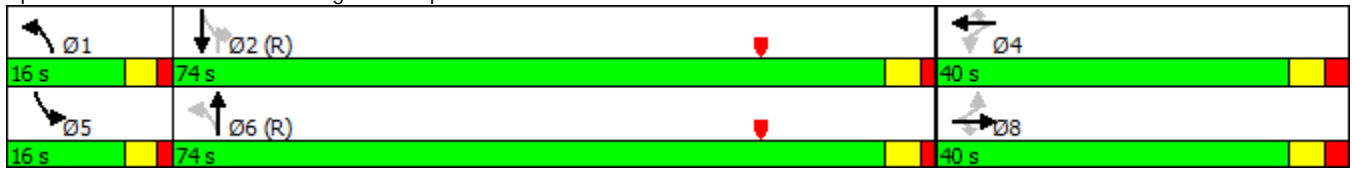


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	16.0	74.0	74.0	16.0	74.0	
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	12.3%	56.9%	56.9%	12.3%	56.9%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	69.0	69.0	11.5	69.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		16.7	16.7		16.7	16.7	99.1	93.0	97.7	101.1	97.7	
Actuated g/C Ratio		0.13	0.13		0.13	0.13	0.76	0.72	0.75	0.78	0.75	
v/c Ratio		0.53	0.40		0.62	0.24	0.03	0.40	0.07	0.11	0.37	
Control Delay		62.5	11.6		67.2	12.8	2.1	5.9	0.7	2.9	3.9	
Queue Delay		0.0	0.0		0.0	0.1	0.0	0.2	0.0	0.0	0.3	
Total Delay		62.5	11.6		67.2	12.9	2.1	6.0	0.7	2.9	4.2	
LOS		E	B		E	B	A	A	A	A	A	
Approach Delay		33.1			47.8			5.6			4.2	
Approach LOS		C			D			A			A	
Stops (vph)		79	17		99	12	1	257	4	7	168	
Fuel Used(gal)		2	1		3	1	0	11	1	0	4	
CO Emissions (g/hr)		138	66		181	38	7	735	51	13	288	
NOx Emissions (g/hr)		27	13		35	7	1	143	10	3	56	
VOC Emissions (g/hr)		32	15		42	9	2	170	12	3	67	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	10 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	10.1
Intersection LOS:	B
Intersection Capacity Utilization	66.6%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3416
Total Delay / Veh (s/v)	41
Total Delay (hr)	38
Fuel Consumed (gal)	68
Fuel Economy (mpg)	8.6
CO Emissions (kg)	4.74
NOx Emissions (kg)	0.92
VOC Emissions (kg)	1.10

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3608
Total Delay / Veh (s/v)	37
Total Delay (hr)	37
Fuel Consumed (gal)	67
Fuel Economy (mpg)	8.5
CO Emissions (kg)	4.70
NOx Emissions (kg)	0.91
VOC Emissions (kg)	1.09

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3248
Total Delay / Veh (s/v)	25
Total Delay (hr)	23
Fuel Consumed (gal)	44
Fuel Economy (mpg)	9.7
CO Emissions (kg)	3.09
NOx Emissions (kg)	0.60
VOC Emissions (kg)	0.72

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3652
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	46
Fuel Economy (mpg)	8.5
CO Emissions (kg)	3.23
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3268
Total Delay / Veh (s/v)	36
Total Delay (hr)	32
Fuel Consumed (gal)	48
Fuel Economy (mpg)	5.2
CO Emissions (kg)	3.34
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.77

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	29
Total Delay (hr)	26
Fuel Consumed (gal)	45
Fuel Economy (mpg)	7.2
CO Emissions (kg)	3.17
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.73

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3944
Total Delay / Veh (s/v)	29
Total Delay (hr)	32
Fuel Consumed (gal)	58
Fuel Economy (mpg)	9.3
CO Emissions (kg)	4.03
NOx Emissions (kg)	0.78
VOC Emissions (kg)	0.93

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	4132
Total Delay / Veh (s/v)	26
Total Delay (hr)	30
Fuel Consumed (gal)	51
Fuel Economy (mpg)	6.8
CO Emissions (kg)	3.54
NOx Emissions (kg)	0.69
VOC Emissions (kg)	0.82

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2508
Total Delay / Veh (s/v)	10
Total Delay (hr)	7
Fuel Consumed (gal)	22
Fuel Economy (mpg)	14.6
CO Emissions (kg)	1.52
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.35

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	29
Total Delay (hr)	251
Fuel Consumed (gal)	449
Fuel Economy (mpg)	8.4
CO Emissions (kg)	31.36
NOx Emissions (kg)	6.10
VOC Emissions (kg)	7.27
Performance Index	306.0

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Future Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.970			0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3493	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.114			0.241		
Satd. Flow (perm)	1770	3433	0	1770	3493	0	212	3539	1583	449	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			8				118			118
Link Speed (mph)		30			30			30				30
Link Distance (ft)		624			899			1330				681
Travel Time (s)		14.2			20.4			30.2				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	656	0	104	284	0	120	856	132	36	1024	32
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1645-1700
TOD Plan 3

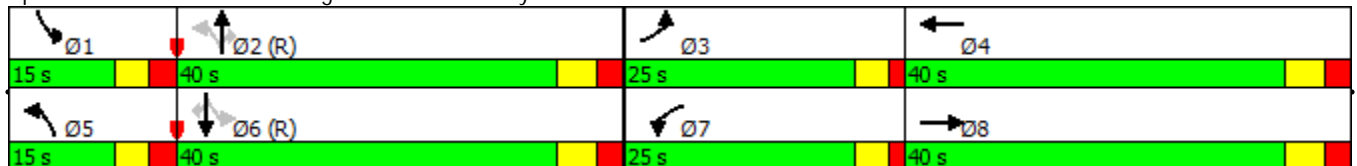


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	25.0	40.0		25.0	40.0		15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	20.8%	33.3%		20.8%	33.3%		12.5%	33.3%	33.3%	12.5%	33.3%	33.3%
Maximum Green (s)	20.5	34.0		20.5	34.0		9.5	34.0	34.0	9.5	34.0	34.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	16.4	30.2		12.4	26.2		59.6	53.0	53.0	54.2	46.3	46.3
Actuated g/C Ratio	0.14	0.25		0.10	0.22		0.50	0.44	0.44	0.45	0.39	0.39
v/c Ratio	0.71	0.74		0.57	0.37		0.54	0.55	0.17	0.13	0.75	0.05
Control Delay	65.4	44.7		63.0	39.2		34.4	40.1	17.1	19.2	38.0	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	44.7		63.0	39.2		34.4	40.1	17.1	19.2	38.0	0.1
LOS	E	D		E	D		C	D	B	B	D	A
Approach Delay		49.0			45.6			36.8			36.3	
Approach LOS		D			D			D			D	
Stops (vph)	162	562		97	226		90	725	108	22	812	0
Fuel Used(gal)	4	12		3	6		3	20	2	0	18	0
CO Emissions (g/hr)	281	857		182	385		180	1389	170	32	1247	12
NOx Emissions (g/hr)	55	167		35	75		35	270	33	6	243	2
VOC Emissions (g/hr)	65	199		42	89		42	322	39	7	289	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 40.6
 Intersection LOS: D
 Intersection Capacity Utilization 77.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Future Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850				0.850			0.850		0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.336			0.373			0.068			0.195		
Satd. Flow (perm)	626	1863	1583	695	1863	1583	127	3539	1583	363	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			101			101
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	16.0	36.0	36.0	16.0	36.0	36.0	13.0	65.0	65.0	13.0	65.0	65.0
Total Split (%)	12.3%	27.7%	27.7%	12.3%	27.7%	27.7%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	11.5	30.0	30.0	11.5	30.0	30.0	8.5	59.5	59.5	8.5	59.5	59.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	45.7	35.0	35.0	40.6	30.2	30.2	69.7	62.8	62.8	71.0	65.2	65.2
Actuated g/C Ratio	0.35	0.27	0.27	0.31	0.23	0.23	0.54	0.48	0.48	0.55	0.50	0.50
v/c Ratio	0.56	0.64	0.12	0.19	0.62	0.20	0.20	0.55	0.09	0.14	0.79	0.18
Control Delay	37.3	50.1	2.4	29.0	52.0	7.4	24.4	34.5	7.8	13.4	40.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	50.1	2.4	29.0	52.0	7.4	24.4	34.5	7.8	13.4	40.5	12.2
LOS	D	D	A	C	D	A	C	C	A	B	D	B
Approach Delay		40.9			39.4			32.3			37.1	
Approach LOS		D			D			C			D	
Stops (vph)	130	281	2	37	238	12	17	696	18	25	1314	99
Fuel Used(gal)	3	7	0	1	6	1	0	16	1	1	30	2
CO Emissions (g/hr)	230	493	25	61	412	45	30	1084	42	40	2092	149
NOx Emissions (g/hr)	45	96	5	12	80	9	6	211	8	8	407	29
VOC Emissions (g/hr)	53	114	6	14	96	10	7	251	10	9	485	35
Dilemma Vehicles (#)	0	12	0	0	10	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 36.6
 Intersection LOS: D
 Intersection Capacity Utilization 76.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Future Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.911			0.989			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1833	0	1770	1697	0	1770	3500	0	1770	3504	0
Flt Permitted	0.222			0.322			0.236			0.249		
Satd. Flow (perm)	414	1833	0	600	1697	0	440	3500	0	464	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			54			8			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	304	0	32	364	0	28	788	0	468	1196	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1645-1700
TOD Plan 3

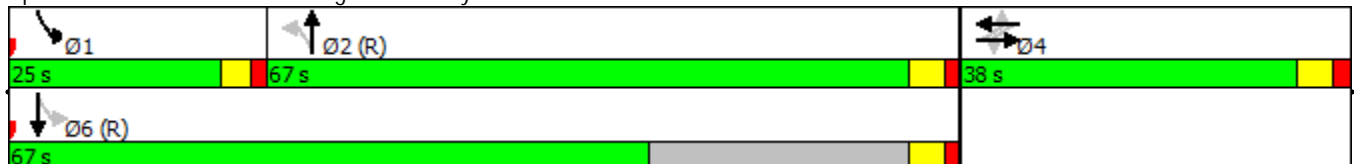


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	38.0	38.0		38.0	38.0		67.0	67.0		25.0	67.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%		51.5%	51.5%		19.2%	51.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		62.0	62.0		20.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	32.5	32.5		32.5	32.5		62.4	62.4		87.5	87.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.48	0.48		0.67	0.67	
v/c Ratio	0.66	0.66		0.21	0.78		0.13	0.47		0.91	0.51	
Control Delay	75.1	51.1		43.2	51.7		21.2	23.6		39.9	2.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.5	
Total Delay	75.1	51.1		43.2	51.7		21.2	23.6		39.9	3.3	
LOS	E	D		D	D		C	C		D	A	
Approach Delay		55.5			51.0			23.6			13.6	
Approach LOS		E			D			C			B	
Stops (vph)	59	267		27	286		16	507		342	252	
Fuel Used(gal)	2	6		1	8		0	10		8	8	
CO Emissions (g/hr)	120	433		47	572		24	718		572	591	
NOx Emissions (g/hr)	23	84		9	111		5	140		111	115	
VOC Emissions (g/hr)	28	100		11	133		6	166		133	137	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 70 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 25.5
 Intersection LOS: C
 Intersection Capacity Utilization 96.1%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Traffic Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Future Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.990		0.950					
Satd. Flow (prot)	0	0	0	1610	3356	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.990		0.174					
Satd. Flow (perm)	0	0	0	1610	3356	1583	629	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						273						152
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Shared Lane Traffic (%)				29%								
Lane Group Flow (vph)	0	0	0	187	393	300	620	728	0	0	1148	276
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
 162: Snelling Ave & St Anthony Ave

1645-1700
 TOD Plan 3

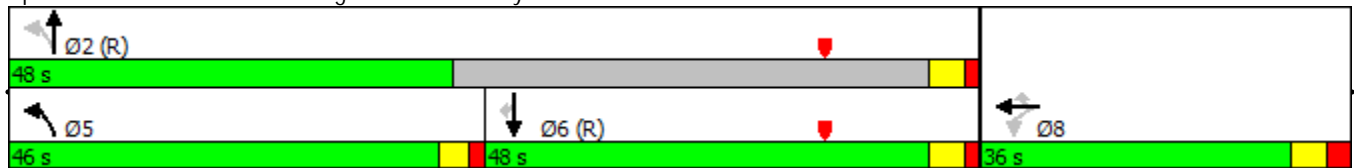


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				36.0	36.0	36.0	46.0	48.0			48.0	48.0
Total Split (%)				27.7%	27.7%	27.7%	35.4%	36.9%			36.9%	36.9%
Maximum Green (s)				30.0	30.0	30.0	41.5	43.0			43.0	43.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				30.0	30.0	30.0	89.5	89.0			65.2	65.2
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.68			0.50	0.50
v/c Ratio				0.50	0.51	0.52	0.73	0.30			0.36	0.32
Control Delay				49.1	46.3	10.3	30.9	18.8			20.4	10.7
Queue Delay				0.0	0.0	0.0	0.2	2.0			0.0	0.0
Total Delay				49.1	46.3	10.3	31.1	20.9			20.4	10.7
LOS				D	D	B	C	C			C	B
Approach Delay					34.6			25.6			18.5	
Approach LOS					C			C			B	
Stops (vph)				161	334	45	452	370			613	114
Fuel Used(gal)				3	6	2	8	6			17	3
CO Emissions (g/hr)				220	445	105	545	453			1201	238
NOx Emissions (g/hr)				43	87	20	106	88			234	46
VOC Emissions (g/hr)				51	103	24	126	105			278	55
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 11 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 25.0
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1645-1700
 TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Future Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.92	0.98		0.96	0.96		0.99		0.96	1.00		0.92
Frt		0.968			0.961				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3351	0	1770	3274	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.192			0.161		
Satd. Flow (perm)	1621	3351	0	1695	3274	0	353	3539	1523	298	3539	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			36				101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	568	0	124	336	0	108	884	96	132	840	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1645-1700
TOD Plan 3

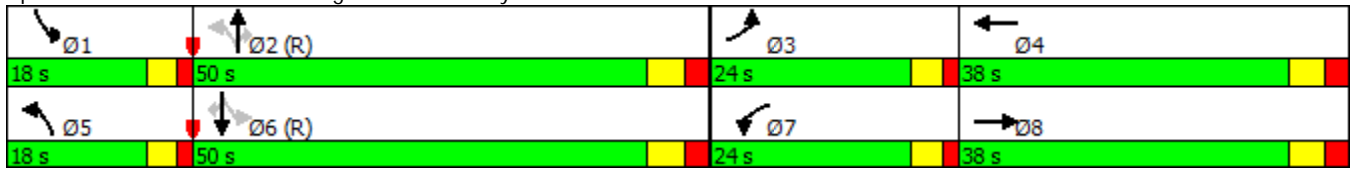


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	24.0	38.0		24.0	38.0		18.0	50.0	50.0	18.0	50.0	50.0
Total Split (%)	18.5%	29.2%		18.5%	29.2%		13.8%	38.5%	38.5%	13.8%	38.5%	38.5%
Maximum Green (s)	19.5	32.0		19.5	32.0		13.5	44.0	44.0	13.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	14.3	37.2		14.3	37.2		58.2	46.8	46.8	59.8	47.6	47.6
Actuated g/C Ratio	0.11	0.29		0.11	0.29		0.45	0.36	0.36	0.46	0.37	0.37
v/c Ratio	0.64	0.58		0.64	0.35		0.41	0.69	0.16	0.51	0.65	0.09
Control Delay	69.5	41.5		69.5	34.7		15.3	28.5	4.5	25.9	37.4	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	2.0	0.0	0.0	0.0	0.0
Total Delay	69.5	41.5		69.5	34.7		15.3	30.5	4.5	25.9	37.4	0.8
LOS	E	D		E	C		B	C	A	C	D	A
Approach Delay		46.5			44.1			26.7			34.0	
Approach LOS		D			D			C			C	
Stops (vph)	116	459		116	235		49	726	33	73	685	1
Fuel Used(gal)	3	9		3	4		1	11	1	2	14	0
CO Emissions (g/hr)	190	615		178	285		61	791	35	124	1013	21
NOx Emissions (g/hr)	37	120		35	55		12	154	7	24	197	4
VOC Emissions (g/hr)	44	143		41	66		14	183	8	29	235	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 35.6
 Intersection LOS: D
 Intersection Capacity Utilization 80.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Future Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.260		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	940	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									162			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		260			284			1025				289
Travel Time (s)		5.9			6.5			23.3				6.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	238	494	0	0	0	0	0	888	204	492	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				32
Link Offset(ft)		0			18			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1645-1700
TOD Plan 3

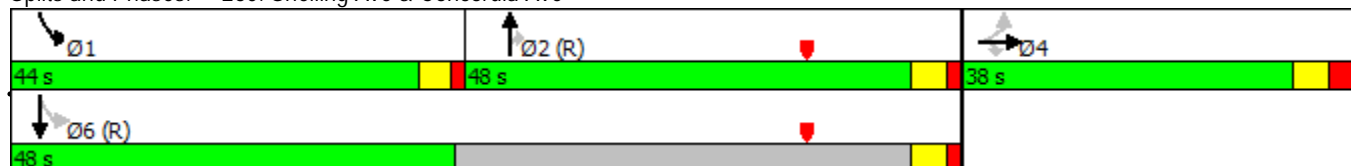


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	44.0	48.0	
Total Split (%)	29.2%	29.2%	29.2%					36.9%	36.9%	33.8%	36.9%	
Maximum Green (s)	32.0	32.0	32.0					43.0	43.0	39.5	43.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	27.0	27.0						74.9	74.9	92.5	92.0	
Actuated g/C Ratio	0.21	0.21						0.58	0.58	0.71	0.71	
v/c Ratio	0.71	0.70						0.24	0.21	0.54	0.38	
Control Delay	59.7	53.2						29.5	19.4	14.7	15.7	
Queue Delay	0.0	0.0						0.0	0.0	0.1	1.2	
Total Delay	59.7	53.2						29.5	19.4	14.9	16.9	
LOS	E	D						C	B	B	B	
Approach Delay		55.3						27.6			16.2	
Approach LOS		E						C			B	
Stops (vph)	217	446						654	157	244	568	
Fuel Used(gal)	5	9						16	3	4	8	
CO Emissions (g/hr)	320	616						1122	231	275	585	
NOx Emissions (g/hr)	62	120						218	45	54	114	
VOC Emissions (g/hr)	74	143						260	53	64	136	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 28.8
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Future Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1610	3333	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.983		0.158					
Satd. Flow (perm)	0	0	0	1610	3333	1583	571	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						169						263
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	0	0	165	343	420	452	912	0	0	1300	352
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1645-1700
TOD Plan 3

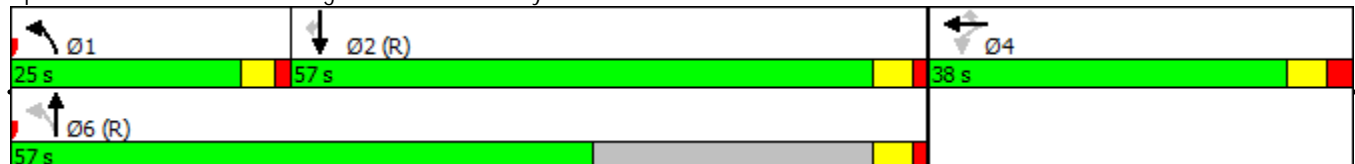


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				38.0	38.0	38.0	25.0	57.0			57.0	57.0
Total Split (%)				31.7%	31.7%	31.7%	20.8%	47.5%			47.5%	47.5%
Maximum Green (s)				32.0	32.0	32.0	20.5	52.0			52.0	52.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				18.9	18.9	18.9	90.6	90.1			74.3	74.3
Actuated g/C Ratio				0.16	0.16	0.16	0.76	0.75			0.62	0.62
v/c Ratio				0.65	0.65	1.07	0.65	0.34			0.33	0.33
Control Delay				59.0	53.0	94.9	22.6	4.6			20.9	13.5
Queue Delay				0.0	0.0	0.0	0.3	0.7			0.0	0.0
Total Delay				59.0	53.0	94.9	22.9	5.3			20.9	13.5
LOS				E	D	F	C	A			C	B
Approach Delay					73.0			11.1			19.3	
Approach LOS					E			B			B	
Stops (vph)				151	313	236	349	255			750	158
Fuel Used(gal)				3	6	10	5	4			23	5
CO Emissions (g/hr)				221	429	718	350	298			1618	384
NOx Emissions (g/hr)				43	83	140	68	58			315	75
VOC Emissions (g/hr)				51	99	166	81	69			375	89
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 29.1 Intersection LOS: C
 Intersection Capacity Utilization 68.3% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Future Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1610	3377	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.996								0.218		
Satd. Flow (perm)	1610	3377	1583	0	0	0	0	6408	1583	788	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109						82			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		263			111			870			282	
Travel Time (s)		6.0			2.5			19.8			6.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Shared Lane Traffic (%)	13%											
Lane Group Flow (vph)	296	616	456	0	0	0	0	1000	168	480	1116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28			30	
Link Offset(ft)		0			-4			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1645-1700
TOD Plan 3

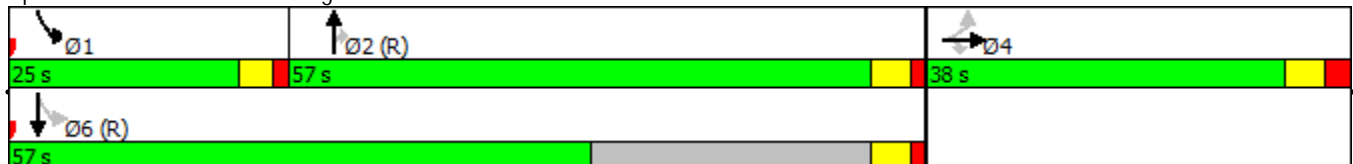


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	38.0	38.0	38.0					57.0	57.0	25.0	57.0	
Total Split (%)	31.7%	31.7%	31.7%					47.5%	47.5%	20.8%	47.5%	
Maximum Green (s)	32.0	32.0	32.0					52.0	52.0	20.5	52.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	30.1	30.1	30.1					62.6	62.6	79.4	78.9	
Actuated g/C Ratio	0.25	0.25	0.25					0.52	0.52	0.66	0.66	
v/c Ratio	0.73	0.73	0.95					0.30	0.19	0.62	0.48	
Control Delay	52.6	46.5	64.5					17.1	9.1	9.8	10.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.3	
Total Delay	52.6	46.5	64.5					17.1	9.1	9.8	10.6	
LOS	D	D	E					B	A	A	B	
Approach Delay		53.8						15.9			10.4	
Approach LOS		D						B			B	
Stops (vph)	266	548	327					548	47	226	630	
Fuel Used(gal)	5	10	9					13	2	3	8	
CO Emissions (g/hr)	367	708	610					929	120	228	579	
NOx Emissions (g/hr)	71	138	119					181	23	44	113	
VOC Emissions (g/hr)	85	164	141					215	28	53	134	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 26.3
 Intersection Capacity Utilization 68.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1645-1700
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Future Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.971			0.968		0.950			0.950		
Satd. Flow (prot)	0	1809	1583	0	1803	1583	1770	3539	1583	1770	3516	0
Flt Permitted		0.701			0.746		0.273			0.244		
Satd. Flow (perm)	0	1300	1521	0	1367	1551	509	3539	1541	455	3516	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			60			88			4
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	120	0	108	60	12	1004	88	48	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1645-1700
TOD Plan 3

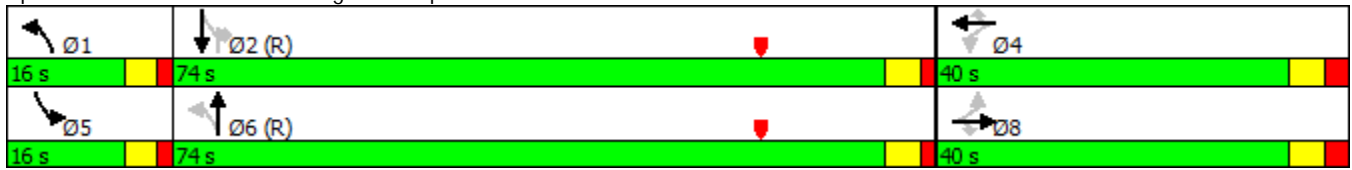


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	16.0	74.0	74.0	16.0	74.0	
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	12.3%	56.9%	56.9%	12.3%	56.9%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	69.0	69.0	11.5	69.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effct Green (s)		16.7	16.7		16.7	16.7	99.1	93.0	97.7	101.1	97.7	
Actuated g/C Ratio		0.13	0.13		0.13	0.13	0.76	0.72	0.75	0.78	0.75	
v/c Ratio		0.53	0.40		0.62	0.24	0.03	0.40	0.07	0.11	0.37	
Control Delay		62.5	11.6		67.2	12.8	2.1	5.9	0.7	2.9	3.9	
Queue Delay		0.0	0.0		0.0	0.1	0.0	0.2	0.0	0.0	0.3	
Total Delay		62.5	11.6		67.2	12.9	2.1	6.0	0.7	2.9	4.2	
LOS		E	B		E	B	A	A	A	A	A	
Approach Delay		33.1			47.8			5.6			4.2	
Approach LOS		C			D			A			A	
Stops (vph)		79	17		99	12	1	257	4	7	168	
Fuel Used(gal)		2	1		3	1	0	11	1	0	4	
CO Emissions (g/hr)		138	66		181	38	7	735	51	13	288	
NOx Emissions (g/hr)		27	13		35	7	1	143	10	3	56	
VOC Emissions (g/hr)		32	15		42	9	2	170	12	3	67	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	10 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	10.1
Intersection LOS:	B
Intersection Capacity Utilization	66.6%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3416
Total Delay / Veh (s/v)	41
Total Delay (hr)	38
Fuel Consumed (gal)	68
Fuel Economy (mpg)	8.6
CO Emissions (kg)	4.74
NOx Emissions (kg)	0.92
VOC Emissions (kg)	1.10

