Application

04751 - 2016 Roadway Expansion

05072 - TH 252 Interchange at 66th Avenue North and close 70th Avenue North

Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
Submitted Date:	07/11/2016 1:24 PM

Primary Contact

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*	Brooklyn Center	Minnesota	55430
	City	State/Province	Postal Code/Zip

Phone:*	763-569-3340	
	Phone	Ext.

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

Organization Information

Name:	BROOKLYN CENTER, CITY OF

Jurisdictional Agency (if different):	
Organization Type:	City
Organization Website:	
Address:	6301 SHINGLE CREEK PKWY

	City	State/Province	Postal Code/Zip
*	BROOKLYN CENTER	Minnesota	55430

County:	Hennepin	
Phone:*	763-569-3320	Ext.
Fax:		
PeopleSoft Vendor Number	0000026811A1	

Project Information

Project Name	TH 252 Interchange at 66th Avenue North and close 70th Avenue North
Primary County where the Project is Located	Hennepin
Jurisdictional Agency (If Different than the Applicant):	MnDOT

Brief Project Description (Limit 2,800 characters; approximately 400 words)	The project would convert TH 252 to a freeway from I-694 to 70th Avenue N in Brooklyn Center. TH 252 is a Principal Arterial under MnDOT jurisdiction. Proposed improvements are shown in Figure 1. A 3D visualization produced by MnDOT is also available: https://youtu.be/77jKeasH49U Project components include: 1.66th Avenue N: Close at-grade signalized intersection and construct folded-diamond interchange. Construct new intersection at east and west intersections of 66th Ave N and freeway entrance/exit ramps. 2.70th Avenue N: Close existing T-intersection with TH 252; construct cul-de-sac on 70th Ave N west of TH 252. 3.TH 252: Reconstruct portions of the highway between I-694 and approximately ¼ mile north of existing intersection with 66th Ave N. 4.Construct 10-foot wide multiuse trail on both sides of 66th Ave N between west intersection with entrance/exit ramps and trail along West River Road. 5.Improve existing park and ride transit facility at 66th Ave N. 6.Construct noise walls on both sides of TH 252 from I-694 to 70th Ave N. The proposed project will provide the following benefits: 1.Vehicle safety: 66th Ave intersection is ranked in the top 10 highest crash intersections in the metro. Two fatalities have occurred at this location since 2003. Most crashes are rear-end crashes

associated with queues at the traffic signal. The proposed interchange would eliminate the traffic signal and reduce conflicts and crashes at this location. Closing 70th Ave N would result in similar benefits.

2.Pedestrian/bicycle safety: There are safety concerns for pedestrians/bicyclists crossing TH 252. TH 252 is a six-lane, high-speed expressway. People do not feel safe crossing here and there has been one pedestrian-vehicle crash at this location. The interchange will include multiuse trails that will provide a grade-separated pedestrian/bicycle crossing of TH 252.

3.Mobility: Traffic volumes on TH 252 have exceeded capacity for a six-lane expressway. The project will convert this section of TH 252 to a freeway and will accommodate future traffic volumes at an acceptable level of service. This will result in local and regional mobility benefits.

4.Support community connectivity: TH 252 is a barrier for the community. Traffic (all modes) crossing TH 252 experiences significant delays because signals are optimized to move traffic on TH 252. As a result it is difficult for residents on the west side of TH 252 to access destinations on the east side of TH 252 and vice-versa. The interchange at 66th Ave will support community connectivity by reducing delays and improving safety for people driving, biking, and walking across TH 252.

5.Improve multimodal travel: Enhance multimodal travel by providing safer bus stops and safer pedestrian/bicycle crossings of TH 252.

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)	New interchange on TH 252 at 66th Ave N, Close 70th Ave N

Project Length (Miles)	0.7

Project Funding

Are you applying for funds from another source(s) to implement this project?	No
If yes, please identify the source(s)	
Federal Amount	$7,000,000.00
Match Amount	$11,767,893.00

Minimum of 20% of project total

Project Total	$18,767,893.00
Match Percentage	62.7%

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	Brooklyn Center
Functional Class of Road	TH 252: Principal Arterial, 66th Ave N: A-Minor Reliever
Road System	TH, City Street, MSAS

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

Road/Route No.	252

i.e., 53 for CSAH 53

Name of Road	66th Avenue N

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed	55430
(Approximate) Begin Construction Date	06/01/2021
(Approximate) End Construction Date	11/30/2022

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

From: **(Intersection or Address)**	I-694
To: **(Intersection or Address)**	70th Ave N

DO NOT INCLUDE LEGAL DESCRIPTION

Or At

Primary Types of Work	grading, aggregate base, bituminous base, bituminous surface, concrete, bridge, lighting, wall, ped ramps, bike path

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.:	TBD
Structure is Over/Under **(Bridge or culvert name):**	TH 252

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$911,529.00
Removals (approx. 5% of total cost)	$524,067.00
Roadway (grading, borrow, etc.)	$1,518,057.00
Roadway (aggregates and paving)	$2,102,230.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$1,467,115.00
Ponds	$500,000.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$800,272.00
Traffic Control	$740,767.00
Striping	$50,000.00
Signing	$50,000.00
Lighting	$75,000.00
Turf - Erosion & Landscaping	$273,210.00
Bridge	$2,096,640.00
Retaining Walls	$1,045,330.00
Noise Wall (do not include in cost effectiveness measure)	$3,872,000.00
Traffic Signals	$0.00
Wetland Mitigation	$0.00

Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$1,690,565.00
Other Roadway Elements	$399,880.00
Totals	**$18,116,662.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	**Cost**
Path/Trail Construction	$126,231.00
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	$25,000.00
Streetscaping	$0.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$0.00
Other Bicycle and Pedestrian Elements	$0.00
Totals	**$151,231.00**

Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	**Cost**
Fixed Guideway Elements	$0.00
Stations, Stops, and Terminals	$500,000.00
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	**$500,000.00**

Transit Operating Costs

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

Totals

Total Cost	$18,767,893.00
Construction Cost Total	$18,767,893.00
Transit Operating Cost Total	$0.00

Requirements - All Projects

All Projects

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

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

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

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

Goal B: Strategies B1, B3, p2.7

Goal C: Strategies C1, C3, C7, p2.8-9

Goal D: Strategies D4, D5, p2.11

Goal E: Strategies E4, E5, E7, p2.13

Goal F: Strategy F3, p2.14

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.

List the applicable documents and pages:	See Connections to Local Planning attachment Brooklyn Center Comp Plan: capacity improvements, p.3-13 Brooklyn Park Comp Plan: freeway conversion, p5-22,5-24 TH 252 Corridor Study Final Report: interchange at 66th Ave N and closure at 70th Ave, p. 43 MnSHIP Illustrated List of Unmet Needs: Appendix I pg 3

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Roadways Including Multimodal Elements

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

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

Roadway Expansion and Reconstruction/Modernization projects only:

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

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

Bridge Rehabilitation/Replacement projects only:

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

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

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

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

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

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

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

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

Requirements - Roadways Including Multimodal Elements

Expander/Augmentor/Non-Freeway Principal Arterial

Select one:	Non-Freeway Principal Arterial
Area	1.952
Project Length	0.705

Average Distance	2.7688
Upload Map	1466180984296_RoadwayAreaMap-BC66thAve.pdf

Reliever: Relieves a Principle Arterial that is a Freeway Facility

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

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

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

Non-Freeway Facility Volume/Capacity Table

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

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

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

Existing Employment within 1 Mile:	13065
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	4952
Existing Students:	2359
Upload Map	1466181204671_RegEconomyMap-BC66thAve.pdf

Measure C: Current Heavy Commercial Traffic

Location:	TH 252 at 66th Ave N
Current daily heavy commercial traffic volume:	1660
Date heavy commercial count taken:	4/15/16

Measure D: Freight Elements

Efficiency: Trucks will benefit from reduced congestion on TH 252 due to the elimination of two at-grade intersections. They will also benefit from easier access to TH 252 at 66th Ave N as the interchange will reduce delay for all vehicles entering/exiting TH 252. Currently trucks must wait at the traffic signal to make these movements. Trucks tend to leave large gaps in front of them, which can cause signals to gap out and create traffic queues and delays for all vehicles.

This will benefit freight traffic from the concentrated manufacturing/distribution center area west of TH 252 (see Regional Economy map). It will reduce travel times for trucks and assist with Just-in-Time delivery.

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

Safety: The interchange will improve safety for trucks as it will eliminate two at-grade signalized intersections. Currently most intersection crashes are rear-end crashes. Signalized intersections on a high-speed expressway create safety problems for trucks, as trucks require a greater stopping distance and cannot respond as quickly when vehicles in front of them suddenly slow or stop. The interchange at 66th Ave N and closure of 70th Ave N will remove these conflict points for trucks and improve safety for freight operations on TH 252.

Design to accommodate freight: Interchange ramps will be designed for freight movements. Acceleration ramps and wide shoulders will also be a benefit.

Measure A: Current Daily Person Throughput

Location: TH 252 at 66th Ave N

Current AADT Volume: 59000

Existing Transit Routes on the Project	763, 765, 766, 768, 850, 865, 887

For New Roadways only, list transit routes that will be moved to the new roadway

Upload Transit Map	1466427978484_TransitMap-BC66thAve.pdf

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	76700.0

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:

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

West of TH 252 in the project area is an Area of Concentrated Poverty with 50% or more residents being people of color. The project will benefit these populations by improving traffic safety, reducing congestion, and improving connections across TH 252 for people walking, biking, taking transit, and driving.

Benefits to populations:

-Improve traffic safety: TH 252 has some of the highest crash rates in the Twin Cities. The proposed interchange and intersection closure will improve safety on TH 252 and provide a benefit to nearby residents who use the highway on a regular basis, including low income populations and people of color.

-Reduce congestion: Traffic on TH 252 and 66th Ave N experiences long delays during peak hours. The proposed interchange will greatly reduce congestion at this intersection. Nearby residents who drive or use transit will benefit from reduced travel time on TH 252.

-Improve community connectivity for all modes: Crossing TH 252 can be challenging for people walking, biking, accessing transit stops, or driving. Traffic signals are optimized to move traffic on TH 252 and people crossing TH 252 experience significant delays. At 66th Ave N, people walking, biking, or accessing transit stops must cross six lanes of a high-speed expressway at grade. This is an uncomfortable experience and many people do not feel safe due to high traffic speeds and volumes. As a result, residents on the west side of TH 252 (Area of Concentrated Poverty) are cut off from the parks and trails on the east side of TH 252 and from easily accessing transit stops.

The interchange will improve pedestrian, bicycle, and transit connectivity by providing a grade separated crossing of TH 252. There will be multiuse trails on both sides of the interchange. Children, families, the elderly, people with disabilities, and low-income populations who rely on bicycling/walking/transit will benefit from improved connections across TH 252. The bridge will meet ADA requirements to be accessible for people with disabilities. The project will benefit low income households by providing safe and convenient access to low cost modes of transportation -- transit, walking, and bicycling. The project will also provide a quality of life benefit to people living west of TH 252, as it will be easier and safer for them to access parks and trails along the Mississippi River east of TH 252.

Negative impacts/mitigation:
The project will require right of way and impacts to adjacent residents and property owners. However, the project will not impact low income properties and it is not anticipated that the project will disproportionately impact low income and/or minority populations.

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

Upload Map 1466428073781_Socio-EconMap-BC66thAve.pdf

Measure B: Affordable Housing

City/Township	Segment Length in Miles (Population)
Brooklyn Center	0.7
	1

Total Project Length

Total Project Length (Total Population) 0.7

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

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

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles)	0.7
Total Housing Score	0

Measure A: Infrastructure Age

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
1986.0	0.7	1390.2	1986.0
	1	**1390**	**1986**

Average Construction Year

Weighted Year	1986.0

Total Segment Length (Miles)

Total Segment Length	0.7

Measure A: Vehicle Delay Reduction

Total Peak Hour Delay Per Vehicle Without The Project	Total Peak Hour Delay Per Vehicle With The Project	Total Peak Hour Delay Per Vehicle Reduced by Project	Volume (Vehicles Per Hour)	Total Peak Hour Delay Reduced by the Project (Seconds)	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable:	Synchro or HCM Reports

90.0	4.0	86.0	5703.0	490458.0	1467215843617_TH 252-66th Synchro Reports - Vehicle Delay Reduction.pdf

Total Delay

Total Peak Hour Delay Reduced 490458.0

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

Total (CO, NOX, and VOC) Peak Hour Emissions Per Vehicle without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Per Vehicle with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced Per Vehicle by the Project (Kilograms):	Volume (Vehicles Per Hour):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
26.0	0.62	25.38	5703.0	144742.14
26	**1**		**5703**	**144742**

Total

Total Emissions Reduced: 144742.14

Upload Synchro Report 1467216614968_TH 252-66th Synchro Reports.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: Benefit of Crash Reduction

Crash Modification Factor Used: *(Limit 700 Characters; approximately 100 words)*	CMF ID: 460 and 461 Convert at-grade intersection into grade-separated interchange
Rationale for Crash Modification Selected: *(Limit 1400 Characters; approximately 200 words)*	The crash modification factors used are for converting an at-grade intersection into a grade-separated interchange. The crash modification factors used were the best match for the proposed project, as the project is to convert an at-grade intersection to a grade-separated interchange. Two different factors were applied: one specific to property damage only crashes, and one specific to serious and minor injury crashes.
Project Benefit ($) from B/C Ratio:	1.51
Worksheet Attachment	1468242536683_benefit-cost-worksheet-TH252.xls

Roadway projects that include railroad grade-separation elements:

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

Measure A: Multimodal Elements and Existing Connections

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

Bicycle/pedestrian/transit elements:

The project includes 10-foot wide multiuse trails on both sides of 66th Ave N, from the west interchange ramps to West River Road. The project will tie into the existing 10 foot wide trail along West River Road.

The project will provide a safe and convenient grade separated pedestrian and bicycle crossing of TH 252. People do not feel safe crossing TH 252 at-grade due to high traffic speeds, volumes, and the number of lanes they need to cross. The existing at-grade crossing especially challenging for children/families, seniors, people with disabilities, and people who are new to bicycling. There has been one crash involving a pedestrian at 66th Ave N within the last five years. The low number of crashes is likely because people do not cross TH 252 on foot/bike unless absolutely necessary. The project will improve pedestrian and bicycle safety and connectivity in Brooklyn Center. People of all ages and abilities will be more comfortable using the new crossing to connect to trails to parks, institutional, residential, and commercial areas.

Two express bus routes stop on TH 252 at 66th Ave N: routes 765 and 776. There are bus stops on east and west side of TH 252 at 66th Ave N, which means that transit users must cross TH 252 on at least one leg of their trip. The grade separated crossing of TH 252 will make it easier and safer for people to access transit stops on TH 252. It will also improve travel time for express routes that use TH 252 to get to downtown Minneapolis.

Existing bicycle/pedestrian connections:

-Sidewalk along 66th Ave/65th Ave: sidewalk on

both sides of the street, connects to Firehouse Park, Brooklyn Center High School, commercial destinations, and the Shingle Creek Regional Trail.
-West River Road Trail/West Mississippi River Regional Trail (WMRRT)/Mississippi River Trail (MRT): local trail that follows a Tier 2 RTBN Corridor and is included in the MRT -- a state bikeway that is part of the US Bicycle Route System. WMRRT planning is currently underway and the local trail will be incorporated into the regional system.

Both the Shingle Creek Regional Trail and West River Road Trail are north-south trails with grade separated crossings of I-94/I-694. These trails connect to the Minneapolis on- and off-street trail system to provide access to employment and recreation in North and Downtown Minneapolis. The project will make it easier and safer for Brooklyn Center residents to connect to the regional bicycle system.

Transit Projects Not Requiring Construction

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

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment

1)Project Scope (5 Percent of Points)

Meetings or contacts with stakeholders have occurred Yes

100%

Stakeholders have been identified

40%

Stakeholders have not been identified or contacted

0%

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

Layout or Preliminary Plan completed	Yes

100%

Layout or Preliminary Plan started

50%

Layout or Preliminary Plan has not been started

0%

Anticipated date or date of completion	05/02/2016

3)Environmental Documentation (5 Percent of Points)

EIS	
EA	Yes
PM	

Document Status:

Document approved (include copy of signed cover sheet)	100%	
Document submitted to State Aid for review	75%	date submitted

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

50%

Document not started	Yes

0%

Anticipated date or date of completion/approval	12/02/2019

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

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

100%

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

80%

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

40%

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

0%

Anticipated date or date of completion of historic/archeological review:	06/07/2016

Project is located on an identified historic bridge

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

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

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

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

0%

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

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

100%

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

100%

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

75%

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

50%

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

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 01/01/2020

7)Railroad Involvement (25 Percent of Points)

No railroad involvement on project Yes

100%

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

100%

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

60%

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

40%

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

0%

Anticipated date or date of executed Agreement

8)Interchange Approval (15 Percent of Points)*

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

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

100%

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

100%

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

0%

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

Construction plans completed/approved (include signed title sheet)

100%

Construction plans submitted to State Aid for review

75%

Construction plans in progress; at least 30% completion

50%

Construction plans have not been started Yes

0%

Anticipated date or date of completion 01/31/2021

10)Letting

Anticipated Letting Date	04/01/2021

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	$18,767,893.00
Enter Amount of the Noise Walls:	$3,872,000.00
Total Project Cost subtract the amount of the noise walls:	$14,895,892.00
Points Awarded in Previous Criteria	
Cost Effectiveness	$0.00

Other Attachments

File Name	Description	File Size
2016-13-Brooklyn-Center-FunctClassChange Request.pdf	Brooklyn Center 66th Ave N Functional Classification Change Request and Approval	438 KB
Connections to local planning.pdf	TH 252 - 66th Ave N Connections to Local Planning	18.0 MB
TH 252 - Crash Reduction Factors.pdf	TH 252 Crash Reduction Factors	171 KB
TH 252 66th-70th Concept Layout.pdf	Figure 1: TH 252 Concept Layout	1.8 MB
TH 252-66th Ave N Existing Conditions - StreetView Screenshots.pdf	Existing conditions photo at TH 252 and 66th Ave N	2.3 MB
TH 252-66th Avenue MnDOT letter of support.pdf	MnDOT Letter of Support	106 KB
TH252-66th Interchange Map.pdf	TH 252-66th Ave N interchange project area map	373 KB

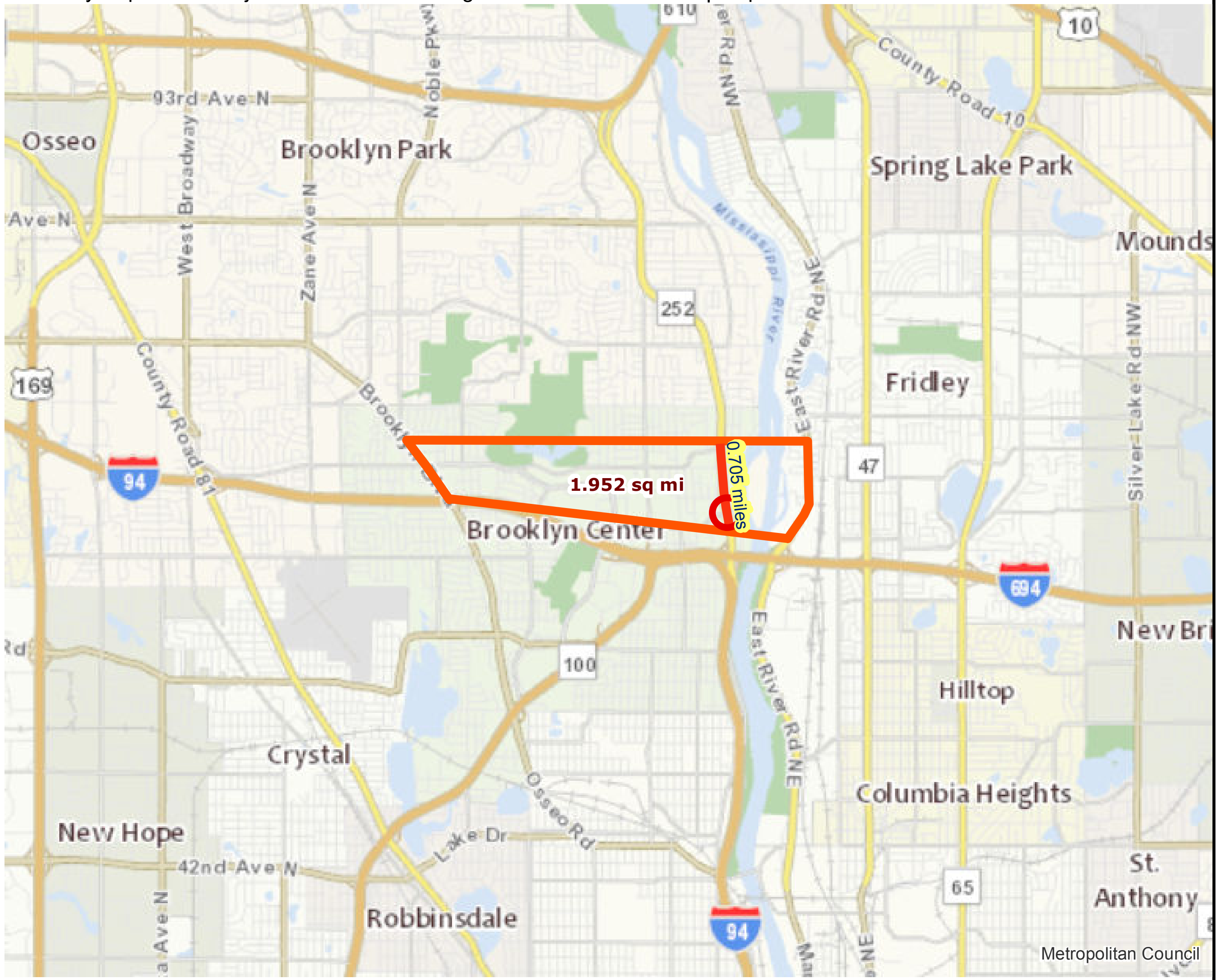
Roadway Area Definition

Roadway Expansion Project: TH 252 Interchange at 66th Avenue North | Map ID: 1466180646538

Results

Project Length: 0.705 miles

Project Area: 1.952 sq mi



Project Points
Project
Project Area
Principal Arterials
A Minor Arterials
Principal Arterials Planned
A Minor Arterials Planned

0 0.75 1.5 3 4.5 6 Miles

Created: 6/17/2016
LandscapeRSA1

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

METROPOLITAN COUNCIL

Regional Economy

Roadway Expansion Project: TH 252 Interchange at 66th Avenue North | Map ID: 1466180646538

Results

WITHIN ONE MI of project:

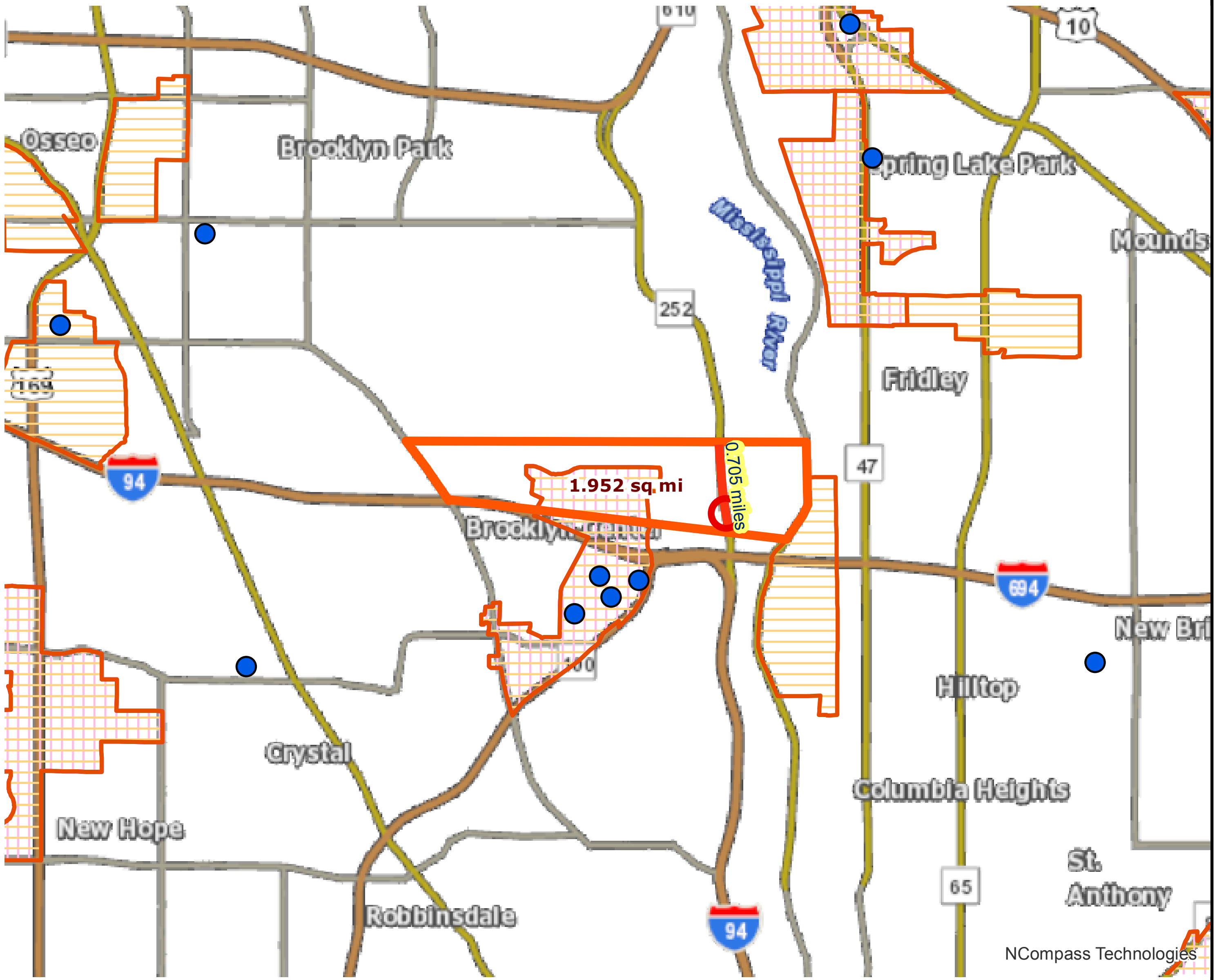
Totals by City:

Brooklyn Center
Population: 10582
Employment: 6797
Mfg and Dist Employment: 2232

Brooklyn Park
Population: 2659
Employment: 96
Mfg and Dist Employment: 1

Fridley
Population: 9608
Employment: 6172
Mfg and Dist Employment: 2719

Postsecondary Students:
2359



Project Points
Project Area
Manfacturing/Distribution Centers
Project
PostSecondary Education Centers
Job Concentration Centers

0 0.75 1.5 3 4.5 6 Miles

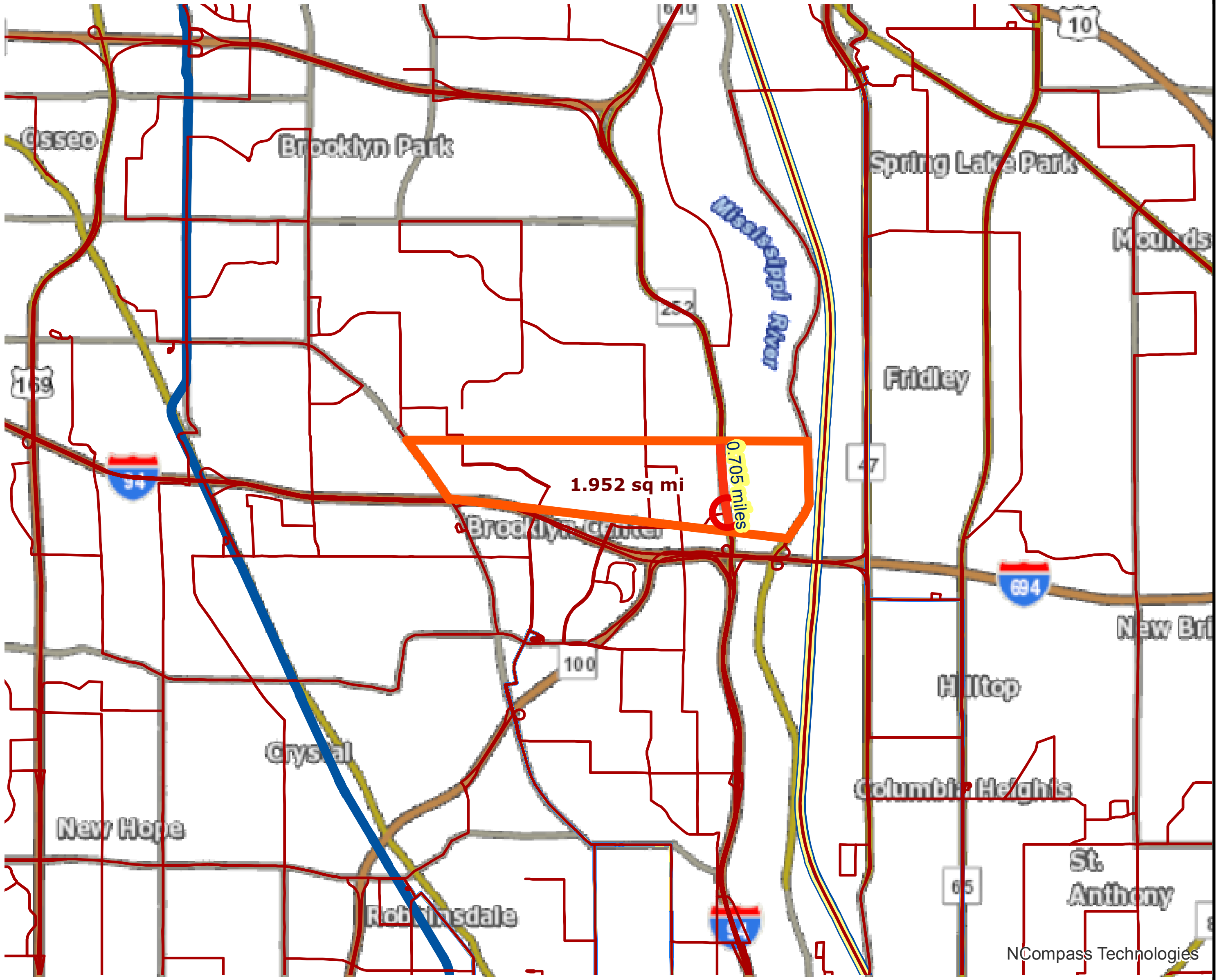
Created: 6/17/2016
LandscapeRSA5

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

METROPOLITAN COUNCIL

Transit Connections

Roadway Expansion Project: TH 252 Interchange at 66th Avenue North | Map ID: 1466180646538