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3608
Total Delay / Veh (s/v)	37
Total Delay (hr)	37
Fuel Consumed (gal)	67
Fuel Economy (mpg)	8.5
CO Emissions (kg)	4.70
NOx Emissions (kg)	0.91
VOC Emissions (kg)	1.09

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3248
Total Delay / Veh (s/v)	25
Total Delay (hr)	23
Fuel Consumed (gal)	44
Fuel Economy (mpg)	9.7
CO Emissions (kg)	3.09
NOx Emissions (kg)	0.60
VOC Emissions (kg)	0.72

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3652
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	46
Fuel Economy (mpg)	8.5
CO Emissions (kg)	3.23
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3268
Total Delay / Veh (s/v)	36
Total Delay (hr)	32
Fuel Consumed (gal)	48
Fuel Economy (mpg)	5.2
CO Emissions (kg)	3.34
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.77

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	29
Total Delay (hr)	26
Fuel Consumed (gal)	45
Fuel Economy (mpg)	7.2
CO Emissions (kg)	3.17
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.73

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3944
Total Delay / Veh (s/v)	29
Total Delay (hr)	32
Fuel Consumed (gal)	58
Fuel Economy (mpg)	9.3
CO Emissions (kg)	4.03
NOx Emissions (kg)	0.78
VOC Emissions (kg)	0.93

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	4132
Total Delay / Veh (s/v)	26
Total Delay (hr)	30
Fuel Consumed (gal)	51
Fuel Economy (mpg)	6.8
CO Emissions (kg)	3.54
NOx Emissions (kg)	0.69
VOC Emissions (kg)	0.82

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2508
Total Delay / Veh (s/v)	10
Total Delay (hr)	7
Fuel Consumed (gal)	22
Fuel Economy (mpg)	14.6
CO Emissions (kg)	1.52
NOx Emissions (kg)	0.30
VOC Emissions (kg)	0.35

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	29
Total Delay (hr)	251
Fuel Consumed (gal)	449
Fuel Economy (mpg)	8.4
CO Emissions (kg)	31.36
NOx Emissions (kg)	6.10
VOC Emissions (kg)	7.27
Performance Index	306.0

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Future Volume (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.976			0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3454	0	1770	3497	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.128			0.178		
Satd. Flow (perm)	1770	3454	0	1770	3497	0	238	3539	1583	332	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			7				118			118
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		624			899			1330			681	
Travel Time (s)		14.2			20.4			30.2			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	784	0	192	308	0	80	852	76	40	932	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1700-1715
TOD Plan 3

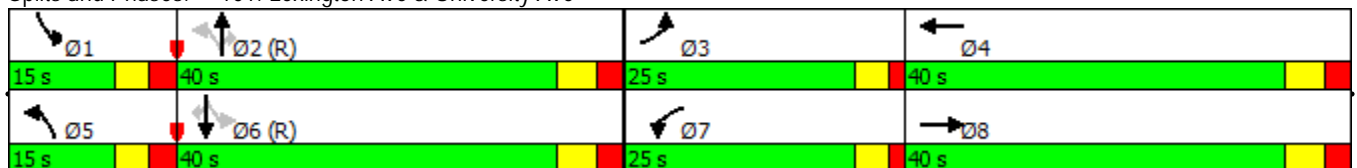


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	25.0	40.0		25.0	40.0		15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	20.8%	33.3%		20.8%	33.3%		12.5%	33.3%	33.3%	12.5%	33.3%	33.3%
Maximum Green (s)	20.5	34.0		20.5	34.0		9.5	34.0	34.0	9.5	34.0	34.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	17.4	32.6		17.3	32.5		50.6	43.0	43.0	48.8	42.2	42.2
Actuated g/C Ratio	0.14	0.27		0.14	0.27		0.42	0.36	0.36	0.41	0.35	0.35
v/c Ratio	0.76	0.82		0.75	0.32		0.39	0.67	0.12	0.18	0.75	0.09
Control Delay	68.1	48.0		67.5	34.8		32.6	46.4	8.0	22.9	41.2	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	48.0		67.5	34.8		32.6	46.4	8.0	22.9	41.2	0.3
LOS	E	D		E	C		C	D	A	C	D	A
Approach Delay		52.0			47.4			42.5			38.2	
Approach LOS		D			D			D			D	
Stops (vph)	185	703		181	232		55	744	27	24	777	0
Fuel Used(gal)	5	15		5	6		2	21	1	1	17	0
CO Emissions (g/hr)	328	1074		348	393		116	1468	74	37	1192	21
NOx Emissions (g/hr)	64	209		68	76		23	286	14	7	232	4
VOC Emissions (g/hr)	76	249		81	91		27	340	17	9	276	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 44.6
 Intersection LOS: D
 Intersection Capacity Utilization 82.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Future Volume (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.270			0.360			0.065			0.175		
Satd. Flow (perm)	503	1863	1583	671	1863	1583	121	3539	1583	326	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			101			101
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1700-1715
TOD Plan 3

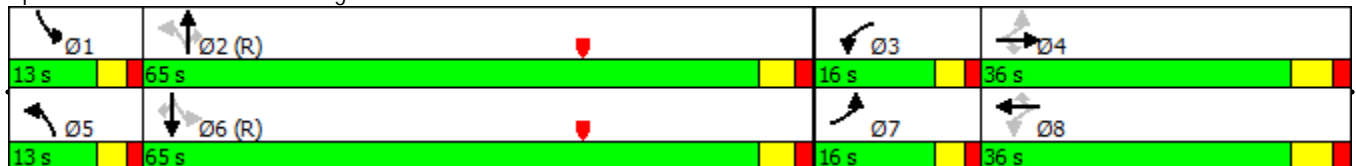


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	16.0	36.0	36.0	16.0	36.0	36.0	13.0	65.0	65.0	13.0	65.0	65.0
Total Split (%)	12.3%	27.7%	27.7%	12.3%	27.7%	27.7%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	11.5	30.0	30.0	11.5	30.0	30.0	8.5	59.5	59.5	8.5	59.5	59.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	43.8	31.2	31.2	42.2	30.4	30.4	69.5	62.6	62.6	71.2	65.3	65.3
Actuated g/C Ratio	0.34	0.24	0.24	0.32	0.23	0.23	0.53	0.48	0.48	0.55	0.50	0.50
v/c Ratio	0.56	0.64	0.13	0.34	0.74	0.21	0.18	0.59	0.08	0.20	0.82	0.15
Control Delay	37.5	52.1	2.5	31.3	57.5	8.1	24.5	35.0	7.9	14.0	40.5	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	52.1	2.5	31.3	57.5	8.1	24.5	35.0	7.9	14.0	40.5	10.4
LOS	D	D	A	C	E	A	C	C	A	B	D	B
Approach Delay		41.6			43.4			33.0			37.3	
Approach LOS		D			D			C			D	
Stops (vph)	110	254	2	71	291	13	17	707	15	31	1357	67
Fuel Used(gal)	3	6	0	2	7	1	0	16	1	1	31	2
CO Emissions (g/hr)	198	448	25	118	521	48	27	1147	39	51	2172	116
NOx Emissions (g/hr)	39	87	5	23	101	9	5	223	8	10	423	23
VOC Emissions (g/hr)	46	104	6	27	121	11	6	266	9	12	503	27
Dilemma Vehicles (#)	0	11	0	0	12	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 37.5
 Intersection LOS: D
 Intersection Capacity Utilization 82.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Future Volume (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.976			0.910			0.996			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1818	0	1770	1695	0	1770	3525	0	1770	3504	0
Flt Permitted	0.262			0.236			0.285			0.250		
Satd. Flow (perm)	488	1818	0	440	1695	0	531	3525	0	466	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			55			3			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	356	0	64	340	0	24	792	0	432	1004	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1700-1715
TOD Plan 3

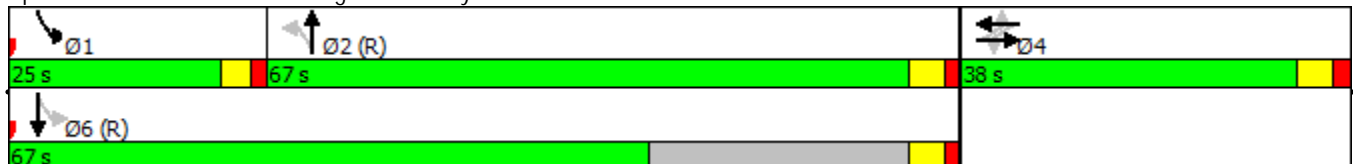


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	38.0	38.0		38.0	38.0		67.0	67.0		25.0	67.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%		51.5%	51.5%		19.2%	51.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		62.0	62.0		20.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	32.5	32.5		32.5	32.5		63.3	63.3		87.5	87.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.49	0.49		0.67	0.67	
v/c Ratio	0.36	0.78		0.58	0.73		0.09	0.46		0.85	0.43	
Control Delay	50.4	57.2		66.0	47.7		19.9	23.3		31.8	1.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	50.4	57.2		66.0	47.7		19.9	23.3		31.8	1.6	
LOS	D	E		E	D		B	C		C	A	
Approach Delay		56.5			50.6			23.2			10.7	
Approach LOS		E			D			C			B	
Stops (vph)	37	316		56	266		14	507		272	112	
Fuel Used(gal)	1	8		2	7		0	10		7	6	
CO Emissions (g/hr)	62	539		116	515		20	716		462	441	
NOx Emissions (g/hr)	12	105		23	100		4	139		90	86	
VOC Emissions (g/hr)	14	125		27	119		5	166		107	102	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 70 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 25.3
 Intersection LOS: C
 Intersection Capacity Utilization 92.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Future Volume (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.991		0.950					
Satd. Flow (prot)	0	0	0	1610	3360	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.991		0.224					
Satd. Flow (perm)	0	0	0	1610	3360	1583	809	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						232						198
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Shared Lane Traffic (%)				27%								
Lane Group Flow (vph)	0	0	0	219	457	356	460	812	0	0	996	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5	2		6	
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1700-1715
TOD Plan 3

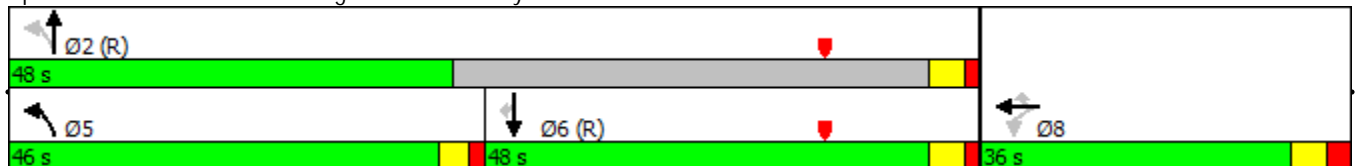


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				36.0	36.0	36.0	46.0	48.0			48.0	48.0
Total Split (%)				27.7%	27.7%	27.7%	35.4%	36.9%			36.9%	36.9%
Maximum Green (s)				30.0	30.0	30.0	41.5	43.0			43.0	43.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				30.0	30.0	30.0	89.5	89.0			72.2	72.2
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.68			0.56	0.56
v/c Ratio				0.59	0.59	0.66	0.57	0.34			0.28	0.23
Control Delay				52.0	48.2	21.7	26.5	21.1			15.9	5.7
Queue Delay				0.0	0.0	0.0	0.1	2.3			0.0	0.0
Total Delay				52.0	48.2	21.7	26.6	23.4			15.9	5.7
LOS				D	D	C	C	C			B	A
Approach Delay					39.9			24.6			14.0	
Approach LOS					D			C			B	
Stops (vph)				193	399	122	287	427			400	47
Fuel Used(gal)				4	8	3	5	8			13	2
CO Emissions (g/hr)				269	534	209	357	536			927	157
NOx Emissions (g/hr)				52	104	41	69	104			180	31
VOC Emissions (g/hr)				62	124	48	83	124			215	36
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 11 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 25.4
 Intersection LOS: C
 Intersection Capacity Utilization 54.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Future Volume (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.93	0.99		0.95	0.96		0.99		0.96			0.92
Frt		0.979			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3414	0	1770	3241	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.204			0.084		
Satd. Flow (perm)	1638	3414	0	1681	3241	0	375	3539	1523	156	3539	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			47				101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	448	0	112	420	0	104	1040	108	184	836	24
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1700-1715
TOD Plan 3

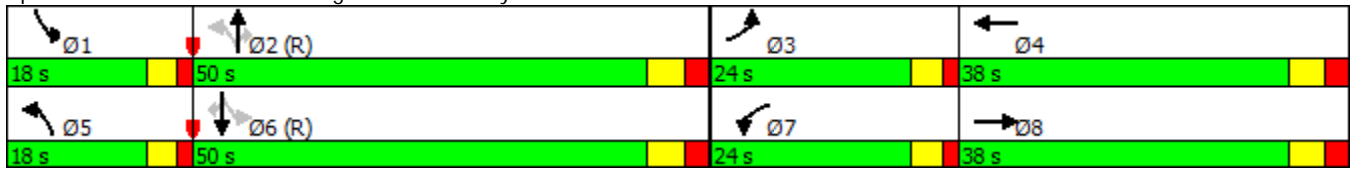


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	24.0	38.0		24.0	38.0		18.0	50.0	50.0	18.0	50.0	50.0
Total Split (%)	18.5%	29.2%		18.5%	29.2%		13.8%	38.5%	38.5%	13.8%	38.5%	38.5%
Maximum Green (s)	19.5	32.0		19.5	32.0		13.5	44.0	44.0	13.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	14.9	38.0		13.5	36.6		56.2	45.0	45.0	61.8	47.8	47.8
Actuated g/C Ratio	0.11	0.29		0.10	0.28		0.43	0.35	0.35	0.48	0.37	0.37
v/c Ratio	0.67	0.44		0.61	0.44		0.39	0.85	0.18	0.80	0.64	0.04
Control Delay	70.8	38.6		69.2	36.3		14.1	36.2	6.1	54.5	37.2	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	6.0	0.0	0.0	0.0	0.0
Total Delay	70.8	38.6		69.2	36.3		14.1	42.1	6.1	54.5	37.2	0.1
LOS	E	D		E	D		B	D	A	D	D	A
Approach Delay		46.1			43.3			36.7			39.4	
Approach LOS		D			D			D			D	
Stops (vph)	127	348		105	303		48	934	51	117	678	0
Fuel Used(gal)	3	7		2	5		1	15	1	4	14	0
CO Emissions (g/hr)	211	461		160	369		57	1075	48	254	1003	9
NOx Emissions (g/hr)	41	90		31	72		11	209	9	49	195	2
VOC Emissions (g/hr)	49	107		37	86		13	249	11	59	233	2
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	40.2
Intersection LOS:	D
Intersection Capacity Utilization:	87.3%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Future Volume (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.241		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	871	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									164			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	216	476	0	0	0	0	0	952	232	488	1040	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1700-1715
TOD Plan 3

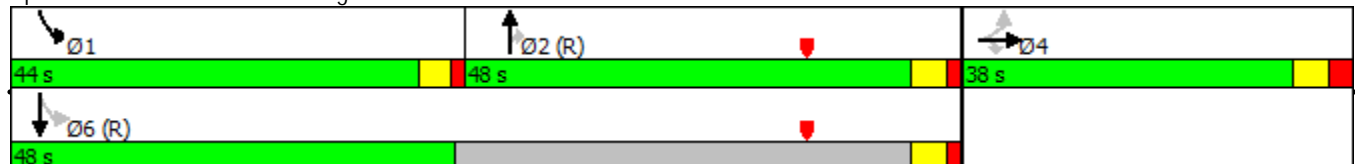


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	44.0	48.0	
Total Split (%)	29.2%	29.2%	29.2%					36.9%	36.9%	33.8%	36.9%	
Maximum Green (s)	32.0	32.0	32.0					43.0	43.0	39.5	43.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	25.8	25.8						76.3	76.3	93.7	93.2	
Actuated g/C Ratio	0.20	0.20						0.59	0.59	0.72	0.72	
v/c Ratio	0.68	0.71						0.25	0.23	0.56	0.41	
Control Delay	58.6	54.3						28.9	20.4	15.5	15.2	
Queue Delay	0.0	0.0						0.0	0.0	0.1	1.7	
Total Delay	58.6	54.3						28.9	20.4	15.6	16.9	
LOS	E	D						C	C	B	B	
Approach Delay		55.6						27.3			16.5	
Approach LOS		E						C			B	
Stops (vph)	195	431						715	202	207	500	
Fuel Used(gal)	4	9						17	4	4	8	
CO Emissions (g/hr)	286	602						1200	275	265	582	
NOx Emissions (g/hr)	56	117						233	54	51	113	
VOC Emissions (g/hr)	66	139						278	64	61	135	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 28.2
 Intersection Capacity Utilization 54.2%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Future Volume (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.987		0.950					
Satd. Flow (prot)	0	0	0	1610	3346	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.987		0.176					
Satd. Flow (perm)	0	0	0	1610	3346	1583	636	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						214						161
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Shared Lane Traffic (%)				36%								
Lane Group Flow (vph)	0	0	0	243	501	400	420	800	0	0	1188	324
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1700-1715
TOD Plan 3

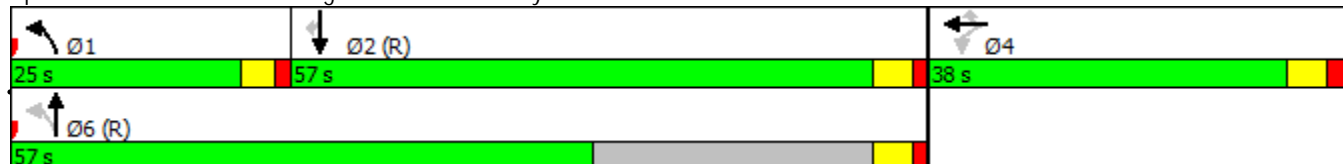


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				38.0	38.0	38.0	25.0	57.0			57.0	57.0
Total Split (%)				31.7%	31.7%	31.7%	20.8%	47.5%			47.5%	47.5%
Maximum Green (s)				32.0	32.0	32.0	20.5	52.0			52.0	52.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				25.5	25.5	25.5	84.0	83.5			68.3	68.3
Actuated g/C Ratio				0.21	0.21	0.21	0.70	0.70			0.57	0.57
v/c Ratio				0.71	0.71	0.79	0.60	0.32			0.33	0.33
Control Delay				55.2	49.1	32.0	21.1	6.1			27.6	21.8
Queue Delay				0.0	0.0	0.0	0.2	0.8			0.0	0.0
Total Delay				55.2	49.1	32.0	21.3	6.9			27.6	21.8
LOS				E	D	C	C	A			C	C
Approach Delay					44.4			11.8			26.3	
Approach LOS					D			B			C	
Stops (vph)				220	449	189	289	255			832	308
Fuel Used(gal)				4	9	4	4	4			24	6
CO Emissions (g/hr)				311	595	313	302	291			1649	454
NOx Emissions (g/hr)				60	116	61	59	57			321	88
VOC Emissions (g/hr)				72	138	72	70	67			382	105
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 27.1
 Intersection Capacity Utilization 90.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Future Volume (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.270		
Satd. Flow (perm)	1610	3383	1583	0	0	0	0	6408	1583	976	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89						112			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	263	581	408	0	0	0	0	844	164	420	1208	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1700-1715
 TOD Plan 3

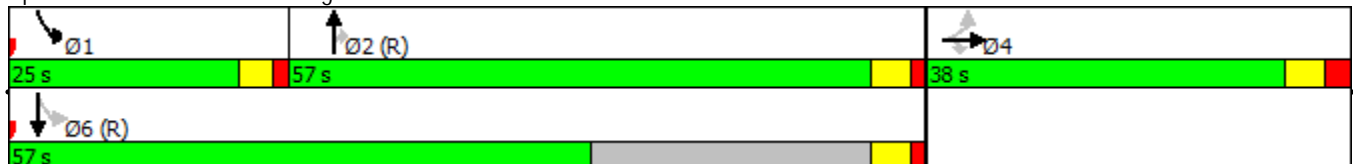


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	38.0	38.0	38.0					57.0	57.0	25.0	57.0	
Total Split (%)	31.7%	31.7%	31.7%					47.5%	47.5%	20.8%	47.5%	
Maximum Green (s)	32.0	32.0	32.0					52.0	52.0	20.5	52.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	29.4	29.4	29.4					64.5	64.5	80.1	79.6	
Actuated g/C Ratio	0.24	0.24	0.24					0.54	0.54	0.67	0.66	
v/c Ratio	0.67	0.70	0.90					0.25	0.18	0.48	0.51	
Control Delay	49.5	46.0	57.4					15.6	6.2	6.6	10.7	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.3	
Total Delay	49.5	46.0	57.4					15.6	6.2	6.7	11.0	
LOS	D	D	E					B	A	A	B	
Approach Delay		50.5						14.1			9.9	
Approach LOS		D						B			A	
Stops (vph)	233	516	302					436	31	174	753	
Fuel Used(gal)	4	9	7					11	1	2	9	
CO Emissions (g/hr)	313	663	509					757	104	171	661	
NOx Emissions (g/hr)	61	129	99					147	20	33	129	
VOC Emissions (g/hr)	73	154	118					175	24	40	153	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 24.1
 Intersection Capacity Utilization 90.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1700-1715
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↗	
Traffic Volume (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Future Volume (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.996	
Flt Protected		0.968			0.967		0.950			0.950		
Satd. Flow (prot)	0	1803	1583	0	1801	1583	1770	3539	1583	1770	3524	0
Flt Permitted		0.739			0.772		0.253			0.226		
Satd. Flow (perm)	0	1370	1521	0	1412	1551	471	3539	1541	421	3524	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172			55			92			3
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	172	0	128	48	32	1092	92	32	1004	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1700-1715
TOD Plan 3

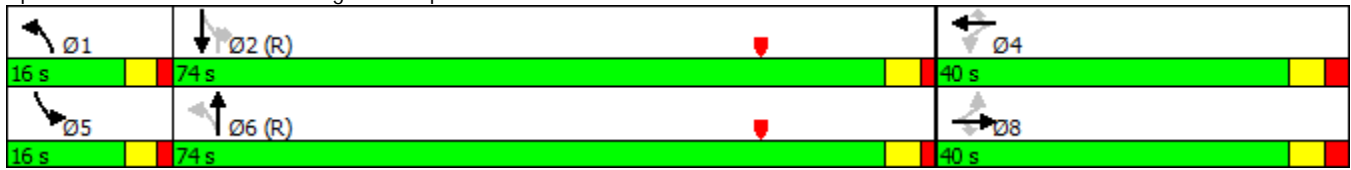


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	16.0	74.0	74.0	16.0	74.0	
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	12.3%	56.9%	56.9%	12.3%	56.9%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	69.0	69.0	11.5	69.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		17.9	17.9		17.9	17.9	98.9	94.2	94.2	98.9	94.2	
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.76	0.72	0.72	0.76	0.72	
v/c Ratio		0.19	0.48		0.66	0.18	0.07	0.43	0.08	0.08	0.39	
Control Delay		48.9	11.0		67.9	10.8	2.4	6.2	1.4	3.0	4.5	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.3	0.0	0.0	0.2	
Total Delay		48.9	11.0		67.9	10.8	2.4	6.5	1.4	3.0	4.7	
LOS		D	B		E	B	A	A	A	A	A	
Approach Delay		17.5			52.4			6.0			4.6	
Approach LOS		B			D			A			A	
Stops (vph)		30	21		119	8	5	339	9	4	170	
Fuel Used(gal)		1	1		3	0	0	12	1	0	4	
CO Emissions (g/hr)		48	91		217	28	21	828	56	8	302	
NOx Emissions (g/hr)		9	18		42	5	4	161	11	2	59	
VOC Emissions (g/hr)		11	21		50	6	5	192	13	2	70	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	10 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	9.5
Intersection LOS:	A
Intersection Capacity Utilization:	69.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3516
Total Delay / Veh (s/v)	45
Total Delay (hr)	44
Fuel Consumed (gal)	72
Fuel Economy (mpg)	8.1
CO Emissions (kg)	5.05
NOx Emissions (kg)	0.98
VOC Emissions (kg)	1.17

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3748
Total Delay / Veh (s/v)	37
Total Delay (hr)	39
Fuel Consumed (gal)	70
Fuel Economy (mpg)	8.4
CO Emissions (kg)	4.91
NOx Emissions (kg)	0.96
VOC Emissions (kg)	1.14

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3056
Total Delay / Veh (s/v)	25
Total Delay (hr)	21
Fuel Consumed (gal)	41
Fuel Economy (mpg)	9.8
CO Emissions (kg)	2.87
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3520
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	43
Fuel Economy (mpg)	8.2
CO Emissions (kg)	3.02
NOx Emissions (kg)	0.59
VOC Emissions (kg)	0.70