Results

Transit with a Direct Connection to project:
763 765 766 768 850 865 887

**indicates Planned Alignments*

Project Points
Project
Project Area
Transit Routes

Transitway
Northstar Line

Planned Alignments
Arterial BRT

Light Rail, Blue Line Extension

0 0.75 1.5 3 4.5 6 Miles

Created: 6/17/2016
LandscapeRSA3

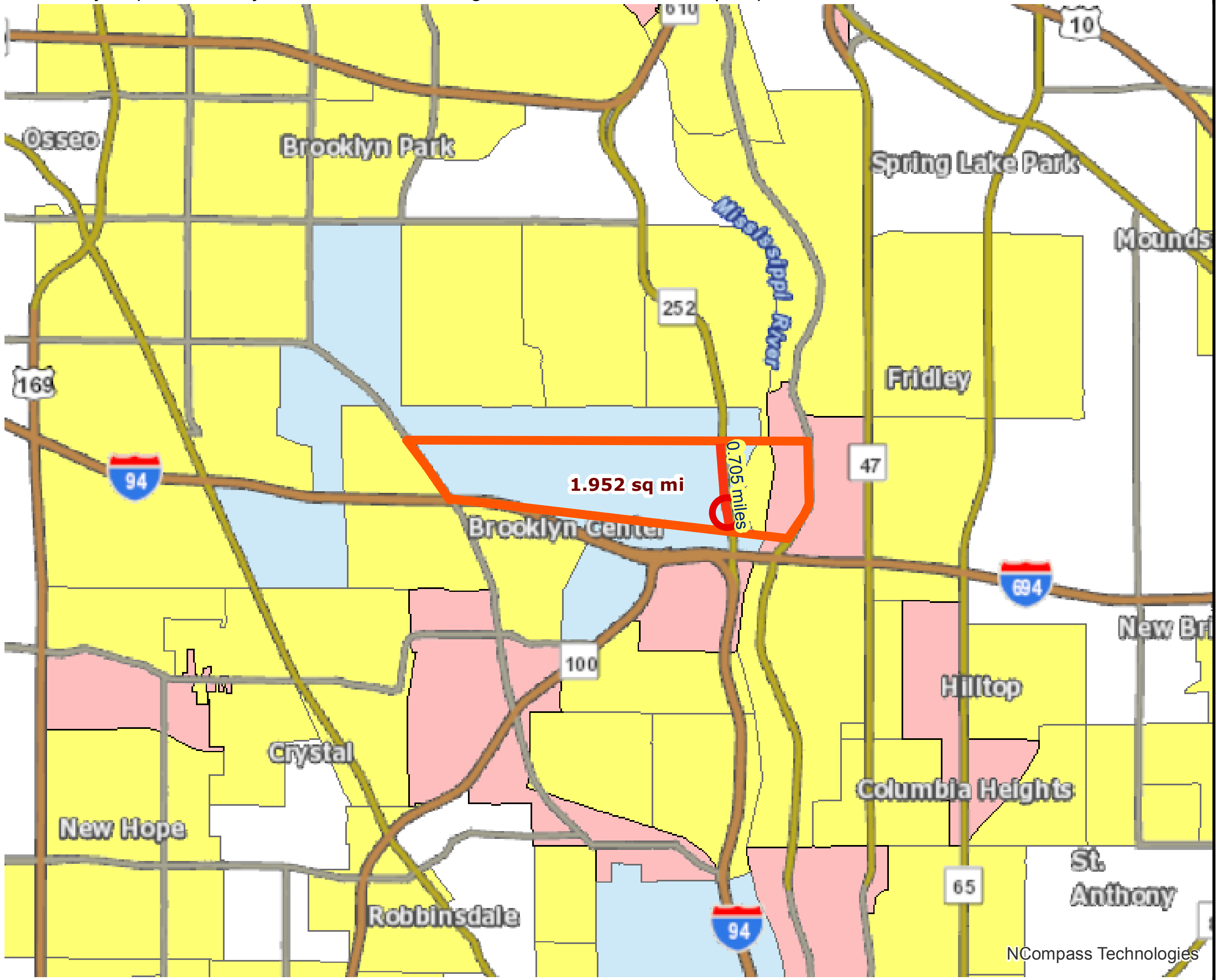
For complete disclaimer of accuracy, please visit
http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx

METROPOLITAN COUNCIL

Socio-Economic Conditions Roadway Expansion Project: TH 252 Interchange at 66th Avenue North | Map ID: 1466180646538

Results

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



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

0 0.75 1.5 3 4.5 6 Miles

Created: 6/17/2016
LandscapeRSA2

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

METROPOLITAN COUNCIL

TH 252 at 66th Ave - Signal modefied to an Interchange

Total Peak Hour Delay Chart

Total Delay = Delay per vehicle (s/veh) x Int Volume

Option	Int	Int Delay sec/veh		Intersection Volume		Total Delay in Secs		Total Delay in Hrs	
		AM	PM	AM	PM	AM	PM	AM	PM
No Build - Default	TH 252/66th	44	31	5703	5993	248651	185783	69	52
No Build - Modified	TH 252/66th	90	32	5703	5993	513270	191776	143	53
Build/Interchange	West Ramp	4	4	464	290	1856	1160	1	0
	*East Ramp	1	1	461	565	461	565	0	0

*Synchro does not provide delays for roundabout so the East Ramp delays came from Sim Traffic

	Reduced Delay in Secs		Reduced Delay in Hrs	
	AM	PM	AM	PM
Default Lane Utilzation - Delay Reduction	246334	184058	68	51
Modified Lane Utilization- Delay Reduction	510953	190051	142	53

Explanation for changing default setting for Lane Utilization:

The Lane Utilizations setting was modified from the default of .91 to .77 . Using the default did not show realistic congestion for the unbalanced distribution in the SB TH 252 traffic, for the No Build condition. As the 2400 SB vehicles approaches I-694 a large percentage is in the left most lane to allow for 1600 merging vehicles into the SB right lane from WB I-694. The Calculated value for this distribution is .63 . Splitting the difference between the .91 default and the .63 calculated value we used a lane utilization value of .77 . This takes into consideration the last minute lane adjustment made in the 1500 feet between the 66th Ave and the heavy SB merge. MOE's for both the default and modified options have been provided in the charts.

Peak Hour Emissions Chart

Option	Int	Total CO, Nox & VOC		Intersection Volume	
		AM	PM	AM	PM
No Build - Default	TH 252/66th	21	17	5703	5993
No Build - Modified	TH 252/66th	26	18	5703	5993
Build/Interchange	West Ramp	0.39	0.4	464	290
	East Ramp	0.23	0.49	461	565

	Reduced Emissions - kg	
	AM	PM
Default Emissions Reduction	20	16
Modified Emissions Reduction	25	17

6/28/2016

AM Modified No-Build

Lanes, Volumes, Timings
1: TH 252 & 66th Av

6/27/2016

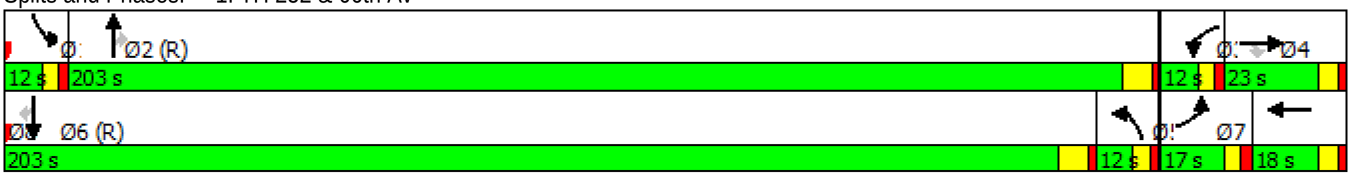
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	2	229	59	15	2	98	1470	13	0	3662	90
Future Volume (vph)	63	2	229	59	15	2	98	1470	13	0	3662	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	14	12	12	11	12	12	13	12	12
Storage Length (ft)	130		650	0		0	400		400	400		340
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	*0.77	1.00
Frt			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1811	1845	1568	1869	1813	0	3286	5036	1568	1906	4261	1568
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1811	1845	1568	1869	1813	0	3286	5036	1568	1906	4261	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92		2				55			63
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1520			956			631			2851	
Travel Time (s)		34.5			21.7			7.8			35.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	2	249	64	18	0	107	1598	14	0	3980	98
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	12.0	18.0	18.0	12.0	18.0		12.0	31.0	31.0	12.0	31.0	31.0
Total Split (s)	17.0	23.0	23.0	12.0	18.0		12.0	203.0	203.0	12.0	203.0	203.0
Total Split (%)	6.8%	9.2%	9.2%	4.8%	7.2%		4.8%	81.2%	81.2%	4.8%	81.2%	81.2%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5		3.0	5.5	5.5	3.0	5.5	5.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	1.5	1.5	2.0	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	0.0
Total Lost Time (s)	5.0	5.5	5.5	5.0	5.5		5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.2	17.5	17.5	7.0	10.4		7.0	208.0	208.0		196.0	196.0
Actuated g/C Ratio	0.08	0.07	0.07	0.03	0.04		0.03	0.83	0.83		0.78	0.78
v/c Ratio	0.49	0.02	1.28	1.23	0.23		1.16	0.38	0.01		1.19	0.08
Control Delay	122.1	108.5	205.1	284.1	112.1		237.1	5.5	0.0		111.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	122.1	108.5	205.1	284.1	112.1		237.1	5.5	0.0		111.3	1.2
LOS	F	F	F	F	F		F	A	A		F	A
Approach Delay		186.8			246.4			19.8			108.6	
Approach LOS		F			F			B			F	

Intersection Summary

Area Type:	Other		
Cycle Length: 250			
Actuated Cycle Length: 250			
Offset: 178 (71%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 89.8		Intersection LOS: F	
Intersection Capacity Utilization 105.4%		ICU Level of Service G	
Analysis Period (min) 15			

* User Entered Value

Splits and Phases: 1: TH 252 & 66th Av



1: TH 252 & 66th Av

Direction	EB	WB	NB	SB	All
Future Volume (vph)	294	76	1581	3752	5703
Control Delay / Veh (s/v)	187	246	20	109	90
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	187	246	20	109	90
Total Delay (hr)	15	5	9	113	142
CO Emissions (kg)	1.09	0.33	2.08	14.60	18.09
NOx Emissions (kg)	0.21	0.06	0.40	2.84	3.52
VOC Emissions (kg)	0.25	0.08	0.48	3.38	4.19

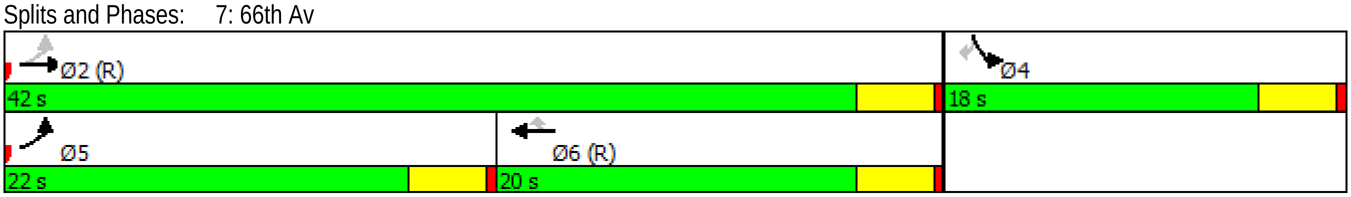
AM with project (Interchange)

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	229	67	15	59	4	90
Future Volume (vph)	229	67	15	59	4	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			500	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1845	1845	1568	1752	1568
Flt Permitted	0.664				0.950	
Satd. Flow (perm)	1225	1845	1845	1568	1752	1568
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				64		98
Link Speed (mph)		30	30		30	
Link Distance (ft)		999	673		245	
Travel Time (s)		22.7	15.3		5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	73	16	64	4	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	73	16	64	4	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
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
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	22.0	42.0	20.0	20.0	18.0	18.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Split (%)	36.7%	70.0%	33.3%	33.3%	30.0%	30.0%
Maximum Green (s)	18.0	38.0	16.0	16.0	14.0	14.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Min	Min
Act Effct Green (s)	44.5	44.5	32.2	32.2	7.5	7.5
Actuated g/C Ratio	0.74	0.74	0.54	0.54	0.12	0.12
v/c Ratio	0.25	0.05	0.02	0.07	0.02	0.35
Control Delay	3.1	2.4	7.7	2.9	22.5	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	2.4	7.7	2.9	22.5	10.0
LOS	A	A	A	A	C	A
Approach Delay		3.0	3.9		10.5	
Approach LOS		A	A		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.35	
Intersection Signal Delay: 4.6	Intersection LOS: A
Intersection Capacity Utilization 31.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: 66th Av



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	63	4	108	4	13	98
Future Volume (vph)	63	4	108	4	13	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996			0.850
Flt Protected		0.955			0.950	
Satd. Flow (prot)	0	1762	1837	0	1752	1568
Flt Permitted		0.955			0.950	
Satd. Flow (perm)	0	1762	1837	0	1752	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		673	159		218	
Travel Time (s)		15.3	3.6		5.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	4	117	4	14	107
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	72	121	0	14	107
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Yield	Yield		Yield	

Intersection Summary	
Area Type: Other	
Control Type: Roundabout	
Intersection Capacity Utilization 20.4%	ICU Level of Service A
Analysis Period (min) 15	

7: 66th Av

Direction	All
Future Volume (vph)	464
Control Delay / Veh (s/v)	5
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	5
Total Delay (hr)	1
Fuel Consumed (gal)	4
Fuel Economy (mpg)	17.5
CO Emissions (kg)	0.28
NOx Emissions (kg)	0.05
VOC Emissions (kg)	0.06
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0

10: 66th Av

Direction	All
Future Volume (vph)	288
Control Delay / Veh (s/v)	0
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	0
Total Delay (hr)	0
Fuel Consumed (gal)	2
Fuel Economy (mpg)	7.2
CO Emissions (kg)	0.16
NOx Emissions (kg)	0.03
VOC Emissions (kg)	0.04
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0

From: Fischer, Jose (DOT) <jose.fischer@state.mn.us>
Sent: Tuesday, June 28, 2016 11:23 AM
To: Rose Ryan
Cc: Kannankutty, Ramankutty (DOT); Otto, Patricia (DOT); Steve Lillehaug (slillehaug@ci.brooklyn-center.mn.us)
Subject: FW: TH 252 at 66th Ave modeling
Attachments: MOEs.pdf; PM Default NoBuild (.91) - Report.pdf; PM Interchange.pdf; PM Modified NoBuild (.8) - Report.pdf; AM Default NoBuild (.91) - Report.pdf; AM Interchange.pdf; AM Modified NoBuild (.8) - Report.pdf

Thanks Pat!!!

Hi Rose,

Attached should be everything you need from Synchro for your 252/66th application. Note that the directions points us to use the defaults but this resulted in very little delay in the no build, not realistic at all. I got to talk to Steve Peterson and Elain Koutsoukos at the Met Council about how to handle this and so we have included those results but also more realistic results with some text explaining the changes to parameters. Please enter the more realistic existing conditions information online but include all of this documentation with the application.

Tony

J. Antonio Fischer
Freeway Analysis Supervisor
Minnesota Department of Transportation
Metro Traffic Engineering - Program Support
jose.fischer@state.mn.us
651.234.7875

'if everything is important, then nothing is'

From: Otto, Patricia (DOT)
Sent: Tuesday, June 28, 2016 11:11 AM
To: Fischer, Jose (DOT)
Subject: TH 252 at 66th Ave modeling

Tony Hi,

You had requested Synchro modeling to be completed for the TH 252 and 66th Ave intersection to so show the projects ability to reduce delay and emissions. The Synchro reports includes Intersection delay in the Intersection Summary, and Emissions MOE's in the Detailed Measures of Effectiveness. All results are for the AM and PM peak hour.

Attached are the following documents to be used for the application:

- MOE's – Summary chart of the modeling MOE's including Total Delay and Emissions.
- AM/PM Default No Build – Synchro report using default settings.
- AM/PM Modified No Build – Synchro report using modified lane utilization setting.
- AM/PM Interchange – Synchro report for proposed interchange.

Modified files were included since the default setting did not capture the current congestion in the No Build AM option. There is a heavy imbalance in the SB TH 252 approach to 66th Ave which the default Lane Utilization was unable to capture. A brief explanation is available in the MOE's PDF.

Please let me know if you have any question regarding these files.

Pat Otto

MnDot Metro Traffic Engineering
1500 West County Road B2
Roseville, Mn 55113
651-234-7837

pat.otto@state.mn.us

AM No-build - Default settings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	2	229	59	15	2	98	1470	13	0	3662	90
Future Volume (vph)	63	2	229	59	15	2	98	1470	13	0	3662	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	14	12	12	11	12	12	13	12	12
Storage Length (ft)	130		650	0		0	400		400	400		340
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1811	1845	1568	1869	1813	0	3286	5036	1568	1906	5036	1568
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1811	1845	1568	1869	1813	0	3286	5036	1568	1906	5036	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92		2				76			85
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1520			956			631			2851	
Travel Time (s)		34.5			21.7			7.8			35.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	2	249	64	18	0	107	1598	14	0	3980	98
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	12.0	18.0	18.0	12.0	18.0		12.0	31.0	31.0	12.0	31.0	31.0
Total Split (s)	21.0	28.0	28.0	13.0	20.0		13.0	197.0	197.0	12.0	196.0	196.0
Total Split (%)	8.4%	11.2%	11.2%	5.2%	8.0%		5.2%	78.8%	78.8%	4.8%	78.4%	78.4%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5		3.0	5.5	5.5	3.0	5.5	5.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	1.5	1.5	2.0	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	0.0
Total Lost Time (s)	5.0	5.5	5.5	5.0	5.5		5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	23.7	22.5	22.5	8.0	11.9		8.0	202.0	202.0		189.0	189.0
Actuated g/C Ratio	0.09	0.09	0.09	0.03	0.05		0.03	0.81	0.81		0.76	0.76
v/c Ratio	0.40	0.01	1.11	1.08	0.20		1.02	0.39	0.01		1.05	0.08
Control Delay	117.2	104.0	150.4	241.5	108.5		202.8	7.1	0.0		43.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	117.2	104.0	150.4	241.5	108.5		202.8	7.1	0.0		43.7	0.8
LOS	F	F	F	F	F		F	A	A		D	A
Approach Delay		143.0			212.3			19.2			42.7	
Approach LOS		F			F			B			D	

Intersection Summary

Area Type: Other	
Cycle Length: 250	
Actuated Cycle Length: 250	
Offset: 178 (71%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 43.6	Intersection LOS: D
Intersection Capacity Utilization 105.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 1: TH 252 & 66th Av

1: TH 252 & 66th Av

Direction	EB	WB	NB	SB	All
Future Volume (vph)	294	76	1581	3752	5703
Control Delay / Veh (s/v)	143	212	19	43	44
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	143	212	19	43	44
Total Delay (hr)	12	4	8	44	69
CO Emissions (kg)	0.91	0.29	2.14	11.50	14.84
NOx Emissions (kg)	0.18	0.06	0.42	2.24	2.89
VOC Emissions (kg)	0.21	0.07	0.49	2.67	3.44

TH 252 at 66th Ave - Signal modefied to an Interchange

Total Peak Hour Delay Chart

Total Delay = Delay per vehicle (s/veh) x Int Volume

Option	Int	Int Delay sec/veh		Intersection Volume		Total Delay in Secs		Total Delay in Hrs	
		AM	PM	AM	PM	AM	PM	AM	PM
No Build - Default	TH 252/66th	44	31	5703	5993	248651	185783	69	52
No Build - Modified	TH 252/66th	90	32	5703	5993	513270	191776	143	53
Build/Interchange	West Ramp	4	4	464	290	1856	1160	1	0
	*East Ramp	1	1	461	565	461	565	0	0

*Synchro does not provide delays for roundabout so the East Ramp delays came from Sim Traffic

	Reduced Delay in Secs		Reduced Delay in Hrs	
	AM	PM	AM	PM
Default Lane Utilzation - Delay Reduction	246334	184058	68	51
Modified Lane Utilization- Delay Reduction	510953	190051	142	53

Explanation for changing default setting for Lane Utilization:

The Lane Utilizations setting was modified from the default of .91 to .77 . Using the default did not show realistic congestion for the unbalanced distribution in the SB TH 252 traffic, for the No Build condition. As the 2400 SB vehicles approaches I-694 a large percentage is in the left most lane to allow for 1600 merging vehicles into the SB right lane from WB I-694. The Calculated value for this distribution is .63 . Splitting the difference between the .91 default and the .63 calculated value we used a lane utilization value of .77 . This takes into consideration the last minute lane adjustment made in the 1500 feet between the 66th Ave and the heavy SB merge. MOE's for both the default and modified options have been provided in the charts.

Peak Hour Emissions Chart

Option	Int	Total CO, Nox & VOC		Intersection Volume	
		AM	PM	AM	PM
No Build - Default	TH 252/66th	21	17	5703	5993
No Build - Modified	TH 252/66th	26	18	5703	5993
Build/Interchange	West Ramp	0.39	0.4	464	290
	East Ramp	0.23	0.49	461	565

	Reduced Emissions - kg	
	AM	PM
Default Emissions Reduction	20	16
Modified Emissions Reduction	25	17

6/28/2016

AM Modified No-Build

Lanes, Volumes, Timings
1: TH 252 & 66th Av

6/27/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	2	229	59	15	2	98	1470	13	0	3662	90
Future Volume (vph)	63	2	229	59	15	2	98	1470	13	0	3662	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	14	12	12	11	12	12	13	12	12
Storage Length (ft)	130		650	0		0	400		400	400		340
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	*0.77	1.00
Frt			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1811	1845	1568	1869	1813	0	3286	5036	1568	1906	4261	1568
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1811	1845	1568	1869	1813	0	3286	5036	1568	1906	4261	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92		2				55			63
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1520			956			631			2851	
Travel Time (s)		34.5			21.7			7.8			35.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	2	249	64	18	0	107	1598	14	0	3980	98
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	12.0	18.0	18.0	12.0	18.0		12.0	31.0	31.0	12.0	31.0	31.0
Total Split (s)	17.0	23.0	23.0	12.0	18.0		12.0	203.0	203.0	12.0	203.0	203.0
Total Split (%)	6.8%	9.2%	9.2%	4.8%	7.2%		4.8%	81.2%	81.2%	4.8%	81.2%	81.2%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5		3.0	5.5	5.5	3.0	5.5	5.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	1.5	1.5	2.0	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	0.0
Total Lost Time (s)	5.0	5.5	5.5	5.0	5.5		5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.2	17.5	17.5	7.0	10.4		7.0	208.0	208.0		196.0	196.0
Actuated g/C Ratio	0.08	0.07	0.07	0.03	0.04		0.03	0.83	0.83		0.78	0.78
v/c Ratio	0.49	0.02	1.28	1.23	0.23		1.16	0.38	0.01		1.19	0.08
Control Delay	122.1	108.5	205.1	284.1	112.1		237.1	5.5	0.0		111.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	122.1	108.5	205.1	284.1	112.1		237.1	5.5	0.0		111.3	1.2
LOS	F	F	F	F	F		F	A	A		F	A
Approach Delay		186.8			246.4			19.8			108.6	
Approach LOS		F			F			B			F	

Intersection Summary

Area Type: Other

Cycle Length: 250

Actuated Cycle Length: 250

Offset: 178 (71%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.28

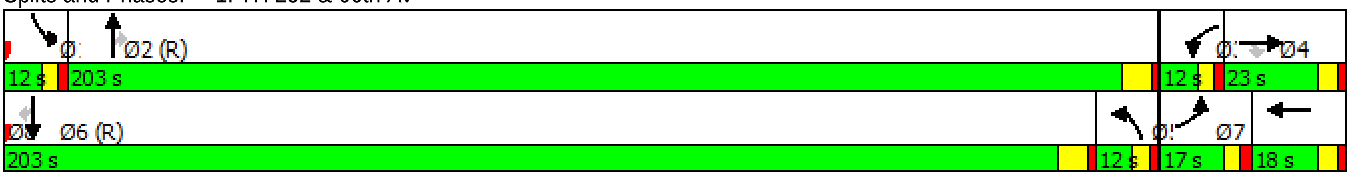
Intersection Signal Delay: 89.8 Intersection LOS: F

Intersection Capacity Utilization 105.4% ICU Level of Service G

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 1: TH 252 & 66th Av



1: TH 252 & 66th Av

Direction	EB	WB	NB	SB	All
Future Volume (vph)	294	76	1581	3752	5703
Control Delay / Veh (s/v)	187	246	20	109	90
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	187	246	20	109	90
Total Delay (hr)	15	5	9	113	142
CO Emissions (kg)	1.09	0.33	2.08	14.60	18.09
NOx Emissions (kg)	0.21	0.06	0.40	2.84	3.52
VOC Emissions (kg)	0.25	0.08	0.48	3.38	4.19

Lanes, Volumes, Timings
7: 66th Av

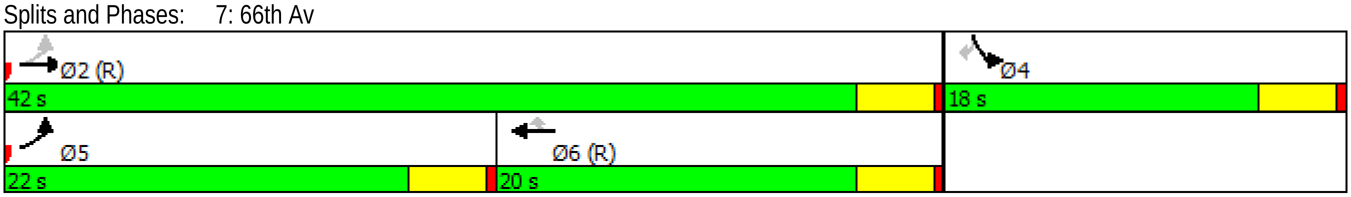
6/27/2016

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	229	67	15	59	4	90
Future Volume (vph)	229	67	15	59	4	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			500	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1845	1845	1568	1752	1568
Flt Permitted	0.664				0.950	
Satd. Flow (perm)	1225	1845	1845	1568	1752	1568
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				64		98
Link Speed (mph)		30	30		30	
Link Distance (ft)		999	673		245	
Travel Time (s)		22.7	15.3		5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	73	16	64	4	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	73	16	64	4	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
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
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	22.0	42.0	20.0	20.0	18.0	18.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Split (%)	36.7%	70.0%	33.3%	33.3%	30.0%	30.0%
Maximum Green (s)	18.0	38.0	16.0	16.0	14.0	14.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Min	Min
Act Effct Green (s)	44.5	44.5	32.2	32.2	7.5	7.5
Actuated g/C Ratio	0.74	0.74	0.54	0.54	0.12	0.12
v/c Ratio	0.25	0.05	0.02	0.07	0.02	0.35
Control Delay	3.1	2.4	7.7	2.9	22.5	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	2.4	7.7	2.9	22.5	10.0
LOS	A	A	A	A	C	A
Approach Delay		3.0	3.9		10.5	
Approach LOS		A	A		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.35	
Intersection Signal Delay: 4.6	Intersection LOS: A
Intersection Capacity Utilization 31.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: 66th Av



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	63	4	108	4	13	98
Future Volume (vph)	63	4	108	4	13	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996			0.850
Flt Protected		0.955			0.950	
Satd. Flow (prot)	0	1762	1837	0	1752	1568
Flt Permitted		0.955			0.950	
Satd. Flow (perm)	0	1762	1837	0	1752	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		673	159		218	
Travel Time (s)		15.3	3.6		5.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	4	117	4	14	107
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	72	121	0	14	107
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Yield	Yield		Yield	

Intersection Summary	
Area Type: Other	
Control Type: Roundabout	
Intersection Capacity Utilization 20.4%	ICU Level of Service A
Analysis Period (min) 15	

7: 66th Av

Direction	All
Future Volume (vph)	464
Control Delay / Veh (s/v)	5
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	5
Total Delay (hr)	1
Fuel Consumed (gal)	4
Fuel Economy (mpg)	17.5
CO Emissions (kg)	0.28
NOx Emissions (kg)	0.05
VOC Emissions (kg)	0.06
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0

10: 66th Av

Direction	All
Future Volume (vph)	288
Control Delay / Veh (s/v)	0
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	0
Total Delay (hr)	0
Fuel Consumed (gal)	2
Fuel Economy (mpg)	7.2
CO Emissions (kg)	0.16
NOx Emissions (kg)	0.03
VOC Emissions (kg)	0.04
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0

From: Fischer, Jose (DOT) <jose.fischer@state.mn.us>
Sent: Tuesday, June 28, 2016 11:23 AM
To: Rose Ryan
Cc: Kannankutty, Ramankutty (DOT); Otto, Patricia (DOT); Steve Lillehaug (slillehaug@ci.brooklyn-center.mn.us)
Subject: FW: TH 252 at 66th Ave modeling
Attachments: MOEs.pdf; PM Default NoBuild (.91) - Report.pdf; PM Interchange.pdf; PM Modified NoBuild (.8) - Report.pdf; AM Default NoBuild (.91) - Report.pdf; AM Interchange.pdf; AM Modified NoBuild (.8) - Report.pdf

Thanks Pat!!!

Hi Rose,

Attached should be everything you need from Synchro for your 252/66th application. Note that the directions points us to use the defaults but this resulted in very little delay in the no build, not realistic at all. I got to talk to Steve Peterson and Elain Koutsoukos at the Met Council about how to handle this and so we have included those results but also more realistic results with some text explaining the changes to parameters. Please enter the more realistic existing conditions information online but include all of this documentation with the application.

Tony

J. Antonio Fischer
Freeway Analysis Supervisor
Minnesota Department of Transportation
Metro Traffic Engineering - Program Support
jose.fischer@state.mn.us
651.234.7875

'if everything is important, then nothing is'

From: Otto, Patricia (DOT)
Sent: Tuesday, June 28, 2016 11:11 AM
To: Fischer, Jose (DOT)
Subject: TH 252 at 66th Ave modeling

Tony Hi,

You had requested Synchro modeling to be completed for the TH 252 and 66th Ave intersection to so show the projects ability to reduce delay and emissions. The Synchro reports includes Intersection delay in the Intersection Summary, and Emissions MOE's in the Detailed Measures of Effectiveness. All results are for the AM and PM peak hour.

Attached are the following documents to be used for the application:

- MOE's – Summary chart of the modeling MOE's including Total Delay and Emissions.
- AM/PM Default No Build – Synchro report using default settings.
- AM/PM Modified No Build – Synchro report using modified lane utilization setting.
- AM/PM Interchange – Synchro report for proposed interchange.

Modified files were included since the default setting did not capture the current congestion in the No Build AM option. There is a heavy imbalance in the SB TH 252 approach to 66th Ave which the default Lane Utilization was unable to capture. A brief explanation is available in the MOE's PDF.

Please let me know if you have any question regarding these files.

Pat Otto

MnDot Metro Traffic Engineering
1500 West County Road B2
Roseville, Mn 55113
651-234-7837

pat.otto@state.mn.us

AM No-build - Default settings

Lanes, Volumes, Timings
1: TH 252 & 66th Av

6/27/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	2	229	59	15	2	98	1470	13	0	3662	90
Future Volume (vph)	63	2	229	59	15	2	98	1470	13	0	3662	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	12	14	12	12	11	12	12	13	12	12
Storage Length (ft)	130		650	0		0	400		400	400		340
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1811	1845	1568	1869	1813	0	3286	5036	1568	1906	5036	1568
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1811	1845	1568	1869	1813	0	3286	5036	1568	1906	5036	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92		2				76			85
Link Speed (mph)		30			30			55			55	
Link Distance (ft)		1520			956			631			2851	
Travel Time (s)		34.5			21.7			7.8			35.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	2	249	64	18	0	107	1598	14	0	3980	98
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	12.0	18.0	18.0	12.0	18.0		12.0	31.0	31.0	12.0	31.0	31.0
Total Split (s)	21.0	28.0	28.0	13.0	20.0		13.0	197.0	197.0	12.0	196.0	196.0
Total Split (%)	8.4%	11.2%	11.2%	5.2%	8.0%		5.2%	78.8%	78.8%	4.8%	78.4%	78.4%
Yellow Time (s)	3.0	3.5	3.5	3.0	3.5		3.0	5.5	5.5	3.0	5.5	5.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	1.5	1.5	2.0	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	0.0
Total Lost Time (s)	5.0	5.5	5.5	5.0	5.5		5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	23.7	22.5	22.5	8.0	11.9		8.0	202.0	202.0		189.0	189.0
Actuated g/C Ratio	0.09	0.09	0.09	0.03	0.05		0.03	0.81	0.81		0.76	0.76
v/c Ratio	0.40	0.01	1.11	1.08	0.20		1.02	0.39	0.01		1.05	0.08
Control Delay	117.2	104.0	150.4	241.5	108.5		202.8	7.1	0.0		43.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	117.2	104.0	150.4	241.5	108.5		202.8	7.1	0.0		43.7	0.8
LOS	F	F	F	F	F		F	A	A		D	A
Approach Delay		143.0			212.3			19.2			42.7	
Approach LOS		F			F			B			D	

Intersection Summary

Area Type: Other	
Cycle Length: 250	
Actuated Cycle Length: 250	
Offset: 178 (71%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 43.6	Intersection LOS: D
Intersection Capacity Utilization 105.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 1: TH 252 & 66th Av

1: TH 252 & 66th Av

Direction	EB	WB	NB	SB	All
Future Volume (vph)	294	76	1581	3752	5703
Control Delay / Veh (s/v)	143	212	19	43	44
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	143	212	19	43	44
Total Delay (hr)	12	4	8	44	69
CO Emissions (kg)	0.91	0.29	2.14	11.50	14.84
NOx Emissions (kg)	0.18	0.06	0.42	2.24	2.89
VOC Emissions (kg)	0.21	0.07	0.49	2.67	3.44

ACTION TRANSMITTAL 2016-13

DATE:	January 25, 2016
TO:	TAC
FROM:	TAC Planning
PREPARED BY:	Rachel Wiken (651) 602-1572, Planner
SUBJECT:	Functional Class Changes #1339 Brooklyn Center
REQUESTED ACTION:	Brooklyn Center requests a change from Collector to A Minor Reliever for 66th Ave, Shingle Creek, and 69th Ave
RECOMMENDED MOTION:	That TAC approve #1339 – reclassification of 66th Ave./Shingle Creek/69th Ave. between Brooklyn Blvd. (CSAH 152) and TH 252 from Collector to A-Minor Reliever.

BACKGROUND AND PURPOSE OF ACTION:

To provide a continuous east-west connection parallel to I-694/I-94 on the north side within the City of Brooklyn Center. Presently there are no arterial routes that serve as a reliever to I-694/I-94. The closest parallel arterial route that provides east-west movement is CSAH 109 (85th Avenue N) which is located approximately 2 miles north of the proposed "A" minor arterial route in this application. The land use density of the area would support an additional east-west A minor arterial.

In addition to reclassifying the roadway for purposes of providing a continuous east-west route parallel to I-694/I-94, the city would like to have the route reclassified in order to qualify for future interchange consideration at the 66th Avenue N and TH 252 intersection. The City of Brooklyn Center recently led a TH 252 Corridor Study in coordination with MnDOT, Brooklyn Park and the Metropolitan Council to consider long-term changes for the TH 252 corridor. The study recommended constructing an interchange at the 66th Avenue N/TH 252 intersection to address both existing and future safety and capacity problems.

RELATIONSHIP TO REGIONAL POLICY: The Transportation Advisory Board maintains a roadway functional classification system for all regional roads. TAB has delegated the responsibility of approving changes to the system to the Technical Advisory Committee, with the exception of Principal Arterials. Changes to all other roadways submitted by the agency with jurisdiction over the roadway are reviewed and recommended by the TAC Planning Committee, approved by TAC, and received as information by TAB.

STAFF ANALYSIS:

The requested road mostly matches the A Minor Reliever criteria. It has appropriate current AADT and is in an urban location and does / will function as a reliever of I-694. Access spacing should be improved, but it does seem to be the best option within Brooklyn Center to function as a reliever.

The section of 694 parallel to the request does not have any reliever roadways. However, according to 2014 MnDOT Congestion report, this section of road is not congested. The request seems similar to a 2014 request from Washington County to upgrade Hadley Ave from Major Collector to Reliever. While I-694 in that area was not congested, staff and committee approved the request, as it met other characteristics and was a necessary reclassification to begin planning an interchange at that intersection. Staff feels this previous actions sets precedent to approve this request.

MnDOT reviewed the proposal and concurs with the Metropolitan Council's concern that access spacing along portions of the route are not ideal, but are superior to other east-west alternatives for A Minor arterials (70th Avenue N). MnDOT anticipates that as improvements to the east and west of this area are made, traffic levels will increase, thereby underscoring the need for a reliever roadway.

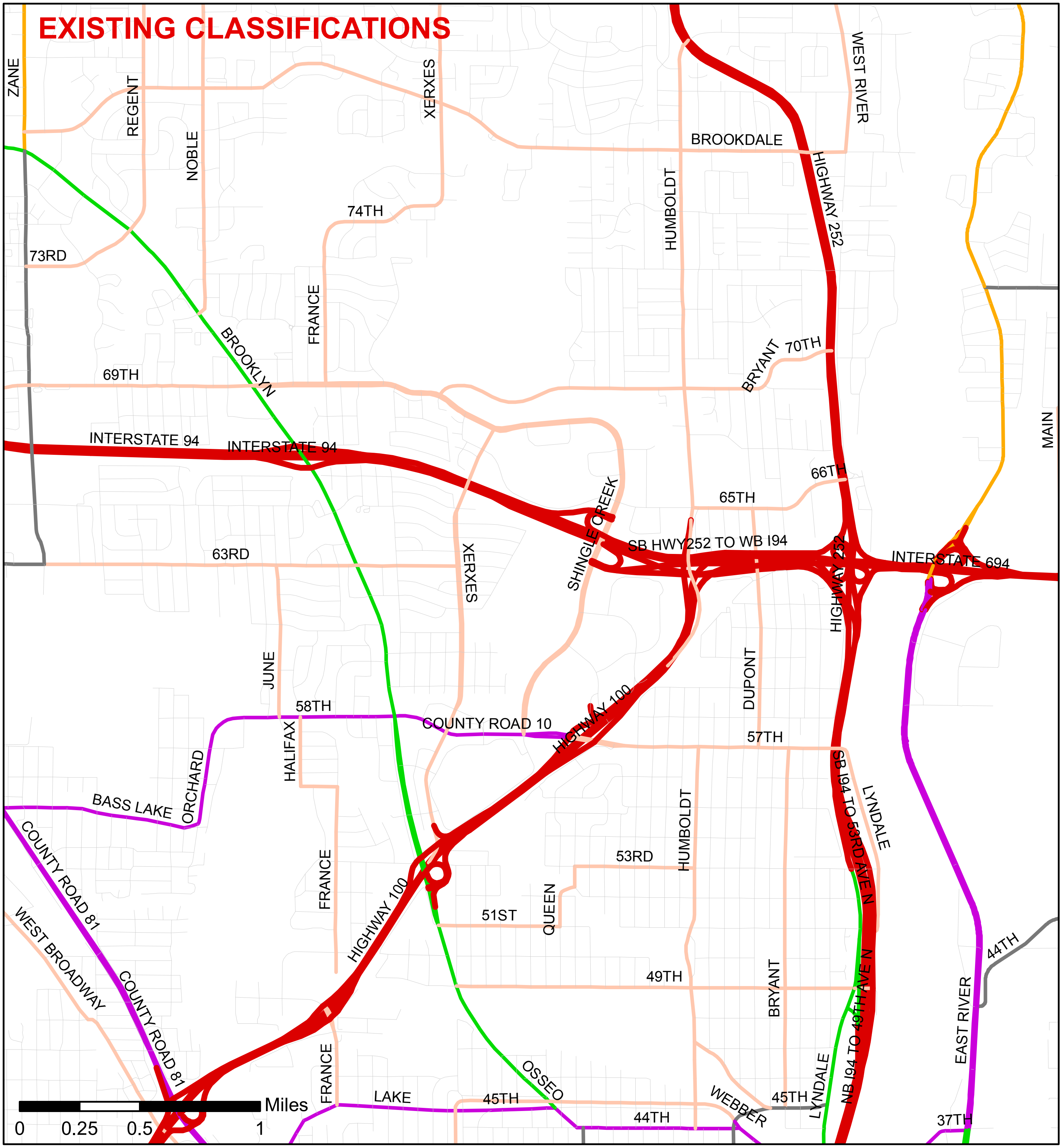
COMMITTEE ACTION: TAC Planning concurred with staff recommendations and moved to recommend the change.

ROUTING

TO	ACTION REQUESTED	DATE COMPLETED
TAC - Planning	Review and Recommend	1-14-16
Technical Advisory Committee	Review and Approve	

Functional Class Roads Change Requests
City of Brooklyn Center

ID# 1339



Existing Regional Functional Class Roads

- Principal Arterial
- A Minor Augmentor
- B Minor
- A Minor Reliever
- Major Collector
- A Minor Expander
- Minor Collector
- A Minor Connector

Planned Regional Functional Class Roads

- Principal Arterial
- A Minor Augmentor
- B Minor
- A Minor Reliever
- Major Collector
- A Minor Expander
- Minor Collector
- A Minor Connector

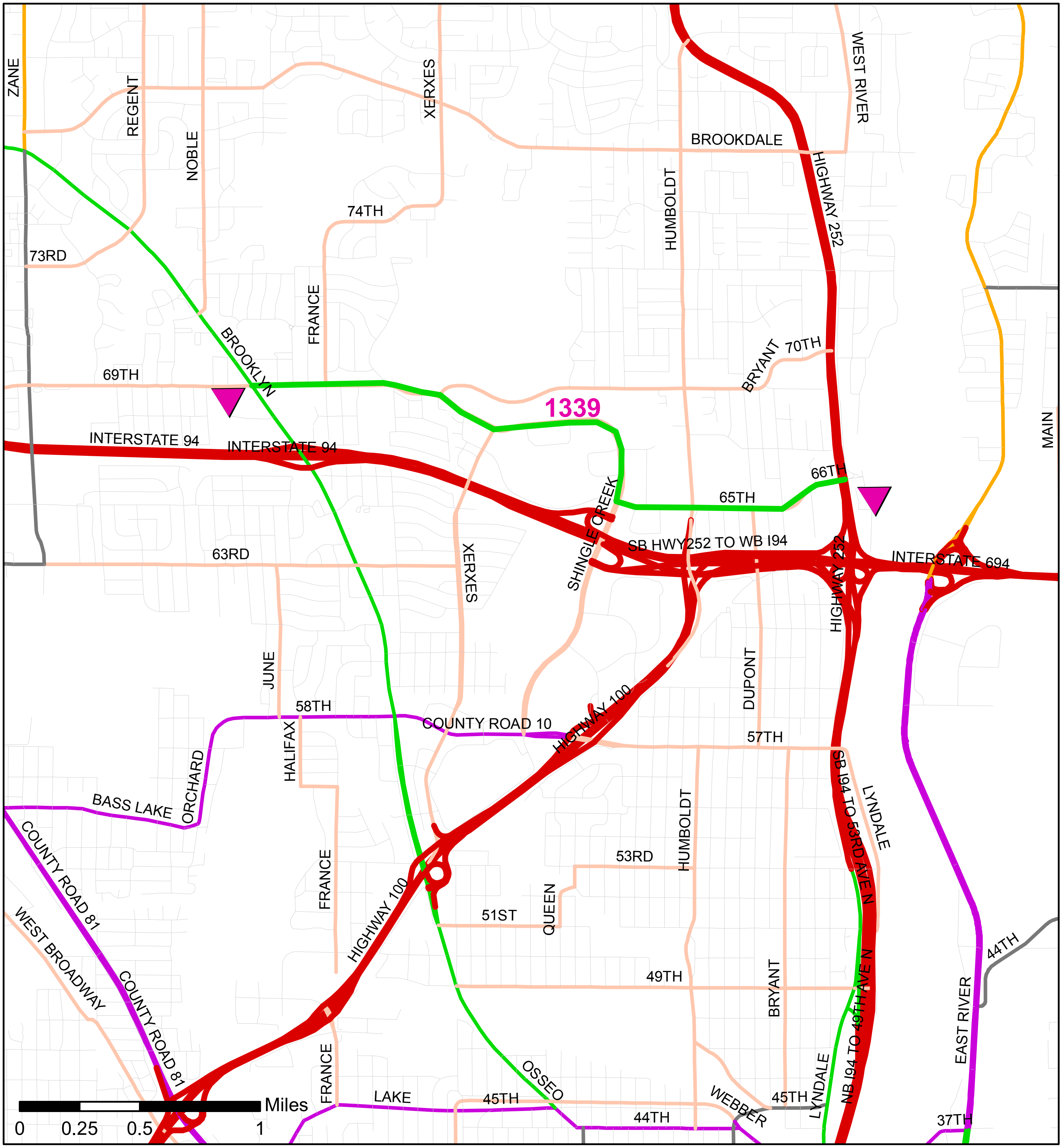
N

City / Township Boundaries   Street Centerlines   County Boundaries

1-4-16

Functional Class Roads Change Requests
City of Brooklyn Center

ID# 1339



Existing Regional Functional Class Roads

- Principal Arterial
- A Minor Augmentor
- B Minor
- A Minor Reliever
- Major Collector
- A Minor Expander
- Minor Collector
- A Minor Connector

Planned Regional Functional Class Roads

- Principal Arterial
- A Minor Augmentor
- B Minor
- A Minor Reliever
- Major Collector
- A Minor Expander
- Minor Collector
- A Minor Connector

N

City / Township Boundaries
Street Centerlines
County Boundaries

1-4-16

Regional Functional Classification
Change Request Form

ID Number: *1339*

Date of Request: *12-22-2015*

Roadway Name: 69th Avenue N, Shingle Creek Parkway, Freeway Boulevard, 65th Avenue N, and 66th Avenue N

Roadway CSAH # NA Roadway MSA # 111,109,125
Roadway County Rd # NA Request Type: Existing

Functional Classification Information:

Existing Roadway
Current Classification: **Major Collector**
Requested Classification: **A Minor Reliever**
If other: One section of roadway is currently classified as a local roadway in the Metropolitan Council database and as collector route in the city's comprehensive plan

Planned Roadway
Current Classification: **N/A**
Requested Classification: **N/A**
If other:

Planned to existing **Contingent Conditions: -----------------------**
Other / Explain: The entire route is shown as a major collector in the City of Brooklyn Center Comprehensive Plan. However, Freeway Boulevard is not shown as a major collector on the Metropolitan Council Functional Classification map, thus leaving a gap in the collector network. For purposes of streamlining the functional reclassification process, Metropolitan Council staff indicated that only one application will be needed for the proposed route rather than breaking it into three different segments.

Request Information:

Change Start Location: **Brooklyn Boulevard (CSAH 152)**
Change End Location: **Trunk Highway (TH) 252**
Length of Requested Change (Miles): **2.8**
Dependent on other Requested Changes: **No**
Road name(s) or ID Number(s) of dependent requests: **NA**
Involves other jurisdictions (**No**) If “yes” please attach letter(s) of support

Purpose of Change: Please explain rationale for requested Change

To provide a continuous east-west connection parallel to I-694/I-94 on the north side within the City of Brooklyn Center. Presently there are no arterial routes that serve as a reliever to I-694/I-94. The closest parallel arterial route that provides east-west movement is CSAH 109 (85th Avenue N) which is located approximately 2 miles north of the proposed "A" minor arterial route in this application. The land use density of the area would support an additional east-west A minor arterial.

In addition to reclassifying the roadway for purposes of providing a continuous east-west route parallel to I-694/I-94, the city would like to have the route reclassified in order to qualify for future interchange consideration at the 66th Avenue N and TH 252 intersection. The City of Brooklyn Center recently led a TH 252 Corridor Study in coordination with MnDOT, Brooklyn Park and the Metropolitan Council to consider long-term changes for the TH 252 corridor. The study recommended constructing an interchange at the 66th Avenue N/TH 252 intersection to address both existing and future safety and capacity problems.

Regional Functional Classification
Change Request Form

ID Number: *1339*

Date of Request: *12-22-2015*

Following Section Required for All Principal and Minor Arterial Requests

Criteria: Illustrate how the requested change to a roadway functional classification complies with the following criteria:

Place Connections: The proposed A Minor arterial provides interconnection between existing traffic generators including the concentration of commercial land uses at 66th Avenue N and TH 252, commercial and industrial land uses along Freeway Boulevard and Shingle Creek Parkway between Humboldt Avenue N and 69th Avenue N, commercial land uses at 69th Avenue N and Brooklyn Boulevard, and Brooklyn Center High School.

Spacing: The closest continuous east-west minor arterials are approximately 2 miles to the north (85th Avenue N) and 2.6 miles to the south (44th Avenue N/Lake Drive). I-94/694 (principal arterial) is spaced between approximately a quarter of a mile to a half a mile south of the proposed route. This route is an interstate facility with limited access. The Metropolitan Council recommends minor arterial spacing of 0.5-1 mile in urban communities.

Within the Metropolitan Council's functional classification criteria, the proposed route is the best candidate for a continuous east-west A Minor arterial connection north of I-694. 70th Avenue N/69th Avenue N could be considered as an alternate connection for the eastern portion of the proposed route (instead of 66th Avenue N/65th Avenue N/Freeway Boulevard/Shingle Creek Parkway). However, 70th Avenue N passes through mostly park, residential, and school uses. Based on the adjacent land use, existing access is not consistent with criteria for an A Minor arterial and it would not connect the commercial and industrial uses that are served by the proposed route.

Management: All intersections along the proposed route are signalized or side street stop-controlled. Existing posted speeds are between 30 and 35 mph. The proposed route is expected to maintain at least a 30 mph average speed during peak traffic periods.

System Connections & Access Spacing: The proposed route provides a continuous east-west connection between CSAH 152 (Brooklyn Boulevard), an A minor arterial reliever and TH 252, a principal arterial. Both connections are via full movement signalized intersections. The proposed route also connects to several major collectors, including France Avenue N, 69th Avenue N, Xerxes Avenue N, Shingle Creek Parkway, Humboldt Avenue N, and Dupont Avenue N.

Access spacing varies along the route. Along 69th Avenue N, Shingle Creek Parkway, and Freeway Boulevard, access is limited to commercial driveways and local public streets. Average spacing in this segment is approximately 300 feet. Along 65th and 66th Avenues N, there is some access to residential properties in addition to commercial driveways and local public streets. Average spacing in this segment is approximately 200 feet. Access spacing along this route is not ideal; however, it is better than the other alternative for east-west A Minor arterials (70th Avenue N).

Trip Making Services: Most trips are expected to be short to medium length at moderate speeds. The proposed route links many commercial and industrial land uses and the residential areas located north and south of the proposed route. The route parallels I-694 and keeps traffic off the freeway system for short and medium length trips. The route also provides access to the principal arterial network for longer trips. There are connections to I-694 at CSAH 152, Shingle Creek Parkway, and TH 252. 66th Avenue N connects to TH 252 for northbound trips on TH 252 and southbound trips on I-94.

In addition, the proposed route helps to serve connections to TH 100. Presently access to and from TH 100 is limited in the area due to the system to system interchange with I-94/694. Traffic on the interstate heading eastbound currently needs to exit at Shingle Creek Parkway and use Shingle Creek Parkway/Freeway Boulevard and Humboldt Avenue in order to get onto TH 100. Classifying the route as an A minor arterial better defines this function for the proposed route. Additionally, northbound traffic on TH 100 is only able to go east on I-94/694. If it is destined to the west, it needs to exit at Humboldt and then take Freeway

Boulevard to Shingle Creek Parkway where it can then use the interchange to head west - again using part of the proposed A minor arterial.

Along with providing for trips for single occupant vehicles, the proposed route also provides for bus service along the corridor. Route 761 follows portions of 69th Avenue N and Shingle Creek Parkway. Route 722 follows Freeway Boulevard and Route 763 follows 65th and 66th Avenue N.

Mobility vs. Land Access: The function of the proposed A minor arterial would be to move through traffic, connect to nearby A minor and principal arterials, and provide access to concentrated commercial and industrial land uses. Access for much of the corridor is consistent with a lower-speed arterial, with access primarily being provided at public street intersections and larger industrial/commercial driveways. There are a limited number of direct residential driveways. A majority of those driveways are concentrated between Bryant Avenue N and Girard Avenue N.

IF request impacts the A-Minor Arterial Sub-Classification, provide these attributes:
(from Table D-4 in TPP, http://metrocouncil.org/Transportation/Planning-2/Key-Transportation-Planning-Documents/Transportation-Policy-Plan-(1)/The-Adopted-2040-TPP-(1)/Final-2040-Transportation-Policy-Plan/2040-TPP-Appendix-D-Functional-Class.aspx)

Use: Relief of traffic along I-94/694
Location: Urban community
Trip Length: Short to medium length trips (2-6 miles)
Problem Addressed: Relief of I-94/694 and improved connection to A minor and principal arterial system

(Optional) **Typical Characteristics:** Providing the following to support the request

Intersection Treatments: Signalized intersections with multiple lanes of approach and side street stop-controlled intersections

Regional Functional Classification
Change Request Form

ID Number: *1339*

Date of Request: *12-22-2015*

Present AADT: 69th Avenue N: 9,400-12,400 AADT, Shingle Creek Parkway: 6,800-10,800 AADT, Freeway Boulevard: 12,000 AADT, 65th Avenue N: 8,100 AADT, 66th Avenue N: 9,700 AADT.

Estimated Future AADT/Year: 2030 Projected AADT - 69th Avenue N: 12,823-16,343 AADT, Shingle Creek Parkway: 8,926-14,206 AADT, Freeway Boulevard: 14,332 AADT, 65th Avenue N: 10,560 AADT, 66th Avenue N: 12,823 AADT.

Source of Estimated AADT/Date: City of Brooklyn Center 2030 Comprehensive Plan, approved 2010.

Posted Speed: Existing 30 mph posted speed on 65th, 66th, and 69th Avenues N. Existing 35 mph posted speed on Shingle Creek Parkway and Freeway Boulevard.

------------------------------ Required for All Requests ------------------------------

MAP: Please attach an 8.5 by 11 map of the requested change. Please include all appropriate labels and highlight the roadway in question.

Contact Information:

Agency/City/County: City of Brooklyn Center
Contact Person: Steve Lillehaug
Phone: 763-569-3340 Fax: 763-569-3440
Email: slillehaug@ci.brooklyn-center.mn.us
Address: 6301 Shingle Creek Parkway
City: Brooklyn Center State: MN Zip: 55430

-- ***Committee Staff ONLY*** --

Staff Recommendation:

Consent Approval: -------
Technical Correction: -------
Staff Recommendation:
MnDOT Consent: YES ☐ NO ☐ Comments:
Potential Issues:

Change Tracking:

TAC Planning Record of Decision: Date:
TAC Record of Decision: Date:

Regional Functional Classification Change Request Form

ID Number: *1339*

Date of Request: *12-22-2015*

TAB Record of Decision (PA ONLY): Date:

Mn/DOT Notification: Date:

Geography Recorded: ------- *Date:*

Previous Action ID: *Date:*

STREET AND ROAD SYSTEM PLAN

Brooklyn Center is a fully developed city and its road system is in place. No new roads are expected to be constructed. However, these existing roads can be improved to address capacity problems:

- T.H. 252
- T.H.100
- I-694
- Brooklyn Boulevard north of I-694
- 69th Avenue west of Brooklyn Boulevard

Specific Roadway Improvements

Trunk Highway 100

The only non-freeway portion of TH 100 between Glenwood Avenue in Golden Valley and 50th Avenue N. in Brooklyn Center was upgraded to freeway design standards since the 2000 comp plan was completed. Further studies need to be done to analyze impacts of the limited freeway movements of northbound Highway 100 to westbound I-94 and eastbound I-94 to southbound Highway 100 and the effect on the local transportation system. Changing this interchange to a full interchange could relieve regional through-traffic on Brooklyn Boulevard.

I-694

An additional lane was added between I-94 and I494 to accommodate increased traffic on I-694 and the traffic demand being placed on 63rd and 69th, the City's parallel collector roadways.

TH 252

Mn/DOT's Transportation System Plan shows TH 252 north of I-694 as an expansion corridor. The extension of TH 610 and expansion of the TH 610 bridge are expected to cause an increase in traffic on this segment of TH 252. Capacity improvements on this segment of TH 252 would help to reduce traffic demand on the City's parallel collector roadways and maintain the City's ability to access the regional highway system. Mn/DOT and the cities of Brooklyn Center and Brooklyn Park are studying elimination of several signalized intersections north of I-94/I-694 to improve traffic flow. The difficulty is that several properties including businesses get access from the 66th Avenue, 70th Avenue and 73rd Avenue at-grade intersections with TH 252. If these are eliminated, care must be given in the design to provide adequate access to these properties within the context of the limited area of right-of-way.