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3412
Total Delay / Veh (s/v)	40
Total Delay (hr)	38
Fuel Consumed (gal)	53
Fuel Economy (mpg)	4.8
CO Emissions (kg)	3.73
NOx Emissions (kg)	0.73
VOC Emissions (kg)	0.87

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3404
Total Delay / Veh (s/v)	28
Total Delay (hr)	27
Fuel Consumed (gal)	46
Fuel Economy (mpg)	7.5
CO Emissions (kg)	3.23
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3876
Total Delay / Veh (s/v)	27
Total Delay (hr)	29
Fuel Consumed (gal)	56
Fuel Economy (mpg)	9.0
CO Emissions (kg)	3.92
NOx Emissions (kg)	0.76
VOC Emissions (kg)	0.91

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	3888
Total Delay / Veh (s/v)	24
Total Delay (hr)	26
Fuel Consumed (gal)	46
Fuel Economy (mpg)	6.9
CO Emissions (kg)	3.18
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.74

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2636
Total Delay / Veh (s/v)	9
Total Delay (hr)	7
Fuel Consumed (gal)	23
Fuel Economy (mpg)	14.8
CO Emissions (kg)	1.61
NOx Emissions (kg)	0.31
VOC Emissions (kg)	0.37

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	30
Total Delay (hr)	256
Fuel Consumed (gal)	451
Fuel Economy (mpg)	8.2
CO Emissions (kg)	31.54
NOx Emissions (kg)	6.14
VOC Emissions (kg)	7.31
Performance Index	311.2

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Future Volume (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.964			0.993				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3412	0	1770	3514	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.138			0.131		
Satd. Flow (perm)	1770	3412	0	1770	3514	0	257	3539	1583	244	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			4				118			118
Link Speed (mph)		30			30			30				30
Link Distance (ft)		624			899			1330				681
Travel Time (s)		14.2			20.4			30.2				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	220	792	0	184	340	0	152	960	72	64	856	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
 101: Lexington Ave & University Ave

1715-1730
 TOD Plan 3

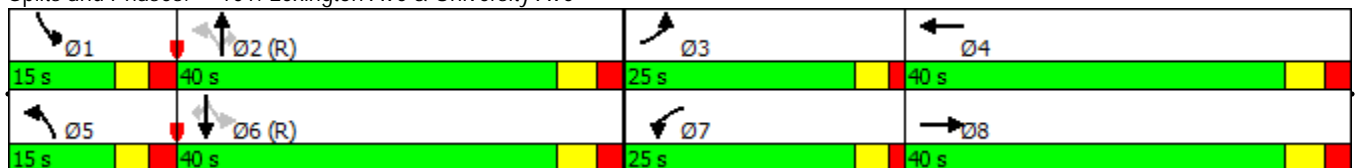


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	25.0	40.0		25.0	40.0		15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	20.8%	33.3%		20.8%	33.3%		12.5%	33.3%	33.3%	12.5%	33.3%	33.3%
Maximum Green (s)	20.5	34.0		20.5	34.0		9.5	34.0	34.0	9.5	34.0	34.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	18.5	32.7		17.0	31.2		51.3	42.7	42.7	47.2	38.6	38.6
Actuated g/C Ratio	0.15	0.27		0.14	0.26		0.43	0.36	0.36	0.39	0.32	0.32
v/c Ratio	0.81	0.83		0.74	0.37		0.66	0.76	0.11	0.32	0.75	0.12
Control Delay	71.1	47.4		66.4	36.7		44.7	50.8	8.1	25.4	42.7	1.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	47.4		66.4	36.7		44.7	50.8	8.1	25.4	42.7	1.1
LOS	E	D		E	D		D	D	A	C	D	A
Approach Delay		52.5			47.1			47.4			38.7	
Approach LOS		D			D			D			D	
Stops (vph)	205	697		172	266		130	817	24	40	743	1
Fuel Used(gal)	5	15		5	6		4	24	1	1	16	0
CO Emissions (g/hr)	377	1073		331	447		257	1706	70	62	1125	27
NOx Emissions (g/hr)	73	209		64	87		50	332	14	12	219	5
VOC Emissions (g/hr)	87	249		77	104		60	395	16	14	261	6
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 46.5
 Intersection LOS: D
 Intersection Capacity Utilization 83.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Future Volume (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.379			0.183			0.063			0.166		
Satd. Flow (perm)	706	1863	1583	341	1863	1583	117	3539	1583	309	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			101			101
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	16.0	36.0	36.0	16.0	36.0	36.0	13.0	65.0	65.0	13.0	65.0	65.0
Total Split (%)	12.3%	27.7%	27.7%	12.3%	27.7%	27.7%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	11.5	30.0	30.0	11.5	30.0	30.0	8.5	59.5	59.5	8.5	59.5	59.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	43.7	30.8	30.8	42.3	30.0	30.0	71.1	65.4	65.4	69.6	62.8	62.8
Actuated g/C Ratio	0.34	0.24	0.24	0.33	0.23	0.23	0.55	0.50	0.50	0.54	0.48	0.48
v/c Ratio	0.62	0.86	0.14	0.56	0.60	0.20	0.25	0.60	0.12	0.10	0.89	0.19
Control Delay	39.5	67.8	3.2	38.3	51.2	7.4	26.1	33.0	11.1	13.2	46.9	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	39.5	67.8	3.2	38.3	51.2	7.4	26.1	33.1	11.1	13.2	46.9	12.0
LOS	D	E	A	D	D	A	C	C	B	B	D	B
Approach Delay		52.5			39.6			31.1			43.3	
Approach LOS		D			D			C			D	
Stops (vph)	156	340	3	88	226	12	23	766	36	15	1420	102
Fuel Used(gal)	4	10	0	2	6	1	1	17	1	0	34	2
CO Emissions (g/hr)	272	685	28	159	390	45	39	1202	67	24	2402	150
NOx Emissions (g/hr)	53	133	5	31	76	9	8	234	13	5	467	29
VOC Emissions (g/hr)	63	159	6	37	90	10	9	279	16	5	557	35
Dilemma Vehicles (#)	0	14	0	0	10	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 40.6
 Intersection LOS: D
 Intersection Capacity Utilization 82.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Future Volume (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.979			0.920			0.992			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1824	0	1770	1714	0	1770	3511	0	1770	3504	0
Flt Permitted	0.203			0.255			0.280			0.236		
Satd. Flow (perm)	378	1824	0	475	1714	0	522	3511	0	440	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			42			6			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	344	0	60	376	0	24	828	0	416	1024	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1715-1730
TOD Plan 3

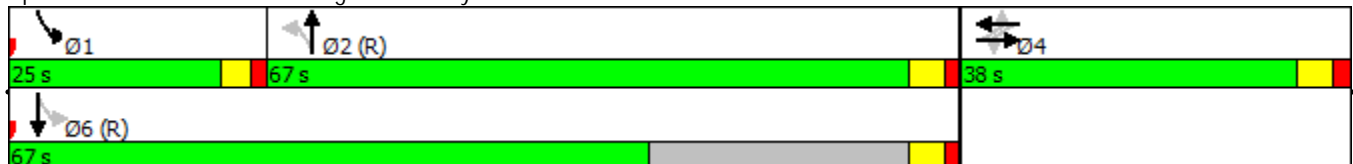


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	38.0	38.0		38.0	38.0		67.0	67.0		25.0	67.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%		51.5%	51.5%		19.2%	51.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		62.0	62.0		20.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	32.5	32.5		32.5	32.5		63.6	63.6		87.5	87.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.49	0.49		0.67	0.67	
v/c Ratio	0.55	0.75		0.51	0.82		0.09	0.48		0.85	0.44	
Control Delay	66.9	55.5		59.1	56.1		19.9	23.4		33.1	1.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	66.9	55.5		59.1	56.1		19.9	23.4		33.1	1.4	
LOS	E	E		E	E		B	C		C	A	
Approach Delay		57.0			56.5			23.3			10.6	
Approach LOS		E			E			C			B	
Stops (vph)	45	307		52	306		14	533		272	71	
Fuel Used(gal)	1	7		1	9		0	11		7	6	
CO Emissions (g/hr)	86	513		103	619		20	752		456	430	
NOx Emissions (g/hr)	17	100		20	120		4	146		89	84	
VOC Emissions (g/hr)	20	119		24	143		5	174		106	100	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 70 (54%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 26.4
 Intersection LOS: C
 Intersection Capacity Utilization 94.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Future Volume (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.992		0.950					
Satd. Flow (prot)	0	0	0	1610	3363	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.992		0.215					
Satd. Flow (perm)	0	0	0	1610	3363	1583	777	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						247						178
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Shared Lane Traffic (%)				26%								
Lane Group Flow (vph)	0	0	0	225	471	324	488	780	0	0	1024	256
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1715-1730
TOD Plan 3

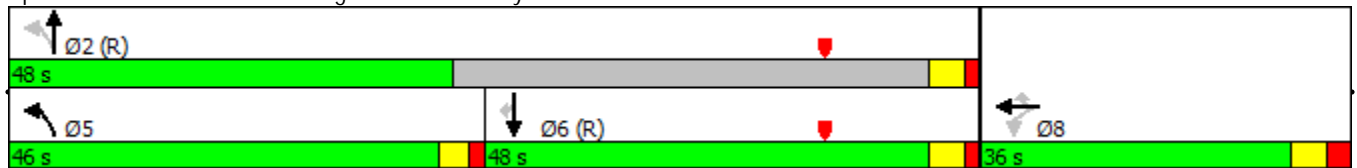


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				36.0	36.0	36.0	46.0	48.0			48.0	48.0
Total Split (%)				27.7%	27.7%	27.7%	35.4%	36.9%			36.9%	36.9%
Maximum Green (s)				30.0	30.0	30.0	41.5	43.0			43.0	43.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				30.0	30.0	30.0	89.5	89.0			71.3	71.3
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.68			0.55	0.55
v/c Ratio				0.61	0.61	0.58	0.61	0.32			0.29	0.27
Control Delay				52.7	48.6	15.9	27.2	18.8			15.7	6.9
Queue Delay				0.0	0.0	0.0	0.1	2.0			0.0	0.0
Total Delay				52.7	48.6	15.9	27.3	20.9			15.7	6.9
LOS				D	D	B	C	C			B	A
Approach Delay					39.1			23.3			14.0	
Approach LOS					D			C			B	
Stops (vph)				200	414	80	325	368			405	66
Fuel Used(gal)				4	8	2	6	7			14	3
CO Emissions (g/hr)				279	554	151	391	474			948	191
NOx Emissions (g/hr)				54	108	29	76	92			185	37
VOC Emissions (g/hr)				65	128	35	91	110			220	44
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 11 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 24.5
 Intersection LOS: C
 Intersection Capacity Utilization 55.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1715-1730
 TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Future Volume (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.93	0.97		0.95	0.96		0.99		0.96	1.00		0.92
Frt		0.960			0.958				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3304	0	1770	3254	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.203			0.154		
Satd. Flow (perm)	1646	3304	0	1683	3254	0	373	3539	1523	285	3539	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			43				101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	464	0	88	468	0	96	868	132	180	840	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1715-1730
TOD Plan 3

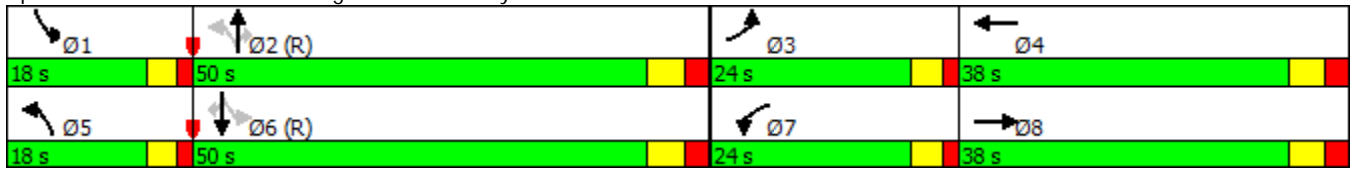


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	24.0	38.0		24.0	38.0		18.0	50.0	50.0	18.0	50.0	50.0
Total Split (%)	18.5%	29.2%		18.5%	29.2%		13.8%	38.5%	38.5%	13.8%	38.5%	38.5%
Maximum Green (s)	19.5	32.0		19.5	32.0		13.5	44.0	44.0	13.5	44.0	44.0
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effct Green (s)	12.7	39.7		11.8	38.8		56.3	45.4	45.4	61.7	48.1	48.1
Actuated g/C Ratio	0.10	0.31		0.09	0.30		0.43	0.35	0.35	0.47	0.37	0.37
v/c Ratio	0.58	0.45		0.55	0.47		0.37	0.70	0.22	0.66	0.64	0.07
Control Delay	68.9	35.4		68.8	36.0		12.8	28.1	7.6	31.5	36.9	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	2.0	0.0	0.0	0.0	0.0
Total Delay	68.9	35.4		68.8	36.0		12.8	30.1	7.6	31.5	36.9	0.2
LOS	E	D		E	D		B	C	A	C	D	A
Approach Delay		41.4			41.2			25.9			34.6	
Approach LOS		D			D			C			C	
Stops (vph)	93	338		82	343		43	735	76	101	681	0
Fuel Used(gal)	2	6		2	6		1	11	1	3	14	0
CO Emissions (g/hr)	152	448		125	411		51	780	66	184	1005	14
NOx Emissions (g/hr)	30	87		24	80		10	152	13	36	196	3
VOC Emissions (g/hr)	35	104		29	95		12	181	15	43	233	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	103 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	34.0
Intersection LOS:	C
Intersection Capacity Utilization:	82.5%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Future Volume (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.230		
Satd. Flow (perm)	1610	3383	1863	0	0	0	0	6408	1583	831	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									184			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	205	475	0	0	0	0	0	996	184	356	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1715-1730
TOD Plan 3

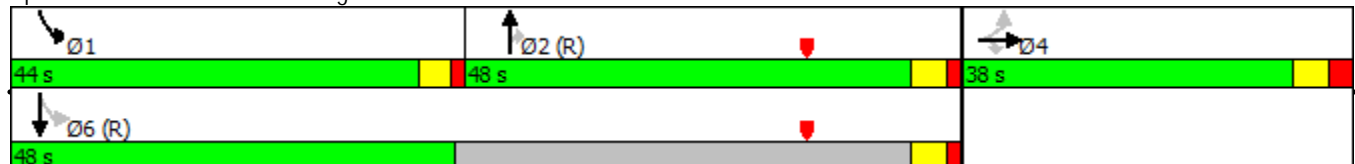


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	38.0	38.0	38.0					48.0	48.0	44.0	48.0	
Total Split (%)	29.2%	29.2%	29.2%					36.9%	36.9%	33.8%	36.9%	
Maximum Green (s)	32.0	32.0	32.0					43.0	43.0	39.5	43.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	25.8	25.8						78.4	78.4	93.7	93.2	
Actuated g/C Ratio	0.20	0.20						0.60	0.60	0.72	0.72	
v/c Ratio	0.64	0.71						0.26	0.18	0.44	0.38	
Control Delay	56.9	54.3						24.3	13.2	14.9	16.1	
Queue Delay	0.0	0.0						0.0	0.0	0.1	1.4	
Total Delay	56.9	54.3						24.3	13.2	15.0	17.5	
LOS	E	D						C	B	B	B	
Approach Delay		55.1						22.6			16.8	
Approach LOS		E						C			B	
Stops (vph)	184	429						650	110	153	485	
Fuel Used(gal)	4	9						16	3	3	8	
CO Emissions (g/hr)	266	600						1152	180	191	559	
NOx Emissions (g/hr)	52	117						224	35	37	109	
VOC Emissions (g/hr)	62	139						267	42	44	129	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 74 (57%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 27.1
 Intersection Capacity Utilization 55.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Traffic Volume (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Future Volume (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.989		0.950					
Satd. Flow (prot)	0	0	0	1610	3353	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.989		0.205					
Satd. Flow (perm)	0	0	0	1610	3353	1583	741	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						190						179
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Shared Lane Traffic (%)				31%								
Lane Group Flow (vph)	0	0	0	218	454	452	396	856	0	0	1080	316
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4			1			6	2
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1715-1730
TOD Plan 3

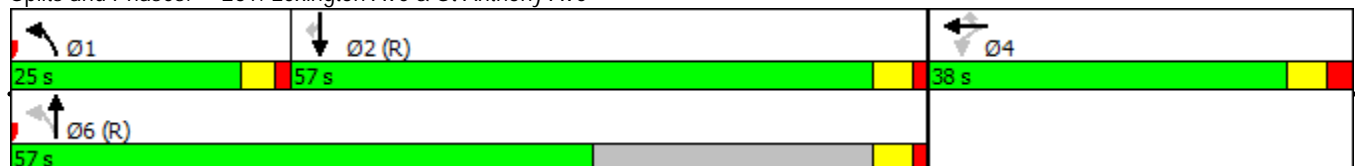


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				38.0	38.0	38.0	25.0	57.0			57.0	57.0
Total Split (%)				31.7%	31.7%	31.7%	20.8%	47.5%			47.5%	47.5%
Maximum Green (s)				32.0	32.0	32.0	20.5	52.0			52.0	52.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				23.8	23.8	23.8	85.7	85.2			70.6	70.6
Actuated g/C Ratio				0.20	0.20	0.20	0.71	0.71			0.59	0.59
v/c Ratio				0.68	0.68	0.97	0.52	0.34			0.29	0.31
Control Delay				55.0	49.5	62.3	17.9	6.1			25.6	19.6
Queue Delay				0.0	0.0	0.0	0.2	0.6			0.0	0.0
Total Delay				55.0	49.5	62.3	18.1	6.7			25.6	19.6
LOS				E	D	E	B	A			C	B
Approach Delay					55.7			10.3			24.2	
Approach LOS					E			B			C	
Stops (vph)				196	406	274	256	287			735	279
Fuel Used(gal)				4	8	8	4	5			21	6
CO Emissions (g/hr)				278	542	572	260	317			1459	425
NOx Emissions (g/hr)				54	105	111	51	62			284	83
VOC Emissions (g/hr)				64	126	132	60	73			338	99
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 29.0
 Intersection LOS: C
 Intersection Capacity Utilization 74.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Future Volume (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.221		
Satd. Flow (perm)	1610	3383	1583	0	0	0	0	6408	1583	799	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146						122			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	245	571	612	0	0	0	0	1000	152	364	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1715-1730
 TOD Plan 3

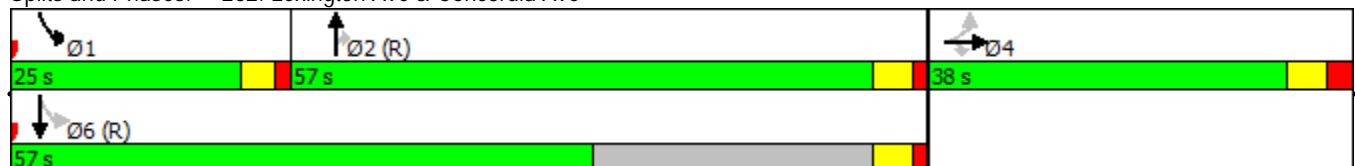


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	38.0	38.0	38.0					57.0	57.0	25.0	57.0	
Total Split (%)	31.7%	31.7%	31.7%					47.5%	47.5%	20.8%	47.5%	
Maximum Green (s)	32.0	32.0	32.0					52.0	52.0	20.5	52.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	29.0	29.0	29.0					65.6	65.6	80.5	80.0	
Actuated g/C Ratio	0.24	0.24	0.24					0.55	0.55	0.67	0.67	
v/c Ratio	0.63	0.70	1.24					0.29	0.17	0.48	0.42	
Control Delay	48.1	46.2	155.4					15.4	4.7	7.3	9.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.3	
Total Delay	48.1	46.2	155.4					15.4	4.7	7.4	10.1	
LOS	D	D	F					B	A	A	B	
Approach Delay		93.3						14.0			9.4	
Approach LOS		F						B			A	
Stops (vph)	215	506	394					520	21	185	621	
Fuel Used(gal)	4	9	23					13	1	2	8	
CO Emissions (g/hr)	286	653	1593					895	90	165	528	
NOx Emissions (g/hr)	56	127	310					174	18	32	103	
VOC Emissions (g/hr)	66	151	369					207	21	38	122	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 118 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.24
 Intersection Signal Delay: 41.3
 Intersection LOS: D
 Intersection Capacity Utilization 74.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1715-1730
TOD Plan 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Future Volume (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.999	
Flt Protected		0.982			0.959		0.950			0.950		
Satd. Flow (prot)	0	1829	1583	0	1786	1583	1770	3539	1583	1770	3535	0
Flt Permitted		0.864			0.727		0.229			0.247		
Satd. Flow (perm)	0	1605	1521	0	1324	1551	427	3539	1541	460	3535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			100			132			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	164	0	132	100	28	996	132	44	1088	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1715-1730
TOD Plan 3

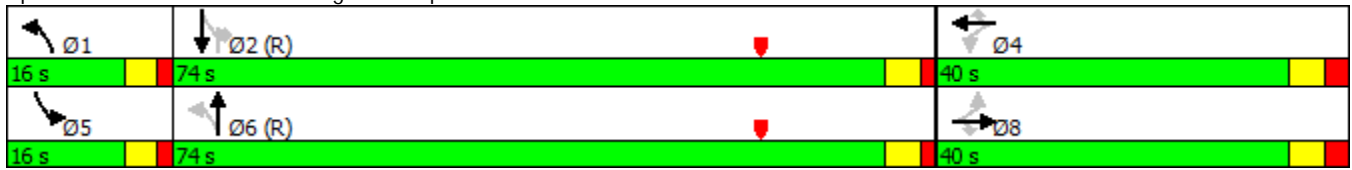


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	16.0	74.0	74.0	16.0	74.0	
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	12.3%	56.9%	56.9%	12.3%	56.9%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	69.0	69.0	11.5	69.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effct Green (s)		18.7	18.7		18.7	18.7	97.1	91.0	93.4	98.2	93.4	
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.75	0.70	0.72	0.76	0.72	
v/c Ratio		0.19	0.46		0.69	0.32	0.07	0.40	0.12	0.11	0.43	
Control Delay		48.0	10.6		70.6	11.0	3.0	8.1	2.0	3.0	4.8	
Queue Delay		0.0	0.0		0.0	0.1	0.0	0.2	0.0	0.0	0.2	
Total Delay		48.0	10.6		70.6	11.1	3.0	8.2	2.0	3.0	5.0	
LOS		D	B		E	B	A	A	A	A	A	
Approach Delay		18.5			44.9			7.4			4.9	
Approach LOS		B			D			A			A	
Stops (vph)		37	21		123	16	7	323	15	7	209	
Fuel Used(gal)		1	1		3	1	0	11	1	0	5	
CO Emissions (g/hr)		59	87		228	58	19	787	82	12	342	
NOx Emissions (g/hr)		11	17		44	11	4	153	16	2	67	
VOC Emissions (g/hr)		14	20		53	14	4	182	19	3	79	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	10 (8%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	10.4
Intersection LOS:	B
Intersection Capacity Utilization	72.0%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3708
Total Delay / Veh (s/v)	46
Total Delay (hr)	48
Fuel Consumed (gal)	78
Fuel Economy (mpg)	8.1
CO Emissions (kg)	5.47
NOx Emissions (kg)	1.06
VOC Emissions (kg)	1.27

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	4024
Total Delay / Veh (s/v)	41
Total Delay (hr)	45
Fuel Consumed (gal)	78
Fuel Economy (mpg)	8.1
CO Emissions (kg)	5.46
NOx Emissions (kg)	1.06
VOC Emissions (kg)	1.27

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3124
Total Delay / Veh (s/v)	26
Total Delay (hr)	23
Fuel Consumed (gal)	43
Fuel Economy (mpg)	9.7
CO Emissions (kg)	2.98
NOx Emissions (kg)	0.58
VOC Emissions (kg)	0.69

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3568
Total Delay / Veh (s/v)	24
Total Delay (hr)	24
Fuel Consumed (gal)	43
Fuel Economy (mpg)	8.5
CO Emissions (kg)	3.01
NOx Emissions (kg)	0.59
VOC Emissions (kg)	0.70

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	34
Total Delay (hr)	31
Fuel Consumed (gal)	47
Fuel Economy (mpg)	5.3
CO Emissions (kg)	3.26
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.76

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3176
Total Delay / Veh (s/v)	27
Total Delay (hr)	24
Fuel Consumed (gal)	42
Fuel Economy (mpg)	7.9
CO Emissions (kg)	2.97
NOx Emissions (kg)	0.58
VOC Emissions (kg)	0.69

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3772
Total Delay / Veh (s/v)	29
Total Delay (hr)	30
Fuel Consumed (gal)	55
Fuel Economy (mpg)	8.6
CO Emissions (kg)	3.86
NOx Emissions (kg)	0.75
VOC Emissions (kg)	0.90

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	3924
Total Delay / Veh (s/v)	41
Total Delay (hr)	45
Fuel Consumed (gal)	60
Fuel Economy (mpg)	5.5
CO Emissions (kg)	4.21
NOx Emissions (kg)	0.82
VOC Emissions (kg)	0.98

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2728
Total Delay / Veh (s/v)	10
Total Delay (hr)	8
Fuel Consumed (gal)	24
Fuel Economy (mpg)	14.2
CO Emissions (kg)	1.68
NOx Emissions (kg)	0.33
VOC Emissions (kg)	0.39