The City of Brooklyn Center anticipates additional infill and redevelopment in the Gateway area along TH 252 north of I-694. The intersection on TH 252 at 66th Avenue represents a potential capacity constraint to development in this area. Some additional improvements will be needed at this intersection (potentially an interchange) in order to accommodate the additional traffic from additional development in the Gateway area. The City of Brooklyn Center will work with Mn/DOT to identify the improvements needed that are consistent with other improvements Mn/DOT plans to make in the TH 252 corridor.

BROOKLYN BOULEVARD

Brooklyn Boulevard north of I-694 has been widened and improved from 65th to Noble/71st since the last comprehensive plan was completed. As discussed below and elsewhere in this plan numerous improvements to the section of Brooklyn Boulevard south of I-694 need to be made to increase the aesthetic appeal and provide for long term growth.

Figure 5.3.14 Recommended Roadway Improvements (2030)

Priority	Roadway	From	To	Recommended Improvement	Comments	Construction Cost
1	109th Ave	Xylon Ave	Brittany Dr.	Upgrade to 3-lane minor arterial	Share road with Champlin	$1,620,00
2	73rd Ave	East of Boone Ave	Winnetka Ave	Connect segment; construct bridge	Would help Brooklyn Blvd. congestion.	$3,500,000
1	79th Ave/ Candlewood Dr	Jolly Ln	West Broadway	Construct new 2-lane Major collector with parking	Construct to match Candlewood Dr.	$1,000,000
3	85th Ave	Dupont Ave	W. River Rd	Re-stripe to 3-lane Major collector	Future closure of 81st Ave at 252 will affect	$30,000
1	93rd Ave	Jefferson Hwy	West Broadway	Construct to 4-lane divided	County roadway to be done with interchange	$800,000
3	93rd Ave	West Broadway	Zane Ave	Upgrade to a 4-lane divided arterial.	County road near capacity in 2030.	$800,000
1	Tessman Pkwy	85th Ave	Founders Pkwy	New 2-lane Minor collector	Dependant upon development	$600,000
1	93rd Ave (CSAH 30)	At TH 169		Construct half-diamond interchange to the south over TH 169.	Based on 2005 Study. State and County Roadways.	$400,000
3	TH 169	CSAH 130		Add northbound auxiliary lane, loop on-ramp, widen bridge, terminate east frontage road	State and County roadways. Based on 1998 corridor study.	$500,000
1	TH 169	CSAH 81/85th Avenue area		Grade-Separate/ construct interchange at 85th Avenue	To start in 2009. State and County roadways.	$400,000 (City share)
1	West Broadway	Candlewood Dr	93rd Ave	Reconstruct as urban 4-lane divided	County Roadway. In County and City CIPs	$3,280,000
2	101st Ave	Jefferson Hwy	Winnetka Ave	Upgrade to 4-lane Major urban collector;	State Roadway (TH169) involved. Assumes at-grade access.	$2,200,000
3	85th Ave	Jefferson Hwy	CSAH 81	Upgrade to 4-lane divided	County roadway. Not in County CIP.	$500,000
2	West Broadway	62nd Ave	CSAH 81	Reconstruct as an urban 3-lane section without parking	County roadway. Not in County CIP.	$600,000
1	Zane Ave/ Brooklyn Blvd	Intersection		Add Additional Turn Lanes	Share with Hennepin County.	$1,750,000
2	CSAH 81	S. City Limit	N. City Limit	Upgrade to 6-lane urban roadway with transitway	Hennepin County roadway	$7,700,000
1	W River Rd	99th Ave	Noble Pkwy	Reconstruct to urban 2-lane road	In City CIP for 2008	$2,200,000
2	Xylon Ave	West Broadway/Oak Grove Pkwy	109th Ave	Construct 2-lane Major urban collector	Alignment south of 101st Ave dependent on Target development	$2,200,000
1	TH 610	TH 169	I-94 (Maple Grove)	Construct 4-lane freeway	In MnDOT TSP for 2015-2023	$180,000,000 (State)
1	TH 610	TH 169		Reconstruct interchange	Eliminate signals in TSP for 2024-2030	$500,000
1	TH 252	I-94 (Brooklyn Center)	TH 610	Reconstruct to 4-lane freeway	State roadway. In TSP for 2024-2030	$130,000,000 (State)
3	CSAH 130	TH 169	CSAH 81	Reconstruct to 4-lane divided	County roadway, not in County or City CIP.	$1,000,000
3	TH 610	TH 252	TH 169	Add 3rd lane in each direction	State roadway add-on issue	$20,000,000 (State)

109th Avenue. This roadway is shared between the cities of Brooklyn Park, Champlin, and Maple Grove and is classified as a B-minor arterial. Its traffic volumes currently and projected would warrant a County Road designation.

5.3.16 Special Study Areas

The following roadways have been identified as needing reconstruction or reconfiguration, yet specific details about the exact needs must be further studied.

Bottineau Boulevard. County Road 81 is currently being studied by Hennepin County and Metro Transit for use as a transit corridor, either by Bus Rapid Transit (BRT) or Light Rail Transit (LRT). Additionally, the County is in the process of reconstructing the roadway through Robbinsdale. The Crystal segment is anticipated in 2008 or 2009 for reconstruction. The Brooklyn Park portions of Bottineau Boulevard would be constructed after that, as funding becomes available. The implementation of one of the transit technologies could have some impact on the design of the roadway. Reconstruction in Brooklyn Park would include widening of the roadway, correction of dangerous grades, and pedestrian and landscaping enhancements.

Trunk Highway 252 Freeway. The current design of Highway 252 as an expressway is not adequate for traffic in the peak hours. Conversion of the road into a grade-separated freeway would alleviate traffic delays as well as enhance safety for both motorists and pedestrians trying to cross the highway. Upgrade of this roadway will also provide a better connection between northern Brooklyn Park (and Anoka County) and downtown Minneapolis and will reduce traffic on paralleling roadways such as West River Road and Humboldt Avenue. Locations and designs of interchanges will require additional study.

93rd Avenue west of Regent Avenue. 93rd Avenue west of Regent Avenue is currently a two-lane rural roadway. As development occurs in the area, upgrading to an urban design, either two- or four-lane will be necessary. A partial interchange with Highway 169 is desired, but is limited due to the proximity to Highway 610 and the St. Vincent de Paul Cemetery.

Target Area Improvements. The Target area at the northeast corner of Highways 169 and 610 will require several upgrades to the existing arterial and collector roadway system in the area. Specific upgrades will not be known until additional study is conducted. Additional overpasses, underpasses, freeway exits, ramp widths, and roadway widening is anticipated. The City will work with MNDOT, Hennepin County, and MetroTransit for these improvements.

101st Avenue Interchange. Creating an interchange on Highway 169 at 101st Avenue will be critical to development in the area. The exact designs of the interchange and to 101st Avenue are not known at this time. Development of the Target area and areas west of Highway 169 will drive those needs and the designs.

I-2: Congestion and Chokepoint Challenges

In the Twin Cities, projects to implement Met Council/MnDOT Metro Transportation Policy Plan. For Greater Minnesota, projects include enhancements that expand the economic and quality of life access of selected major highways.

	County	Area	Route	From/To	Length/ADT	Importance of Facility to Regional and State Travel	Description of Challenge/ Deficiency	Improvement Needed	Estimated Cost of Improvement Needed
1	Multiple	Twin Cities Metro	Systemwide	Twin Cities Metro Area	N/A	Interstate/Freeway System	Decreased travel time reliability due to accidents, other traffic characteristics	System-wide Active Traffic Management (e.g. Traveler information systems, dynamic signing and re-routing, dynamic shoulder lanes, and other improvements)	$255,000,000-$345,000,000
2	Multiple	Twin Cities Metro	11 Routes (I-35W at I-694, I-394 at MN 100, I-694 at I-94/MN 252, MN 101, MN 47, MN 7, MN 51, MN 65, US 8, MN 55 at US 61, I-494)	Twin Cities Metro Area	N/A	Interstate/Freeway System	Traffic congestion bottlenecks (Tier 1 Congestion Mitigation and Safety Projects)	High return on investment capacity enhancements and spot improvements (e.g. interchange reconstruction, auxiliary lanes, and other improvements)	$500,000,000-$675,000,000
3	Multiple	Twin Cities Metro	17 Routes (I-35, I-35E, I-35W at I-694, I-394 at US 169 and I-94, I-494, I-694, I-94 at I-35W, I-94 at I-35E, US 10 at MN 47 and I-35W, MN 101 at I-94, MN 120, MN 13, US 169, MN 36 at I-35E and MN 120, MN 5, MN 55 at MN 100, MN 62 at MN 100, MN 7)	Twin Cities Metro Area	N/A	Interstate/Freeway System	Traffic congestion bottlenecks (Tier 2 Congestion Mitigation and Safety Projects)	High return on investment capacity enhancements and spot improvements (e.g. interchange reconstruction, auxiliary lanes, and other improvements)	$500,000,000-$675,000,000
4	Multiple	Twin Cities Metro	8 Routes (I-35E, I-35W, I-494, I-94 at I-494, US 169 at MN 41, MN 252, MN 62, US 8)	Twin Cities Metro Area	N/A	Interstate/Freeway System	Traffic congestion bottlenecks (Tier 3 Congestion Mitigation and Safety Projects)	High return on investment capacity enhancements and spot improvements (e.g. interchange reconstruction, auxiliary lanes, and other improvements)	$500,000,000-$675,000,000
5	Hennepin/ Ramsey	Twin Cities Metro	I-35E/MN 610	Twin Cities Metro Area	33,500-120,000 AADT	Interstate/Freeway System	Lack of freeway connection in North Metro, peak period traffic congestion, lack of transportation options on 35E	New freeway connection (MN 610), Extend managed lane on I-35E, one other managed lane corridor	$400,000,000-$600,000,000
6	Multiple	Twin Cities Metro	6 Routes (MN 36, I-94, I-35W, I-494, US 169, MN 77)	Twin Cities Metro Area	45,000-190,000 AADT	Interstate/Freeway System	Peak Period traffic congestion, lack of transportation options	Managed lanes	$1,500,000,000-$2,000,000,000
7	Hennepin/ Wright	Twin Cities Metro & Northwest	I-94	Rogers heading Northwest	60,000-90,000 AADT	IRC	Chokepoint on a critical statewide connector route	Enhancements that expand the economic and quality of life access to areas served by the corridor.	$40,000,000-$60,000,000
8	Itasca	NA	US 169	Taconite/Pengily	9 miles/6,000 Average ADT	IRC	Chokepoint on a critical statewide connector route	Enhancements that expand the economic and quality of life access to areas served by the corridor.	$103,000,000-$207,000,000
9	Stearns	NA	MN 23	Paynesville/ Richmond	8 miles/8,000 Average ADT	IRC	Chokepoint on a critical statewide connector route	Enhancements that expand the economic and quality of life access to areas served by the corridor.	$23,000,000-45,000,000
10	Otter Tail/ Wadena	Wadena	US 10	Wadena	6 miles/8,000 Average ADT	IRC	Chokepoint on a critical statewide connector route	Enhancements that expand the economic and quality of life access to areas served by the corridor.	$39,000,000-74,000,000
11	Dodge/Steele	NA	US 14	Owatonna/Dodge Center	15 miles/8,000 Average ADT	IRC	Chokepoint on a critical statewide connector route	Enhancements that expand the economic and quality of life access to areas served by the corridor.	$100,000,000 - 200,000,000

TH 252 CORRIDOR STUDY

2/16/2016

Final Report

Interim and Long Term Improvements in Brooklyn Center

TH 252 Corridor Study

FINAL REPORT

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INTRODUCTION & EXECUTIVE SUMMARY

Executive Summary

The TH 252 Corridor Study was undertaken by the City of Brooklyn Center to establish the long term vision for TH 252 that will address existing safety, congestion and neighbor connectivity issues on TH 252. The goal of the study is to identify the short term and long term improvements on TH 252 that should be implemented within Brooklyn Center to accomplish the long term vision. The project study area includes TH 252 between I-694 and TH 610 in the Cities of Brooklyn Center and Brooklyn Park.

The study was guided by a Technical Advisory Committee (TAC) with representatives from the City of Brooklyn Center, City of Brooklyn Park, Metropolitan Council, Metro Transit, and Minnesota Department of Transportation (MnDOT) who met throughout the process.

TH 252 is a Principal Arterial and MnDOT trunk highway. It is currently an expressway design that varies between four and six lanes with at-grade signalized intersections. The intersections on TH 252 all rank among the top 200 intersections in the state for crash costs and there have been a total of 6 fatal crashes since 2003 with 4 fatal crashes in the City of Brooklyn Center.

Goals, objectives and evaluation criteria were established early in the study to guide the development and evaluation of alternatives for the corridor. An evaluation of the existing traffic and safety in the corridor concluded that a freeway was the best alternative to safely accommodate future traffic volumes and allow TH 252 to serve its function as a Principal Arterial as designated in the Metropolitan Council's 2040 Transportation Plan. The emphasis of principal arterials is on moving large volumes of traffic over long distances rather than providing direct access to land. A freeway facility is consistent with the emphasis of principal arterials and would provide a safer facility and accommodate projected increases in traffic volumes on the corridor better than the existing facility or other at-grade intersection alternatives.

There are currently three at-grade signalized intersections on TH 252 within the City of Brooklyn Center spaced approximately one-half mile apart: 66th Avenue, 70th Avenue and 73rd Avenue. Metropolitan Council spacing criteria for urban freeways recommend that interchanges be spaced at least one mile apart. Within Brooklyn Center, improvements were considered at each of the existing at-grade signalized intersections on TH 252 ranging from improvements to the at-grade intersections to grade separated interchanges. These improvements were evaluated to identify the best options at each intersection (in isolation) in order to establish a right of way footprint for each location. At 66th Avenue the recommended alternative is a folded diamond interchange; a standard diamond interchange is recommended at 70th Avenue and either a half diamond interchange or split diamond interchange with Brookdale Drive is recommended for 73rd Avenue.

This information was used to then establish potential long-term Freeway Access Concepts for the corridor. Four Freeway Access Concepts were identified within the City of Brooklyn Center. The concepts included interchange access at 66th Avenue and 73rd Avenue (Concepts A and B), interchange access at 73rd Avenue only (Concept D), and interchange access at 70th Avenue (Concept F). See pages 31–34 for further description of these concepts. MnDOT prepared 2040 traffic forecasts for each of these concepts and developed preliminary alignments and profiles to ensure the feasibility of these alternatives. These concepts were presented at three public open houses to get input from residents and businesses in the area. These concepts were also evaluated against the evaluation criteria early in the study. Based on the evaluation a combination of Concept A and B is recommended as the preferred freeway access concept in Brooklyn Center. The recommended concept would have a folded diamond interchange at 66th Avenue, would close access to TH 252 at 70th Avenue and would provide full access to TH 252 at 73rd Avenue or a combination of 73rd Avenue and Brookdale Drive.

Reason for Study

The purpose of the Trunk Highway (TH) 252 Corridor Study is to identify interim and long-term improvements to address existing safety, congestion, and neighborhood connectivity issues on TH 252. The TH 252 corridor has some of the highest crash rates in the Twin Cities metro area. The 66th Avenue intersection has ranked in the top 10 of highest crash intersections in the metro over the last 10 years. Recently the 73rd Avenue and TH 252 intersection jumped to 2nd in crash costs based on 2012 to 2014 crash data because of two recent fatalities. There have been a total of 6 fatal crashes since 2003.

TH 252 is a congested corridor, especially during the morning and evening rush hours. While the overall level of service for the intersections are generally within acceptable limits due to signal timing on TH 252, the side street average delays indicate a much more congested level of service in the peak hours. Naturally, as traffic increases, these crash numbers and congestion levels will only deteriorate.

Lastly, the long green times afforded to TH 252 traffic make it difficult for pedestrians and bicycles to cross TH 252, effectively creating a barrier to connecting residents to the east of TH 252 with the school and park facilities on the west.

Due to the safety, congestion, and connectivity issues in the TH 252 corridor, the City of Brooklyn Center is interested in determining the long-term vision and identifying interim improvements to address these issues.

Study Area

The project study area includes TH 252 between I-694 and TH 610, in the cities of Brooklyn Center and Brooklyn Park. **Figure 1** shows the location of the study area. TH 252 is one of a limited number of Principal Arterial roadways linking communities in the northwest area of the Twin Cities. TH 252 is under jurisdiction of MnDOT. It is an expressway facility that varies between four and six lanes. This study was led by the City of Brooklyn Center and focuses in particular on interim improvements at the three intersections in the city: 66th, 70th, and 73rd Avenues N.

Study Participants

The study was guided by a TAC with representatives from the following agencies:

- City of Brooklyn Center
- City of Brooklyn Park
- Metropolitan Council
- Metro Transit
- Minnesota Department of Transportation

The TAC met a total of 7 times throughout the study process.

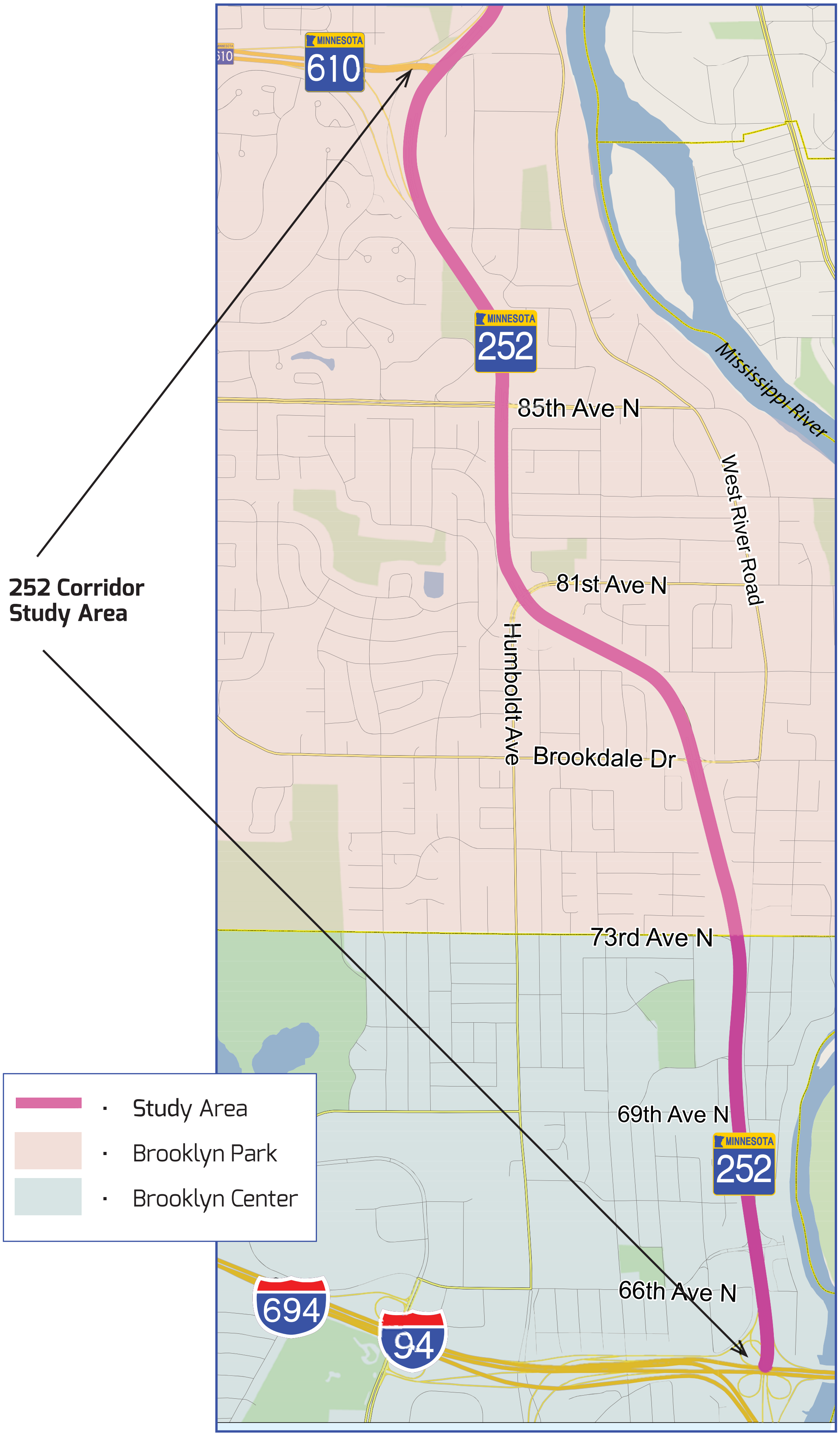


Figure 1
Study Area

BACKGROUND

TH 252 was originally envisioned as a freeway facility. However, in recent years the transportation funding climate has changed and priorities have shifted to maintenance of existing facilities. As a result, MnDOT and Metropolitan Council plans have not included recommendations or funding to convert TH 252 to a freeway.

Despite the change in funding availability, several recent plans and studies have acknowledged the need for improvements to address safety, traffic operations, and neighborhood connectivity issues in the TH 252 Corridor. Several agencies have reexamined the long-term vision for TH 252 and identified interim improvements. Below is a summary of conclusions and recommendations from previous studies.

MnDOT TH 252 Traffic Study

MnDOT completed a traffic study of TH 252 in 2008. The study identified existing and future safety and traffic congestion issues. As an interim measure to address traffic congestion, MnDOT recommended expanding the four-lane segment of TH 252 (Brookdale Drive to TH 610) to six lanes.

Brooklyn Center Comprehensive Plan

The 2008 Brooklyn Center Comprehensive Plan identifies traffic congestion on TH 252 and the need to address congestion on TH 252 in order to reduce traffic demand on the city's parallel arterial and collector roadways. The plan notes that several residential and business properties have access from the 66th, 70th, and 73rd Avenue N intersections. Any expansion of TH 252 must address access to these properties.

Brooklyn Park Comprehensive Plan

The 2008 Brooklyn Park Comprehensive Plan recommended closing the median at 81st Avenue N/Humboldt Avenue to reduce congestion on TH 252. Right-in/right-out access was proposed at this location. In order to address the long-term traffic and safety issues at this intersection, the plan recommended studying conversion of TH 252 to a freeway facility.

MnDOT Signal Optimization Study

A 2013 MnDOT Signal Optimization Study evaluated existing signal timing. The study recommended new timing plans to optimize traffic operations on TH 252. The new signal timing plans were implemented in 2014. The study also recommended expanding existing four-lane segment (Brookdale Drive to TH 610) to six lanes.

Metropolitan Council 2030 Transportation Policy Plan

As noted above, the Metropolitan Council 2030 Transportation Policy Plan did not recommend freeway conversion of TH 252. However, the plan recommended construction of an additional northbound lane on either side of 81st Avenue. This project has been completed.

Minnesota State Highway Investment Plan

The 2014-2033 State Highway Investment Plan also does not include recommendations for TH 252 to be converted to a freeway facility. The plan includes TH 252 on the list of congestion and chokepoint unmet needs.

EXISTING AND FORECAST CONDITIONS

In order to develop recommendations for interim improvements to TH 252, the study partners reviewed data on existing and forecast conditions in the TH 252 corridor. The sections below document corridor characteristics and analysis to better understand issues in the corridor.

Existing Traffic Volumes and Congestion

Existing traffic volumes on TH 252 vary between 53,000 and 69,000 vehicles per day. The highest volumes are at the southern end of the corridor, between I-694 and 70th Avenue N. **Figure 2** shows existing traffic volumes in the corridor.

TH 252 is an expressway facility that varies between four and six lanes. TH 252 is six lanes between I-694 and Brookdale Drive, with a four-lane segment between Brookdale Drive and TH 610. The charts in **Figure 3** illustrate that existing and forecast ADTs are greater than the capacity of a four-lane expressway facility. Existing traffic volumes result in Level of Service (LOS) D and E in the existing six-lane expressway segments.

Figure 4 illustrates existing intersection conditions on TH 252. Overall intersection LOS is worst at Brookdale Drive (LOS F in the AM peak and C in the PM peak) and 85th Avenue N (LOS E in the AM Peak and D in the PM peak). While most intersections on TH 252 operate at an acceptable overall LOS, most eastbound and westbound movements are at LOS E and F in the morning and evening peak hours. Traffic crossing TH 252 can experience significant delays during the peak hour, as signals are optimized to move traffic on TH 252. Queue lengths can also be high on TH 252 during the peak hours. Queue lengths on TH 252 are greatest at 66th, Humboldt, and 85th Avenues N.

Crash History

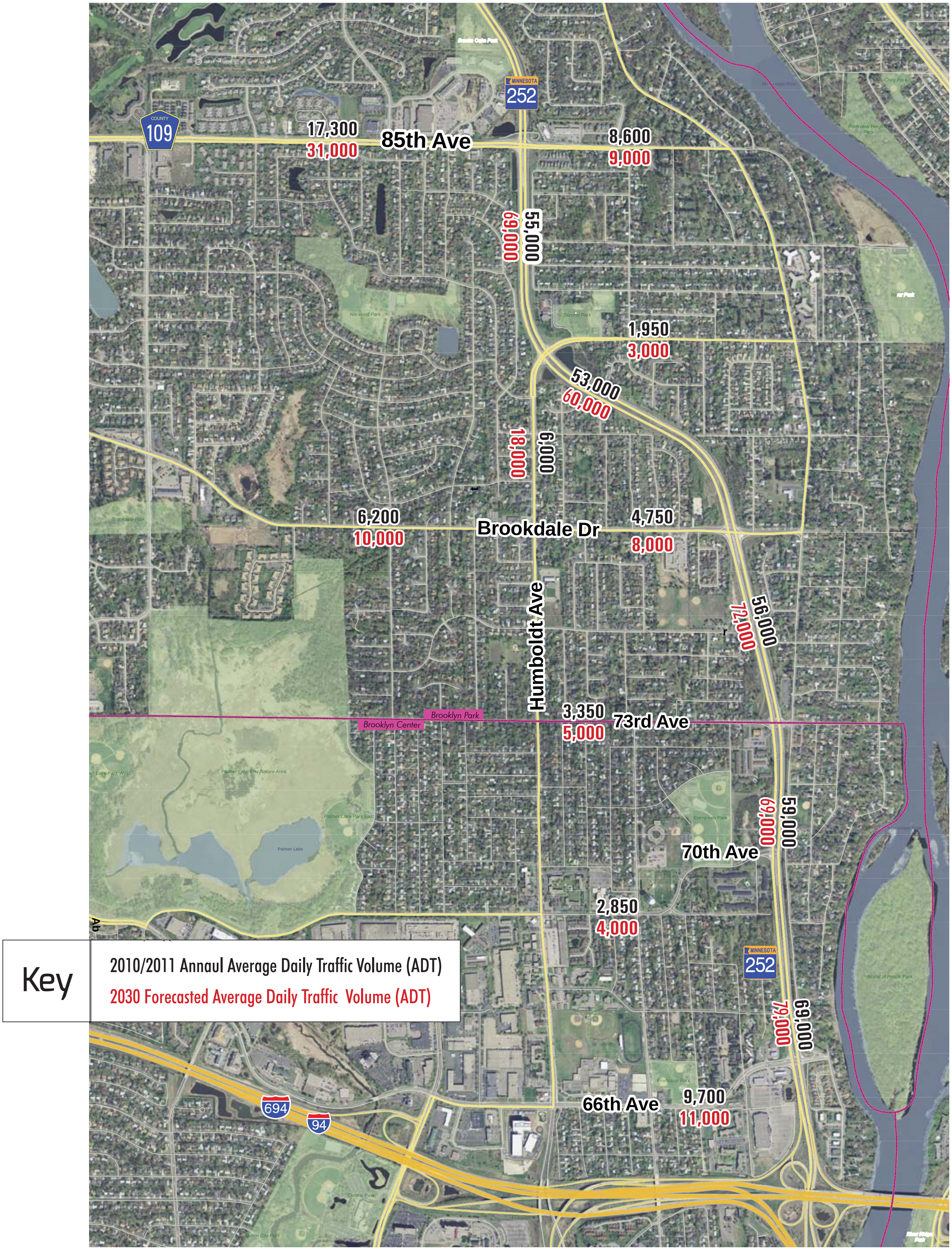
As noted above, TH 252 has some of the highest crash rates in the Twin Cities. The intersections on TH 252 all rank among the top 200 intersections in the state for crash costs. A review of MnDOT 2011–2013 crash data indicated that the greatest safety problems occur at the intersections with 66th and 85th Avenues N. **Figure 5** shows the results of the crash analysis of TH 252.

At 66th Avenue N, the crash rate is 1.63, which exceeds the MnDOT Metro District critical crash rate of 0.75. The severity rate is 2.26, exceeding the MnDOT Metro District average severity rate of 0.9. The crash rate at 85th Avenue N is 1.06, with a severity rate of 1.4.

Most intersection crashes (between 55 and 73 percent) were rear end crashes. A total of six fatal crashes occurred on TH 252 between 2003 and 2015. Two fatal crashes were associated with the intersection at 66th Avenue N and two fatalities occurred at 73rd Avenue N.

Transit Service

Two existing express bus routes stop on TH 252. Route 765 serves Brooklyn Park, Brooklyn Center, and Downtown Minneapolis. Route 766 serves Anoka, Champlin, Brooklyn Park, Brooklyn Center, and Downtown Minneapolis. Existing stops are located on TH 252 at 66th, 70th, and 73rd Avenues N. Park and Ride lots are located on the west side of TH 252 at 66th and 73rd Avenues. **Figure 6** shows the locations of existing transit stops and park and ride lots. As of fall 2014, approximately 90 to 100 transit riders board buses daily at the existing park and ride locations. The 2030 Metropolitan Council Transportation Policy Plan identifies TH 252 as a location for new and improved express bus service.

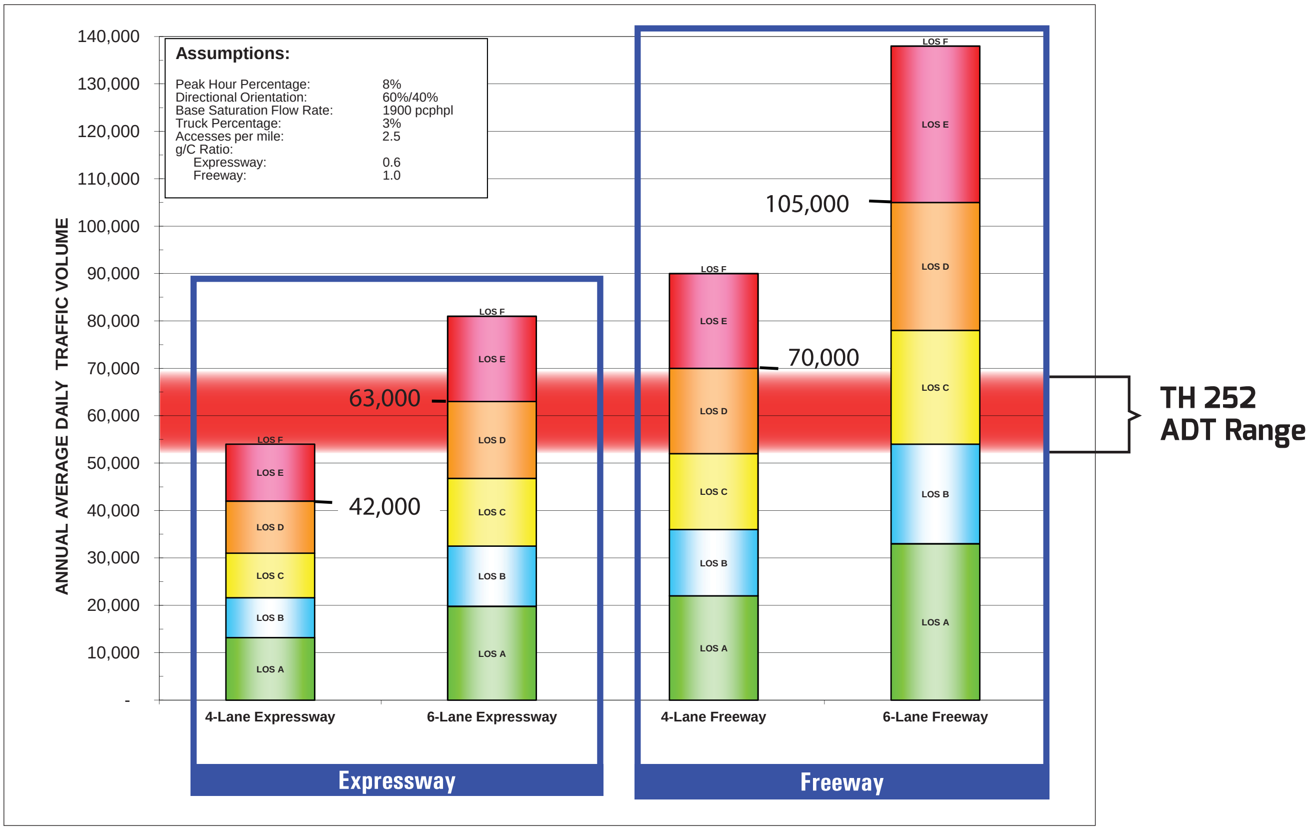


Source: MnDOT

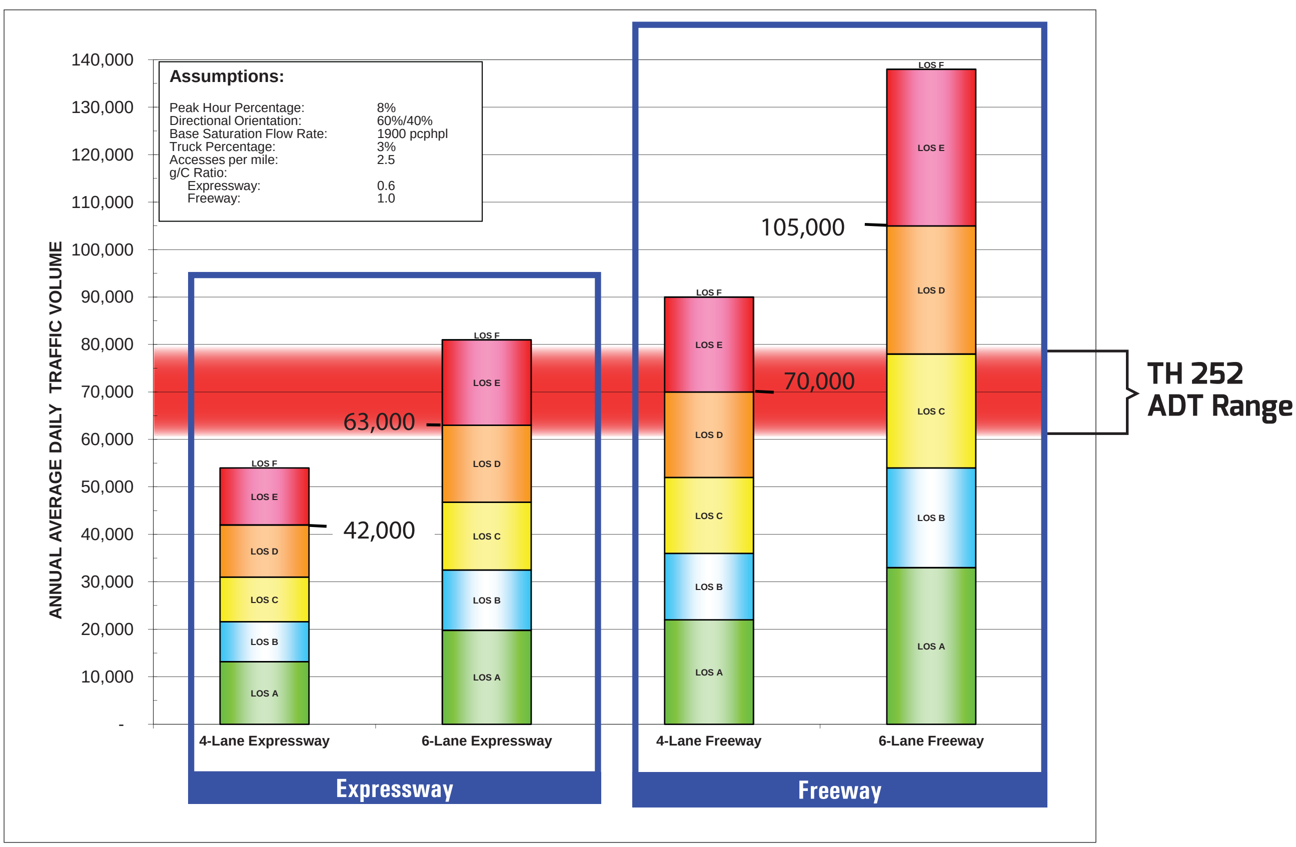
Figure 2
Existing & Forecast Traffic Volumes

City of BROOKLYN CENTER
MINNESOTA 252
Corridor Study
from I-694 to TH 610
WSB

Existing



Future (2035)



Source: MnDOT, authors

85th Ave:

Existing Level of Service	AM	PM
Overall	F	C
East Bound	D	E
West Bound	E	F

Humboldt Ave:

Existing Level of Service	AM	PM
Overall	D	C
East Bound	F	F
West Bound	F	E

Brookdale Drive:

Existing Level of Service	AM	PM
Overall	E	D
East Bound	B	E
West Bound	F	F

73rd Ave:

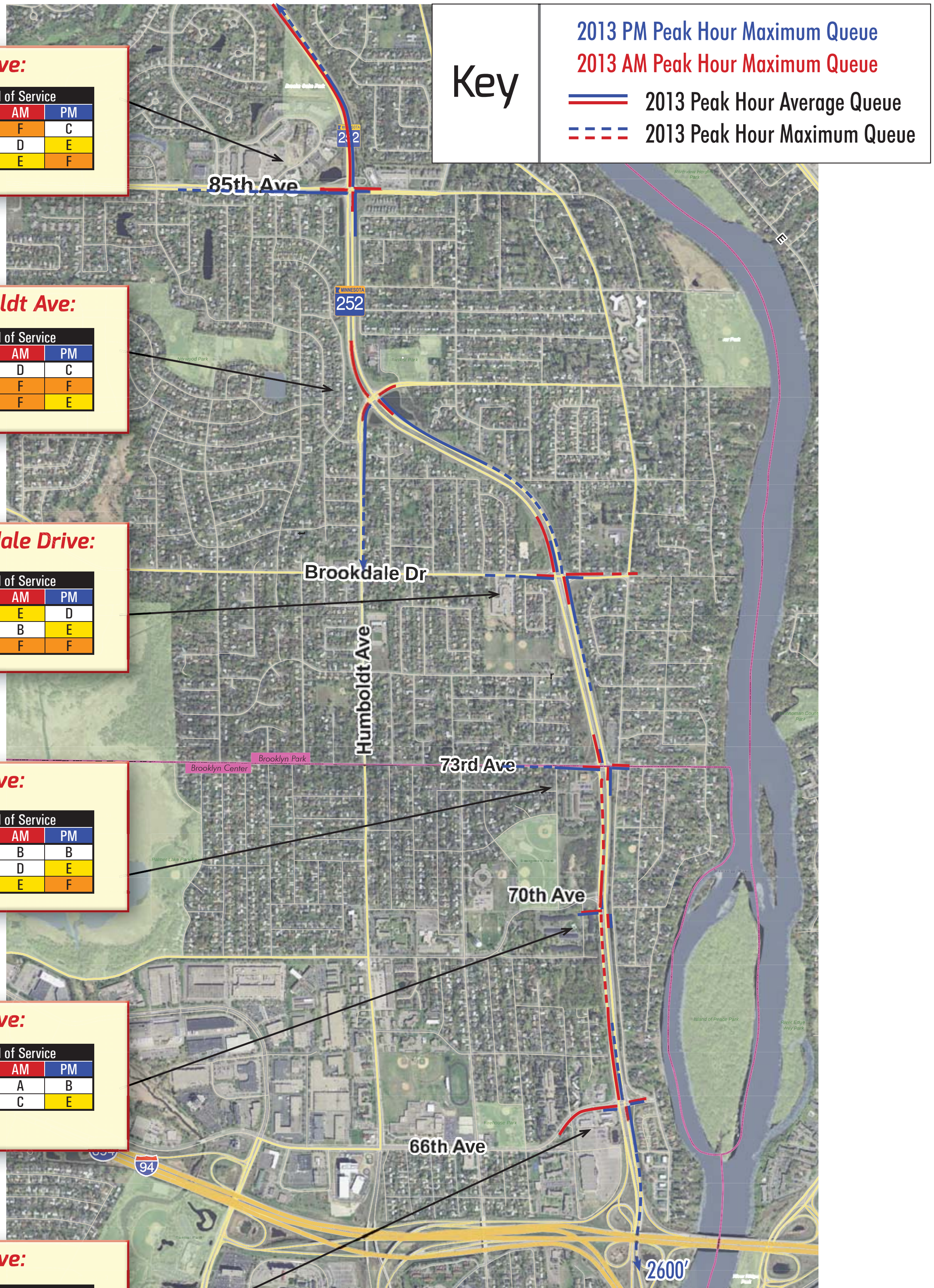
Existing Level of Service	AM	PM
Overall	B	B
East Bound	D	E
West Bound	E	F

70th Ave:

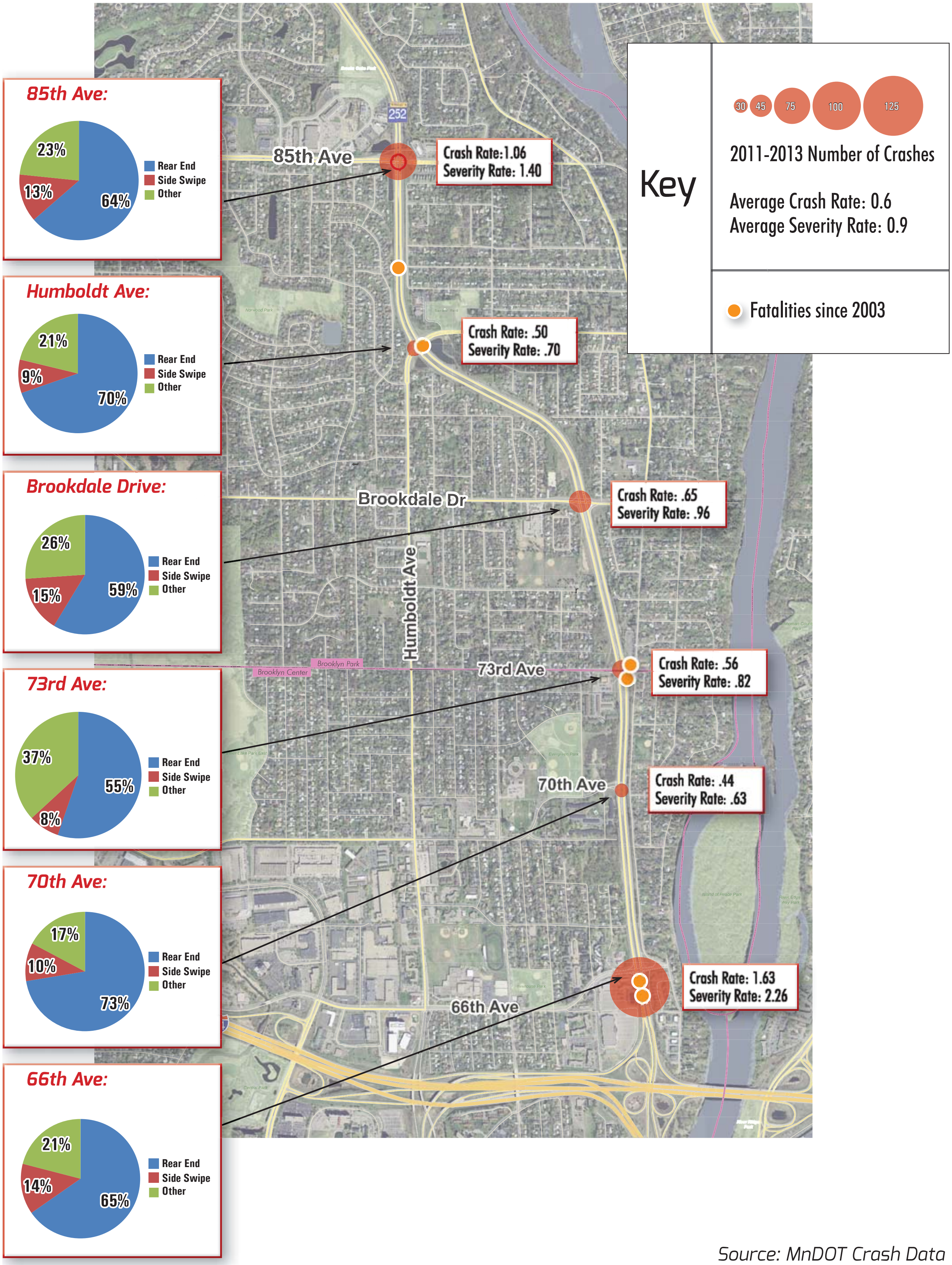
Existing Level of Service	AM	PM
Overall	A	B
East Bound	C	E

66th Ave:

Existing Level of Service	AM	PM
Overall	B	C
East Bound	E	D
West Bound	F	F



Source: MnDOT, authors



Source: MnDOT Crash Data

Figure 5
Crash Summary

Other Concerns in the TH 252 Corridor

Figure 6 illustrates additional concerns in the TH 252 corridor. These concerns are summarized below:

Pedestrian and Bicycle Connections

TH 252 is challenging to cross on foot or on bike. Crossings at signalized intersections are long and bicyclists and pedestrians experience long delays when waiting to cross. There are no opportunities for bicyclists and pedestrians to cross between signalized intersections, which are spaced approximately one half mile apart. There are also safety concerns related to at-grade pedestrian and bicycle crossings of TH 252, as it is a high speed expressway facility. These issues impact transit riders, as they must cross TH 252 on at least one end of their trip. These issues also limit connections between neighborhoods east and west of TH 252 and connections to the Mississippi River Trail, which parallels the Mississippi River on the east side of TH 252.

There is one bicycle and pedestrian bridge crossing TH 252 at 85th Avenue N. However, pedestrians and bicyclists still cross TH 252 at grade in this location because the bridge adds distance to their trip and access to the bridge is hard to find on the east side of TH 252.

Noise

In many locations, TH 252 is located in close proximity to residential properties. Residents are concerned about existing and future noise impacts from TH 252. Residents near the southeast corner of the intersection with 66th Avenue N have requested a noise wall be included in future improvements to TH 252.

Cut-through Traffic

Brooklyn Center staff, Brooklyn Park staff, and residents have observed cut-through traffic using neighborhood and collector streets to bypass traffic on TH 252. These streets are not designed to relieve traffic from TH 252. City staff and residents are concerned that cut-through traffic will increase as traffic volumes grow on TH 252.

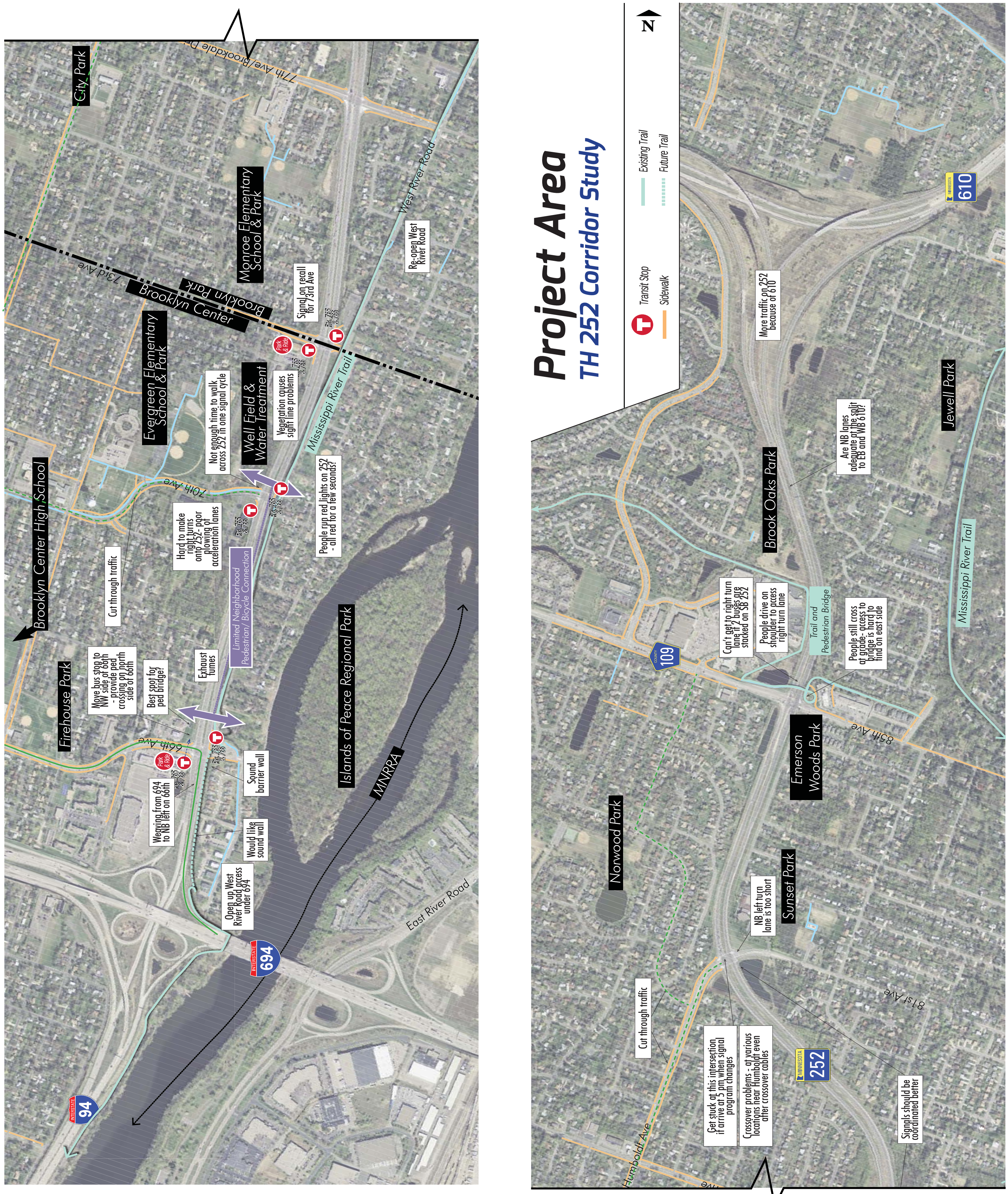
Forecast Traffic Volumes and Congestion

MnDOT 2030 Average Annual Daily Traffic (ADT) forecasts project traffic volumes between 53,000 and 79,000 ADT. Future traffic volumes are expected to be the highest between I-694 and 70th Avenue N, and 73rd Avenue N and Brookdale Drive. **Figure 2** shows forecast traffic volumes in the corridor.

Forecast 2030 traffic volumes will continue to exceed the capacity of a four-lane expressway facility and will result in LOS E in the six-lane expressway segments. As shown in **Figure 3**, a four-lane freeway facility would accommodate the forecast 2030 traffic volumes at LOS D and E. A six-lane freeway facility would provide LOS C based on forecast 2030 traffic volumes.

Forecast Conditions and Recommendations

As traffic continues to increase on TH 252, the traffic and safety issues outlined above will worsen. Crossing TH 252 will become more challenging for pedestrians and bicyclists. Traffic noise will increase. Cut-through traffic will increase as drivers attempt to avoid congestion on TH 252. A four- to six-lane freeway facility is recommended to accommodate forecast traffic volumes and address existing safety concerns on TH 252.



Source: Metro Transit and public comments received from first and second open house

Figure 6
Corridor Issues Map

City of Brooklyn Center | 252 Corridor Study from I-694 to TH 610 | WSB

GOALS, OBJECTIVES AND EVALUATION CRITERIA

The following goals and objectives were identified to guide the TH 252 Corridor Study. The objectives of the study were used to form the evaluation criteria developed to guide alternatives analysis for the corridor.

Goals

- Establish the long-term vision for TH 252
- Identify interim improvements to address existing congestion, safety, and neighborhood connectivity issues at the three intersections in Brooklyn Center (66th, 70th, and 73rd Avenues N)

Objectives

- Identify expressway or freeway options for future vision
- Identify interim safety improvements
- Recommend interim mobility improvements
- Identify improvements for pedestrian and bicycle crossings
- Document proposed transit improvements
- Recommend projects for future competitive federal funding programs
- Develop recommendations for implementing interim and long-term improvements

Evaluation Criteria

Based on the identified goals and objectives, criteria were developed to help assess the alternatives.

- **Congestion/Level of Service:** Ability to provide sufficient capacity for the existing and forecast volumes on TH 252 and cross-streets.
- **Safety/Crash Reduction:** Ability to reduce crashes on TH 252.
- **Compliance with Design Standards:** Measure of how well the design meets drivers' expectations and established design standards.
- **Construction Cost:** Estimated construction cost based on need for bridges or tunnels, reconstruction of TH 252 mainline lanes, reconstruction of 66th Avenue and the construction of ramps.
- **Potential for Funding Grants:** Potential for success in obtaining funding through STP grants or other similar programs
- **Right of Way Impacts:** Measure of how much right of way impacts are anticipated.
- **Access:** Measure of how many movements are preserved to/from TH 252.
- **Pedestrian/Bicycle Connectivity and Safety:** Ability to improve pedestrian and bicycle crossings and safety at TH 252.
- **Development Impacts/Potential:** Related to right of way impacts and access: alternatives with the least right of way impacts and best access are rated more highly.
- **Transit Service:** Ability of alternative to accommodate transit stops on TH 252.
- **Compatibility with Long-Term Vision for TH 252:** Measure of how compatible an alternative is with the long-term freeway vision for TH 252.
- **Neighborhood Connectivity Benefits:** Ability to provide better connectivity between neighborhoods for pedestrians, bicyclists, and vehicles.
- **Environmental Impacts:** Assumes that environmental impacts will be greater for alternatives with higher construction costs and greater right of way needs.

LONG TERM VISION

Long Term Freeway Access Concepts

The long term vision for TH 252 is a freeway facility. TH 252 is designated as a Principal Arterial in the Metropolitan Council's 2040 Transportation Plan. The emphasis of principal arterials is on moving large volumes of traffic over long distances rather than providing direct access to land. Given the role of TH 252 in the regional transportation system it is not reasonable to divert traffic to other routes and attempts at reducing speeds through signing or other methods will only result in more congestion and a reduction in safety. A freeway facility would provide a safer facility and accommodate projected increases in traffic volumes on the corridor better than the existing facility or other at-grade intersection alternatives. Existing safety issues would also be improved by a freeway facility, as most crashes in the corridor are rear-end crashes associated with traffic signals on the corridor. A freeway would also improve neighborhood connectivity by reducing delay and improving safety for vehicles, pedestrians, and bicyclists crossing TH 252.

There are currently six at-grade signalized intersections on TH 252, spaced approximately one half mile apart. Metropolitan Council spacing guidelines for urban freeways recommend that interchanges be spaced at least one mile apart. If TH 252 is converted to a freeway, it will be necessary to close access to TH 252 in several locations.

A phased approach will be required to convert TH 252 into a freeway facility since it is not currently identified in the 2040 Metro Council Transportation Policy Plan or in the Minnesota State Highway Improvement Plan. The Brooklyn Center City Council has formally requested that the TH 252 freeway conversion project be added to these plans (see Appendix C for the resolution and letter to MnDOT). It is proposed that interchanges, overpasses, and pedestrian/bicycle bridges be constructed in stages as funding is available.

Potential interchange locations were identified in the Technical Advisory Committee Meetings and in public meetings. MnDOT took this information and developed seven access concepts for the corridor for the purposes of modeling the impacts on local traffic. These concepts are shown on **Figure 7**. All of the concepts have a full interchange at 85th Avenue and Brookdale Drive in Brooklyn Park and no access to TH 252 at Humboldt Avenue. The options either show Humboldt Avenue closed or with an overpass.

In Brooklyn Center the concepts include alternatives with full access at 66th Avenue, 70th Avenue, 73rd Avenue or at 66th and 73rd Avenue. If there is full access at 66th Avenue there will be no access to TH 252 at 70th Avenue. It will either be closed or have an overpass with connection to West River Road. With access at 66th Avenue there may also be access at 73rd Avenue. If the full access is located at 70th Avenue there would be no access at 66th Avenue or at 73rd Avenue.

Transit

The City of Brooklyn Center's long-term vision for transit on TH 252 is to enhance both the regional and local service from what is currently provided. Metro Transit plans to continue express service bus service on TH 252. It is expected that some park and ride users from communities north of Brooklyn Center will use the newly expanded park and ride on TH 610 and Foley Boulevard NW. Metro Transit plans to serve Brooklyn Center transit users by maintaining at least one stop on TH 252. It will be important to coordinate with Metro Transit to integrate transit stops into future interchanges and to enhance amenities.