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	32
Total Delay (hr)	279
Fuel Consumed (gal)	471
Fuel Economy (mpg)	8.0
CO Emissions (kg)	32.91
NOx Emissions (kg)	6.40
VOC Emissions (kg)	7.63
Performance Index	333.9

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Future Volume (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.970			0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3433	0	1770	3493	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.109			0.240		
Satd. Flow (perm)	1770	3433	0	1770	3493	0	203	3539	1583	447	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			9				135			135
Link Speed (mph)		30			30			30				30
Link Distance (ft)		624			899			1330				681
Travel Time (s)		14.2			20.4			30.2				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	524	132	104	260	24	120	856	132	36	1024	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	172	656	0	104	284	0	120	856	132	36	1024	32
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1630-1645

Adaptive

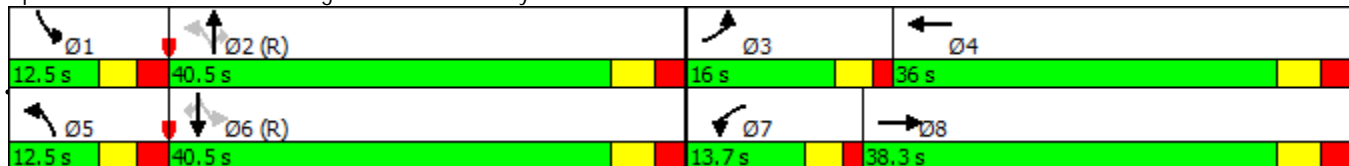


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	16.0	38.3		13.7	36.0		12.5	40.5	40.5	12.5	40.5	40.5
Total Split (%)	15.2%	36.5%		13.0%	34.3%		11.9%	38.6%	38.6%	11.9%	38.6%	38.6%
Maximum Green (s)	11.5	32.3		9.2	30.0		7.0	34.5	34.5	7.0	34.5	34.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	11.5	27.0		8.8	24.3		50.8	45.1	45.1	46.5	39.0	39.0
Actuated g/C Ratio	0.11	0.26		0.08	0.23		0.48	0.43	0.43	0.44	0.37	0.37
v/c Ratio	0.89	0.72		0.70	0.35		0.55	0.56	0.17	0.13	0.78	0.05
Control Delay	88.9	38.4		71.5	32.9		23.3	22.1	6.7	16.2	35.5	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.9	38.4		71.5	32.9		23.3	22.1	6.7	16.2	35.5	0.1
LOS	F	D		E	C		C	C	A	B	D	A
Approach Delay		48.9			43.2			20.4			33.8	
Approach LOS		D			D			C			C	
Stops (vph)	149	552		95	218		70	600	37	21	866	0
Fuel Used(gal)	5	11		3	5		2	16	2	0	18	0
CO Emissions (g/hr)	334	795		193	356		154	1121	122	30	1232	12
NOx Emissions (g/hr)	65	155		38	69		30	218	24	6	240	2
VOC Emissions (g/hr)	77	184		45	83		36	260	28	7	285	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 82 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 34.2
 Intersection LOS: C
 Intersection Capacity Utilization 77.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Future Volume (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.414			0.387			0.083			0.190		
Satd. Flow (perm)	771	1863	1583	721	1863	1583	155	3539	1583	354	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114			114			119			119
Link Speed (mph)		35			35			30				30
Link Distance (ft)		727			658			684				1025
Travel Time (s)		14.2			12.8			15.5				23.3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	320	60	56	268	88	32	944	72	40	1396	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20				20
Link Offset(ft)		0			-6			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1630-1645

Adaptive

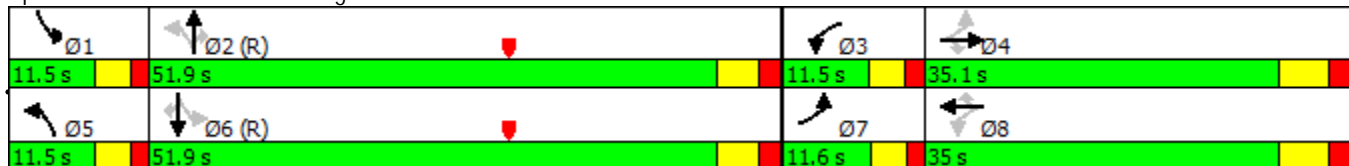


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	11.6	35.1	35.1	11.5	35.0	35.0	11.5	51.9	51.9	11.5	51.9	51.9
Total Split (%)	10.5%	31.9%	31.9%	10.5%	31.8%	31.8%	10.5%	47.2%	47.2%	10.5%	47.2%	47.2%
Maximum Green (s)	7.1	29.1	29.1	7.0	29.0	29.0	7.0	46.4	46.4	7.0	46.4	46.4
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	38.6	31.4	31.4	37.5	29.0	29.0	56.2	51.0	51.0	56.2	51.0	51.0
Actuated g/C Ratio	0.35	0.29	0.29	0.34	0.26	0.26	0.51	0.46	0.46	0.51	0.46	0.46
v/c Ratio	0.54	0.60	0.11	0.18	0.55	0.18	0.18	0.58	0.09	0.15	0.85	0.19
Control Delay	31.4	40.6	0.7	23.3	39.8	3.9	10.5	27.4	7.7	10.3	23.5	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	40.6	0.7	23.3	39.8	3.9	10.5	27.4	7.7	10.3	23.5	2.6
LOS	C	D	A	C	D	A	B	C	A	B	C	A
Approach Delay		33.4			29.9			25.5			21.1	
Approach LOS		C			C			C			C	
Stops (vph)	135	275	0	35	226	6	20	874	24	11	858	8
Fuel Used(gal)	3	6	0	1	5	1	0	15	1	0	23	1
CO Emissions (g/hr)	217	447	23	56	360	37	24	1058	44	32	1577	94
NOx Emissions (g/hr)	42	87	4	11	70	7	5	206	9	6	307	18
VOC Emissions (g/hr)	50	104	5	13	83	9	6	245	10	8	366	22
Dilemma Vehicles (#)	0	15	0	0	12	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 42 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 25.3
 Intersection LOS: C
 Intersection Capacity Utilization 76.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Future Volume (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.984			0.911			0.989			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1833	0	1770	1697	0	1770	3500	0	1770	3504	0
Flt Permitted	0.283			0.374			0.236			0.175		
Satd. Flow (perm)	527	1833	0	697	1697	0	440	3500	0	326	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			66			7			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	272	32	32	148	216	28	732	56	468	1116	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	304	0	32	364	0	28	788	0	468	1196	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	36.0	36.0		36.0	36.0		37.0	37.0		37.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%		33.6%	33.6%		33.6%	67.3%	
Maximum Green (s)	30.5	30.5		30.5	30.5		32.0	32.0		32.5	69.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	30.5	30.5		30.5	30.5		37.5	37.5		69.5	69.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.34	0.34		0.63	0.63	
v/c Ratio	0.47	0.59		0.17	0.70		0.19	0.66		0.84	0.54	
Control Delay	45.4	39.5		33.0	37.3		32.9	34.9		16.7	9.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.4	39.5		33.0	37.3		32.9	34.9		16.7	9.0	
LOS	D	D		C	D		C	C		B	A	
Approach Delay		40.6			37.0			34.8			11.2	
Approach LOS		D			D			C			B	
Stops (vph)	59	256		25	270		23	657		293	895	
Fuel Used(gal)	1	5		1	7		0	13		6	14	
CO Emissions (g/hr)	91	378		42	492		31	902		399	944	
NOx Emissions (g/hr)	18	74		8	96		6	175		78	184	
VOC Emissions (g/hr)	21	88		10	114		7	209		92	219	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 36 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 23.6
 Intersection LOS: C
 Intersection Capacity Utilization 96.1%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕↕↕	↗
Traffic Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Future Volume (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.990		0.950					
Satd. Flow (prot)	0	0	0	1610	3356	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.990		0.155					
Satd. Flow (perm)	0	0	0	1610	3356	1583	560	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						235						172
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	264	316	300	620	728	0	0	1148	276
Shared Lane Traffic (%)				29%								
Lane Group Flow (vph)	0	0	0	187	393	300	620	728	0	0	1148	276
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2				2
Detector Template				Left	Thru	Right	Left	Thru				Thru
Leading Detector (ft)				20	100	20	20	100				100
Trailing Detector (ft)				0	0	0	0	0				0
Detector 1 Position(ft)				0	0	0	0	0				0
Detector 1 Size(ft)				20	6	20	20	6				6
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 2 Position(ft)					94			94				94
Detector 2 Size(ft)					6			6				6
Detector 2 Type					Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				0.0
Turn Type				Perm	NA	Perm	pm+pt	NA				NA
Protected Phases					8			5				6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				37.0	37.0	37.0	34.0	73.0			39.0	39.0
Total Split (%)				33.6%	33.6%	33.6%	30.9%	66.4%			35.5%	35.5%
Maximum Green (s)				31.0	31.0	31.0	29.5	68.0			34.0	34.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				31.0	31.0	31.0	68.5	68.0			44.7	44.7
Actuated g/C Ratio				0.28	0.28	0.28	0.62	0.62			0.41	0.41
v/c Ratio				0.41	0.42	0.49	0.74	0.33			0.44	0.37
Control Delay				35.5	33.8	11.0	24.5	17.7			17.7	5.8
Queue Delay				0.0	0.0	0.0	0.6	2.8			0.0	0.0
Total Delay				35.5	33.8	11.0	25.1	20.5			17.8	5.8
LOS				D	C	B	C	C			B	A
Approach Delay					26.4			22.6			15.4	
Approach LOS					C			C			B	
Stops (vph)				149	311	66	464	493			518	57
Fuel Used(gal)				3	5	2	7	7			16	3
CO Emissions (g/hr)				179	366	116	493	488			1121	196
NOx Emissions (g/hr)				35	71	23	96	95			218	38
VOC Emissions (g/hr)				42	85	27	114	113			260	46
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 20 (18%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 20.7
 Intersection LOS: C
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

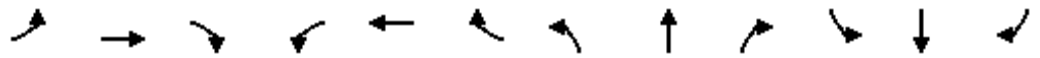
Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Future Volume (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.93	0.98		0.96	0.97		0.99		0.97	1.00		0.93
Frt		0.968			0.961				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3361	0	1770	3292	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.184			0.155		
Satd. Flow (perm)	1644	3361	0	1706	3292	0	338	3539	1530	287	3539	1475
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			43				119			119
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	448	120	124	248	88	108	884	96	132	840	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	568	0	124	336	0	108	884	96	132	840	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1630-1645

Adaptive

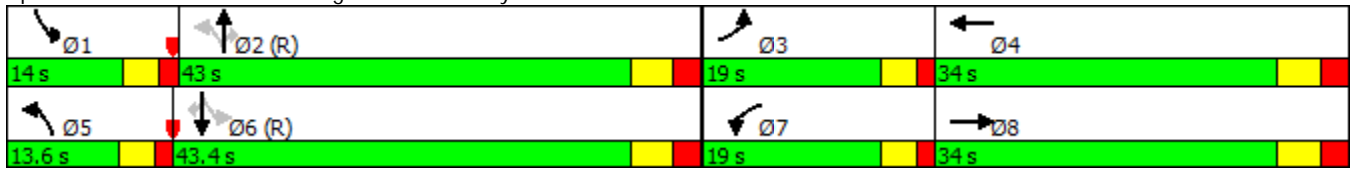


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	19.0	34.0		19.0	34.0		13.6	43.0	43.0	14.0	43.4	43.4
Total Split (%)	17.3%	30.9%		17.3%	30.9%		12.4%	39.1%	39.1%	12.7%	39.5%	39.5%
Maximum Green (s)	14.5	28.0		14.5	28.0		9.1	37.0	37.0	9.5	37.4	37.4
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	12.2	30.3		12.2	30.3		47.6	37.6	37.6	48.4	38.0	38.0
Actuated g/C Ratio	0.11	0.28		0.11	0.28		0.43	0.34	0.34	0.44	0.35	0.35
v/c Ratio	0.63	0.60		0.63	0.36		0.42	0.73	0.16	0.54	0.69	0.10
Control Delay	61.0	36.4		61.0	29.6		20.3	20.8	1.7	24.9	34.5	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.6	0.0	0.0	0.0	0.0
Total Delay	61.0	36.4		61.0	29.6		20.3	22.3	1.7	24.9	34.5	0.3
LOS	E	D		E	C		C	C	A	C	C	A
Approach Delay		40.8			38.1			20.3			31.4	
Approach LOS		D			D			C			C	
Stops (vph)	117	461		117	232		43	441	8	74	702	0
Fuel Used(gal)	3	8		2	4		1	8	0	2	14	0
CO Emissions (g/hr)	175	574		163	259		66	583	22	123	985	20
NOx Emissions (g/hr)	34	112		32	50		13	114	4	24	192	4
VOC Emissions (g/hr)	41	133		38	60		15	135	5	28	228	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 84 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 30.6
 Intersection LOS: C
 Intersection Capacity Utilization 80.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Future Volume (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.252		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	911	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									166			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		260			284			1025				289
Travel Time (s)		5.9			6.5			23.3				6.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	264	468	0	0	0	0	0	888	204	492	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	238	494	0	0	0	0	0	888	204	492	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				32
Link Offset(ft)		0			18			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1630-1645

Adaptive

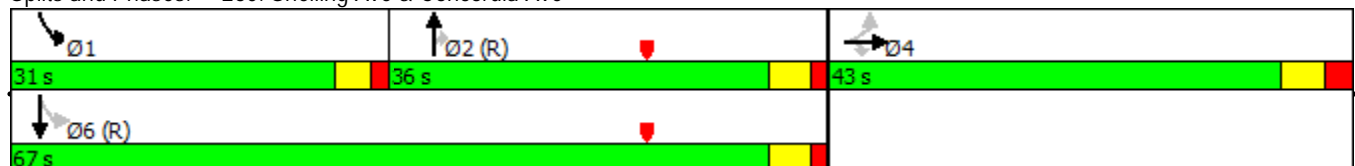


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	43.0	43.0	43.0					36.0	36.0	31.0	67.0	
Total Split (%)	39.1%	39.1%	39.1%					32.7%	32.7%	28.2%	60.9%	
Maximum Green (s)	37.0	37.0	37.0					31.0	31.0	26.5	62.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effct Green (s)	25.2	25.2						56.8	56.8	74.3	73.8	
Actuated g/C Ratio	0.23	0.23						0.52	0.52	0.68	0.67	
v/c Ratio	0.64	0.64						0.27	0.23	0.55	0.40	
Control Delay	45.7	41.4						6.3	1.0	4.0	3.5	
Queue Delay	0.1	0.0						0.0	0.0	0.1	0.3	
Total Delay	45.8	41.5						6.3	1.0	4.0	3.8	
LOS	D	D						A	A	A	A	
Approach Delay		42.9						5.3			3.9	
Approach LOS		D						A			A	
Stops (vph)	208	428						172	5	126	387	
Fuel Used(gal)	4	8						9	2	2	5	
CO Emissions (g/hr)	269	527						643	119	154	348	
NOx Emissions (g/hr)	52	102						125	23	30	68	
VOC Emissions (g/hr)	62	122						149	28	36	81	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 60 (55%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 13.1
 Intersection LOS: B
 Intersection Capacity Utilization 60.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1630-1645

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Traffic Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Future Volume (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1610	3333	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.983		0.151					
Satd. Flow (perm)	0	0	0	1610	3333	1583	546	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						114						352
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	284	224	420	452	912	0	0	1300	352
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	0	0	165	343	420	452	912	0	0	1300	352
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1630-1645
Adaptive

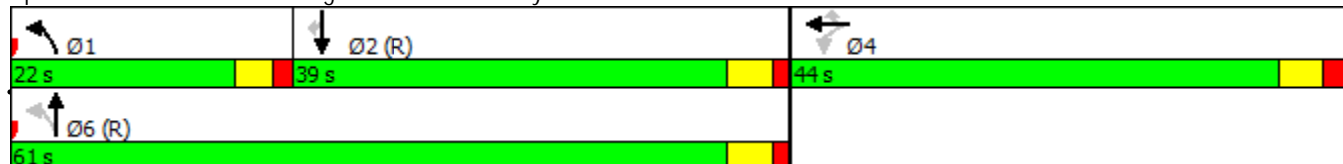


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				44.0	44.0	44.0	22.0	61.0			39.0	39.0
Total Split (%)				41.9%	41.9%	41.9%	21.0%	58.1%			37.1%	37.1%
Maximum Green (s)				38.0	38.0	38.0	17.5	56.0			34.0	34.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				17.4	17.4	17.4	77.1	76.6			59.3	59.3
Actuated g/C Ratio				0.17	0.17	0.17	0.73	0.73			0.56	0.56
v/c Ratio				0.62	0.62	1.17	0.60	0.35			0.36	0.34
Control Delay				50.1	45.1	133.1	26.8	6.3			7.3	0.8
Queue Delay				0.0	0.0	0.0	0.4	0.3			0.0	0.0
Total Delay				50.1	45.1	133.1	27.3	6.6			7.3	0.8
LOS				D	D	F	C	A			A	A
Approach Delay					85.8			13.4			5.9	
Approach LOS					F			B			A	
Stops (vph)				149	307	267	436	349			306	3
Fuel Used(gal)				3	6	14	6	5			17	4
CO Emissions (g/hr)				199	388	959	411	357			1196	260
NOx Emissions (g/hr)				39	75	187	80	69			233	51
VOC Emissions (g/hr)				46	90	222	95	83			277	60
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 98 (93%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 27.3
 Intersection LOS: C
 Intersection Capacity Utilization 68.3%
 ICU Level of Service C
 Analysis Period (min) 15

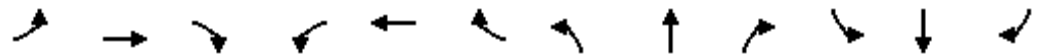
Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1630-1645

Adaptive

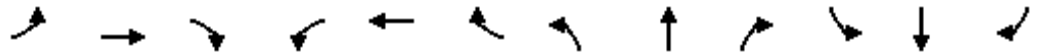


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Future Volume (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.996								0.950		
Satd. Flow (prot)	1610	3377	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.996								0.198		
Satd. Flow (perm)	1610	3377	1583	0	0	0	0	6408	1583	716	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68						156			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	572	456	0	0	0	0	1000	168	480	1116	0
Shared Lane Traffic (%)	13%											
Lane Group Flow (vph)	296	616	456	0	0	0	0	1000	168	480	1116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1630-1645

Adaptive

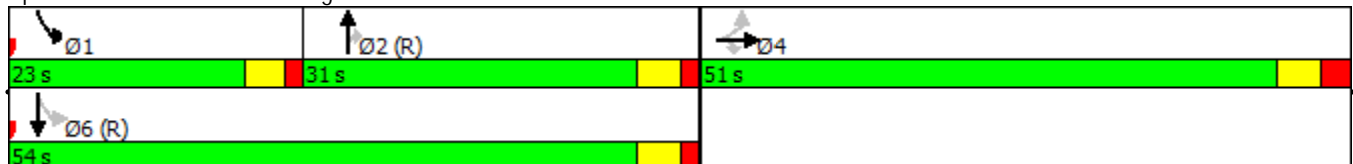


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	51.0	51.0	51.0					31.0	31.0	23.0	54.0	
Total Split (%)	48.6%	48.6%	48.6%					29.5%	29.5%	21.9%	51.4%	
Maximum Green (s)	45.0	45.0	45.0					26.0	26.0	18.5	49.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	32.6	32.6	32.6					43.8	43.8	61.9	61.4	
Actuated g/C Ratio	0.31	0.31	0.31					0.42	0.42	0.59	0.58	
v/c Ratio	0.59	0.59	0.85					0.37	0.22	0.63	0.54	
Control Delay	34.5	32.1	43.0					23.8	6.5	17.4	7.8	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Delay	34.5	32.1	43.0					23.8	6.5	17.4	7.9	
LOS	C	C	D					C	A	B	A	
Approach Delay		36.2						21.3			10.7	
Approach LOS		D						C			B	
Stops (vph)	237	493	360					686	26	212	277	
Fuel Used(gal)	4	8	7					15	2	4	6	
CO Emissions (g/hr)	279	560	483					1078	105	274	403	
NOx Emissions (g/hr)	54	109	94					210	20	53	78	
VOC Emissions (g/hr)	65	130	112					250	24	64	93	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 104 (99%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 22.2
 Intersection Capacity Utilization 68.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1630-1645
Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Future Volume (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.99	0.98	1.00		0.97		1.00	
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.971			0.968		0.950			0.950		
Satd. Flow (prot)	0	1809	1583	0	1803	1583	1770	3539	1583	1770	3516	0
Flt Permitted		0.756			0.746		0.278			0.232		
Satd. Flow (perm)	0	1403	1528	0	1370	1553	518	3539	1543	432	3516	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			64			88			5
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	36	120	72	36	60	12	1004	88	48	944	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	120	0	108	60	12	1004	88	48	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1630-1645

Adaptive

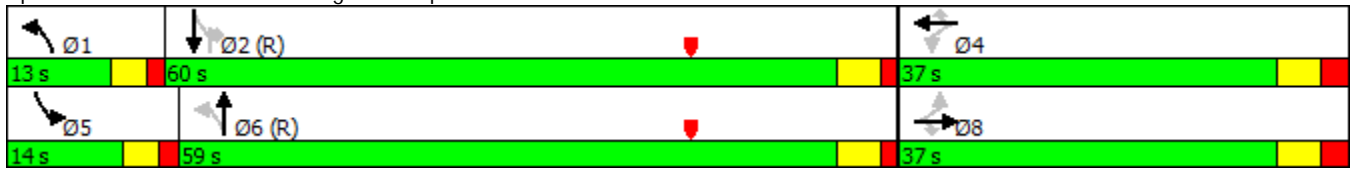


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	13.0	59.0	60.0	14.0	60.0	
Total Split (%)	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%	11.8%	53.6%	54.5%	12.7%	54.5%	
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0	31.0	8.5	54.0	55.0	9.5	55.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effct Green (s)		15.5	15.5		15.5	15.5	80.3	74.2	81.2	83.2	81.2	
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.73	0.67	0.74	0.76	0.74	
v/c Ratio		0.45	0.38		0.56	0.22	0.03	0.42	0.08	0.12	0.38	
Control Delay		48.2	10.0		53.4	10.0	2.8	5.9	0.8	2.2	2.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.2	
Total Delay		48.2	10.0		53.4	10.0	2.8	5.9	0.8	2.2	2.5	
LOS		D	A		D	A	A	A	A	A	A	
Approach Delay		26.1			37.9			5.5			2.5	
Approach LOS		C			D			A			A	
Stops (vph)		76	19		97	11	2	239	3	5	101	
Fuel Used(gal)		2	1		2	0	0	10	1	0	3	
CO Emissions (g/hr)		119	64		159	35	8	729	51	12	240	
NOx Emissions (g/hr)		23	12		31	7	2	142	10	2	47	
VOC Emissions (g/hr)		27	15		37	8	2	169	12	3	56	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 22 (20%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 8.1
 Intersection Capacity Utilization 66.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3416
Total Delay / Veh (s/v)	34
Total Delay (hr)	32
Fuel Consumed (gal)	62
Fuel Economy (mpg)	9.4
CO Emissions (kg)	4.35
NOx Emissions (kg)	0.85
VOC Emissions (kg)	1.01

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3608
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	57
Fuel Economy (mpg)	10.1
CO Emissions (kg)	3.97
NOx Emissions (kg)	0.77
VOC Emissions (kg)	0.92

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3248
Total Delay / Veh (s/v)	24
Total Delay (hr)	21
Fuel Consumed (gal)	47
Fuel Economy (mpg)	9.1
CO Emissions (kg)	3.28
NOx Emissions (kg)	0.64
VOC Emissions (kg)	0.76

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3652
Total Delay / Veh (s/v)	21
Total Delay (hr)	21
Fuel Consumed (gal)	43
Fuel Economy (mpg)	9.1
CO Emissions (kg)	3.00
NOx Emissions (kg)	0.58
VOC Emissions (kg)	0.69

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3268
Total Delay / Veh (s/v)	31
Total Delay (hr)	28
Fuel Consumed (gal)	43
Fuel Economy (mpg)	5.8
CO Emissions (kg)	2.99
NOx Emissions (kg)	0.58
VOC Emissions (kg)	0.69

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	13
Total Delay (hr)	12
Fuel Consumed (gal)	30
Fuel Economy (mpg)	11.1
CO Emissions (kg)	2.06
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3944
Total Delay / Veh (s/v)	27
Total Delay (hr)	30
Fuel Consumed (gal)	54
Fuel Economy (mpg)	9.9
CO Emissions (kg)	3.78
NOx Emissions (kg)	0.73
VOC Emissions (kg)	0.88

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	4132
Total Delay / Veh (s/v)	22
Total Delay (hr)	25
Fuel Consumed (gal)	46
Fuel Economy (mpg)	7.6
CO Emissions (kg)	3.18
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.74

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2508
Total Delay / Veh (s/v)	8
Total Delay (hr)	6
Fuel Consumed (gal)	20
Fuel Economy (mpg)	15.6
CO Emissions (kg)	1.42
NOx Emissions (kg)	0.28
VOC Emissions (kg)	0.33