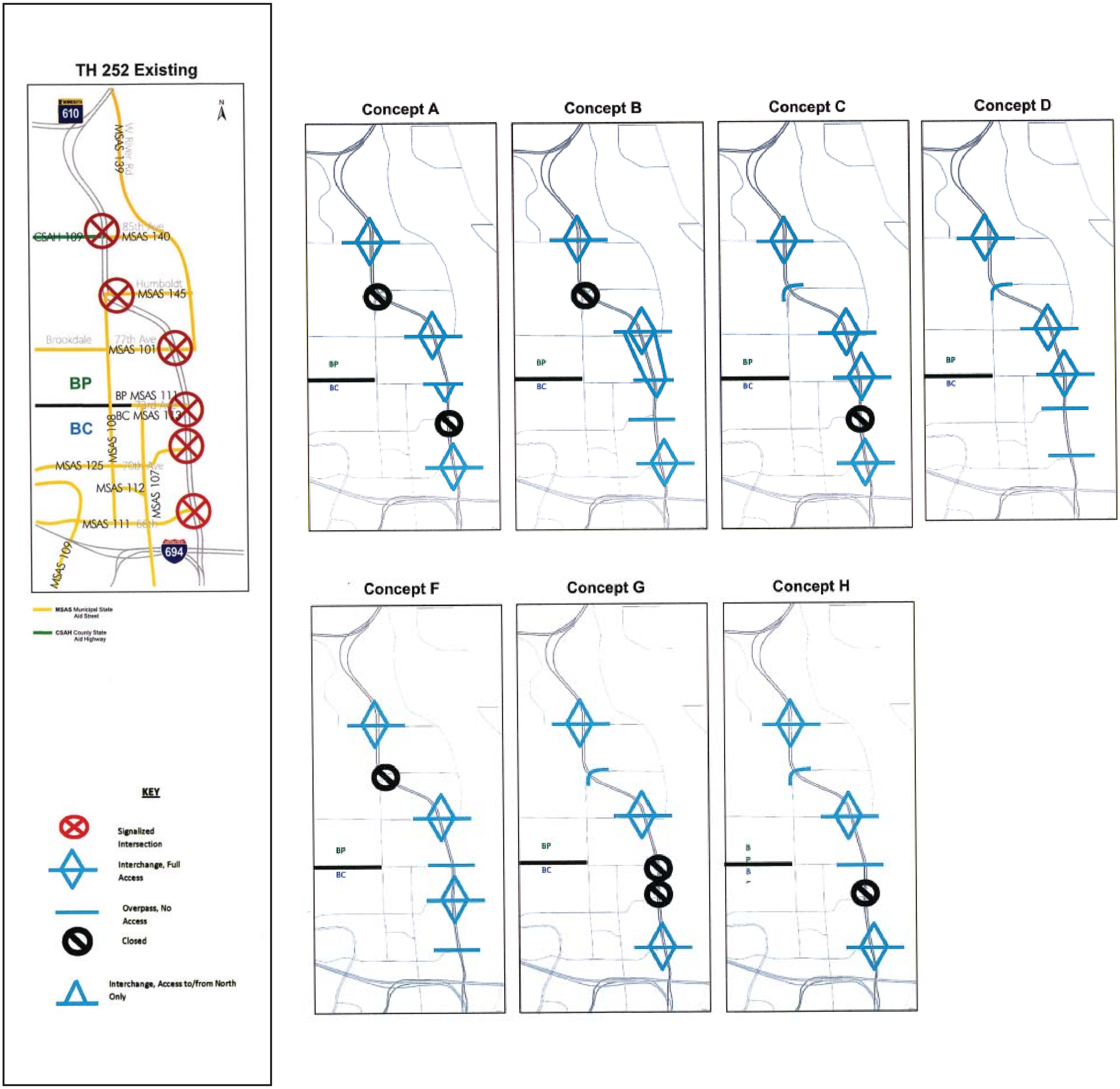


Figure 7
Corridor Access Options for Assessing Neighborhood Traffic Patterns

INTERIM INTERSECTION ALTERNATIVES IN BROOKLYN CENTER

Several interim intersection alternatives were considered to address the traffic operations, safety, and neighborhood connectivity issues in the TH 252 corridor. Interim alternatives focus on options at the intersections in Brooklyn Center: at 66th, 70th, and 73rd Avenues N. The following sections describe the alternatives considered at each intersection.

The interim intersection improvements idea was to focus on recommended projects that could be funded through various state and federal competitive funding programs and could be initiated within the next few years. The goals of these recommendations were that interim improvements would be consistent with the long-term vision of converting TH 252 to a freeway facility and not be “throw away” projects.

66th Avenue N Alternatives

Alternatives Rejected

A total of 14 interim intersection alternatives were developed for 66th Avenue N. Six alternatives were rejected based on concerns about the safety of the design and/or restriction of access for certain movements. The alternatives rejected are shown in **Figure 8** and described below.

1. J TURN

The J-Turn alternative was rejected because it would provide insufficient capacity for future traffic volumes. It would also provide unacceptable access to northbound TH 252.

2. HIGH “T”

This alternative was rejected because it would result in an unacceptable weaving distance on southbound TH 252 between 66th Avenue N and I-694.

3. PARTIAL FOLDED DIAMOND

A partial folded diamond was rejected because it would not provide access from northbound I-94/TH 252 to 66th Avenue N.

4. HALF DIAMOND

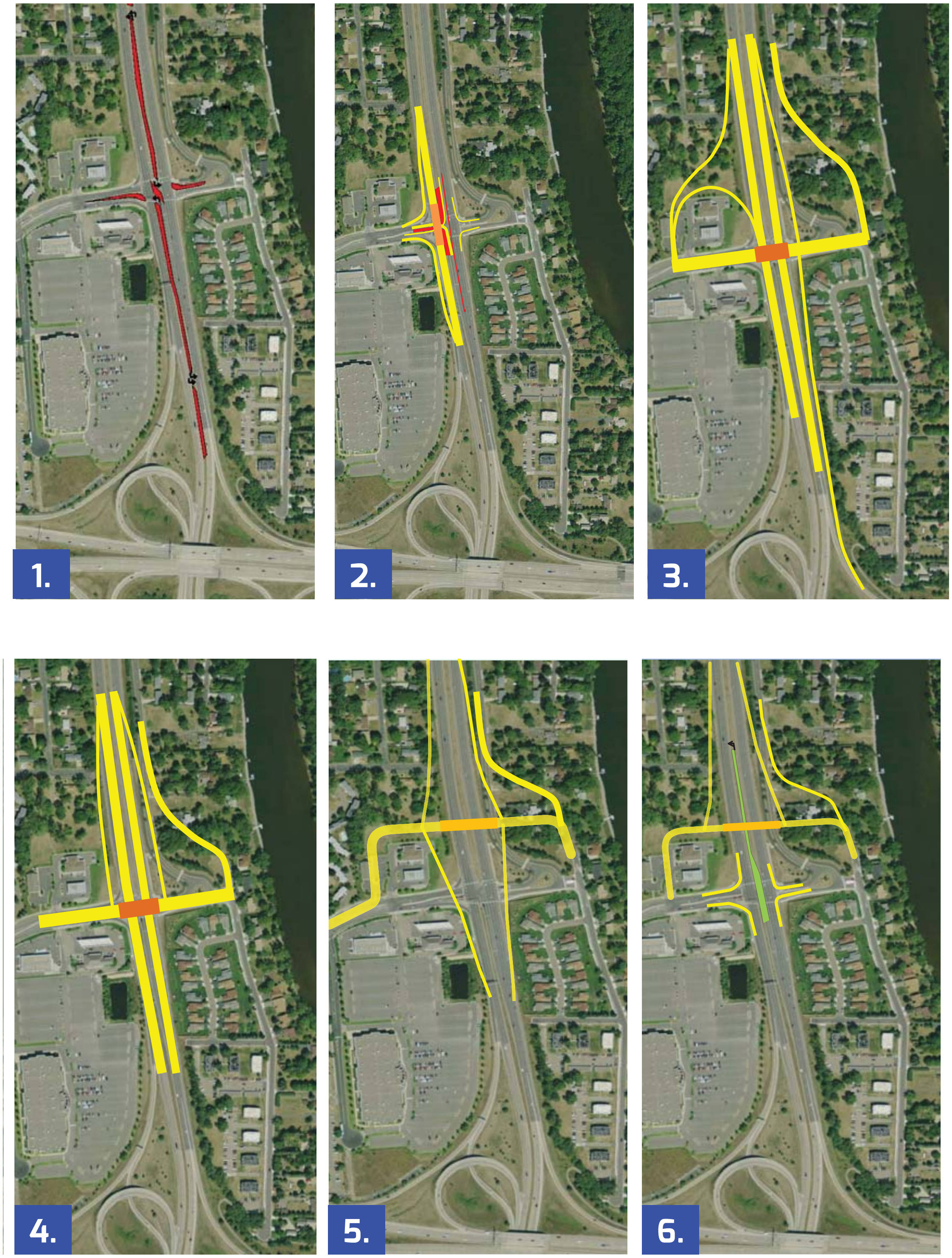
This alternative was rejected because it would not provide access to 66th Avenue N from northbound I-94/TH 252. It also would not provide access to southbound TH 252 from 66th Avenue N.

5. RELOCATE 66TH AVENUE: DIAMOND

A diamond interchange located north of 66th Avenue N was rejected because it would result in an unacceptable weaving distance on southbound TH 252 between 66th Avenue N and I-694.

6. RELOCATE 66TH AVENUE N: HALF DIAMOND

This alternative was rejected because it would provide unacceptable access to and from TH 252.



1. J Turn

- Insufficient Capacity and unacceptable access to northbound TH 252

2. High "T"

- Unacceptable weaving distance on southbound TH 252 between 66th and I-694

3. Partial Folded Diamond

- Does not provide access from northbound I-94/TH 252 to 66th Avenue

4. Half Diamond

- Unacceptable access

5. Relocate 66th Avenue: Diamond

- Unacceptable weaving

6. Relocate 66th Avenue: Half Diamond

- Unacceptable access

Figure 8
Alternatives Rejected at 66th Ave.

Alternatives Considered in Detail

Eight of 14 alternatives for 66th Avenue N were considered in detail. These alternatives are shown on **Figure 9** and are summarized below.

1. GREEN "T" WITH "J" TURN

This alternative would provide right-in/right-out access on TH 252 at 66th Avenue N, as well as left-out access from eastbound 66th Avenue N to northbound TH 252. The green "T" with "J" turn alternative would not provide access across TH 252 at 66th Avenue N except for a pedestrian/bicycle underpass.

2. GREEN "T" WITH SOUTHBOUND FLYOVER

The green "T" with southbound flyover would provide right-in/right-out access to TH 252. It would also provide left-in access from northbound TH 252 to westbound 66th Avenue N and left-out access from eastbound 66th Avenue N to northbound TH 252. This alternative also includes a southbound flyover that would bypass 66th Avenue N. The green "T" with southbound flyover would not provide access across TH 252 at 66th Avenue N except for a pedestrian/bicycle underpass.

3. FOLDED DIAMOND

This alternative would provide full access to TH 252 at 66th Avenue N via ramps located north of the existing intersection. The folded diamond would provide grade separated access across TH 252 at 66th Avenue N. This alternative would require closure of access at 70th Avenue N.

4. BUTTONHOOK

The buttonhook alternative is similar to the folded diamond alternative as it would provide full access to TH 252 at 66th Avenue N via ramps located north of the existing intersection. This alternative would also provide grade separated access across TH 252 at 66th Avenue N. The configuration of the ramps on the east side of TH 252 is the main difference between the folded diamond and buttonhook intersections. Similar to the folded diamond, this alternative would require closure of access at 70th Avenue N.

5. QUADRANT INTERCHANGE

This alternative would provide right-in/right-out access at 66th Avenue N. Access across TH 252 would be accommodated via an overpass located north of the existing intersection.

6. QUADRANT INTERCHANGE WITH ROUNDABOUTS

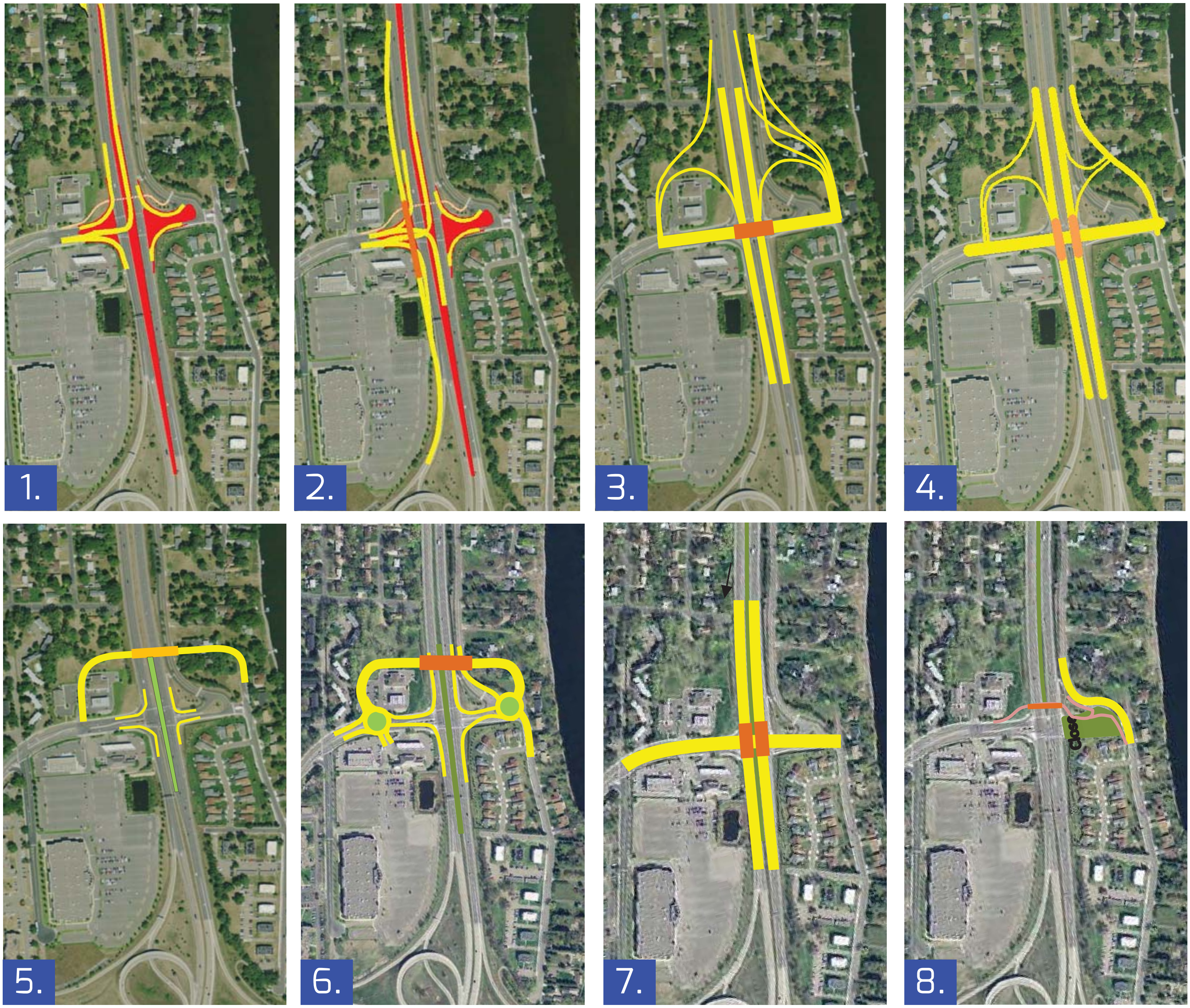
The quadrant interchange with roundabouts is similar to the quadrant interchange alternative. It would provide right-in/right-out access at 66th Avenue N and an overpass located north of the existing intersection. However, this alternative includes roundabouts at the intersection of the existing 66th Avenue N and proposed overpass.

7. UNDERPASS AT 66TH AVENUE N

An underpass at 66th Avenue N would route 66th Avenue N underneath TH 252. This alternative would not provide access to TH 252.

8. CLOSURE OF EAST SIDE ACCESS AT 66TH AVENUE N WITH PEDESTRIAN/BICYCLE BRIDGE

This alternative would maintain the existing signalized intersection at 66th Avenue N. It would close access on to and from the east side of TH 252. To address connectivity issues for pedestrians and bicyclists, this alternative would include a pedestrian and bicycle bridge.



1. Green "T" with "J" Turn
2. Green "T" with Southbound Flyover
3. Folded Diamond
4. Folded Diamond with Buttonhook
5. Quadrant Interchange
6. Quadrant Interchange with Roundabouts
7. 66th Avenue N Underpass
8. Closure of East Side of 66th Avenue N

Figure 9
Alternatives Considered in Detail at 66th Ave.

Pedestrian and Bicycle Facilities and Connections

Pedestrian and bicycle connections across TH 252 are included in all alternatives considered in detail (shown in **Figure 9**). Alternatives 1 and 2 would provide access across TH 252 via a pedestrian/bicycle underpass. Alternatives 3-7 would include bicycle and pedestrian facilities (sidewalk and/or multi-use trail) as part of the overpass or underpass of TH 252. Alternative 8 includes a pedestrian/bicycle bridge over TH 252. All alternatives would improve safety and comfort for people walking and bicycling across TH 252.

Transit

There are existing far side transit stops on TH 252 at 66th Avenue N. Buses stop on the shoulder of TH 252 immediately past the intersection. A park and ride is located on the southwest corner of the intersection (shared with the Regal Cinemas parking lot). Current transit stop conditions create safety issues for motor vehicles and transit users. Transit users must walk across TH 252 at grade to access at least one stop on their transit trip. There are sometimes conflicts between buses entering/exiting bus stops and through vehicle traffic on TH 252.

The City of Brooklyn Center and Metro Transit would like to keep a transit stop at 66th Avenue N. If an interchange is pursued at this location, the city and MnDOT will have to further investigate options for providing convenient and enhanced transit service at this location. Metro Transit would prefer to keep bus stops on the mainline because exiting and entering TH 252 would create unacceptable delay for transit users.

70th Avenue N Alternatives

Three alternatives were considered for 70th Avenue N, as shown in **Figure 10**. As noted in the discussion of alternatives at 66th Avenue N, access at 70th Avenue N would need to be closed if an interchange is constructed at 66th Avenue N.

1. Close 70th Avenue N and Provide Pedestrian Crossing

This alternative closes access to TH 252 at 70th Avenue N and constructs a cul-de-sac west of TH 252. This alternative includes a bicycle and pedestrian bridge or underpass to provide pedestrian and bicycle access across TH 252. This alternative could be considered if an interchange was constructed at 66th Avenue N.

2. Underpass or Overpass

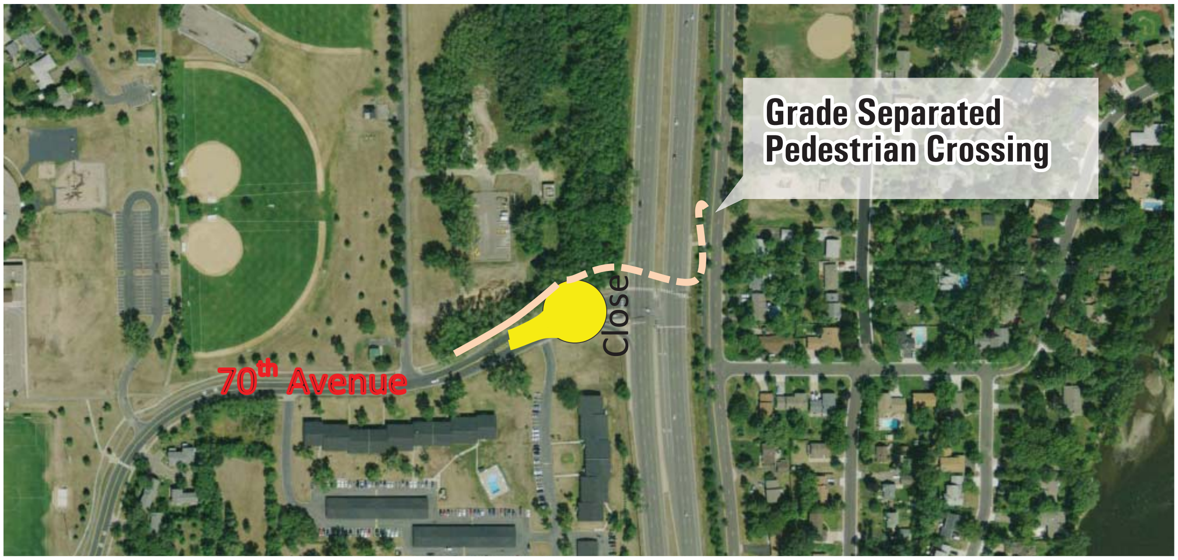
This alternative includes an underpass or overpass at 70th Avenue N with no access to TH 252. The underpass or overpass would include bicycle and pedestrian facilities via a sidewalk and/or multi-use trail. This alternative could be considered if an interchange was constructed at 66th Avenue N.

3. Interchange

An interchange at 70th Avenue N would provide full grade-separated access to and across TH 252. The 70th Avenue N overpass would include bicycle and pedestrian facilities. Due to Metropolitan Council interchange spacing guidelines, an interchange could only be constructed at 70th Avenue N if access to TH 252 was closed at 66th Avenue N.

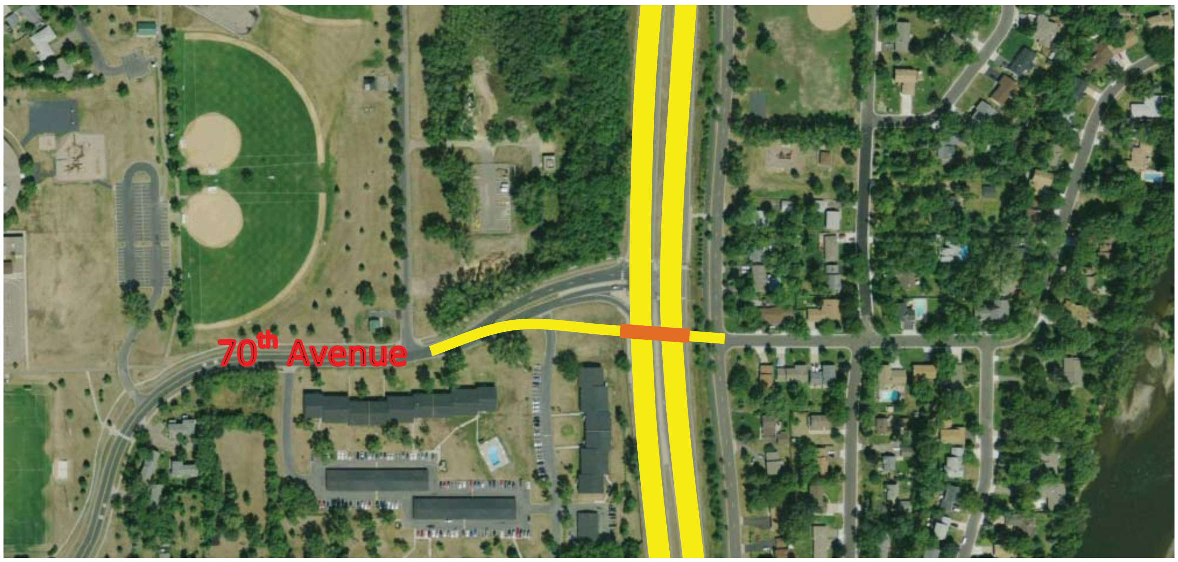
Pedestrian and Bicycle Facilities and Connections

All three alternatives would provide grade-separated access across TH 252 for pedestrians and bicyclists. Alternative 1 would provide a crossing of TH 252 separate from motor vehicle traffic. Alternatives 2 and 3 would include sidewalk and/or trail as part of an overpass of TH 252.



Option 1:

Close 70th Avenue N, provide pedestrian crossing



Option 2:

Overpass or Underpass

Option 3:

Interchange

Figure 10
Alternatives at 70th Avenue N

Transit

There are existing far side transit stops on TH 252 at 70th Avenue N. These bus stops could remain if access is closed at 70th Avenue N, as long as sidewalks are provided to connect from an overpass to transit stops. However, this situation could create safety issues between vehicles and buses entering/exiting the shoulder. Similar to 66th Avenue N, additional options will need to be considered to provide convenient transit service if an interchange is pursued at this intersection.

73rd Avenue N Alternatives

Two alternatives were considered for 73rd Avenue N, as shown in **Figure 11**. Due to Metropolitan Council interchange spacing guidelines, an interchange at this location could only be considered if access to TH 252 is closed at 70th Avenue N.

1. Half Diamond

This alternative provides access to 73rd Avenue N from northbound TH 252 and southbound access to TH 252 from 73rd Avenue N. A half diamond at this location would be paired with half diamond at Brookdale Drive to provide northbound access to TH 252 and southbound access to 73rd Avenue N via a frontage road. Pedestrian and bicycle facilities would be included on the 73rd Avenue overpass of TH 252. As mentioned above, this alternative could only be pursued if access to TH 252 was closed at 70th Avenue N.

2. Overpass or Underpass

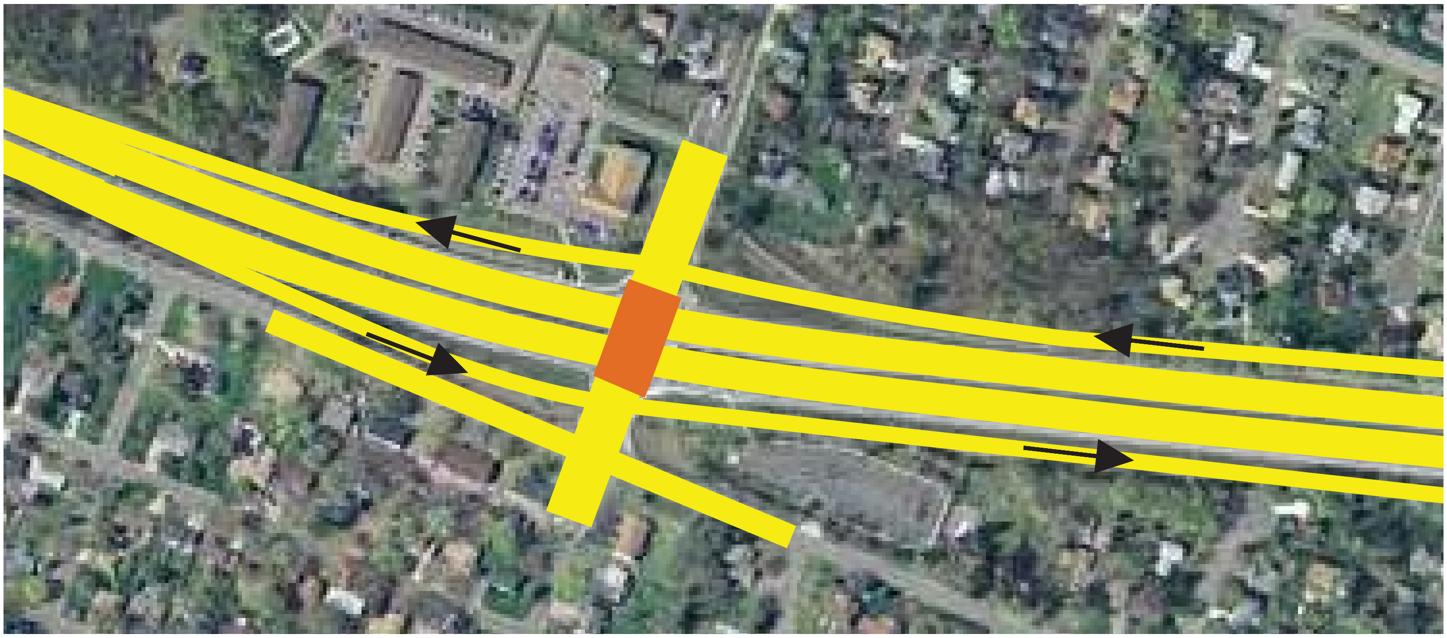
An overpass or underpass could be considered if an interchange is constructed at 70th Avenue N. This alternative would not provide access to TH 252. Sidewalk and/or trail would be provided on the overpass/underpass.

Pedestrian and Bicycle Facilities and Connections

Both alternatives would provide grade-separated access across TH 252 for pedestrians and bicyclists. Alternatives 1 and 2 would include sidewalk and/or trail as part of an overpass or underpass of TH 252.

Transit

There are existing far side transit stops on TH 252 at 73th Avenue N. There is a park and ride on the southwest corner of the intersection (shared with a church). As with 70th Avenue, these bus stops could remain if access is closed, as long as sidewalks are provided to transit stops. Additional options will need to be considered to provide convenient and enhanced transit service if an interchange is pursued at this intersection.



Option 1: Half Diamond Interchange

Option 2: Overpass or Underpass

Evaluation of Alternatives

The alternatives described above were evaluated based on the following criteria:

- Congestion/Level of Service
- Safety/Crash Reduction
- Compliance with Design Standards
- Construction Cost
- Potential for Funding Grants
- Right of Way Impacts
- Access
- Pedestrian/Bicycle Connectivity and Safety
- Development Impacts/Potential
- Transit Service
- Compatibility with Long-Term Vision for TH 252
- Neighborhood Connectivity Benefits
- Environmental Impacts

The sections below describe the performance of the alternatives based on the evaluation criteria.

Evaluation of 66th Avenue Intersection Alternatives

The evaluation of the alternatives against the criteria is presented in **Tables 1** and **2**. **Table 1** presents the evaluation in a rating relative to each criterion. The rating is from low to high with intermediate ratings of low-medium, medium, and medium-high. **Table 2** assigns a numerical value of 0 to 4 to the rating, with 0 assigned to a low rating and 4 assigned to a high rating. The following discusses how the ratings were developed understanding that the ratings are generalized and not based precisely on statistical data.

Congestion/Level of Service: This criterion measures the ability to provide sufficient capacity for the existing and forecast volumes on TH 252 and cross-streets. The alternatives are scored based on whether they are under capacity (the alternative provides more capacity than needed); at capacity, or over capacity (the existing or forecast volumes exceed the capacity that can be provided with the alternative). All the grade separated alternatives can provide sufficient capacity at 66th Avenue to meet the forecast demand. The "J" Turn intersection will not provide sufficient capacity to meet demand. The Green "T" intersection with "J" turn will provide sufficient capacity to meet the current demand but there will still be some back-ups on southbound TH 252 at 66th Avenue in the am peak hour. The Green "T" intersection with flyover will provide additional capacity by grade separating the traffic destined to I-694.