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	23
Total Delay (hr)	201
Fuel Consumed (gal)	401
Fuel Economy (mpg)	9.4
CO Emissions (kg)	28.03
NOx Emissions (kg)	5.45
VOC Emissions (kg)	6.50
Performance Index	250.4

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1645-1700

Adaptive

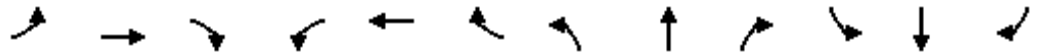


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Future Volume (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.976			0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3454	0	1770	3497	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.131			0.192		
Satd. Flow (perm)	1770	3454	0	1770	3497	0	244	3539	1583	358	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			8				129			129
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		624			899			1330			681	
Travel Time (s)		14.2			20.4			30.2			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	196	656	128	192	284	24	80	852	76	40	932	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	784	0	192	308	0	80	852	76	40	932	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1645-1700

Adaptive

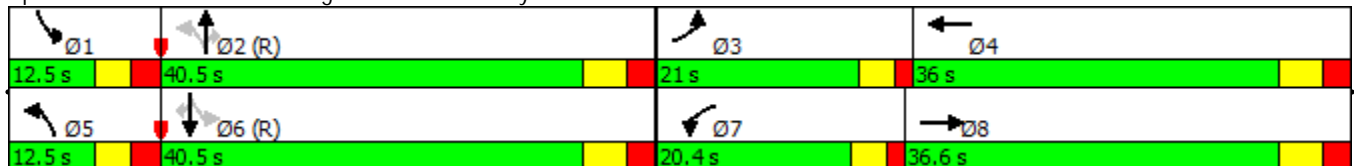


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	21.0	36.6		20.4	36.0		12.5	40.5	40.5	12.5	40.5	40.5
Total Split (%)	19.1%	33.3%		18.5%	32.7%		11.4%	36.8%	36.8%	11.4%	36.8%	36.8%
Maximum Green (s)	16.5	30.6		15.9	30.0		7.0	34.5	34.5	7.0	34.5	34.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effct Green (s)	15.3	29.5		14.9	29.1		46.3	41.6	41.6	45.2	39.1	39.1
Actuated g/C Ratio	0.14	0.27		0.14	0.26		0.42	0.38	0.38	0.41	0.36	0.36
v/c Ratio	0.80	0.83		0.81	0.33		0.40	0.64	0.11	0.17	0.74	0.09
Control Delay	69.4	45.7		71.0	32.6		22.2	27.2	4.2	20.0	37.0	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.4	45.7		71.0	32.6		22.2	27.2	4.2	20.0	37.0	0.3
LOS	E	D		E	C		C	C	A	C	D	A
Approach Delay		50.4			47.4			25.1			34.4	
Approach LOS		D			D			C			C	
Stops (vph)	179	700		175	234		46	606	18	24	797	0
Fuel Used(gal)	5	15		5	5		1	17	1	1	16	0
CO Emissions (g/hr)	329	1047		356	384		101	1182	67	36	1145	21
NOx Emissions (g/hr)	64	204		69	75		20	230	13	7	223	4
VOC Emissions (g/hr)	76	243		82	89		23	274	15	8	265	5
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 82 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 38.0
 Intersection LOS: D
 Intersection Capacity Utilization 82.8%
 ICU Level of Service E
 Analysis Period (min) 15

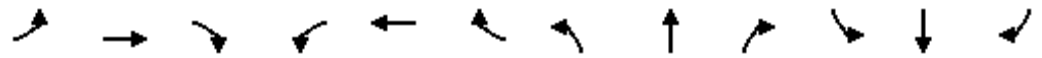
Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Future Volume (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.319			0.384			0.076			0.171		
Satd. Flow (perm)	594	1863	1583	715	1863	1583	142	3539	1583	319	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109			114			114
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	284	60	104	320	92	28	1004	68	52	1452	128
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1645-1700

Adaptive

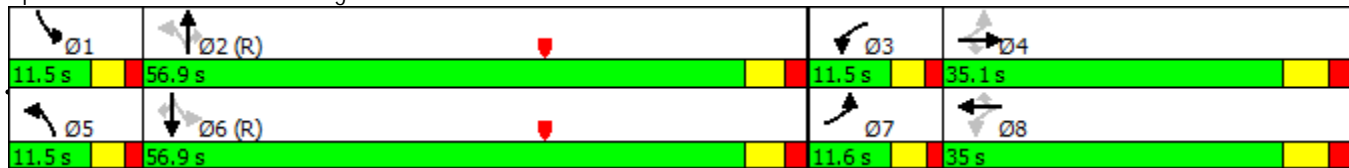


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	11.6	35.1	35.1	11.5	35.0	35.0	11.5	56.9	56.9	11.5	56.9	56.9
Total Split (%)	10.1%	30.5%	30.5%	10.0%	30.4%	30.4%	10.0%	49.5%	49.5%	10.0%	49.5%	49.5%
Maximum Green (s)	7.1	29.1	29.1	7.0	29.0	29.0	7.0	51.4	51.4	7.0	51.4	51.4
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effct Green (s)	37.7	29.1	29.1	37.5	29.0	29.0	60.3	53.7	53.7	61.2	56.0	56.0
Actuated g/C Ratio	0.33	0.25	0.25	0.33	0.25	0.25	0.52	0.47	0.47	0.53	0.49	0.49
v/c Ratio	0.58	0.60	0.12	0.35	0.68	0.19	0.16	0.61	0.09	0.20	0.84	0.15
Control Delay	36.4	44.1	1.3	28.5	47.4	5.4	10.6	30.6	7.4	11.0	25.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	44.1	1.3	28.5	47.4	5.4	10.6	30.6	7.4	11.0	25.9	4.5
LOS	D	D	A	C	D	A	B	C	A	B	C	A
Approach Delay		36.6			36.1			28.7			23.7	
Approach LOS		D			D			C			C	
Stops (vph)	119	248	1	72	285	10	18	943	23	22	1019	25
Fuel Used(gal)	3	6	0	2	7	1	0	17	1	1	25	1
CO Emissions (g/hr)	201	413	24	115	472	43	22	1176	41	46	1739	89
NOx Emissions (g/hr)	39	80	5	22	92	8	4	229	8	9	338	17
VOC Emissions (g/hr)	47	96	5	27	109	10	5	273	10	11	403	21
Dilemma Vehicles (#)	0	12	0	0	14	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 76 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 28.6
 Intersection LOS: C
 Intersection Capacity Utilization 82.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Future Volume (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.976			0.910			0.996			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1818	0	1770	1695	0	1770	3525	0	1770	3504	0
Flt Permitted	0.310			0.286			0.285			0.200		
Satd. Flow (perm)	577	1818	0	533	1695	0	531	3525	0	373	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			65			2			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	300	56	64	136	204	24	772	20	432	940	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	356	0	64	340	0	24	792	0	432	1004	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	37.0	37.0		37.0	37.0		41.0	41.0		37.0	78.0	
Total Split (%)	32.2%	32.2%		32.2%	32.2%		35.7%	35.7%		32.2%	67.8%	
Maximum Green (s)	31.5	31.5		31.5	31.5		36.0	36.0		32.5	73.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	31.5	31.5		31.5	31.5		44.0	44.0		73.5	73.0	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.38	0.38		0.64	0.63	
v/c Ratio	0.28	0.71		0.44	0.67		0.12	0.59		0.81	0.45	
Control Delay	38.7	45.6		45.9	37.0		28.7	31.7		16.7	10.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.7	45.6		45.9	37.0		28.7	31.7		16.7	10.5	
LOS	D	D		D	D		C	C		B	B	
Approach Delay		44.8			38.4			31.6			12.3	
Approach LOS		D			D			C			B	
Stops (vph)	36	311		54	247		18	624		308	759	
Fuel Used(gal)	1	7		1	7		0	12		5	12	
CO Emissions (g/hr)	54	478		97	455		25	857		383	817	
NOx Emissions (g/hr)	10	93		19	89		5	167		74	159	
VOC Emissions (g/hr)	12	111		22	106		6	199		89	189	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 72 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 25.2
 Intersection Capacity Utilization 92.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Future Volume (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.991		0.950					
Satd. Flow (prot)	0	0	0	1610	3360	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.991		0.184					
Satd. Flow (perm)	0	0	0	1610	3360	1583	665	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						145						220
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	300	376	356	460	812	0	0	996	220
Shared Lane Traffic (%)				27%								
Lane Group Flow (vph)	0	0	0	219	457	356	460	812	0	0	996	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1645-1700

Adaptive

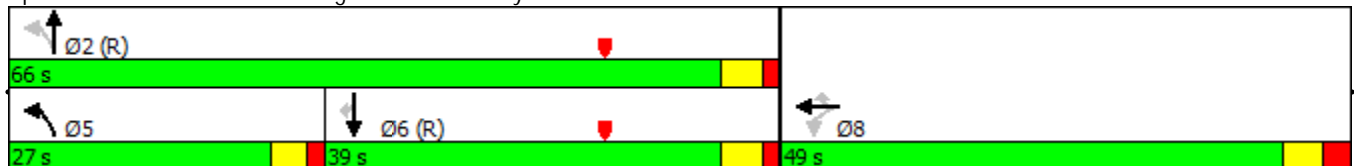


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				49.0	49.0	49.0	27.0	66.0			39.0	39.0
Total Split (%)				42.6%	42.6%	42.6%	23.5%	57.4%			33.9%	33.9%
Maximum Green (s)				43.0	43.0	43.0	22.5	61.0			34.0	34.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				43.0	43.0	43.0	61.5	61.0			42.1	42.1
Actuated g/C Ratio				0.37	0.37	0.37	0.53	0.53			0.37	0.37
v/c Ratio				0.36	0.36	0.52	0.65	0.43			0.43	0.31
Control Delay				28.3	27.1	19.1	15.9	12.5			18.7	1.9
Queue Delay				0.4	0.2	0.0	0.1	0.4			0.0	0.0
Total Delay				28.7	27.3	19.1	16.0	13.0			18.7	1.9
LOS				C	C	B	B	B			B	A
Approach Delay					24.8			14.1			15.7	
Approach LOS					C			B			B	
Stops (vph)				156	322	165	212	461			404	10
Fuel Used(gal)				3	5	3	4	6			14	2
CO Emissions (g/hr)				180	368	213	259	451			969	131
NOx Emissions (g/hr)				35	72	41	50	88			189	25
VOC Emissions (g/hr)				42	85	49	60	104			225	30
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 17.8
 Intersection LOS: B
 Intersection Capacity Utilization 54.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Future Volume (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.93	0.99		0.96	0.96		0.99		0.97	1.00		0.93
Frt		0.979			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3419	0	1770	3256	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.229			0.101		
Satd. Flow (perm)	1653	3419	0	1691	3256	0	420	3539	1528	188	3539	1471
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			53				114			114
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	136	384	64	112	296	124	104	1040	108	184	836	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	448	0	112	420	0	104	1040	108	184	836	24
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1645-1700

Adaptive

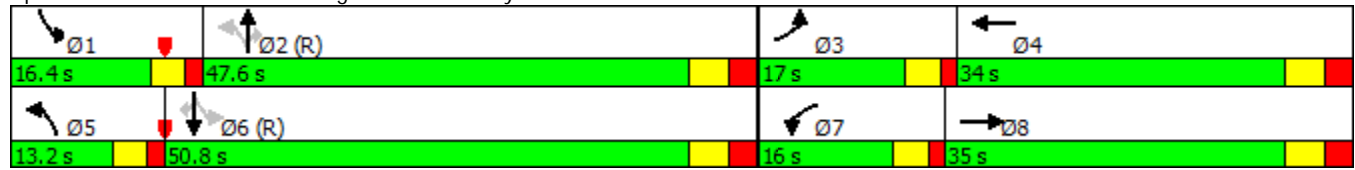


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	17.0	35.0		16.0	34.0		13.2	47.6	47.6	16.4	50.8	50.8
Total Split (%)	14.8%	30.4%		13.9%	29.6%		11.5%	41.4%	41.4%	14.3%	44.2%	44.2%
Maximum Green (s)	12.5	29.0		11.5	28.0		8.7	41.6	41.6	11.9	44.8	44.8
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effct Green (s)	11.8	29.9		10.6	28.7		52.1	42.4	42.4	57.9	45.3	45.3
Actuated g/C Ratio	0.10	0.26		0.09	0.25		0.45	0.37	0.37	0.50	0.39	0.39
v/c Ratio	0.75	0.50		0.68	0.49		0.36	0.80	0.17	0.75	0.60	0.04
Control Delay	75.0	37.4		71.6	34.6		14.3	25.7	2.7	39.8	30.0	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.8	0.0	0.0	0.0	0.0
Total Delay	75.0	37.4		71.6	34.6		14.3	27.5	2.7	39.8	30.0	0.1
LOS	E	D		E	C		B	C	A	D	C	A
Approach Delay		46.1			42.4			24.3			31.0	
Approach LOS		D			D			C			C	
Stops (vph)	126	360		105	308		30	606	8	104	645	0
Fuel Used(gal)	3	7		2	5		1	11	0	3	13	0
CO Emissions (g/hr)	218	458		164	360		51	793	26	210	905	9
NOx Emissions (g/hr)	42	89		32	70		10	154	5	41	176	2
VOC Emissions (g/hr)	51	106		38	84		12	184	6	49	210	2
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 76 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 32.9
 Intersection LOS: C
 Intersection Capacity Utilization 87.3%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1645-1700

Adaptive

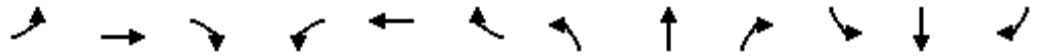


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Future Volume (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.236		
Satd. Flow (perm)	1610	3380	1863	0	0	0	0	6408	1583	853	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									161			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	452	0	0	0	0	0	952	232	488	1040	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	216	476	0	0	0	0	0	952	232	488	1040	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	43.0	43.0	43.0					41.0	41.0	31.0	72.0	
Total Split (%)	37.4%	37.4%	37.4%					35.7%	35.7%	27.0%	62.6%	
Maximum Green (s)	37.0	37.0	37.0					36.0	36.0	26.5	67.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	24.5	24.5						62.8	62.8	80.0	79.5	
Actuated g/C Ratio	0.21	0.21						0.55	0.55	0.70	0.69	
v/c Ratio	0.63	0.66						0.27	0.25	0.56	0.43	
Control Delay	48.9	45.6						6.5	1.0	20.4	14.1	
Queue Delay	0.0	0.0						0.0	0.0	0.2	1.1	
Total Delay	48.9	45.6						6.5	1.0	20.6	15.1	
LOS	D	D						A	A	C	B	
Approach Delay		46.6						5.4			16.9	
Approach LOS		D						A			B	
Stops (vph)	190	421						186	9	327	584	
Fuel Used(gal)	4	8						10	2	5	9	
CO Emissions (g/hr)	254	539						691	137	345	597	
NOx Emissions (g/hr)	49	105						134	27	67	116	
VOC Emissions (g/hr)	59	125						160	32	80	138	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 108 (94%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 18.9
 Intersection Capacity Utilization 54.2%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1645-1700
Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Traffic Volume (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Future Volume (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.987		0.950					
Satd. Flow (prot)	0	0	0	1610	3346	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.987		0.171					
Satd. Flow (perm)	0	0	0	1610	3346	1583	618	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						153						235
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	380	364	400	420	800	0	0	1188	324
Shared Lane Traffic (%)				36%								
Lane Group Flow (vph)	0	0	0	243	501	400	420	800	0	0	1188	324
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4		1	6			2	
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1645-1700
Adaptive

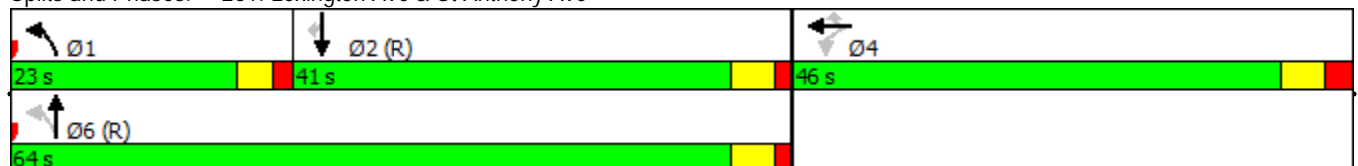


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				46.0	46.0	46.0	23.0	64.0			41.0	41.0
Total Split (%)				41.8%	41.8%	41.8%	20.9%	58.2%			37.3%	37.3%
Maximum Green (s)				40.0	40.0	40.0	18.5	59.0			36.0	36.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effct Green (s)				24.5	24.5	24.5	75.0	74.5			58.5	58.5
Actuated g/C Ratio				0.22	0.22	0.22	0.68	0.68			0.53	0.53
v/c Ratio				0.68	0.67	0.85	0.59	0.33			0.35	0.34
Control Delay				48.2	43.1	41.6	23.7	7.5			9.9	2.4
Queue Delay				0.0	0.0	0.0	0.3	0.5			0.0	0.0
Total Delay				48.2	43.1	41.6	24.0	8.0			9.9	2.4
LOS				D	D	D	C	A			A	A
Approach Delay					43.7			13.5			8.3	
Approach LOS					D			B			A	
Stops (vph)				214	440	247	346	327			352	21
Fuel Used(gal)				4	8	6	5	5			17	4
CO Emissions (g/hr)				284	549	389	340	334			1164	254
NOx Emissions (g/hr)				55	107	76	66	65			227	49
VOC Emissions (g/hr)				66	127	90	79	78			270	59
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 88 (80%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 20.4
 Intersection Capacity Utilization 90.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1645-1700
Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Future Volume (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.260		
Satd. Flow (perm)	1610	3383	1583	0	0	0	0	6408	1583	940	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64						154			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		263			111			870			282	
Travel Time (s)		6.0			2.5			19.8			6.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	292	552	408	0	0	0	0	844	164	420	1208	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	263	581	408	0	0	0	0	844	164	420	1208	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28			30	
Link Offset(ft)		0			-4			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1645-1700

Adaptive

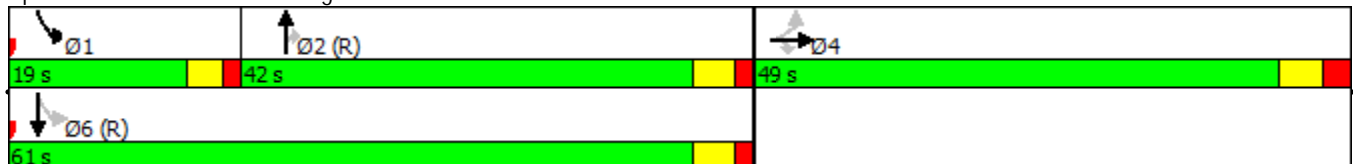


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	49.0	49.0	49.0					42.0	42.0	19.0	61.0	
Total Split (%)	44.5%	44.5%	44.5%					38.2%	38.2%	17.3%	55.5%	
Maximum Green (s)	43.0	43.0	43.0					37.0	37.0	14.5	56.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	30.9	30.9	30.9					52.4	52.4	68.6	68.1	
Actuated g/C Ratio	0.28	0.28	0.28					0.48	0.48	0.62	0.62	
v/c Ratio	0.58	0.61	0.83					0.28	0.20	0.50	0.55	
Control Delay	38.2	36.4	45.3					19.2	5.0	9.1	10.4	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.1	0.2	
Total Delay	38.2	36.4	45.3					19.2	5.0	9.2	10.6	
LOS	D	D	D					B	A	A	B	
Approach Delay		39.7						16.9			10.2	
Approach LOS		D						B			B	
Stops (vph)	217	482	322					501	21	91	543	
Fuel Used(gal)	4	8	6					12	1	2	8	
CO Emissions (g/hr)	265	570	446					824	98	154	575	
NOx Emissions (g/hr)	51	111	87					160	19	30	112	
VOC Emissions (g/hr)	61	132	103					191	23	36	133	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 106 (96%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 21.4
 Intersection LOS: C
 Intersection Capacity Utilization 90.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Future Volume (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98	1.00		0.97		1.00	
Frt			0.850			0.850			0.850		0.996	
Flt Protected		0.968			0.967		0.950			0.950		
Satd. Flow (prot)	0	1803	1583	0	1801	1583	1770	3539	1583	1770	3524	0
Flt Permitted		0.758			0.772		0.248			0.221		
Satd. Flow (perm)	0	1406	1526	0	1415	1553	462	3539	1542	412	3524	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172			62			92			3
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	12	172	88	40	48	32	1092	92	32	980	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	172	0	128	48	32	1092	92	32	1004	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1645-1700

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	13.0	64.0	64.0	13.0	64.0	
Total Split (%)	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	11.3%	55.7%	55.7%	11.3%	55.7%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	8.5	59.0	59.0	8.5	59.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		16.9	16.9		16.9	16.9	84.9	80.2	80.2	84.9	80.2	
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.74	0.70	0.70	0.74	0.70	
v/c Ratio		0.17	0.46		0.62	0.17	0.08	0.44	0.08	0.08	0.41	
Control Delay		41.6	9.9		57.4	7.3	3.0	5.5	1.1	1.6	2.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.1	
Total Delay		41.6	9.9		57.4	7.3	3.0	5.5	1.1	1.6	2.2	
LOS		D	A		E	A	A	A	A	A	A	
Approach Delay		15.4			43.8			5.1			2.2	
Approach LOS		B			D			A			A	
Stops (vph)		30	23		118	6	6	260	4	2	76	
Fuel Used(gal)		1	1		3	0	0	11	1	0	3	
CO Emissions (g/hr)		45	89		197	25	21	786	54	7	232	
NOx Emissions (g/hr)		9	17		38	5	4	153	10	1	45	
VOC Emissions (g/hr)		10	21		46	6	5	182	12	2	54	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	115
Offset:	18 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	7.3
Intersection LOS:	A
Intersection Capacity Utilization:	69.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3516
Total Delay / Veh (s/v)	38
Total Delay (hr)	37
Fuel Consumed (gal)	67
Fuel Economy (mpg)	8.8
CO Emissions (kg)	4.67
NOx Emissions (kg)	0.91
VOC Emissions (kg)	1.08

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3748
Total Delay / Veh (s/v)	29
Total Delay (hr)	30
Fuel Consumed (gal)	63
Fuel Economy (mpg)	9.5
CO Emissions (kg)	4.38
NOx Emissions (kg)	0.85
VOC Emissions (kg)	1.02

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3056
Total Delay / Veh (s/v)	25
Total Delay (hr)	21
Fuel Consumed (gal)	45
Fuel Economy (mpg)	8.9
CO Emissions (kg)	3.17
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.73

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3520
Total Delay / Veh (s/v)	18
Total Delay (hr)	17
Fuel Consumed (gal)	37
Fuel Economy (mpg)	9.6
CO Emissions (kg)	2.58
NOx Emissions (kg)	0.50
VOC Emissions (kg)	0.60

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3412
Total Delay / Veh (s/v)	33
Total Delay (hr)	31
Fuel Consumed (gal)	46
Fuel Economy (mpg)	5.6
CO Emissions (kg)	3.22
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3404
Total Delay / Veh (s/v)	19
Total Delay (hr)	18
Fuel Consumed (gal)	37
Fuel Economy (mpg)	9.4
CO Emissions (kg)	2.58
NOx Emissions (kg)	0.50
VOC Emissions (kg)	0.60

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3876
Total Delay / Veh (s/v)	20
Total Delay (hr)	22
Fuel Consumed (gal)	48
Fuel Economy (mpg)	10.6
CO Emissions (kg)	3.32
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.77

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	3888
Total Delay / Veh (s/v)	21
Total Delay (hr)	23
Fuel Consumed (gal)	42
Fuel Economy (mpg)	7.5
CO Emissions (kg)	2.93
NOx Emissions (kg)	0.57
VOC Emissions (kg)	0.68

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2636
Total Delay / Veh (s/v)	7
Total Delay (hr)	5
Fuel Consumed (gal)	21
Fuel Economy (mpg)	16.3
CO Emissions (kg)	1.46
NOx Emissions (kg)	0.28
VOC Emissions (kg)	0.34

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	24
Total Delay (hr)	205
Fuel Consumed (gal)	405
Fuel Economy (mpg)	9.1
CO Emissions (kg)	28.31
NOx Emissions (kg)	5.51
VOC Emissions (kg)	6.56
Performance Index	256.1

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	668	100	124	320	40	120	964	68	52	992	44
Future Volume (vph)	168	668	100	124	320	40	120	964	68	52	992	44
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.980			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3468	0	1770	3479	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.109			0.146		
Satd. Flow (perm)	1770	3468	0	1770	3479	0	203	3539	1583	272	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			13				135			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		624			899			1330			681	
Travel Time (s)		14.2			20.4			30.2			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	168	668	100	124	320	40	120	964	68	52	992	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	768	0	124	360	0	120	964	68	52	992	44
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	384	56	72	292	96	8	804	72	36	1464	140
Future Volume (vph)	196	384	56	72	292	96	8	804	72	36	1464	140
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.415			0.334			0.104			0.211		
Satd. Flow (perm)	773	1863	1583	622	1863	1583	194	3539	1583	393	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125			125			131			131
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		727			658			684			1025	
Travel Time (s)		14.2			12.8			15.5			23.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	196	384	56	72	292	96	8	804	72	36	1464	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	384	56	72	292	96	8	804	72	36	1464	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			20	
Link Offset(ft)		0			-6			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1700-1715