Table 1: Evaluation of 66th Avenue and TH 252 Alternatives

	Alternatives							
	At-Grade	Partial Grade Separation	Grade Separated at 66th Av 2/		Grade Separation North of 66th Av		Access Closure at 66th Av	
	1	2	3	4	5	6	7	8
Evaluation Criteria	**Green "T" with "J" Turn**	**Green "T" with SB Flyover**	**Folded Diamond**	**Buttonhook**	**Quadrant Interchange**	**Quadrant Interchange with Roundabouts**	**66th Av Underpass**	**Closure of East Side of 66th Av**
Level of Service	Low-Moderate	Moderate	High	High	High	High	High	Low-Moderate
Safety/Crash Reduction	Moderate	Low-Moderate	High	Moderate - High	Moderate-High	Moderate-High	High	Low-Moderate
Compliance with Design Standards	Moderate - High	Moderate	Moderate - High	Moderate	Moderate-High	Moderate-High	High	Moderate
Construction Cost	$2-$4 Million	$11-$15 Million	$17-$25	$17-$25	$8-$12	$8-$12		
Potential for Regional Funding Grants	High	Low-Moderate	High	High	Moderate	Moderate	High	High
Minimize Right-of-way Impacts	High	Moderate	Low	Low-Moderate	Moderate	Moderate	Low	High
Access	Low-Moderate	Low-Moderate	High	High	Moderate-High	Moderate-High	Low	Low-Moderate
Pedestrian/Bicycle Connectivity/Safety 1/	High	High	High	High	Moderate-High	Moderate-High	High	High
Development Impacts/Potential	Low-Moderate	Low-Moderate	Moderate - High	Moderate - High	Moderate-High	Moderate-High	Low	Moderate
Transit Service	Moderate	Low	High	Low	Moderate	Moderate	Moderate	High
Compatibility with Long-Term Vision for TH 252	Low	Low	High	High	Moderate-High	Moderate-High	High	Low
Neighborhood Connectivity Benefits	Low	Low	High	High	Moderate-High	Moderate-High	Low	Low
Minimize Environmental Impacts	High	Low-Moderate	Low-Moderate	Low-Moderate	Moderate	Moderate	Moderate	High
Total Score	**27**	**18**	**34**	**33**	**32**	**32**	**28**	**27**

Alternatives are rated from low to high with a low rating meaning it does poor relative to the criterion and high meaning it does well relative to the criterion. Note that for construction costs, right-of-way impacts, and environmental impacts the alternatives are rated based on how well they minimize costs or impacts.

1/ Assumes that a grade separated crossing will be provided at 66th Avenue for bicycles and pedestrians

2/ These alternatives assume that access to TH 252 at 70th Avenue will be closed. It is anticipated that a grade separation would be provided. 70th Grade separation not included in construction costs.

	Evaluation Criteria Scale				
Color Scale	Low	Low-Moderate	Moderate	Moderate - High	High
Rating Scale	0	1	2	3	4

Table 2: Evaluation of 66th Avenue and TH 252 Alternatives

Evaluation Criteria	Alternatives							
	At-Grade	Partial Grade	Grade Separated at 66th Av 2/		Grade Separation North of 66th Av		Access Closure at 66th Av	
	1	2	3	4	5	6	7	8
	Green "T" with "J" Turn	Green "T" with SB Flyover	Folded Diamond	Buttonhook	Quadrant Interchange	Quadrant Interchange with Roundabouts	66th Av Underpass	Closure of East Side of 66th Av
Level of Service	1	2	4	4	4	4	4	1
Safety/Crash Reduction	2	1	4	3	3	3	4	1
Compliance with Design Standards	3	2	3	2	3	3	4	2
Minimize Construction Cost								
Potential for Regional Funding Grants	4	1	1	1	2	2	4	4
Minimize Right-of-way Impacts	4	2	0	1	2	2	0	4
Access	1	1	4	4	3	3	0	1
Pedestrian/Bicycle Connectivity/Safety 1/	4	4	4	4	3	3	4	4
Development Impacts/Potential	1	1	3	3	3	3	0	2
Transit Service 2/	2	2	2	2	2	2	2	4
Compatibility with Long-Term Vision for TH 252	0	0	4	4	3	3	4	0
Neighborhood Connectivity Benefits	1	1	4	4	2	2	0	0
Minimize Environmental Impacts	4	1	1	1	2	2	2	4
Total	**27**	**18**	**34**	**33**	**32**	**32**	**28**	**27**

Alternatives are scored from 0 to 4 relative to the no-build condition. The higher the score the better the alternative is relative to that criterion.
1/ Assumes that a grade separated crossing will be provided at 66th Avenue for bicycles and pedestrians under all of the alternatives
2/ Assumes that transit facilities are modified to fit with the proposed alternative and that improved operations and safety will benefit transit.
3/ These alternatives assume that access to TH 252 at 70th Avenue will be closed. It is anticipated that a grade separation would be provided

Safety/Crash Reduction: This criterion measures whether the alternative will reduce crashes at 66th Avenue and TH 252. Currently 65% of the crashes at this intersection are rear end crashes and 14% are side swipes. The traffic signal at the end of the freeway section, with weaving and other activities that demand the drivers' attention also occurring in the same area, is one of the primary reasons for rear end crashes. The weaving, which occurs in the section between 66th Avenue and I-694, results in both side-swipe and rear end crashes. Alternatives that can eliminate the traffic signal will improve safety and reduce crashes.

If the alternative can also increase the length of weaving sections or eliminate the weave altogether it will result in even greater crash reduction. Therefore alternatives are rated as providing either no crash reduction, low-moderate crash reduction (either eliminates signal in one direction or improves weave), moderate (eliminates signal entirely), high-moderate (eliminates signal entirely and improves weaving lengths), high (eliminates signal and eliminates or improves weaving lengths).

Compliance with Design Standards: This criterion is a measure of how well the design meets drivers' expectations. Design standards are established to provide guidance on curves, grades, sight distance, weaving lengths, lane widths, and other project elements to provide consistency in design and a roadway that provides ample time for driver decisions.

At this point in the design process it is assumed that in general design standards will be achieved. However, there are several design elements that are dependent on the spacing of access and the amount of right-of-way available. One element is the distance available for weaving. A minimum separation of 1000 feet between on-ramps and off-ramps is desired. A second element is the consistency in access to cross-streets. Simpler access is desirable and a diamond interchange is the simplest type of interchange access. If frontage roads exist it is desirable for the frontage road to have a separate intersection with the cross-street a minimum of 300 feet from the ramp intersections. Scissors ramps (frontage road crossing an entrance or exit ramp) and ramps connecting directly to frontage roads are less desirable because it creates the potential for wrong way traffic movements and confusion on who has the right-of-way. It can also be confusing for way finding.

Alternatives that result in less than 1000 feet between on and off-ramps are rated low or low-medium relative to meeting design standards. Unconventional ramp configurations such as scissor ramps or buttonhook ramps were rated medium. More traditional ramp configurations that provided acceptable weaving lengths were rated medium-high or high.

Construction Cost: There are three or four considerations that will have a major impact on construction costs including the need for bridges or tunnels, reconstruction of TH 252 mainline lanes, reconstruction of 66th Avenue and the construction of ramps. In general at-grade solutions will be the lowest cost; most likely in the $3M to $5M dollar range. However, because the at-grade solutions will eliminate the ability to cross TH 252 at grade a pedestrian bridge or tunnel will be needed for these alternatives. This would add another $1M to $2M in costs. The Green "T" with SB Flyover would have another $3M to $4M in costs and the High "T" intersection would have $5M to $6M more in costs.

The other end of the cost range is the alternatives that construct an interchange on 66th Avenue in its present location. These alternatives would require either raising or lowering of TH 252 and the reconstruction of 66th Avenue in order to achieve the grade separation, maintain access and provide reasonable grades. That will make these alternatives the most expensive. Typical interchange costs are on the order of $15M to $20M dollars.

In between the at-grade options and the interchange alternatives at 66th Avenue are the alternatives that construct a new bridge north of 66th Avenue. These alternatives will provide grade separation but do not require reconstruction of the TH 252 mainline or 66th Avenue. The new bridge can also be used for pedestrian and bicyclists crossing TH 252. The costs for these alternatives are similar to the partial grade separation alternatives. Therefore at-grade alternatives were given a rating of high (low construction costs) and the 66th Avenue grade separation alternatives were given a rating of low (high construction costs) with the other alternatives somewhere in between.

Potential for Funding Grants: The potential for success in obtaining funding through STP grants or other similar programs will be dependent on cost and how well the alternative addresses the evaluation criteria. Typical criteria used for these grants include measures related to congestion, safety, design standards and accommodation of other modes. Therefore the alternatives with the highest potential are the ones that score best in the first 4 categories. The cost of the alternative may have a greater impact on the funding potential than the other factors and therefore the high cost alternatives were rated lower.

Right-of-way Impacts: The two at-grade options should require very little if any right-of-way. The Green "T" with SB flyover could require some right-of-way along the west side of the flyover impacting existing parking for the gas station south of 66th Avenue. The High "T" intersection would have similar right-of-way needs to the at-grade intersections. All of the remaining alternatives will likely require the acquisition of both the gas station north of 66th Avenue on the west side of TH 252 and a home on the east side of 66th Avenue. There are some partial takes that will likely be needed with the folded diamond interchange.

Access: The at-grade alternatives have the largest impact on access because they restrict through traffic on 66th Avenue and they restrict the left-turn in or left-turn out at 66th Avenue. The partial interchange options such as the half diamond interchange will provide less direct access from and to the south at 66th Avenue while providing east-west movements on 66th Avenue. Access between TH 252 and the commercial businesses on the west side of TH 252 is one of the more important considerations for the City as it affects the value of this property as commercial property.

Pedestrian/Bicycle Connectivity/Safety: It is assumed that a pedestrian/bicycle connection will be provided either through a separate pedestrian bridge or tunnel adjacent to 66th Avenue for the at-grade alternatives and that any grade separated alternative will include bicycle and pedestrian facilities. Therefore it is assumed that all of the alternatives would provide the desired pedestrian/bicycle connections.

Development Impacts/Potential: The development potential of an alternative is related to the right-of-way impacts and access. Those alternatives that have the least right-of-way impact and the best access would be the best alternatives for development or redevelopment.

Transit Service: All alternatives were judged the same at this time because it will depend on how transit facilities are modified to fit the alternative. The at-grade alternatives will still have some signal delay at 66th Avenue for transit while the grade separated alternatives may result in some changes in how service is provided.

Compatibility with Long-Term Vision for TH 252: Long term it is clear that TH 252 needs to be a controlled access freeway in order to meet the traffic demands in the corridor. Alternatives that provide more of a traditional interchange at 66th Avenue will be more compatible with that long term vision. The alternatives that have a bridge north of the existing 66th Avenue could potentially be compatible with a freeway long term vision with some reconfiguration of the access to provide access similar to the folded diamond or buttonhook interchanges only farther north.

Neighborhood Connectivity Benefits: The alternatives that provide grade separation for pedestrians and bicycles as well as vehicles provide better connectivity between neighborhoods than just providing for grade separated movements for pedestrians and bicyclists. The at-grade alternatives and the partial grade separation alternatives eliminate through movements on 66th Avenue and would have negative impacts on neighborhood connections.

Environmental Impacts: It is expected that the environmental impacts should be relatively low for this project. In general it was assumed that the level of environmental impact would be proportional to the construction cost and right-of-way needs. That is, the alternatives that have a higher construction cost and right-of-way requirements would also have higher environmental impacts.

Preferred Alternative for 66th Avenue N

Based on the evaluation described above, Alternative 3: Folded Diamond was selected as the preferred alternative at 66th Avenue N. This alternative provides the greatest safety and traffic operations benefits. While this alternative has the highest cost, it is compatible with the long-term freeway vision of TH 252 and has greater potential to receive regional funding grants for construction. This alternative would provide neighborhood connectivity benefits for pedestrians, bicyclists, and drivers.

EVALUATION OF LONG-TERM ACCESS LOCATION ALTERNATIVES

The analysis of the interim intersection improvements concluded that improvements that maintained an at-grade intersection at 66th Avenue would not address the existing capacity and safety issues and would be inconsistent with the long-term vision of converting TH 252 to a freeway. The preferred interim solution is a staged implementation of the long-term vision as funding is available. In order to stage the implementation of the long-term vision it is important to define the access locations to TH 252.

Based on the Long-Term Alternatives previously identified there are four long-term alternatives that were identified for Brooklyn Center that were considered feasible alternatives. These are Concepts A, B, D, and F, which are shown in **Figures 12–15**. Options for access at 66th Avenue are shown in Concepts A and B (Figures 12 and 13). Concepts D and F have no access at 66th Avenue and either access at 73rd Avenue (Concept D-Figure 14) or at 70th Avenue (Concept F-Figure 15). Also shown on the figures are existing Average Daily Traffic (ADT) volumes and the 2040 forecast ADT associated with each alternative. Areas of right of way acquisition are also identified on these figures. MnDOT developed the 2040 ADT forecasts and also developed geometric layouts for the corridor to identify general footprints for each of the different concepts. This information was used to identify the potential right of way needs. MnDOT also evaluated the proximity of the 66th Avenue interchange to the I-694 interchange and its impact on traffic operations. Based on this evaluation, MnDOT concluded that the location of this interchange would allow adequate distance between on-ramps and off-ramps to provide acceptable traffic operations. The benefits and impacts for each of the alternatives are summarized at the bottom of the figures and are discussed below. **Table 3** provides a summary of the comparison of the benefits and impacts of the four alternatives.

Concept A

Concept A has a folded diamond interchange at 66th Avenue and a Half Diamond interchange at 73rd Avenue. The access to TH 252 at 70th Avenue would be closed but a pedestrian/bicycle bridge would be provided to connect the east and west sides of TH 252.

Benefits

The primary benefits of this concept are:

- It provides a safe grade separated crossing of TH 252 for bikes and pedestrians at 66th Avenue, 70th Avenue, and 73rd Avenue.
- It will provide safe vehicle access to TH 252 at 66th Avenue and 73rd Avenue. Access at 73rd Avenue is only to and from the south on TH 252.
- This alternative generally maintains existing traffic patterns in the neighborhoods.
- It maintains the existing commercial property access to TH 252 and preserves the viability of these commercial businesses.
- The improvements would include noise walls and screening for residential properties.

Impacts

The primary impacts of this concept are:

- This concept will require acquisition of 2 to 3 properties on the east side of TH 252 and 4 properties on the west side of TH 252.
- Traffic that uses 70th Avenue today would be rerouted to either 66th Avenue or 73rd Avenue. This is a relatively low volume.

- This alternative does not provide access to northbound TH 252 at 73rd Avenue which makes access from the east side neighborhoods around 73rd Avenue very circuitous.

Concept B

Concept B has a folded diamond interchange at 66th Avenue and full access at 73rd Avenue. The access to TH 252 at 70th Avenue would be closed but a vehicle and pedestrian/bicycle bridge would be provided to connect the east and west sides of TH 252.

Benefits

The primary benefits of this concept are:

- It provides a safe grade separated crossing of TH 252 for bikes and pedestrians at 66th Avenue, 70th Avenue, and 73rd Avenue.
- It will provide safe vehicle access to TH 252 at 66th Avenue and 73rd Avenue (both directions).
- This alternative generally maintains existing traffic patterns in the neighborhoods.
- It maintains the existing commercial property access to TH 252 and preserves the viability of these commercial businesses.
- The improvements would include noise walls and screening for residential properties.
- The 70th Avenue connection to West River Road would provide an alternative access for the residential neighborhood on the east side.

Impacts

The primary impacts of this concept are:

- This concept will require acquisition of 2 to 3 properties on the east side of TH 252 and 4 properties on the west side of TH 252 for 66th Avenue.
- The 70th Avenue grade separated crossing would result in the acquisition of another 9 properties east of TH 252.
- Traffic that uses 70th Avenue to access TH 252 today would be rerouted to either 66th Avenue or 73rd Avenue. This is a relatively low volume.

Concept D

Concept D has no access to TH 252 at 66th Avenue and full access at 73rd Avenue. A grade separated crossing would be provided at 66th Avenue for vehicles, bikes and pedestrians. The access to TH 252 at 70th Avenue would be closed but a vehicle and pedestrian/bicycle bridge would be provided to connect the east and west sides of TH 252.

Benefits

The primary benefits of this concept are:

- It provides a safe grade separated crossing of TH 252 for bikes and pedestrians at 66th Avenue, 70th Avenue, and 73rd Avenue.
- It will provide safe vehicle access to TH 252 at 73rd Avenue (both directions).
- The improvements would include noise walls and screening for residential properties.

- The 70th Avenue connection to West River Road would provide an alternative access for the residential neighborhood on the east side.

Impacts

The primary impacts of this concept are:

- The 70th Avenue grade separated crossing would result in the acquisition of 9 properties east of TH 252.
- Additional roadway easements would also be required at 73rd Avenue.
- This alternative would result in significant changes in traffic patterns. Traffic volumes would increase on Dupont Avenue, on 73rd Avenue, and on 70th Avenue. Traffic volumes would also increase on West River Road south of 73rd Avenue. It may be necessary to widen 70th Avenue and 73rd Avenue to accommodate the increased traffic.
- Traffic volumes will go down on 66th Avenue near TH 252 and the viability of the commercial properties in this area will be significantly reduced. Many of these businesses are dependent on access to TH 252. This impact will reduce commercial property values and tax base and may also be reflected in right of way costs for the project.

Concept F

Concept F has no access to TH 252 at 66th Avenue and full access at 70th Avenue. A grade separated crossing would be provided at 66th Avenue for vehicles, bikes and pedestrians. The access to TH 252 at 73rd Avenue would be closed but a vehicle and pedestrian/bicycle bridge would be provided to connect the east and west sides of TH 252.

Benefits

The primary benefits of this concept are:

- It provides a safe grade separated crossing of TH 252 for bikes and pedestrians at 66th Avenue, 70th Avenue, and 73rd Avenue.
- It will provide safe vehicle access to TH 252 at 70th Avenue.
- The improvements would include noise walls and screening for residential properties.

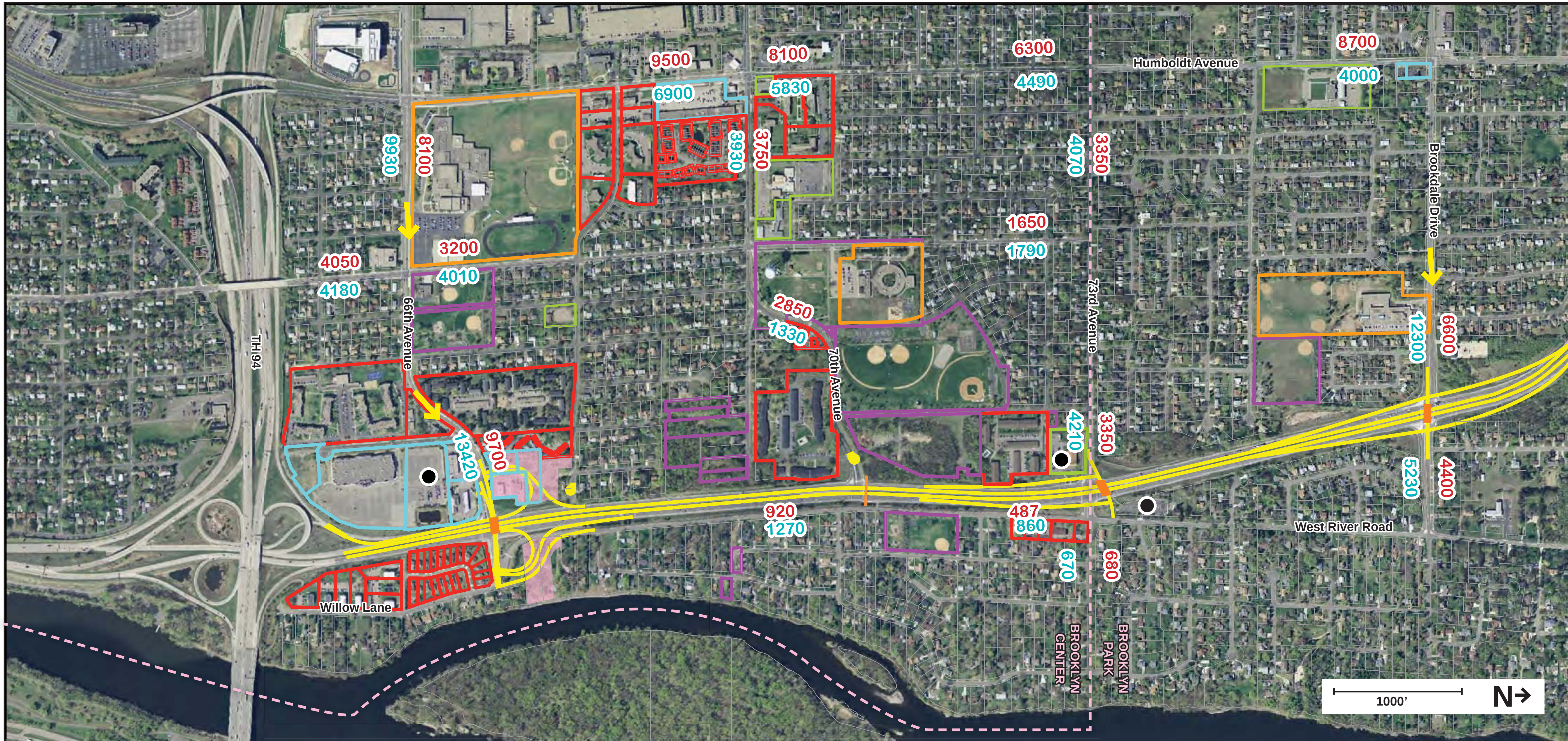
Impacts

The primary impacts of this concept are:

- The 70th Avenue grade separated crossing would result in the acquisition of 9 properties east of TH 252 and potential acquisition of an apartment building on the west side of TH 252.
- Additional roadway easements would also be required at 73rd Avenue.
- This alternative would result in significant changes in traffic patterns. Traffic volumes would increase on Dupont Avenue and on 70th Avenue. Traffic volumes would also increase on West River Road near 70th Avenue. It will be necessary to widen 70th Avenue to accommodate the increased traffic.
- Traffic volumes will go down on 66th Avenue near TH 252 and the viability of the commercial properties in this area will be significantly reduced. Many of these businesses are dependent on access to TH 252. This impact will reduce commercial property values and tax base and may also be reflected in right of way costs for the project.

Recommended Alternative

Based on the evaluation criteria identified, an interchange at 66th Avenue N with full access at 73rd Avenue will best meet the access needs in the City of Brooklyn Center with the least impact on existing neighborhoods. All of the alternatives will result in some property impacts and changes in traffic circulation. However, Concept A or Concept B (without the vehicle crossing at 70th Avenue) would result in fewer property impacts and would not significantly change neighborhood traffic patterns. The strong preference of the public who provided comments on the alternatives was to just close the access to TH 252 at 70th Avenue and not connect 70th Avenue to West River Road on the east side of TH 252. Full access at 73rd Avenue either directly to TH 252 or through frontage roads or collector-distributor roads is important for the residential neighborhood east of TH 252 near 73rd Avenue.



CONCEPT **A**

66th Interchange and Partial Access to 73rd Avenue

Legend

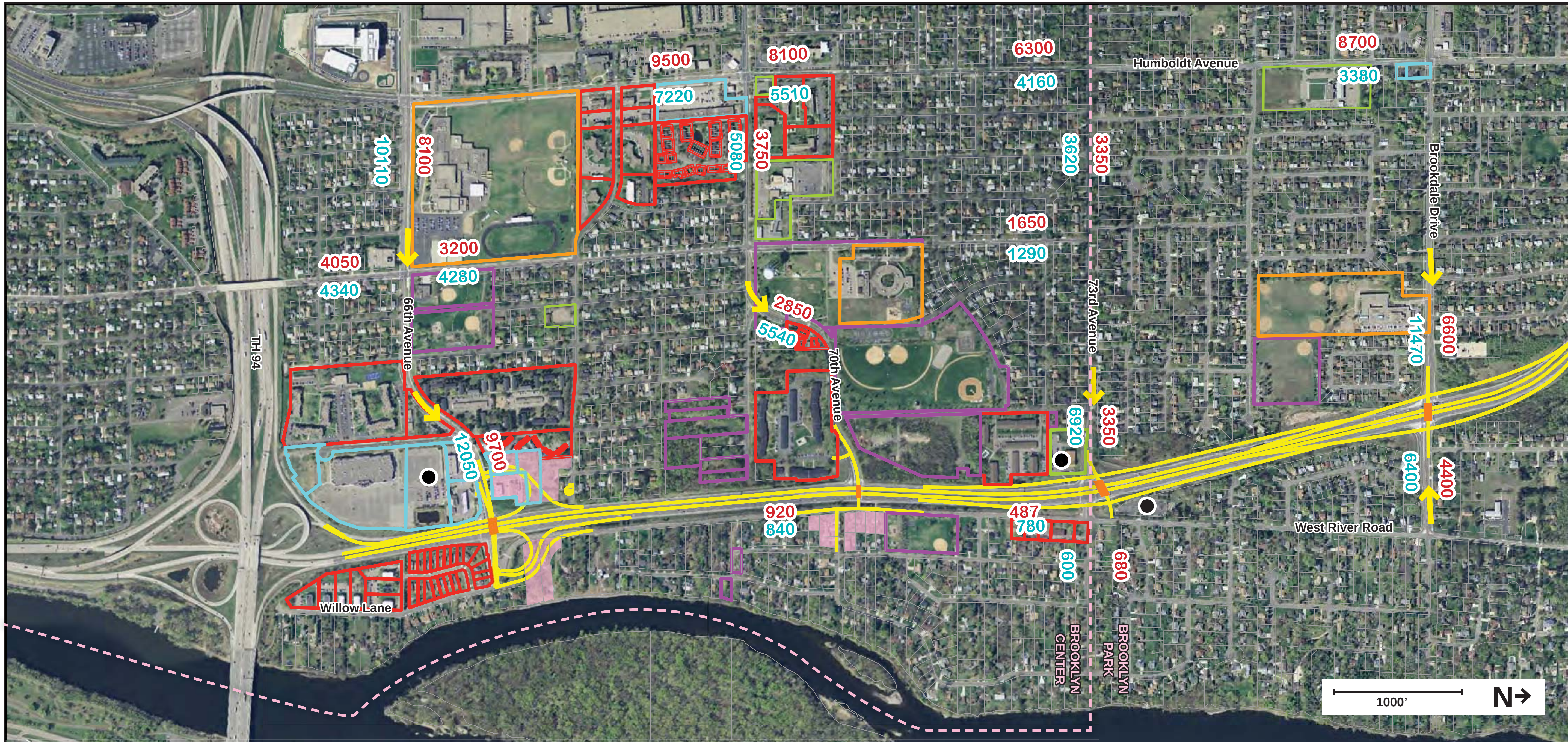
- 3750 - Existing ADT (2011-2015)
- 3930 - 2040 ADT *Source: MnDOT*
- City Boundary
- Increase in Traffic
- ROW Acquisition
- Church
- School
- City Owned Property
- Commerical
- Multi-Family Residential
- Park and Ride Lot

Benefits

- Safe bike and pedestrian crossings of TH 252 at 66th, 70th and 73rd (on bridges)
- Safe vehicle access to TH 252 at 66th and 73rd
- Minimal change in traffic patterns in residential neighborhoods
- Maintains existing access to TH 252 for commercial properties
- Space available to provide screening of highway for residential properties.

Impacts

- Requires acquisition of 2-3 properties east of TH 252 and 4 properties west of TH 252
- 70th Avenue traffic access to TH 252 would be rerouted to 65th/66th and 73rd Avenues for access to TH 252
- No northbound TH 252 access at 73rd Avenue



CONCEPT
B

66th Street Interchange and Split Diamond 73rd Avenue and Brookdale Drive

Legend

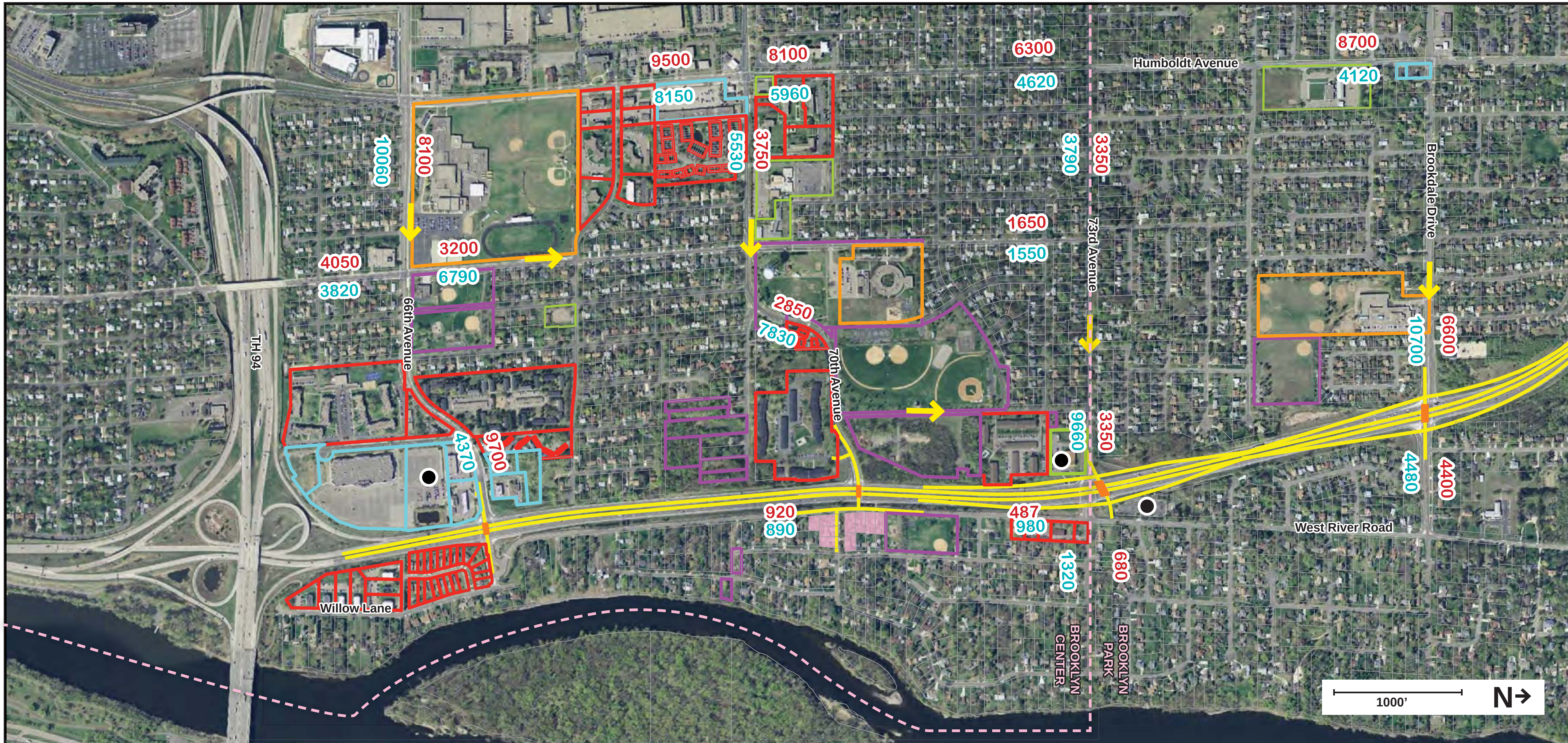
- 3750 - Existing ADT (2011-2015)
- 3930 - 2040 ADT *Source: MnDOT*
- - City Boundary
- - Increase in Traffic
- - ROW Acquisition
- - Church
- - School
- - City Owned Property
- - Commerical
- - Multi-Family Residential
- - Park and Ride Lot

Benefits

- Safe bike and pedestrian crossings of TH 252 at 66th, 70th and 73rd (on bridges)
- Safe vehicle access to TH 252 at 66th and 73rd
- Minimal change in traffic patterns in residential neighborhoods
- Maintains existing access to TH 252 for commercial properties
- Space available to provide screening of highway for residential properties.
- Frontage road access at 73rd to full interchange access to northbound TH 252 and from southbound TH 252

Impacts

- Requires acquisition of 11-12 properties east of TH 252 and 4 properties west of TH 252
- 70th Avenue traffic access to TH 252 would be rerouted to 65th/66th and 73rd Avenues for access to TH 252
- Additional bridge cost



CONCEPT

D

73rd Avenue Interchange

Legend

3750 - Existing ADT (2011-2015)

3930 - 2040 ADT *Source: MnDOT*

- City Boundary

- Increase in Traffic

- ROW Acquisition

- Church

- School

- City Owned Property

- Commerical

- Multi-Family Residential

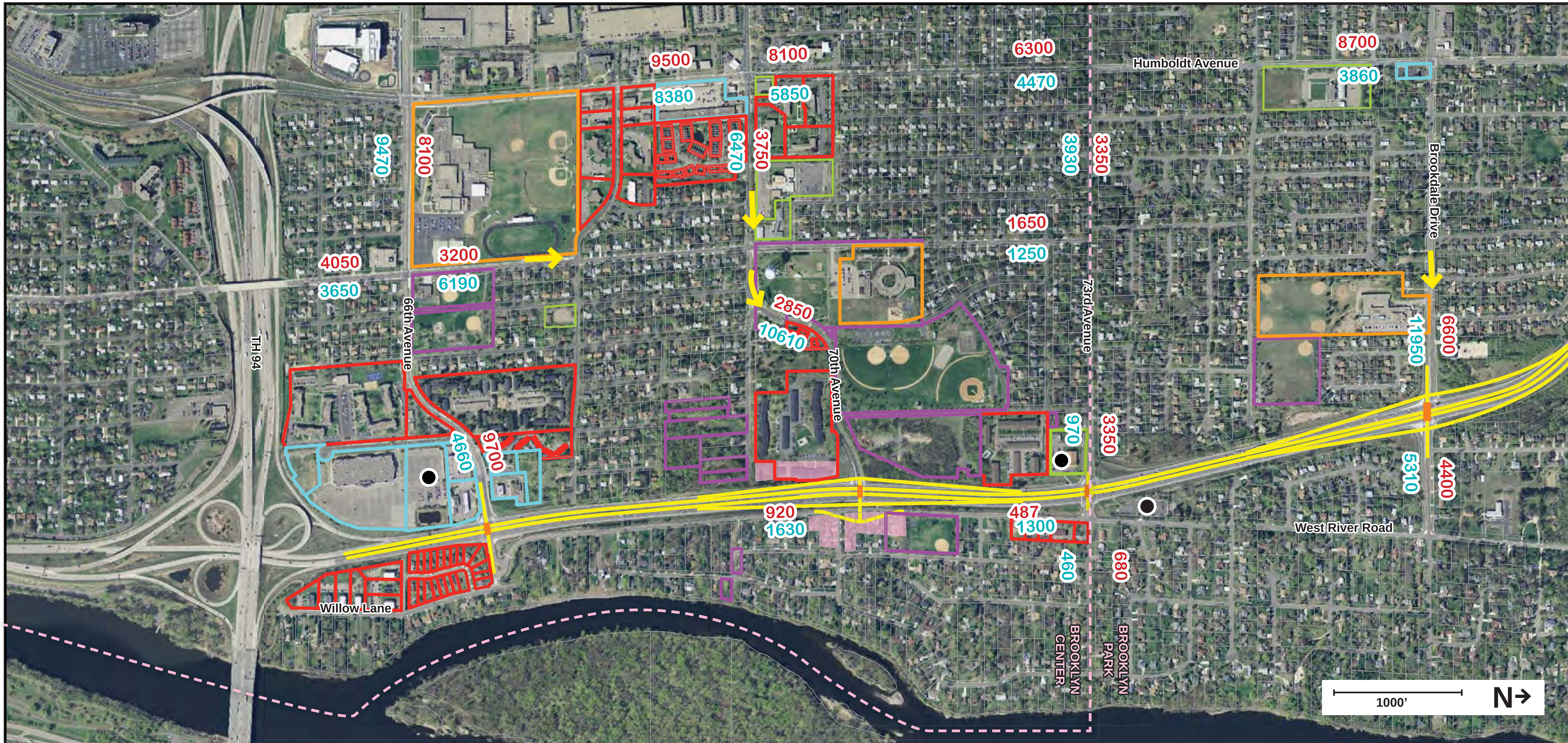
- Park and Ride Lot

Benefits

- Safe pedestrian and bicycle access across TH 252 at 66th, 70th and 73rd (on bridges)
- Safe vehicle access across and to TH 252 at 70th

Impacts

- Requires acquisition of 9 properties east of TH 252 and no properties west of TH 252. Additional roadway easements would also need to be acquired for potential 70th Avenue and 73rd Avenue Improvements.
- Significant change in traffic patterns – more traffic on West River Rd and 70th Avenue, and on neighborhood residential streets leading to 70th Avenue.
- Need to widen 70th Avenue and 73rd Avenue to accommodate increase in traffic
- Loss of access to TH 252 for commercial properties
- Change of Camden Avenue with increase in traffic to collector



CONCEPT

F

70th Avenue Interchange

Legend

- City Boundary
3750 - Existing ADT (2011-2015)
3930 - 2040 ADT *Source: MnDOT*
- Increase in Traffic
- ROW Acquisition
- Church
- School
- City Owned Property
- Commerical
- Multi-Family Residential
- Park and Ride Lot

Benefits

- Safe pedestrian and bicycle access across TH 252 at 66th, 70th and 73rd (on bridges)
- Safe vehicle access across and to TH 252 at 70th Avenue

Impacts

- Requires acquisition of 9-10 properties east of TH 252 and 1 partial property west of TH 252. Additional roadway easements would also need to be acquired for potential 70th Avenue Improvements.
- Significant change in traffic patterns – more traffic on West River Rd and 70th Avenue, and on neighborhood residential streets leading to 70th Avenue.
- Need to widen 70th Avenue to accommodate increase in traffic
- Loss of access to TH 252 for commercial properties and high density residential properties along 66th. The viability of the commercial properties would be challenging, potentially requiring additional access improvements, west frontage road, etc.

Table 3: Evaluation of TH 252 Access Alternatives in Brooklyn Center

Evaluation Criteria	Alternatives			
	Concept A **66th Folded Diamond with 73rd Half Diamond 2/**	**Concept B** **66th Folded Diamond with 73rd Split Diamond 2/**	**Concept D** **73rd Avenue Access Only 1/**	**Concept F** **70th Interchange with Bridges at 66th and 73rd 1/**
Level of Service	High	High	High	High
Safety/Crash Reduction	High	High	High	High
Compliance with Design Standards	High	High	High	High
Construction Cost	Low-Moderate	Low	Moderate	Moderate
Potential for Regional Funding Grants	High	High	High	High
Minimize Right-of-way Impacts	Low-Moderate	Low-Moderate	High	Low
Access	High	High	Low	Moderate
Pedestrian/Bicycle Connectivity/Safety 1/	High	High	High	High
Development Impacts/Potential	High	High	Low	Low
Transit Service	High	High	Moderate	Moderate
Compatibility with Long-Term Vision for TH 252	High	High	High	High
Neighborhood Impact and Connectivity Benefits	Low-Moderate	Moderate	Low	Low
Minimize Environmental Impacts	Moderate	Moderate	Moderate	Moderate
Emergency Response	High	High	High	High
Total Score	59	59	52	49

Alternatives are rated from low to high with a low rating meaning it does poor relative to the criterion and high meaning it does well relative to the criterion.
Note that for construction costs, right-of-way impacts, and environmental impacts the alternatives are rated based on how well they minimize costs or impacts.
1/ Assumes that a grade separated crossing will be provided at 66th Avenue for bicycles and pedestrians
2/ These alternatives assume that access to TH 252 at 70th Avenue will be closed.

	Evaluation Criteria Scale				
Color Scale	Low	Low-Moderate	Moderate	Moderate -High	High
Score	1	2	3	4	5

Conclusion and Recommendation

The recommended alternative for TH 252 in the City of Brooklyn Center is a combination of Concept A and Concept B. This alternative includes a folded diamond interchange at 66th Avenue N, closure of access at 70th Avenue N, and a split diamond interchange at 73rd Avenue N and Brookdale Avenue N. It is envisioned that the half diamond interchange at 73rd Avenue N would be paired with frontage roads connecting to a half diamond interchange at Brookdale Drive. This alternative is compatible with the long term vision of TH 252 as a freeway facility.

This alternative is recommended because it is expected to result in the greatest safety and traffic congestion improvements. This alternative complies with design standards and has high potential for regional funding grants. It will preserve access to TH 252 at 66th and 73rd Avenues N and will provide improved pedestrian and bicycle connectivity at 70th Avenue N. The interchanges at 66th and 73rd Avenues N will improve neighborhood connectivity as vehicles, pedestrians, and bicyclists will be able to cross TH 252 without the long delays experienced today. This alternative will also improve emergency response to the east side of TH 252.

The preferred alternative will require right of way acquisition and result in impacts to some properties adjacent to TH 252. However, the impacts of this alternative are less than the other alternatives considered. An interchange at 66th Avenue N would result in fewer right of way and neighborhood impacts than an interchange at 70th Avenue N. An interchange at 70th Avenue N would impact homes as well as the apartment building on the southwest corner of the TH 252-70th Avenue N intersection. In addition, it would be likely that the city would need to acquire commercial properties at 66th Avenue N due to elimination of access.

PUBLIC INPUT

Public Involvement Process

Public input informed the TH 252 Corridor Study process. Four open house meetings were held as part of the project. The first open house was held on May 21, 2014. The purpose of this open house was to present information on existing and future conditions and gather input on issues in the corridor. The second open house was held on February 10, 2015. The purpose of the second open house was to share alternatives for 66th, 70th, and 73rd Avenues N and present an evaluation of the alternatives. The third open house was held on April 2, 2015. The purpose of the third open house was to present and evaluation of alternatives for freeway access throughout Brooklyn Center and gather feedback regarding the alternative locations. Public comments received from the first three open house meetings are included as **Appendix B**. Following the third open house meeting, the City received a petition from the Riverwood Neighborhood requesting further opportunities for public input on the project (see Appendix D). As a result, the City planned and held a series of three meetings (referred to collectively as the fourth open house) to ensure that the public had an opportunity to review information about the project and provide well-informed feedback to the City. The fourth open house consisted of a series of three meetings on consecutive nights (January 26, 27, and 28, 2016). The purpose of these meetings was to present revised and refined corridor-wide concepts for access to TH 252 and to gather responses to a questionnaire from residents and business owners within the project area.

A project website was maintained throughout the study process. The website included updates on upcoming meetings and materials from open houses. The website also included contact information for residents to share their comments or request additional information.

Public Comments received

Open House 1: May 21, 2014

Comments received at the first open house fell into the following themes. These comments were used to develop the issues identified in **Figure 6** and were incorporated into the alternatives developed through the corridor study.

- **Funding:** Many comments were received about the need to secure funding for improvements to the corridor. Residents urged the city to work with State Legislators and US Senators/ Representatives to obtain funding for this corridor.
- **Signal timing:** Many residents commented that signal timing on TH 252 favors through traffic on TH 252 and makes it difficult to cross or turn on to TH 252.
- **Pedestrian crossings and transit:** Several residents noted that it is very challenging to cross TH 252 on foot. Signals do not provide adequate crossing time for pedestrians, resulting in pedestrians waiting in the median as they are unable to cross TH 252 in one signal cycle. This is particularly challenging for people who are accessing transit stops on the opposite side of Park and Ride lots.
- **Enforcement:** Several comments were received regarding the need to enforce traffic laws in this corridor. Residents noted that it is common to see vehicles running red lights on TH 252.
- **Sound mitigation:** Several attendees were concerned about noise as traffic increases on TH 252. Residents near the intersection of TH 252 and 66th Avenue commented that existing noise walls are too short to effectively block noise from TH 252.
- **Issues with exhaust/air pollution:** Several residents living adjacent to TH 252 commented that they are impacted by exhaust from vehicles, especially when traffic is backed up on TH 252.

- **Messages about traffic conditions/delays in corridor:** One attendee suggested that variable message boards be installed in the corridor to inform drivers about traffic conditions and delays in the corridor.

Open House 2: February 10, 2015

The second open house provided an opportunity for residents to comment on the alternatives developed and the alternatives evaluation. These comments fell into the following themes and were addressed in the refinement of the preferred alternative.

- **Property impacts:** Residents wanted more details on which properties and homes would be impacted by proposed alternatives at 66th Avenue N. Several residents were concerned that commercial property on the west side of TH 252 at 66th Avenue N was being preserved at the expense of residential properties on the east side.
- **Impacts to neighborhood east of TH 252:** A resident raised a concern that the proposed frontage road (as part of Alternatives 3 and 4 – Folded Diamond and Buttonhook interchanges) would encourage speeding through the neighborhood. One resident asked that a sound wall will be included in future projects at 66th Avenue N. Several residents were concerned about the impacts of an interchange at 66th Avenue N and requested closure of the intersection, with an interchange provided at 73rd Avenue N.
- **Alternatives evaluation:** One resident raised a concern that the alternatives that were scored the highest (Alternatives 3 and 4: Folded Diamond and Folded Diamond with Buttonhook) benefit through traffic and not residents in Brooklyn Center. Several residents thought that preserving residential property on the east side of 66th Avenue N should be a higher priority than preserving and supporting commercial activity on the west side.
- **Safety at 73rd Avenue N:** Several residents noted that there have been recent safety problems at 73rd Avenue N. If an interchange is constructed at 66th Avenue and the signal remains at 73rd Avenue N, the increase in traffic speeds south of 73rd Avenue will contribute to future safety problems at this intersection. A resident asked that improvements to 66th and 73rd Avenues N be completed at the same time so that there are not safety problems at 73rd Avenue N.
- **Transit, pedestrian, and bicycle access:** Residents were concerned with improving safety of bus operations on TH 252 and pedestrian and bicycle access across TH 252.
- **Next steps, agency coordination, and funding:** Residents asked about coordination with Brooklyn Park, Metropolitan Council, and MnDOT. Residents also asked about timing of improvements to 66th Avenue N and whether property owners would be assessed for future improvements on TH 252.

Open House 3: April 2, 2015

The third open house, which was held at the Brooklyn Center Community Center, consisted of a presentation focusing on preliminary access alternatives developed for the TH 252 corridor, along with an evaluation of these alternatives. There was substantial public comment in response to the presentation, and members of the public requested additional information regarding the alternatives, including details surrounding the geometry of potential interchange concepts, etc.

As a result of the feedback received at this meeting, the city worked with MnDOT to conduct some analysis to determine how various interchange designs and other access concepts could be accommodated in the corridor.

A part of this analysis, MnDOT also evaluated how various alternatives would affect traffic volumes on the road network surrounding TH 252. The results of these analyses were presented at Open House 4.

Open House 4: January 26–28, 2016

As described above, Open House 4 consisted of meetings on three consecutive evenings. These meetings were held at the Brooklyn Center Water Treatment Plant. Over 2,000 invitations for these meetings were mailed to area residents and business owners based on geographic location. The materials presented at each of the meetings was identical and members of the public were welcome to attend any (or all) of the meetings. Attendees at these meetings were invited to review four revised concepts for access to TH 252 and to complete a questionnaire regarding the alternative concepts, as well as the project in general. Seventy-one questionnaires were returned; the questionnaire and responses are included **Appendix A**, and responses are summarized below.

- A large majority of respondents (61 out of the 66 who responded to this question) believe that there are safety and/or congestion problems at the intersections along TH 252.
- When asked whether TH 252 should be a freeway, remain as is, or some other option, a majority (43) of those who responded said that it should be a freeway. Fourteen respondents suggested it should remain as is.
- Of the four concepts presented at the meeting, more questionnaire respondents expressed a preference for Option B (19 responses), and Option A (17 responses) received the second-most responses. Twelve responses favored Option F, six preferred Option D, and five suggested that either Option D or F would be preferable. Thirty-six responses favored an option including access at 66th Avenue (A or B) and there were 23 responses favoring an option that would not provide an access at 66th Avenue (D or F).
- Respondents were also asked which location was preferred for accessing TH 252. 73rd Avenue was mentioned most frequently by residents, followed by 66th Avenue, and then 70th Avenue. Several residents also mentioned that they prefer to use Brookdale Drive.
- Most of the residents who filled out the questionnaire responded that improvements should be implemented in the next 3–5 years. Fewer responses indicated that improvements should be made in the next 5–10 years or beyond.

NEXT STEPS

The TH 252 Corridor Study led by Brooklyn Center will be complete in Spring 2016. The next steps in the TH 252 corridor will be led by Hennepin County. In 2016, Hennepin County will lead a study of the long-term improvement needs on TH 252. As part of this work, the County will coordinate with the Cities of Brooklyn Center and Brooklyn Park, MnDOT, and the Metropolitan Council. The study will take a more detailed approach for the TH 252 corridor and analyze traffic and neighborhood impacts of freeway conversion alternatives. It will also address timing and phasing of freeway conversion. It will develop detailed concept geometric drawings and layouts. In addition, the study will identify preliminary environmental impacts and mitigation.

CMF / CRF Details

CMF ID: 461

Convert at-grade intersection into grade-separated interchange

Description:

Prior Condition: ***No Prior Condition(s)***

Category: Interchange design

Study: ***Revision of the Hand Book of Road Safety Measures*****, Elvik, R. and Erke, A., 2007**

Star Quality Rating:	★★★★☆
	Crash Modification Factor (CMF)
Value:	0.64
Adjusted Standard Error:	0.14
Unadjusted Standard Error:	0.08
	Crash Reduction Factor (CRF)
Value:	36 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	14
Unadjusted Standard Error:	8
	Applicability
Crash Type:	All
Crash Severity:	Property Damage Only (PDO)
Roadway Types:	Not Specified
Number of Lanes:	
Road Division Type:	
Speed Limit:	
Area Type:	Not Specified

Traffic Volume:	
Time of Day:	
	If countermeasure is intersection-based
Intersection Type:	Roadway/roadway (interchange ramp terminal)
Intersection Geometry:	4-leg
Traffic Control:	Not specified
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Meta-analysis
Sample Size Used:	

Other Details

Included in Highway Safety Manual?	Yes. HSM lists this CMF in **bold** font to indicate that it has the highest reliability since it has an adjusted standard error of 0.1 or less.
Date Added to Clearinghouse:	
Comments:	

[View the Full Study Details]

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For more information, contact **Karen Scurry,** *FHWA Office of Safety Programs* 609-637-4207

CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 460

Convert at-grade intersection into grade-separated interchange

Description:

Prior Condition: ***No Prior Condition(s)***

Category: Interchange design

Study: *Revision of the Hand Book of Road Safety Measures*, Elvik, R. and Erke, A., 2007

Star Quality Rating:	★★★★★

Crash Modification Factor (CMF)

Value:	0.43
Adjusted Standard Error:	0.05
Unadjusted Standard Error:	0.03

Crash Reduction Factor (CRF)

Value:	57 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	5
Unadjusted Standard Error:	3

Applicability

Crash Type:	All
Crash Severity:	Serious Injury,Minor Injury
Roadway Types:	Not Specified
Number of Lanes:	
Road Division Type:	
Speed Limit:	
Area Type:	Not Specified

Traffic Volume:	
Time of Day:	
	If countermeasure is intersection-based
Intersection Type:	Roadway/roadway (interchange ramp terminal)
Intersection Geometry:	4-leg
Traffic Control:	Not specified
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Meta-analysis
Sample Size Used:	

Other Details

Included in Highway Safety Manual?	Yes. HSM lists this CMF in **bold** font to indicate that it has the highest reliability since it has an adjusted standard error of 0.1 or less.
Date Added to Clearinghouse:	
Comments:	

[View the Full Study Details]

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14'-6" MINIMUM CLEARANCE
STATE AID STANDARDS
2.0'
10'
TRAIL
15'
11' LANE
4' SHLD
12'
LEFT TURN LANE OR PAINTED MEDIAN
VERTICAL BRIDGE ABUTMENT
B624
71.3' ±
COLOR KEY
ROADWAY
PAVED SHOULDER
CURB & GUTTER, RAISED MEDIAN
BRIDGE
RETAINING WALL
PAVEMENT REMOVAL
POSSIBLE NOISE WALL
CONCRETE WALK (PAVING)
PRELIMINARY
SUBJECT TO CHANGE
DATE: 08-JUN-2016 09:38
EMERSON AVE
DUPONT AVE
COLFAX AVE
BRYANT AVE
CAMDEN AVE
CAMDEN DR
EB 94
WB 94
EB 694
WB 694
BROOKLYN CENTER
BROOKLYN PARK
66th AVENUE
67th AVENUE
5th ST N
HORIZONTAL TIE-IN
69th AVE N
70th AVENUE
70th AVE N
72nd AVE N
73rd AVE N
73rd WAY N
WOODBINE LANE
ALDRICH AVE
252
WEST RIVER RD
DALLAS RD
WILLOW LN
RIVERDALE RD
65th AVE N
Mini Roundabout
CLOSE

Existing Conditions

TH 252 at 66th Avenue N – looking east

TH 252 at 66th Avenue N – looking north

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

July 8, 2016

Steven L. Lillehaug, PE, PTOE
Director of Public Works/City Engineer
City of Brooklyn Center
6301 Shingle Creek Pkwy
Brooklyn Center, MN 55430-2113

RE: Regional Solicitation Application for TH 252/66th Avenue Interchange project

Dear Mr. Lillehaug:

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 TH 252/66th Avenue Interchange project impacts MnDOT right of way on trunk highway (TH) 252.

MnDOT, as the agency with jurisdiction over TH 252, would allow the improvements included in the application for TH 252/66th Avenue Interchange project. Details of a future maintenance agreement with the City would be determined during project development to define how the improvements will be maintained for the project's useful life.

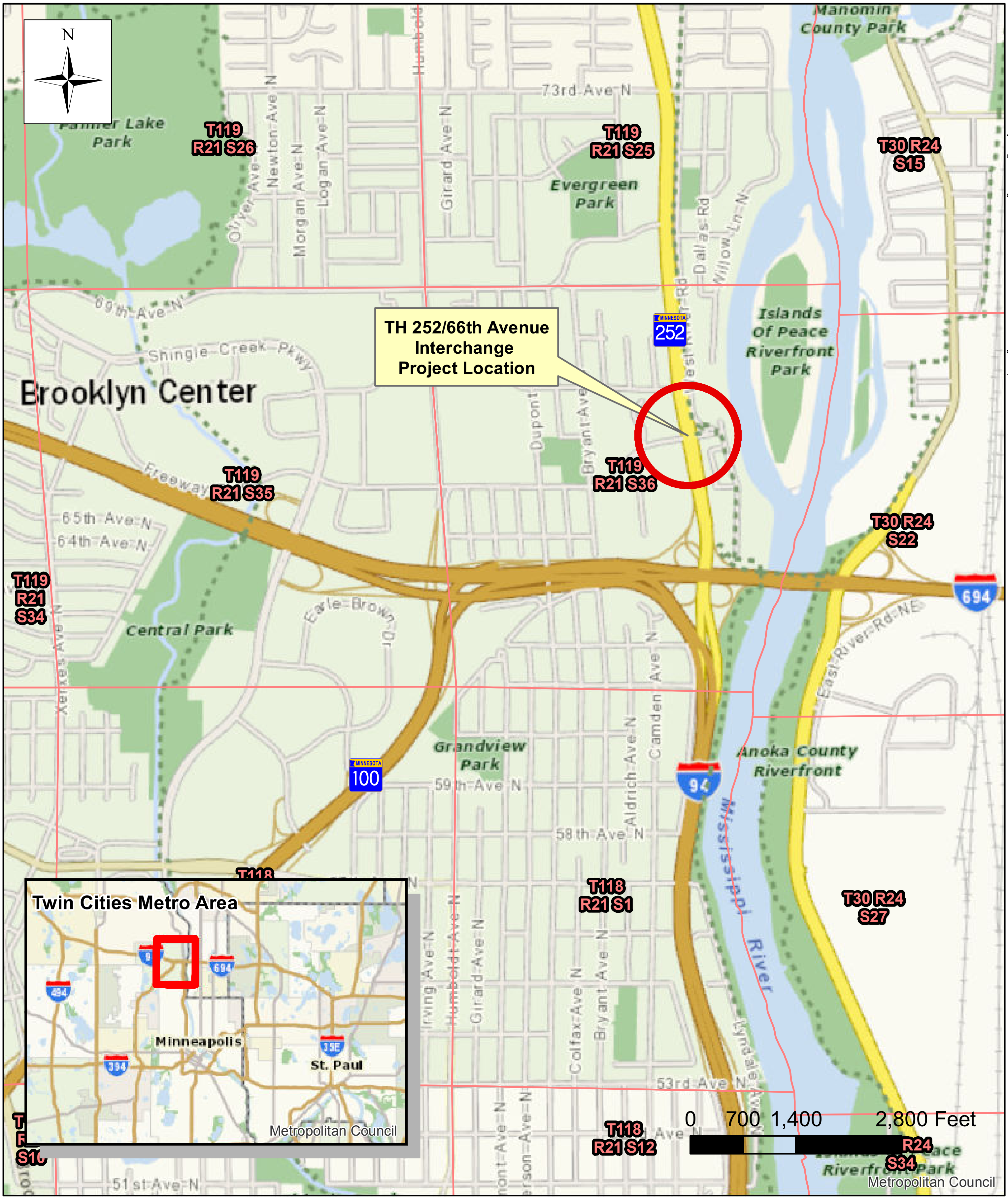
This project has no funding from MnDOT. In addition, the Metro District currently has no discretionary funding in year 2020 of the State Transportation Improvement Program (STIP) or year 2021 of the Capital Highway Investment Plan (CHIP) to assist with construction or assist with MnDOT services such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

Sincerely,

Scott L. M

Scott McBride, P.E.
Metro District Engineer

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



Legend

Section Line

Project Number: 01910-100

TH 252 / 66th Avenue
Interchange Grant Application

City of Brooklyn Center
Hennepin County

WSB

Document Path: K:\Personal\Andy Hingeveld\Regional Solicitation\TH252-66th Interchange Map.mxd