Adaptive

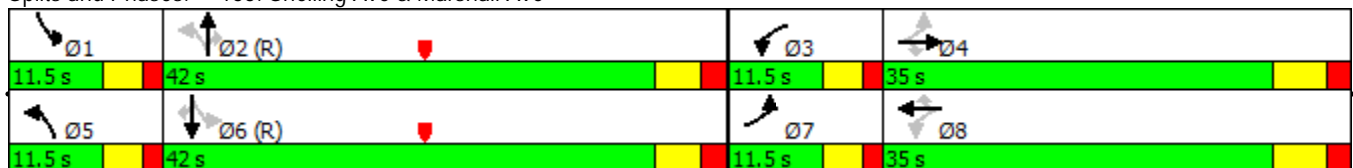


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	42.0	42.0	11.5	42.0	42.0
Total Split (%)	11.5%	35.0%	35.0%	11.5%	35.0%	35.0%	11.5%	42.0%	42.0%	11.5%	42.0%	42.0%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0	29.0	7.0	36.5	36.5	7.0	36.5	36.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effect Green (s)	38.4	31.3	31.3	37.5	29.0	29.0	46.3	41.1	41.1	48.1	45.7	45.7
Actuated g/C Ratio	0.38	0.31	0.31	0.38	0.29	0.29	0.46	0.41	0.41	0.48	0.46	0.46
v/c Ratio	0.54	0.66	0.10	0.23	0.54	0.18	0.04	0.55	0.10	0.13	0.91	0.18
Control Delay	26.2	37.2	0.3	19.6	34.3	3.3	10.8	29.6	8.7	11.2	26.9	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	37.2	0.3	19.6	34.3	3.3	10.8	29.6	8.7	11.2	26.9	1.9
LOS	C	D	A	B	C	A	B	C	A	B	C	A
Approach Delay		30.6			25.6			27.7			24.4	
Approach LOS		C			C			C			C	
Stops (vph)	140	332	0	44	242	7	7	762	32	13	822	5
Fuel Used(gal)	3	7	0	1	5	1	0	13	1	0	24	1
CO Emissions (g/hr)	219	519	21	67	367	40	7	932	48	31	1696	84
NOx Emissions (g/hr)	43	101	4	13	71	8	1	181	9	6	330	16
VOC Emissions (g/hr)	51	120	5	16	85	9	2	216	11	7	393	19
Dilemma Vehicles (#)	0	19	0	0	15	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 28 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 26.4
 Intersection LOS: C
 Intersection Capacity Utilization 80.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	272	64	24	140	204	32	736	52	440	1000	96
Future Volume (vph)	52	272	64	24	140	204	32	736	52	440	1000	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.971			0.911			0.990			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1809	0	1770	1697	0	1770	3504	0	1770	3493	0
Flt Permitted	0.320			0.332			0.260			0.184		
Satd. Flow (perm)	596	1809	0	618	1697	0	484	3504	0	343	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			72			7			19	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	272	64	24	140	204	32	736	52	440	1000	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	336	0	24	344	0	32	788	0	440	1096	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0		32.0	67.0	
Total Split (%)	33.0%	33.0%		33.0%	33.0%		35.0%	35.0%		32.0%	67.0%	
Maximum Green (s)	27.5	27.5		27.5	27.5		30.0	30.0		27.5	62.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	27.5	27.5		27.5	27.5		35.0	35.0		62.5	62.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.35	0.35		0.62	0.62	
v/c Ratio	0.32	0.66		0.14	0.66		0.19	0.64		0.82	0.50	
Control Delay	35.4	38.4		30.1	32.3		29.3	31.1		13.0	5.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.4	38.4		30.1	32.3		29.3	31.1		13.0	5.1	
LOS	D	D		C	C		C	C		B	A	
Approach Delay		38.0			32.2			31.0			7.3	
Approach LOS		D			C			C			A	
Stops (vph)	42	284		20	243		25	646		242	614	
Fuel Used(gal)	1	6		0	6		0	12		5	10	
CO Emissions (g/hr)	61	413		31	435		33	855		339	725	
NOx Emissions (g/hr)	12	80		6	85		7	166		66	141	
VOC Emissions (g/hr)	14	96		7	101		8	198		78	168	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 24 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 20.3
 Intersection Capacity Utilization 93.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↑↑↑	↗
Traffic Volume (vph)	0	0	0	232	412	272	460	728	0	0	988	268
Future Volume (vph)	0	0	0	232	412	272	460	728	0	0	988	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.997		0.950					
Satd. Flow (prot)	0	0	0	1610	3380	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.997		0.200					
Satd. Flow (perm)	0	0	0	1610	3380	1583	723	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						211						167
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	232	412	272	460	728	0	0	988	268
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	0	0	0	209	435	272	460	728	0	0	988	268
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					8			5			2	6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1700-1715
Adaptive

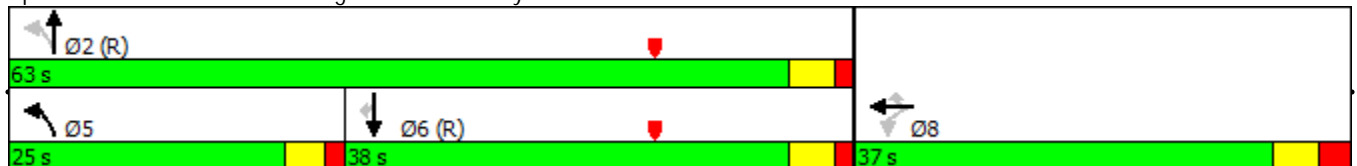


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				37.0	37.0	37.0	25.0	63.0			38.0	38.0
Total Split (%)				37.0%	37.0%	37.0%	25.0%	63.0%			38.0%	38.0%
Maximum Green (s)				31.0	31.0	31.0	20.5	58.0			33.0	33.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				31.0	31.0	31.0	58.5	58.0			40.8	40.8
Actuated g/C Ratio				0.31	0.31	0.31	0.58	0.58			0.41	0.41
v/c Ratio				0.42	0.42	0.43	0.60	0.35			0.38	0.36
Control Delay				30.5	28.8	9.3	18.8	16.6			15.8	5.8
Queue Delay				0.0	0.0	0.0	0.3	3.5			0.0	0.0
Total Delay				30.5	28.8	9.3	19.1	20.1			15.8	5.8
LOS				C	C	A	B	C			B	A
Approach Delay					23.4			19.7			13.6	
Approach LOS					C			B			B	
Stops (vph)				163	334	59	342	539			407	63
Fuel Used(gal)				3	5	1	5	7			13	3
CO Emissions (g/hr)				184	371	99	328	495			922	194
NOx Emissions (g/hr)				36	72	19	64	96			179	38
VOC Emissions (g/hr)				43	86	23	76	115			214	45
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 18.5
 Intersection Capacity Utilization 55.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

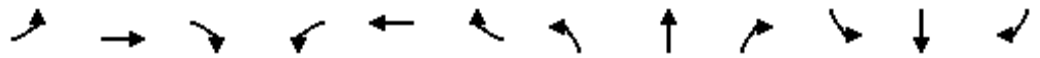
Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	420	112	104	264	136	140	908	116	176	804	40
Future Volume (vph)	140	420	112	104	264	136	140	908	116	176	804	40
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.94	0.98		0.97	0.96		0.99		0.97	1.00		0.94
Frt		0.968			0.949				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3367	0	1770	3230	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.207			0.126		
Satd. Flow (perm)	1665	3367	0	1709	3230	0	380	3539	1533	234	3539	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			91				131			131
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	420	112	104	264	136	140	908	116	176	804	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	532	0	104	400	0	140	908	116	176	804	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1700-1715

Adaptive











Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	15.0	34.6		14.4	34.0		11.5	38.0	38.0	13.0	39.5	39.5
Total Split (%)	15.0%	34.6%		14.4%	34.0%		11.5%	38.0%	38.0%	13.0%	39.5%	39.5%
Maximum Green (s)	10.5	28.6		9.9	28.0		7.0	32.0	32.0	8.5	33.5	33.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	10.2	29.3		9.2	28.3		40.5	32.0	32.0	43.5	33.5	33.5
Actuated g/C Ratio	0.10	0.29		0.09	0.28		0.40	0.32	0.32	0.44	0.34	0.34
v/c Ratio	0.78	0.53		0.64	0.41		0.56	0.80	0.20	0.76	0.68	0.07
Control Delay	72.8	30.0		61.7	23.7		28.7	32.8	6.2	39.8	32.1	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	3.0	0.0	0.0	0.0	0.0
Total Delay	72.8	30.0		61.7	23.7		28.7	35.9	6.2	39.8	32.1	0.2
LOS	E	C		E	C		C	D	A	D	C	A
Approach Delay		38.9			31.5			32.1			32.2	
Approach LOS		D			C			C			C	
Stops (vph)	126	407		98	243		79	606	26	100	671	0
Fuel Used(gal)	3	7		2	4		2	12	1	3	13	0
CO Emissions (g/hr)	219	480		138	262		112	814	40	201	914	14
NOx Emissions (g/hr)	43	93		27	51		22	158	8	39	178	3
VOC Emissions (g/hr)	51	111		32	61		26	189	9	47	212	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	64 (64%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	33.4
Intersection LOS:	C
Intersection Capacity Utilization:	84.2%
ICU Level of Service:	E
Analysis Period (min):	15

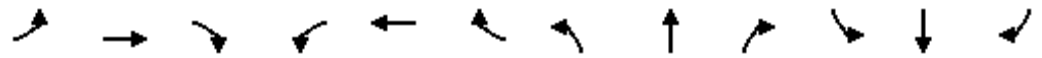
Splits and Phases: 166: Snelling Ave & University Ave

 Ø1 13 s	 Ø2 (R) 38 s	 Ø3 15 s	 Ø4 34 s
 Ø5 11.5 s	 Ø6 (R) 39.5 s	 Ø7 14.4 s	 Ø8 34.6 s

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	412	4	0	0	0	0	960	204	372	872	0
Future Volume (vph)	260	412	4	0	0	0	0	960	204	372	872	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.995								0.950		
Satd. Flow (prot)	1610	3373	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.995								0.231		
Satd. Flow (perm)	1610	3373	1583	0	0	0	0	6408	1583	835	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71						204			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	260	412	4	0	0	0	0	960	204	372	872	0
Shared Lane Traffic (%)	16%											
Lane Group Flow (vph)	218	454	4	0	0	0	0	960	204	372	872	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1700-1715

Adaptive

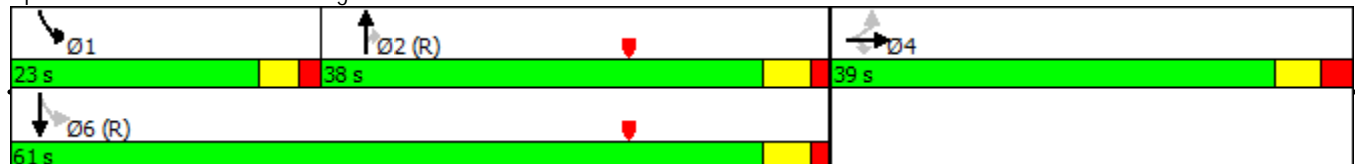


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	39.0	39.0	39.0					38.0	38.0	23.0	61.0	
Total Split (%)	39.0%	39.0%	39.0%					38.0%	38.0%	23.0%	61.0%	
Maximum Green (s)	33.0	33.0	33.0					33.0	33.0	18.5	56.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	21.8	21.8	21.8					52.6	52.6	67.7	67.2	
Actuated g/C Ratio	0.22	0.22	0.22					0.53	0.53	0.68	0.67	
v/c Ratio	0.62	0.62	0.01					0.28	0.22	0.45	0.37	
Control Delay	42.4	38.4	0.0					7.9	1.3	5.0	5.1	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.2	0.5	
Total Delay	42.5	38.4	0.0					7.9	1.3	5.1	5.6	
LOS	D	D	A					A	A	A	A	
Approach Delay		39.5						6.7			5.4	
Approach LOS		D						A			A	
Stops (vph)	189	393	0					250	9	136	390	
Fuel Used(gal)	3	7	0					11	2	2	5	
CO Emissions (g/hr)	236	464	1					740	121	137	351	
NOx Emissions (g/hr)	46	90	0					144	24	27	68	
VOC Emissions (g/hr)	55	108	0					172	28	32	81	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 46 (46%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 13.4
 Intersection Capacity Utilization 55.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↷	↶	↷	↷		↷	↷
Traffic Volume (vph)	0	0	0	300	232	420	368	820	0	0	1272	272
Future Volume (vph)	0	0	0	300	232	420	368	820	0	0	1272	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.983		0.950					
Satd. Flow (prot)	0	0	0	1610	3333	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.983		0.159					
Satd. Flow (perm)	0	0	0	1610	3333	1583	575	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						133						272
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	300	232	420	368	820	0	0	1272	272
Shared Lane Traffic (%)				42%								
Lane Group Flow (vph)	0	0	0	174	358	420	368	820	0	0	1272	272
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4			1	6			2
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1700-1715
Adaptive

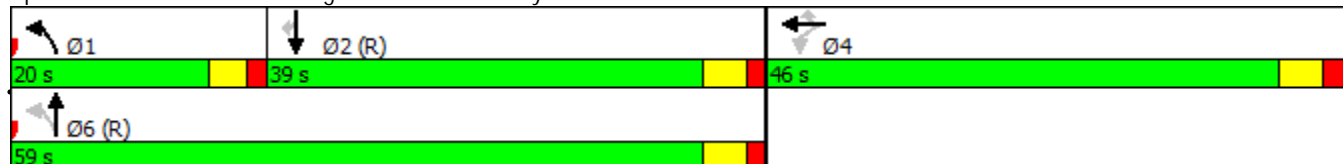


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				46.0	46.0	46.0	20.0	59.0			39.0	39.0
Total Split (%)				43.8%	43.8%	43.8%	19.0%	56.2%			37.1%	37.1%
Maximum Green (s)				40.0	40.0	40.0	15.5	54.0			34.0	34.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				18.1	18.1	18.1	76.4	75.9			60.8	60.8
Actuated g/C Ratio				0.17	0.17	0.17	0.73	0.72			0.58	0.58
v/c Ratio				0.63	0.62	1.10	0.52	0.32			0.34	0.26
Control Delay				49.9	44.7	104.0	20.1	7.8			6.8	0.7
Queue Delay				0.0	0.0	0.0	0.3	0.6			0.0	0.0
Total Delay				49.9	44.7	104.0	20.4	8.4			6.9	0.7
LOS				D	D	F	C	A			A	A
Approach Delay					71.8			12.2			5.8	
Approach LOS					E			B			A	
Stops (vph)				156	320	263	259	299			310	5
Fuel Used(gal)				3	6	11	4	5			17	3
CO Emissions (g/hr)				209	402	783	262	333			1166	202
NOx Emissions (g/hr)				41	78	152	51	65			227	39
VOC Emissions (g/hr)				48	93	182	61	77			270	47
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 80 (76%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 24.9
 Intersection LOS: C
 Intersection Capacity Utilization 74.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	504	504	0	0	0	0	976	144	428	1236	0
Future Volume (vph)	272	504	504	0	0	0	0	976	144	428	1236	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	1610	3380	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.997								0.219		
Satd. Flow (perm)	1610	3380	1583	0	0	0	0	6408	1583	791	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68						144			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	272	504	504	0	0	0	0	976	144	428	1236	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	245	531	504	0	0	0	0	976	144	428	1236	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
 262: Lexington Ave & Concordia Ave

1700-1715

Adaptive

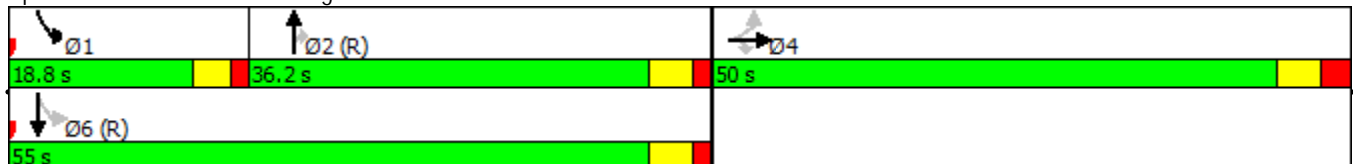


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	50.0	50.0	50.0					36.2	36.2	18.8	55.0	
Total Split (%)	47.6%	47.6%	47.6%					34.5%	34.5%	17.9%	52.4%	
Maximum Green (s)	44.0	44.0	44.0					31.2	31.2	14.3	50.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	27.8	27.8	27.8					50.9	50.9	66.7	66.2	
Actuated g/C Ratio	0.26	0.26	0.26					0.48	0.48	0.64	0.63	
v/c Ratio	0.58	0.59	1.08					0.31	0.17	0.55	0.55	
Control Delay	37.9	35.7	95.7					18.3	4.2	7.7	6.2	
Queue Delay	0.1	0.0	0.0					0.0	0.0	0.1	0.2	
Total Delay	38.0	35.8	95.7					18.3	4.2	7.8	6.4	
LOS	D	D	F					B	A	A	A	
Approach Delay		59.8						16.5			6.8	
Approach LOS		E						B			A	
Stops (vph)	204	442	413					583	16	132	419	
Fuel Used(gal)	4	7	13					13	1	2	7	
CO Emissions (g/hr)	246	517	918					942	83	164	461	
NOx Emissions (g/hr)	48	101	179					183	16	32	90	
VOC Emissions (g/hr)	57	120	213					218	19	38	107	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 105
 Offset: 104 (99%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 26.2
 Intersection LOS: C
 Intersection Capacity Utilization 74.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	20	32	144	72	32	68	16	912	100	48	968	8
Future Volume (vph)	20	32	144	72	32	68	16	912	100	48	968	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.97		0.99	0.98	1.00		0.97	1.00	1.00	
Frt			0.850			0.850			0.850		0.999	
Flt Protected		0.981			0.967		0.950			0.950		
Satd. Flow (prot)	0	1827	1583	0	1801	1583	1770	3539	1583	1770	3535	0
Flt Permitted		0.846			0.761		0.267			0.273		
Satd. Flow (perm)	0	1573	1531	0	1398	1554	497	3539	1543	508	3535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144			71			100			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	32	144	72	32	68	16	912	100	48	968	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	144	0	104	68	16	912	100	48	976	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1700-1715

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	36.0	36.0	36.0	36.0	36.0	36.0	12.0	51.0	52.0	13.0	52.0	
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	12.0%	51.0%	52.0%	13.0%	52.0%	
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	7.5	46.0	47.0	8.5	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		14.6	13.2		14.6	13.2	74.7	71.0	73.4	75.9	73.4	
Actuated g/C Ratio		0.15	0.13		0.15	0.13	0.75	0.71	0.73	0.76	0.73	
v/c Ratio		0.23	0.44		0.51	0.26	0.03	0.36	0.09	0.10	0.38	
Control Delay		36.8	9.8		46.0	9.6	1.8	3.6	0.7	2.5	3.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.2	
Total Delay		36.8	9.8		46.0	9.6	1.8	3.6	0.7	2.5	3.1	
LOS		D	A		D	A	A	A	A	A	A	
Approach Delay		16.9			31.6			3.3			3.1	
Approach LOS		B			C			A			A	
Stops (vph)		43	21		91	13	2	163	4	6	109	
Fuel Used(gal)		1	1		2	1	0	9	1	0	4	
CO Emissions (g/hr)		61	75		141	39	10	612	57	12	251	
NOx Emissions (g/hr)		12	15		28	8	2	119	11	2	49	
VOC Emissions (g/hr)		14	17		33	9	2	142	13	3	58	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 4 (4%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 6.3
 Intersection Capacity Utilization 67.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3660
Total Delay / Veh (s/v)	36
Total Delay (hr)	37
Fuel Consumed (gal)	69
Fuel Economy (mpg)	9.1
CO Emissions (kg)	4.80
NOx Emissions (kg)	0.93
VOC Emissions (kg)	1.11

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	3620
Total Delay / Veh (s/v)	26
Total Delay (hr)	27
Fuel Consumed (gal)	58
Fuel Economy (mpg)	10.0
CO Emissions (kg)	4.03
NOx Emissions (kg)	0.78
VOC Emissions (kg)	0.93

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3112
Total Delay / Veh (s/v)	20
Total Delay (hr)	18
Fuel Consumed (gal)	41
Fuel Economy (mpg)	9.9
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3360
Total Delay / Veh (s/v)	18
Total Delay (hr)	17
Fuel Consumed (gal)	38
Fuel Economy (mpg)	9.3
CO Emissions (kg)	2.63
NOx Emissions (kg)	0.51
VOC Emissions (kg)	0.61

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3360
Total Delay / Veh (s/v)	33
Total Delay (hr)	31
Fuel Consumed (gal)	46
Fuel Economy (mpg)	5.5
CO Emissions (kg)	3.23
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3084
Total Delay / Veh (s/v)	13
Total Delay (hr)	11
Fuel Consumed (gal)	29
Fuel Economy (mpg)	11.1
CO Emissions (kg)	2.06
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3684
Total Delay / Veh (s/v)	25
Total Delay (hr)	25
Fuel Consumed (gal)	48
Fuel Economy (mpg)	10.4
CO Emissions (kg)	3.37
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.78

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	4064
Total Delay / Veh (s/v)	26
Total Delay (hr)	30
Fuel Consumed (gal)	48
Fuel Economy (mpg)	7.1
CO Emissions (kg)	3.34
NOx Emissions (kg)	0.65
VOC Emissions (kg)	0.77

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2420
Total Delay / Veh (s/v)	6
Total Delay (hr)	4
Fuel Consumed (gal)	18
Fuel Economy (mpg)	16.7
CO Emissions (kg)	1.26
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.29

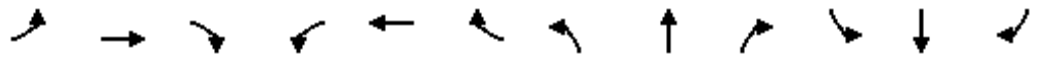
Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	24
Total Delay (hr)	200
Fuel Consumed (gal)	395
Fuel Economy (mpg)	9.3
CO Emissions (kg)	27.61
NOx Emissions (kg)	5.37
VOC Emissions (kg)	6.40
Performance Index	248.3

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Future Volume (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	275		0	350		175	150		150
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.964			0.993				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3412	0	1770	3514	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.152			0.133		
Satd. Flow (perm)	1770	3412	0	1770	3514	0	283	3539	1583	248	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			4				129			129
Link Speed (mph)		30			30			30				30
Link Distance (ft)		624			899			1330				681
Travel Time (s)		14.2			20.4			30.2				15.5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	600	192	184	324	16	152	960	72	64	856	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	220	792	0	184	340	0	152	960	72	64	856	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6

Lanes, Volumes, Timings
101: Lexington Ave & University Ave

1715-1730

Adaptive

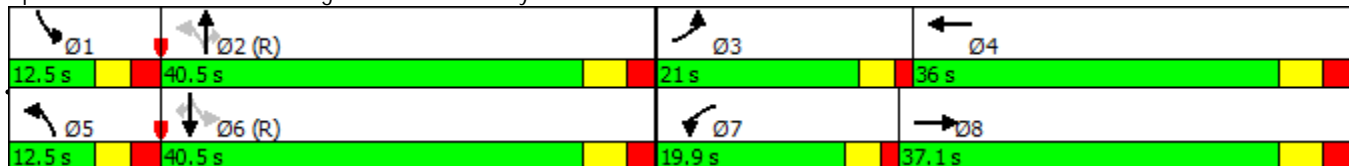


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	36.0		11.5	36.0		12.5	40.0	40.0	12.5	40.0	40.0
Total Split (s)	21.0	37.1		19.9	36.0		12.5	40.5	40.5	12.5	40.5	40.5
Total Split (%)	19.1%	33.7%		18.1%	32.7%		11.4%	36.8%	36.8%	11.4%	36.8%	36.8%
Maximum Green (s)	16.5	31.1		15.4	30.0		7.0	34.5	34.5	7.0	34.5	34.5
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.5	6.0	6.0	5.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		23.0			23.0			27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		5			5			5	5		5	5
Act Effect Green (s)	15.9	29.8		14.4	28.3		45.8	39.3	39.3	43.7	36.2	36.2
Actuated g/C Ratio	0.14	0.27		0.13	0.26		0.42	0.36	0.36	0.40	0.33	0.33
v/c Ratio	0.86	0.83		0.80	0.37		0.69	0.76	0.11	0.33	0.74	0.11
Control Delay	76.3	44.4		70.7	34.1		34.2	31.5	4.2	23.2	37.7	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.3	44.4		70.7	34.1		34.2	31.5	4.2	23.2	37.7	0.4
LOS	E	D		E	C		C	C	A	C	D	A
Approach Delay		51.3			47.0			30.2			34.2	
Approach LOS		D			D			C			C	
Stops (vph)	198	694		169	266		94	743	16	39	743	0
Fuel Used(gal)	6	15		5	6		3	20	1	1	15	0
CO Emissions (g/hr)	390	1037		341	434		221	1413	63	60	1064	26
NOx Emissions (g/hr)	76	202		66	85		43	275	12	12	207	5
VOC Emissions (g/hr)	90	240		79	101		51	327	15	14	247	6
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 86 (78%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 39.4
 Intersection LOS: D
 Intersection Capacity Utilization 83.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 101: Lexington Ave & University Ave



Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1715-1730

Adaptive

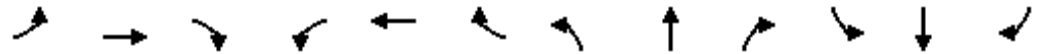


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Future Volume (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		175	200		175	150		75	125		100
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.447			0.246			0.081			0.145		
Satd. Flow (perm)	833	1863	1583	458	1863	1583	151	3539	1583	270	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114			114			119			119
Link Speed (mph)		35		35			30			30		30
Link Distance (ft)		727		658			684			1025		
Travel Time (s)		14.2		12.8			15.5			23.3		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	380	64	128	256	88	40	1076	100	24	1512	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12		12			20			20		
Link Offset(ft)		0		-6			0			0		
Crosswalk Width(ft)		16		16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	6
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			94			94		
Detector 2 Size(ft)		6		6			6			6		
Detector 2 Type		Cl+Ex		Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0			0.0			0.0		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
155: Snelling Ave & Marshall Ave

1715-1730

Adaptive

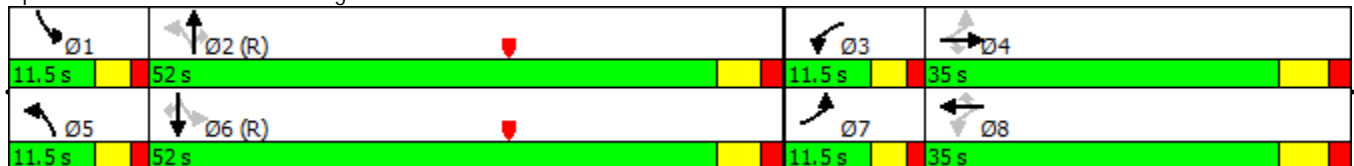


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	12.0	12.0	7.0	12.0	12.0
Minimum Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	29.5	29.5	11.5	29.5	29.5
Total Split (s)	11.5	35.0	35.0	11.5	35.0	35.0	11.5	52.0	52.0	11.5	52.0	52.0
Total Split (%)	10.5%	31.8%	31.8%	10.5%	31.8%	31.8%	10.5%	47.3%	47.3%	10.5%	47.3%	47.3%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0	29.0	7.0	46.5	46.5	7.0	46.5	46.5
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0	22.0		22.0	22.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effct Green (s)	37.5	29.0	29.0	37.5	29.0	29.0	56.3	51.1	51.1	56.3	51.1	51.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.51	0.46	0.46	0.51	0.46	0.46
v/c Ratio	0.59	0.77	0.13	0.54	0.52	0.18	0.22	0.65	0.13	0.10	0.92	0.19
Control Delay	33.8	49.6	1.4	32.2	39.1	3.9	11.1	27.7	8.1	14.0	35.1	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	49.6	1.4	32.2	39.1	3.9	11.1	27.7	8.1	14.0	35.1	6.7
LOS	C	D	A	C	D	A	B	C	A	B	D	A
Approach Delay		39.9			30.7			25.5			32.2	
Approach LOS		D			C			C			C	
Stops (vph)	164	341	1	89	214	6	23	971	36	11	951	31
Fuel Used(gal)	4	8	0	2	5	1	0	17	1	0	28	2
CO Emissions (g/hr)	259	587	25	148	340	37	30	1200	63	22	1967	111
NOx Emissions (g/hr)	50	114	5	29	66	7	6	234	12	4	383	22
VOC Emissions (g/hr)	60	136	6	34	79	9	7	278	15	5	456	26
Dilemma Vehicles (#)	0	17	0	0	12	0	0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 31.2
 Intersection LOS: C
 Intersection Capacity Utilization 82.2%
 ICU Level of Service E
 Analysis Period (min) 15

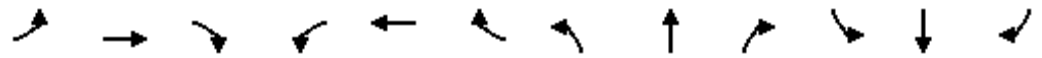
Splits and Phases: 155: Snelling Ave & Marshall Ave



Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Future Volume (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	200		0	125		0	175		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.979			0.920			0.992			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1824	0	1770	1714	0	1770	3511	0	1770	3504	0
Flt Permitted	0.265			0.313			0.280			0.184		
Satd. Flow (perm)	494	1824	0	583	1714	0	522	3511	0	343	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			51			5			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		656			978			598			684	
Travel Time (s)		14.9			22.2			13.6			15.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	296	48	60	176	200	24	784	44	416	956	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	344	0	60	376	0	24	828	0	416	1024	0
Enter Blocked Intersection	Yes	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	6	
Permitted Phases	4			4			2			6		

Lanes, Volumes, Timings
161: Snelling Ave & Selby Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		15.0	15.0		8.0	15.0	
Minimum Split (s)	32.5	32.5		32.5	32.5		25.0	25.0		12.5	25.0	
Total Split (s)	36.0	36.0		36.0	36.0		41.0	41.0		33.0	74.0	
Total Split (%)	32.7%	32.7%		32.7%	32.7%		37.3%	37.3%		30.0%	67.3%	
Maximum Green (s)	30.5	30.5		30.5	30.5		36.0	36.0		28.5	69.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		4.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.5	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0			8.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effect Green (s)	30.5	30.5		30.5	30.5		41.9	41.9		69.5	69.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.38	0.38		0.63	0.63	
v/c Ratio	0.38	0.67		0.37	0.73		0.12	0.62		0.82	0.47	
Control Delay	42.1	42.3		40.2	40.7		27.3	31.0		15.1	9.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.1	42.3		40.2	40.7		27.3	31.0		15.1	9.2	
LOS	D	D		D	D		C	C		B	A	
Approach Delay		42.2			40.7			30.9			10.9	
Approach LOS		D			D			C			B	
Stops (vph)	43	296		47	295		18	659		281	771	
Fuel Used(gal)	1	6		1	8		0	13		5	12	
CO Emissions (g/hr)	66	444		84	532		24	890		353	814	
NOx Emissions (g/hr)	13	86		16	104		5	173		69	158	
VOC Emissions (g/hr)	15	103		20	123		6	206		82	189	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 24.5
 Intersection LOS: C
 Intersection Capacity Utilization 94.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 161: Snelling Ave & Selby Ave



Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕↕↕	↗
Traffic Volume (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Future Volume (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	300		225
Storage Lanes	0		0	1		1	2		0	2		0
Taper Length (ft)	25			25			25			150		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.992		0.950					
Satd. Flow (prot)	0	0	0	1610	3363	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.992		0.184					
Satd. Flow (perm)	0	0	0	1610	3363	1583	665	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						178						190
Link Speed (mph)		30			30			30				30
Link Distance (ft)		155			268			289				1009
Travel Time (s)		3.5			6.1			6.6				22.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	304	392	324	488	780	0	0	1024	256
Shared Lane Traffic (%)				26%								
Lane Group Flow (vph)	0	0	0	225	471	324	488	780	0	0	1024	256
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			32				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		12	15		9	15		12
Number of Detectors				1	2	1	1	2				2
Detector Template				Left	Thru	Right	Left	Thru				Thru
Leading Detector (ft)				20	100	20	20	100				100
Trailing Detector (ft)				0	0	0	0	0				0
Detector 1 Position(ft)				0	0	0	0	0				0
Detector 1 Size(ft)				20	6	20	20	6				6
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0				0.0
Detector 2 Position(ft)					94			94				94
Detector 2 Size(ft)					6			6				6
Detector 2 Type					Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				0.0
Turn Type				Perm	NA	Perm	pm+pt	NA				NA
Protected Phases					8			5				6
Permitted Phases				8		8	2					6

Lanes, Volumes, Timings
162: Snelling Ave & St Anthony Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)				15.0	15.0	15.0	7.0	11.0			11.0	11.0
Minimum Split (s)				27.0	27.0	27.0	11.5	24.0			24.0	24.0
Total Split (s)				43.0	43.0	43.0	29.0	67.0			38.0	38.0
Total Split (%)				39.1%	39.1%	39.1%	26.4%	60.9%			34.5%	34.5%
Maximum Green (s)				37.0	37.0	37.0	24.5	62.0			33.0	33.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.5	3.5	3.5	3.5	0.2			0.2	0.2
Recall Mode				Max	Max	Max	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		8.0			8.0	8.0
Flash Dont Walk (s)				13.0	13.0	13.0		10.0			10.0	10.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				37.0	37.0	37.0	62.5	62.0			43.1	43.1
Actuated g/C Ratio				0.34	0.34	0.34	0.57	0.56			0.39	0.39
v/c Ratio				0.42	0.42	0.50	0.66	0.39			0.41	0.35
Control Delay				31.1	29.6	15.5	28.9	22.3			15.1	2.1
Queue Delay				0.0	0.0	0.0	0.4	1.9			0.0	0.0
Total Delay				31.1	29.6	15.5	29.3	24.2			15.1	2.1
LOS				C	C	B	C	C			B	A
Approach Delay					25.4			26.2			12.5	
Approach LOS					C			C			B	
Stops (vph)				170	353	117	378	529			407	18
Fuel Used(gal)				3	6	2	6	8			13	2
CO Emissions (g/hr)				198	403	164	424	575			940	155
NOx Emissions (g/hr)				39	78	32	82	112			183	30
VOC Emissions (g/hr)				46	93	38	98	133			218	36
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBT, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 21.0
 Intersection LOS: C
 Intersection Capacity Utilization 55.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 162: Snelling Ave & St Anthony Ave



Lanes, Volumes, Timings
 166: Snelling Ave & University Ave

1715-1730

Adaptive

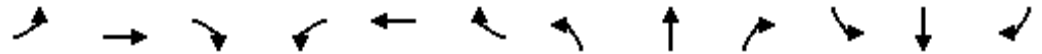


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Future Volume (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	50		75	125		175
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	75			25			50			100		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.94	0.98		0.96	0.97		0.99		0.97	1.00		0.93
Frt		0.960			0.958				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3316	0	1770	3273	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.225			0.149		
Satd. Flow (perm)	1665	3316	0	1696	3273	0	413	3539	1530	276	3539	1475
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			51				164			119
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			152			315				657
Travel Time (s)		7.5			3.5			7.2				14.9
Confl. Peds. (#/hr)	96		67	67		96	54		21	21		54
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	340	124	88	336	132	96	868	132	180	840	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	464	0	88	468	0	96	868	132	180	840	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		48			48			20				20
Link Offset(ft)		0			0			0				-6
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	6	20	100	6
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm

Lanes, Volumes, Timings
166: Snelling Ave & University Ave

1715-1730

Adaptive

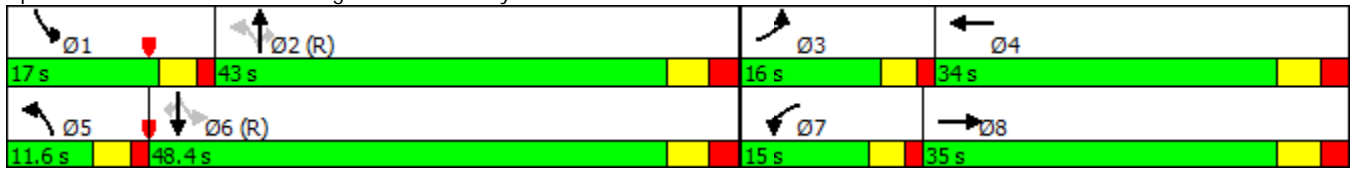


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases							2		2	6		6
Detector Phase	3	8		7	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0		7.0	20.0		7.0	17.0	17.0	7.0	17.0	17.0
Minimum Split (s)	11.5	34.0		11.5	34.0		11.5	37.0	37.0	11.5	37.0	37.0
Total Split (s)	16.0	35.0		15.0	34.0		11.6	43.0	43.0	17.0	48.4	48.4
Total Split (%)	14.5%	31.8%		13.6%	30.9%		10.5%	39.1%	39.1%	15.5%	44.0%	44.0%
Maximum Green (s)	11.5	29.0		10.5	28.0		7.1	37.0	37.0	12.5	42.4	42.4
Yellow Time (s)	3.0	3.5		3.0	3.5		3.0	3.5	3.5	3.0	3.5	3.5
All-Red Time (s)	1.5	2.5		1.5	2.5		1.5	2.5	2.5	1.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	0.2	0.2	3.0	0.2	0.2
Recall Mode	None	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		30			30			30	30		30	30
Act Effect Green (s)	10.3	32.3		9.5	29.2		47.1	38.5	38.5	54.5	42.4	42.4
Actuated g/C Ratio	0.09	0.29		0.09	0.27		0.43	0.35	0.35	0.50	0.39	0.39
v/c Ratio	0.61	0.46		0.58	0.52		0.36	0.70	0.21	0.63	0.62	0.06
Control Delay	63.4	31.3		63.4	33.1		13.8	22.3	2.2	25.5	29.6	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.1	0.0	0.0	0.0	0.0
Total Delay	63.4	31.3		63.4	33.1		13.8	23.4	2.2	25.5	29.6	0.2
LOS	E	C		E	C		B	C	A	C	C	A
Approach Delay		37.0			37.9			20.0			27.8	
Approach LOS		D			D			C			C	
Stops (vph)	94	339		83	348		31	537	17	97	656	0
Fuel Used(gal)	2	6		2	6		1	9	0	2	13	0
CO Emissions (g/hr)	144	421		119	394		47	632	33	167	908	14
NOx Emissions (g/hr)	28	82		23	77		9	123	6	33	177	3
VOC Emissions (g/hr)	33	98		28	91		11	147	8	39	211	3
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 62 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 28.5
 Intersection Capacity Utilization 82.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 166: Snelling Ave & University Ave



Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1715-1730
Adaptive

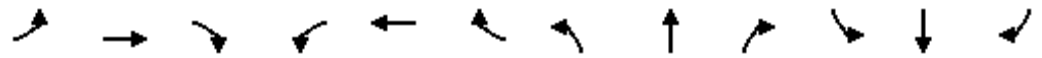


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Future Volume (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	190		0	0		0
Storage Lanes	1		1	0		0	2		1	2		0
Taper Length (ft)	50			25			60			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt									0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1863	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.225		
Satd. Flow (perm)	1610	3383	1863	0	0	0	0	6408	1583	813	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									184			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		260			284			1025			289	
Travel Time (s)		5.9			6.5			23.3			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	228	452	0	0	0	0	0	996	184	356	960	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	205	475	0	0	0	0	0	996	184	356	960	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			32	
Link Offset(ft)		0			18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		12	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100	6	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
260: Snelling Ave & Concordia Ave

1715-1730

Adaptive

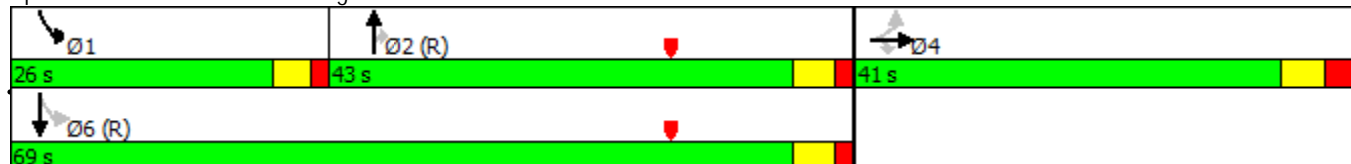


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					11.0	11.0	7.0	11.0	
Minimum Split (s)	29.0	29.0	29.0					22.0	22.0	11.5	22.0	
Total Split (s)	41.0	41.0	41.0					43.0	43.0	26.0	69.0	
Total Split (%)	37.3%	37.3%	37.3%					39.1%	39.1%	23.6%	62.7%	
Maximum Green (s)	35.0	35.0	35.0					38.0	38.0	21.5	64.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5					0.2	0.2	3.5	0.2	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					10.0	10.0		10.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	23.1	23.1						61.3	61.3	76.4	75.9	
Actuated g/C Ratio	0.21	0.21						0.56	0.56	0.69	0.69	
v/c Ratio	0.61	0.67						0.28	0.19	0.44	0.39	
Control Delay	46.3	44.1						5.6	0.5	3.3	1.8	
Queue Delay	0.8	0.5						0.0	0.0	0.1	0.2	
Total Delay	47.0	44.6						5.6	0.5	3.4	2.0	
LOS	D	D						A	A	A	A	
Approach Delay		45.3						4.8			2.4	
Approach LOS		D						A			A	
Stops (vph)	180	420						182	3	31	101	
Fuel Used(gal)	3	8						10	2	1	3	
CO Emissions (g/hr)	234	528						706	105	85	215	
NOx Emissions (g/hr)	45	103						137	20	16	42	
VOC Emissions (g/hr)	54	122						164	24	20	50	
Dilemma Vehicles (#)	0	0						0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 34 (31%), Referenced to phase 2:NBT and 6:SBTL, Start of FDW or yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 12.5
 Intersection LOS: B
 Intersection Capacity Utilization 55.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 260: Snelling Ave & Concordia Ave



Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↵	↕	↗	↵	↕			↕↕↕	↗
Traffic Volume (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Future Volume (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		350	0		0	180		0
Storage Lanes	0		0	0		0	2		0	2		1
Taper Length (ft)	25			100			0			70		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	0.97	0.95	1.00	1.00	0.86	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.989		0.950					
Satd. Flow (prot)	0	0	0	1610	3353	1583	3433	3539	0	0	6408	1583
Flt Permitted				0.950	0.989		0.201					
Satd. Flow (perm)	0	0	0	1610	3353	1583	726	3539	0	0	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						108						286
Link Speed (mph)		30			30			30				30
Link Distance (ft)		166			263			282				1330
Travel Time (s)		3.8			6.0			6.4				30.2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	316	356	452	396	856	0	0	1080	316
Shared Lane Traffic (%)				31%								
Lane Group Flow (vph)	0	0	0	218	454	452	396	856	0	0	1080	316
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			30				24
Link Offset(ft)		-8			4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		12
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					4			1	6			2
Permitted Phases				4		4	6					2

Lanes, Volumes, Timings
261: Lexington Ave & St Anthony Ave

1715-1730
Adaptive

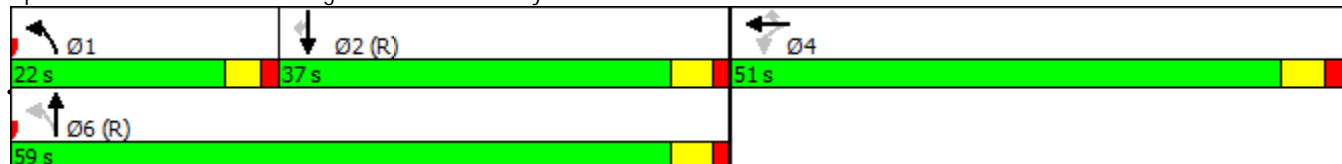


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase				4	4		1	6			2	
Switch Phase												
Minimum Initial (s)				9.0	9.0	9.0	7.0	10.0			10.0	10.0
Minimum Split (s)				25.0	25.0	25.0	11.5	26.0			26.0	26.0
Total Split (s)				51.0	51.0	51.0	22.0	59.0			37.0	37.0
Total Split (%)				46.4%	46.4%	46.4%	20.0%	53.6%			33.6%	33.6%
Maximum Green (s)				45.0	45.0	45.0	17.5	54.0			32.0	32.0
Yellow Time (s)				3.5	3.5	3.5	3.0	3.5			3.5	3.5
All-Red Time (s)				2.5	2.5	2.5	1.5	1.5			1.5	1.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				6.0	6.0	6.0	4.5	5.0			5.0	5.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	None	C-Max			C-Max	C-Max
Walk Time (s)				8.0	8.0	8.0		7.0			7.0	7.0
Flash Dont Walk (s)				11.0	11.0	11.0		14.0			14.0	14.0
Pedestrian Calls (#/hr)				5	5	5		5			5	5
Act Effect Green (s)				22.8	22.8	22.8	76.7	76.2			61.0	61.0
Actuated g/C Ratio				0.21	0.21	0.21	0.70	0.69			0.55	0.55
v/c Ratio				0.65	0.65	1.09	0.51	0.35			0.30	0.31
Control Delay				48.5	43.9	103.1	20.0	6.5			10.2	1.4
Queue Delay				0.0	0.0	0.0	0.3	0.3			0.0	0.0
Total Delay				48.5	43.9	103.1	20.3	6.9			10.2	1.4
LOS				D	D	F	C	A			B	A
Approach Delay					68.6			11.1			8.2	
Approach LOS					E			B			A	
Stops (vph)				193	401	323	294	325			346	14
Fuel Used(gal)				4	7	12	4	5			15	3
CO Emissions (g/hr)				256	503	853	287	337			1073	241
NOx Emissions (g/hr)				50	98	166	56	65			209	47
VOC Emissions (g/hr)				59	117	198	67	78			249	56
Dilemma Vehicles (#)				0	0	0	0	0			0	0

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 100 (91%), Referenced to phase 2:SBT and 6:NBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 27.2
 Intersection LOS: C
 Intersection Capacity Utilization 74.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 261: Lexington Ave & St Anthony Ave



Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Future Volume (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	0		0	125		125	0		0
Storage Lanes	0		0	0		0	2		1	2		0
Taper Length (ft)	100			25			150			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.86	1.00	0.97	0.95	1.00
Frt			0.850						0.850			
Flt Protected	0.950	0.998								0.950		
Satd. Flow (prot)	1610	3383	1583	0	0	0	0	6408	1583	3433	3539	0
Flt Permitted	0.950	0.998								0.212		
Satd. Flow (perm)	1610	3383	1583	0	0	0	0	6408	1583	766	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64						133			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		263			111			870				282
Travel Time (s)		6.0			2.5			19.8				6.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	272	544	612	0	0	0	0	1000	152	364	980	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	245	571	612	0	0	0	0	1000	152	364	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Right	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			28				30
Link Offset(ft)		0			-4			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1					2	1	1	2	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20					100	20	20	100	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	6	20					6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2	6		

Lanes, Volumes, Timings
262: Lexington Ave & Concordia Ave

1715-1730
Adaptive

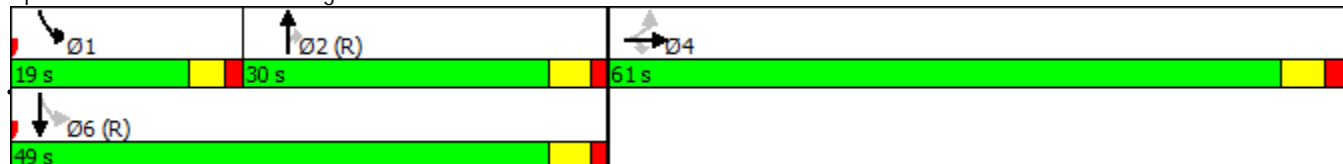


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4						2		1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0					10.0	10.0	8.0	10.0	
Minimum Split (s)	30.0	30.0	30.0					26.0	26.0	12.5	26.0	
Total Split (s)	61.0	61.0	61.0					30.0	30.0	19.0	49.0	
Total Split (%)	55.5%	55.5%	55.5%					27.3%	27.3%	17.3%	44.5%	
Maximum Green (s)	55.0	55.0	55.0					25.0	25.0	14.5	44.0	
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5					1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0					5.0	5.0	4.5	5.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	4.5	4.5	4.5					3.0	3.0	2.5	3.0	
Recall Mode	None	None	None					C-Max	C-Max	None	C-Max	
Walk Time (s)	8.0	8.0	8.0					7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0	16.0					14.0	14.0		14.0	
Pedestrian Calls (#/hr)	5	5	5					5	5		5	
Act Effect Green (s)	30.6	30.6	30.6					53.4	53.4	68.9	68.4	
Actuated g/C Ratio	0.28	0.28	0.28					0.49	0.49	0.63	0.62	
v/c Ratio	0.55	0.61	1.26					0.32	0.18	0.50	0.45	
Control Delay	37.5	36.6	164.1					19.0	5.6	10.1	8.9	
Queue Delay	0.0	0.0	0.0					0.0	0.0	0.0	0.1	
Total Delay	37.5	36.6	164.1					19.0	5.6	10.1	9.0	
LOS	D	D	F					B	A	B	A	
Approach Delay		91.4						17.3			9.3	
Approach LOS		F						B			A	
Stops (vph)	198	474	455					599	23	90	408	
Fuel Used(gal)	3	8	24					14	1	2	6	
CO Emissions (g/hr)	242	563	1693					976	93	143	433	
NOx Emissions (g/hr)	47	109	329					190	18	28	84	
VOC Emissions (g/hr)	56	130	392					226	22	33	100	
Dilemma Vehicles (#)	0	0	0					0	0	0	0	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of 1st Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.26
 Intersection Signal Delay: 41.5
 Intersection Capacity Utilization 74.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

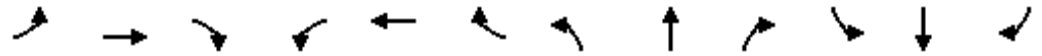
Splits and Phases: 262: Lexington Ave & Concordia Ave



Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1715-1730

Adaptive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	
Traffic Volume (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Future Volume (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		175	150		0	110		0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (ft)	25			100			70			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00	0.96		0.98	0.98			0.97		1.00	
Frt			0.850			0.850			0.850		0.999	
Flt Protected		0.982			0.959		0.950			0.950		
Satd. Flow (prot)	0	1829	1583	0	1786	1583	1770	3539	1583	1770	3535	0
Flt Permitted		0.865			0.727		0.223			0.239		
Satd. Flow (perm)	0	1608	1528	0	1329	1553	415	3539	1543	445	3535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			100			132			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		600			673			1009				315
Travel Time (s)		13.6			15.3			22.9				7.2
Confl. Peds. (#/hr)	6		20	20		6	2		2	2		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	28	164	112	20	100	28	996	132	44	1080	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	164	0	132	100	28	996	132	44	1088	0
Enter Blocked Intersection	No	No	No	No	No	No	No	1 veh	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			20				20
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	6	20	100	6	20	100	6	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	custom	pm+pt	NA	

Lanes, Volumes, Timings
404: Snelling Ave & Spruce Tree Rd

1715-1730
Adaptive

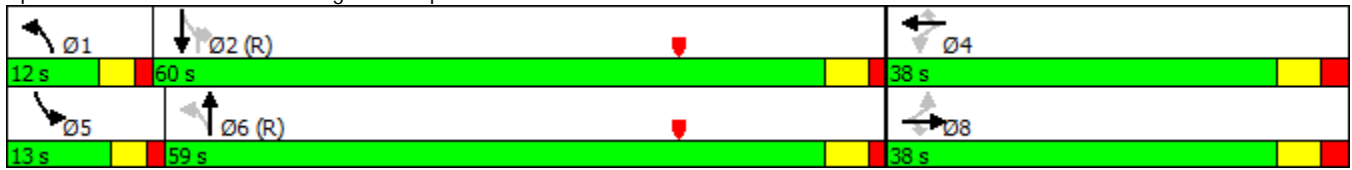


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6		2	2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.5	24.0	24.0	11.5	24.0	
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	12.0	59.0	60.0	13.0	60.0	
Total Split (%)	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	10.9%	53.6%	54.5%	11.8%	54.5%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	7.5	54.0	55.0	8.5	55.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.5	3.5	3.0	3.5	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0	6.0	4.5	5.0	5.0	4.5	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	
Act Effect Green (s)		17.2	17.2		17.2	17.2	78.5	72.4	74.9	79.7	74.9	
Actuated g/C Ratio		0.16	0.16		0.16	0.16	0.71	0.66	0.68	0.72	0.68	
v/c Ratio		0.18	0.43		0.63	0.31	0.07	0.43	0.12	0.11	0.45	
Control Delay		38.6	9.2		55.8	9.4	4.6	9.1	2.1	3.1	4.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.1	
Total Delay		38.6	9.2		55.8	9.4	4.6	9.1	2.1	3.1	4.4	
LOS		D	A		E	A	A	A	A	A	A	
Approach Delay		15.4			35.8			8.2			4.3	
Approach LOS		B			D			A			A	
Stops (vph)		36	21		120	16	8	365	15	6	169	
Fuel Used(gal)		1	1		3	1	0	12	1	0	5	
CO Emissions (g/hr)		52	83		200	56	20	818	82	12	318	
NOx Emissions (g/hr)		10	16		39	11	4	159	16	2	62	
VOC Emissions (g/hr)		12	19		46	13	5	190	19	3	74	
Dilemma Vehicles (#)		0	0		0	0	0	0	0	0	0	

Intersection Summary

Area Type:	Other
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	9.5
Intersection LOS:	A
Intersection Capacity Utilization:	72.0%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 404: Snelling Ave & Spruce Tree Rd



101: Lexington Ave & University Ave

Direction	All
Future Volume (vph)	3708
Total Delay / Veh (s/v)	39
Total Delay (hr)	41
Fuel Consumed (gal)	72
Fuel Economy (mpg)	8.8
CO Emissions (kg)	5.05
NOx Emissions (kg)	0.98
VOC Emissions (kg)	1.17

155: Snelling Ave & Marshall Ave

Direction	All
Future Volume (vph)	4024
Total Delay / Veh (s/v)	31
Total Delay (hr)	35
Fuel Consumed (gal)	69
Fuel Economy (mpg)	9.2
CO Emissions (kg)	4.79
NOx Emissions (kg)	0.93
VOC Emissions (kg)	1.11

161: Snelling Ave & Selby Ave

Direction	All
Future Volume (vph)	3124
Total Delay / Veh (s/v)	24
Total Delay (hr)	21
Fuel Consumed (gal)	46
Fuel Economy (mpg)	9.0
CO Emissions (kg)	3.21
NOx Emissions (kg)	0.62
VOC Emissions (kg)	0.74

162: Snelling Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3568
Total Delay / Veh (s/v)	21
Total Delay (hr)	21
Fuel Consumed (gal)	41
Fuel Economy (mpg)	8.9
CO Emissions (kg)	2.88
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

166: Snelling Ave & University Ave

Direction	All
Future Volume (vph)	3276
Total Delay / Veh (s/v)	29
Total Delay (hr)	26
Fuel Consumed (gal)	41
Fuel Economy (mpg)	6.0
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

260: Snelling Ave & Concordia Ave

Direction	All
Future Volume (vph)	3176
Total Delay / Veh (s/v)	12
Total Delay (hr)	11
Fuel Consumed (gal)	27
Fuel Economy (mpg)	12.4
CO Emissions (kg)	1.88
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

261: Lexington Ave & St Anthony Ave

Direction	All
Future Volume (vph)	3772
Total Delay / Veh (s/v)	27
Total Delay (hr)	28
Fuel Consumed (gal)	51
Fuel Economy (mpg)	9.3
CO Emissions (kg)	3.56
NOx Emissions (kg)	0.69
VOC Emissions (kg)	0.82

262: Lexington Ave & Concordia Ave

Direction	All
Future Volume (vph)	3924
Total Delay / Veh (s/v)	42
Total Delay (hr)	45
Fuel Consumed (gal)	59
Fuel Economy (mpg)	5.6
CO Emissions (kg)	4.14
NOx Emissions (kg)	0.81
VOC Emissions (kg)	0.96

404: Snelling Ave & Spruce Tree Rd

Direction	All
Future Volume (vph)	2728
Total Delay / Veh (s/v)	9
Total Delay (hr)	7
Fuel Consumed (gal)	24
Fuel Economy (mpg)	14.5
CO Emissions (kg)	1.64
NOx Emissions (kg)	0.32
VOC Emissions (kg)	0.38

Network Totals

Number of Intersections	9
Total Delay / Veh (s/v)	27
Total Delay (hr)	235
Fuel Consumed (gal)	430
Fuel Economy (mpg)	8.8
CO Emissions (kg)	30.05
NOx Emissions (kg)	5.85
VOC Emissions (kg)	6.96
Performance Index	286.0

SYNCHRO REPORTS

SUMMARY OF AGGREGATED DELAY AND EMISSIONS RESULTS

Summary	Existing			Adaptive	
	Volume	Delay (s/v)	Emissions	Delay (s/v)	Emissions
101: Lexington Ave & University Ave	3575	44.0	7.315	36.8	6.7
155: Snelling Ave & Marshall Ave	3750	37.8	7.0375	27.9	6.1
161: Snelling Ave & Selby Ave	3135	24.8	4.2075	23.3	4.5
162: Snelling Ave & St Anthony Ave	3525	24.5	4.2925	19.5	4.0
166: Snelling Ave & University Ave	3329	36.5	4.9175	31.5	4.4
260: Snelling Ave & Concordia Ave	3235	27.8	4.355	14.3	3.1
261: Lexington Ave & St Anthony Ave	3819	28.0	5.54	24.7	5.0
262: Lexington Ave & Concordia Ave	4002	31.2	5.2925	27.7	4.8
404: Snelling Ave & Spruce Tree Rd	2573	9.5	2.2175	7.5	2.1

HOURLY VOLUMES BY INTERVAL (4 X 15 MINUTE VOLUME)

Future Volume (vph)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	3416	3516	3660	3708	3416	3516	3660	3708
155: Snelling Ave & Marshall Ave	3608	3748	3620	4024	3608	3748	3620	4024
161: Snelling Ave & Selby Ave	3248	3056	3112	3124	3248	3056	3112	3124
162: Snelling Ave & St Anthony Ave	3652	3520	3360	3568	3652	3520	3360	3568
166: Snelling Ave & University Ave	3268	3412	3360	3276	3268	3412	3360	3276
260: Snelling Ave & Concordia Ave	3276	3404	3084	3176	3276	3404	3084	3176
261: Lexington Ave & St Anthony Ave	3944	3876	3684	3772	3944	3876	3684	3772
262: Lexington Ave & Concordia Ave	4132	3888	4064	3924	4132	3888	4064	3924
404: Snelling Ave & Spruce Tree Rd	2508	2636	2420	2728	2508	2636	2420	2728

HOURLY DELAY BY INTERVAL

Total Delay (hr)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	38	44	45	48	32	37	37	41
155: Snelling Ave & Marshall Ave	37	39	36	45	25	30	27	35
161: Snelling Ave & Selby Ave	23	21	20	23	21	21	18	21
162: Snelling Ave & St Anthony Ave	25	25	21	24	21	17	17	21
166: Snelling Ave & University Ave	32	38	34	31	28	31	31	26
260: Snelling Ave & Concordia Ave	26	26	23	24	12	18	11	11
261: Lexington Ave & St Anthony Ave	32	29	28	30	30	22	25	28
262: Lexington Ave & Concordia Ave	30	26	38	45	25	23	30	45
404: Snelling Ave & Spruce Tree Rd	7	7	6	8	6	5	4	7

SYNCHRO REPORTS

HOURLY CARBON MONOXIDE EMISSIONS BY INTERVAL (KG/HR)

CO Emissions (kg)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	4.74	5.05	5.26	5.47	4.35	4.67	4.80	5.05
155: Snelling Ave & Marshall Ave	4.70	4.91	4.66	5.46	3.97	4.38	4.03	4.79
161: Snelling Ave & Selby Ave	3.09	2.87	2.85	2.98	3.28	3.17	2.89	3.21
162: Snelling Ave & St Anthony Ave	3.23	3.03	2.76	3.01	3.00	2.58	2.63	2.88
166: Snelling Ave & University Ave	3.34	3.73	3.46	3.26	2.99	3.22	3.23	2.89
260: Snelling Ave & Concordia Ave	3.16	3.23	2.85	2.97	2.06	2.58	2.06	1.88
261: Lexington Ave & St Anthony Ave	4.04	3.94	3.69	3.86	3.78	3.32	3.37	3.56
262: Lexington Ave & Concordia Ave	3.54	3.17	3.91	4.21	3.18	2.93	3.34	4.14
404: Snelling Ave & Spruce Tree Rd	1.52	1.61	1.41	1.68	1.42	1.46	1.26	1.64

HOURLY NOX EMISSIONS BY INTERVAL (KG/HR)

NOx Emissions (kg)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	0.92	0.98	1.02	1.06	0.85	0.91	0.93	0.98
155: Snelling Ave & Marshall Ave	0.91	0.96	0.91	1.06	0.77	0.85	0.78	0.93
161: Snelling Ave & Selby Ave	0.60	0.56	0.56	0.58	0.64	0.62	0.56	0.62
162: Snelling Ave & St Anthony Ave	0.63	0.59	0.54	0.59	0.58	0.50	0.51	0.56
166: Snelling Ave & University Ave	0.65	0.73	0.67	0.63	0.58	0.63	0.63	0.56
260: Snelling Ave & Concordia Ave	0.62	0.63	0.55	0.58	0.40	0.50	0.40	0.37
261: Lexington Ave & St Anthony Ave	0.79	0.77	0.72	0.75	0.73	0.65	0.65	0.69
262: Lexington Ave & Concordia Ave	0.69	0.62	0.76	0.82	0.62	0.57	0.65	0.81
404: Snelling Ave & Spruce Tree Rd	0.30	0.31	0.27	0.33	0.28	0.28	0.25	0.32

HOURLY VOLITILE ORGANIC COMPOUND EMISSIONS BY INTERVAL (KG/HR)

VOC Emissions (kg)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	1.10	1.17	1.22	1.27	1.01	1.08	1.11	1.17
155: Snelling Ave & Marshall Ave	1.09	1.14	1.08	1.27	0.92	1.02	0.93	1.11
161: Snelling Ave & Selby Ave	0.72	0.67	0.66	0.69	0.76	0.73	0.67	0.74
162: Snelling Ave & St Anthony Ave	0.75	0.70	0.64	0.70	0.69	0.60	0.61	0.67
166: Snelling Ave & University Ave	0.77	0.87	0.80	0.76	0.69	0.75	0.75	0.67
260: Snelling Ave & Concordia Ave	0.73	0.75	0.66	0.69	0.48	0.60	0.48	0.44
261: Lexington Ave & St Anthony Ave	0.94	0.91	0.85	0.90	0.88	0.77	0.78	0.82
262: Lexington Ave & Concordia Ave	0.82	0.74	0.91	0.98	0.74	0.68	0.77	0.96
404: Snelling Ave & Spruce Tree Rd	0.35	0.37	0.33	0.39	0.33	0.34	0.29	0.38

SYNCHRO REPORTS

TOTAL EMISSIONS BY INTERVAL (KG/15 MINUTES)

Total Emissions	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	1.69	1.8	1.875	1.95	1.5525	1.665	1.71	1.8
155: Snelling Ave & Marshall Ave	1.675	1.7525	1.6625	1.9475	1.415	1.5625	1.435	1.7075
161: Snelling Ave & Selby Ave	1.1025	1.025	1.0175	1.0625	1.17	1.13	1.03	1.1425
162: Snelling Ave & St Anthony Ave	1.1525	1.08	0.985	1.075	1.0675	0.92	0.9375	1.0275
166: Snelling Ave & University Ave	1.19	1.3325	1.2325	1.1625	1.065	1.15	1.1525	1.03
260: Snelling Ave & Concordia Ave	1.1275	1.1525	1.015	1.06	0.735	0.92	0.735	0.6725
261: Lexington Ave & St Anthony Ave	1.4425	1.405	1.315	1.3775	1.3475	1.185	1.2	1.2675
262: Lexington Ave & Concordia Ave	1.2625	1.1325	1.395	1.5025	1.135	1.045	1.19	1.4775
404: Snelling Ave & Spruce Tree Rd	0.5425	0.5725	0.5025	0.6	0.5075	0.52	0.45	0.585

DELAY PER VEHICLE BY INTERVAL

Total Delay / Veh (s/v)	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	41	45	44	46	34	38	36	39
155: Snelling Ave & Marshall Ave	37	37	36	41	25	29	26	31
161: Snelling Ave & Selby Ave	25	25	23	26	24	25	20	24
162: Snelling Ave & St Anthony Ave	25	26	23	24	21	18	18	21
166: Snelling Ave & University Ave	36	40	36	34	31	33	33	29
260: Snelling Ave & Concordia Ave	29	28	27	27	13	19	13	12
261: Lexington Ave & St Anthony Ave	29	27	27	29	27	20	25	27
262: Lexington Ave & Concordia Ave	26	24	34	41	22	21	26	42
404: Snelling Ave & Spruce Tree Rd	10	9	9	10	8	7	6	9

INTERVAL VOLUME (VEHICLES/15 MINUTES)

Volume	Existing				Adaptive			
	1630	1645	1700	1715	1630	1645	1700	1715
101: Lexington Ave & University Ave	854	879	915	927	854	879	915	927
155: Snelling Ave & Marshall Ave	902	937	905	1006	902	937	905	1006
161: Snelling Ave & Selby Ave	812	764	778	781	812	764	778	781
162: Snelling Ave & St Anthony Ave	913	880	840	892	913	880	840	892
166: Snelling Ave & University Ave	817	853	840	819	817	853	840	819
260: Snelling Ave & Concordia Ave	819	851	771	794	819	851	771	794
261: Lexington Ave & St Anthony Ave	986	969	921	943	986	969	921	943
262: Lexington Ave & Concordia Ave	1033	972	1016	981	1033	972	1016	981
404: Snelling Ave & Spruce Tree Rd	627	659	605	682	627	659	605	682

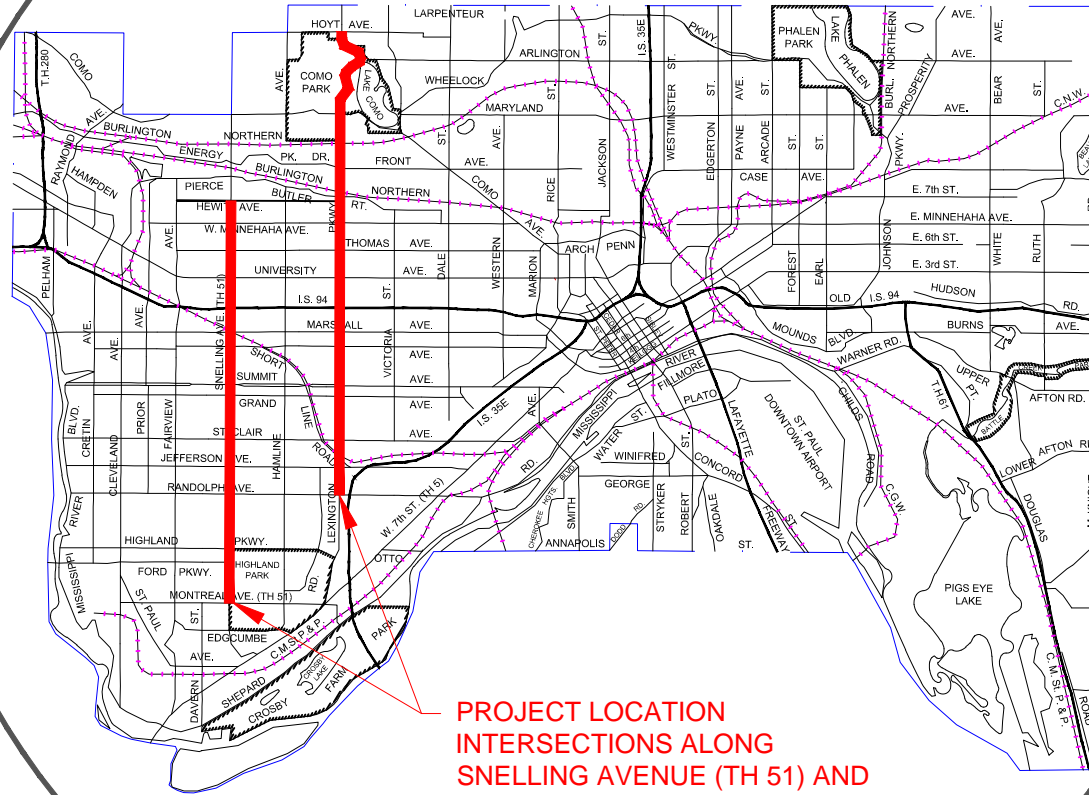
OTHER ATTACHMENTS

ARTERIAL CORRIDOR MANAGEMENT (SNELLING & LEXINGTON)

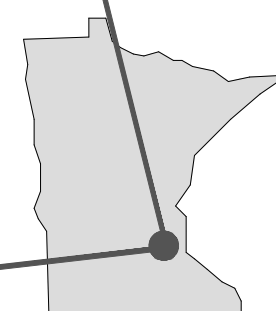
LIST OF ATTACHMENTS

- Project location map
- Project overview map
- Letter of support from Scott McBride, MnDOT Metro District Engineer
- Letter of support from James Tolaas, Ramsey County Director of Public Works and County Engineer
- Resolution committing the City of Saint Paul to provide the required 20% match if the project is awarded funding

CITY OF SAINT PAUL



**PROJECT LOCATION
INTERSECTIONS ALONG
SNELLING AVENUE (TH 51)
AND LEXINGTON PARKWAY (CR 51)**



PREPARED BY TRAFFIC ENGINEERING DIVISION FOR THE CITY OF ST. PAUL DEPARTMENT OF PUBLIC WORKS

ARTERIAL CORRIDOR MANAGEMENT (SNELLING & LEXINGTON)

PROJECT LOCATION

7/14/16



Arterial Corridor Management



2,100 1,050 0 2,100 Feet



Legend

Date: 7/14/2016

CCTV Cameras

- Proposed

Adaptive Control

- Proposed

Changeable Message Signs

- Proposed

Travel Time Equipment

- Proposed

Install APS

- Proposed

Locations depicted for all elements are preliminary. Final locations will be determined during the design process.

Not shown: Proposed fiber optic cable installation along Lexington Parkway between Hoyt Avenue and Randolph Avenue.



Minnesota Department of Transportation

Metro District
1500 West County Road B-2
Roseville, MN 5511

July 8, 2016

Mike Klobucar, PE
Department of Public Works | Traffic Operations
800 City Hall Annex
25 4th Street West
Saint Paul, MN 55102

RE: Regional Solicitation Application for Arterial Corridor Management (TH51/Snelling and Lexington Aves.)

Dear Mr. Klobucar:

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 Arterial Corridor Management (TH51/Snelling and Lexington) project impacts MnDOT right of way on TH 51/Snelling Ave.

MnDOT, as the agency with jurisdiction over TH 51, would allow the signal operation improvements included in the application for the Arterial Corridor Management (TH51/Snelling and Lexington) project. Details of any 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 currently 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.

Sincerely,

A handwritten signature in blue ink that reads "Scott R. McBride".

Scott McBride, P.E.
Metro District Engineer

Cc: Elaine Koustoukos, Metropolitan Council
Sheila Kauppi, MnDOT Metro District – North Area Manager
Kevin Schwartz, MnDOT Metro District – Signal Operations

An Equal Opportunity Employer



June 29, 2016

Mike Klobucar, P.E.
City of Saint Paul
Department of Public Works- Traffic Operations
800 City Hall Annex
25 4th Street W.
Saint Paul, MN 55102

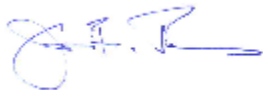
**FEDERAL SURFACE TRANSPORTATION PROGRAM ARTERIAL CORRIDOR MANAGEMENT
FUNDING APPLICATION FOR SNELLING AVENUE (TH 51) AND LEXINGTON PARKWAY
(RAMSEY COUNTY STATE AID HIGHWAY 51)**

Dear Mr. Klobucar:

Ramsey County supports the City of Saint Paul's efforts to obtain funding for purchase and implementation of the Centracs Adaptive traffic control system and associated traffic signal improvements on Lexington Parkway. The proposed upgrades will greatly increase efficiency of the signal operations and greater safety for pedestrians.

We appreciate and support the City's efforts to improve the operations on these key arterials where we have City/County and City/State partnerships and look forward to working with you as the project moves forward.

Sincerely,



James E. Tolaas, P.E.
Director of Public Works/County Engineer



City of Saint Paul

City Hall and Court
House
15 West Kellogg
Boulevard
Phone: 651-266-8560

Signature Copy

Resolution: RES 16-1053

File Number: RES 16-1053

Authorizing the Departments of Public Works and Parks and Recreation to submit 14 project applications for federal funding into the 2016 Metropolitan Council Regional Solicitation Program and to authorize the commitment of a 20% local funding match for any project(s) that get awarded federal funding.

WHEREAS, The Departments of Public Works and Parks and Recreation are proposing to submit 14 project applications for possible federal transportation funding in years 2020 and 2021 under the Metropolitan Council Regional Solicitation Process, and

WHEREAS, there is a required twenty percent local funding match to any project(s) awarded to an agency under the Regional Solicitation Program, and

WHEREAS, the projects to be submitted by the City under the Metropolitan Council Regional Solicitation are:

- Freight Connection from Pierce Butler to I-94 via Transfer, Ellis and Vandalia
- University Avenue Reconstruction - I35E to Lafayette Road
- Sidewalk Infill, Replacement and ADA Compliance - Area Bounded by Maryland-Case-Forest-Duluth
- Tedesco Street Reconstruction - University Avenue to Payne Avenue
- Como Avenue Trail Construction - Raymond Avenue to Hamline Avenue
- Troutbrook Road Connection - Kittson Street to Lafayette/University
- Eastbound Kellogg Boulevard Bridge near the RiverCentre Ramp
- Johnson Parkway Trail (Grand Round) - Burns Avenue to Phalen Boulevard
- Bruce Vento Bicycle and Pedestrian Bridge - connects Sam Morgan Trail with Bruce Vento Trail
- Pierce Butler East Extension - Grotto to Arundel
- Battle Creek to Sam Morgan Regional Trial Rehabilitation
- Arterial Corridor Management (Snelling and Lexington) - Implement Technology to Improve Traffic Flow & Safety (Fiber Optics, Detection, ADA Upgrades)
- Safe Routes to School (SRTS) - Washington Magnet School Area and Ran-Ham Schools (Cretin, Holy Spirit Elementary and Expo Elementary)
- Lafayette Bridge reconstruction from University to Otsego

WHEREAS, these projects all fall within appropriate funding categories and all meet the conditions and requirements specified for eligibility of federal funding, and so

THEREFORE BE IT RESOLVED, by the Council of the City of Saint Paul to authorize submission of the thirteen project applications for possible award of federal transportation funds through the Metropolitan Council Regional Solicitation Program, and

BE IT FURTHER RESOLVED, by the Council of the City of Saint Paul to authorize the commitment of local funds on a twenty percent match basis for any project(s) awarded federal funding under

the Regional Solicitation Program.

At a meeting of the City Council on 7/6/2016, this Resolution was Passed.

Yea: 6 Councilmember Bostrom, Councilmember Brendmoen, Councilmember Tolbert, City Council President Stark, Councilmember Noecker, and Councilmember Prince

Nay: 0

Absent: 1 Councilmember Thao

Vote Attested by _____
Council Secretary Trudy Moloney

Date 7/6/2016

Approved by the Mayor 
Chris Coleman

Date 7/8/2016