ACTION TRANSMITTAL

DATE:	May 9, 2014
TO:	Funding & Programming Committee
PREPARED BY:	Carl Ohrn, Planning Analyst 651-602-1719
SUBJECT:	Scope Change Request for Maple Grove Weaver Lake Road Roundabout Project
REQUESTED ACTION:	The City of Maple Grove requests a scope change to modify the scope of SP#189-020-030 to eliminate a roundabout at Weaver Lake Road and Dunkirk Lane (MSAS 106). The total project cost will be $1,481,695 with $1,185,356 Federal and $296,334 local.
RECOMMENDED MOTION:	Recommend denial of the scope change request for the Weaver Lake Road Project.

BACKGROUND AND PURPOSE OF ACTION:

Maple Grove received $1,905,676 in Surface Transportation Program (STP) funding for construction of three roundabouts on Weaver Lake Road in the 2011 solicitation. The scope change would remove the roundabout at Dunkirk Lane and reduce the federal funds to $1,185,356. The project is programmed in 2015. A TIP Amendment is not required because the changes, if approved, can be incorporated into the 2015-2018 TIP.

RELATIONSHIP TO REGIONAL POLICY: Projects that receive funding through the regional solicitation process are subject to the regional scope change policy. The purpose of this policy is to ensure that the project is designed and constructed according to the plans and intent described in the original application. Additionally, federal rules require that any federally-funded project scope change must go through a formal review and TIP amendment process if the project description or total project cost changes substantially. The scope change policy and process allow project sponsors to make adjustments to their projects as needed while still providing substantially the same benefits described in their original project applications.

STAFF ANALYSIS: Staff reviewed the submitted scope change request. The scope change is the removal of the Dunkirk Lane roundabout from the project. Since the time of the application and as a method to attempt to provide interim relief to an ongoing concern, the City has undertaken some traffic signal and lane changes at the intersection. Specifically, the city has altered the northbound outside lane, changing from a combined thru/right turn to a dedicated right turn lane. In addition, the city has modified the signal to a split phase in the north-south direction. These improvements, intended as an interim solution, have significantly improved the congestion. The city also believes, although there is not enough recent history to confirm, that the safety has also improved. As a result, the City believes that the level of improvement offered by the

roundabout intersection is marginal relative to the construction expense (both FHWA and local funds)

However, the speed of traffic along Weaver Lake Road still presents safety and side-street delay concerns. It is still the city's intent to construct roundabouts at both Xene Lane and Niagara Lane to address these concerns. As part of this scope change, the city requests that the funding amount be reduced to $1,481,695 ($1,185,356 FHWA).

Due to the significant change to the project, staff reviewed the original application and the points awarded for various criteria. Given the potential benefits of implementation of roundabouts specific criteria that focus on crash reduction and congestion relief were reviewed.

The crash analysis focused on the benefits of constructing three roundabouts. A signal was to be removed at Dunkirk Lane. Stop controls were to be eliminated at Xene Lane and Niagara Lane. The total crashes reported for 2007 to 2009 were 45, 40 (89%) of which occurred at Dunkirk. There were 18 injury crashes reported, 15 (83%) at Dunkirk. There were 27 property crashes reported, 25 (93%) at Dunkirk. The crash reductions realized from the project were 21.7, 18.5 (85%) at Dunkirk.

The score received for crash reduction was 60 points out of 150, and for cost-effectiveness of crash reduction 121 points were given out of 125. In review of the crash locations, about 88% of the crashes and the crash reduction was to occur given occurrences at Dunkirk Lane and Weaver Lake Road. Assuming the Dunkirk intersection accounted for about 88% of crashes and reductions the 181 points received would be reduced to approximately 22 points. The project received a total of 802 points. If this were reduced by 159 points the score of the project would be 643 points.

The lowest scoring project selected for funding in the "A" minor expander category in 2011 had a score of 791 points. There were four projects with scores higher than 643 points that were not selected for funding.

The scores received for congestion reduction and cost effectiveness of congestion reduction were 48 points of 100 and 74 points of 75 respectively for a total of 122 points. The volume to capacity ratio analysis and cost effectiveness was only conducted at the intersection of Weaver Lake Road and Dunkirk Lane.

All points awarded were based on the improvements achieved by implementing a roundabout and eliminating the signalized intersection at Dunkirk Lane. There is not sufficient data in the application to calculate the congestion reduction that might occur if roundabouts were only to be constructed at Xene and Niagara. Dunkirk is an "A: minor expander similar to Weaver Lake Road where a signal exists today. Xene and Niagara Lane are local streets. While it is not possible to calculate the reduction in points that would occur, there is little doubt that the score for congestion relief and cost effectiveness would be lower thus further reducing the total score the project would have received.

Based on review of the information provided in the scope change request and the original application, staff recommends denial of the requested scope change.

ROUTING

TO	ACTION REQUESTED	DATE COMPLETED
TAC Funding & Programming Committee	Review & Recommend	
Technical Advisory Committee	Review & Recommend	
Transportation Advisory Board	Review & Approve	

City of Maple Grove
12800 Arbor Lakes Parkway, P.O. Box 1180, Maple Grove, MN 55311-6180 763-494-6000

April 28, 2014

Mr. Karl Keel, P.E.
Chair, TAC Funding and Programming Committee
Metropolitan Council
390 Robert Street North
St. Paul, MN 55101

Subject: Scope Change Request
Weaver Lake Road Roundabouts
S.P. 189-020-023
City of Maple Grove

Dear Mr. Keel:

The City of Maple Grove received STP funding in 2012 for the construction of three multi-lane roundabouts along Weaver Lake Road (MSAS 102) at the following intersections: Dunkirk Lane (MSAS 106), Xene Lane and Niagara Lane (see **Exhibit A**). The funding is in the 2015-2017 Transportation Improvement Program for the State Fiscal Year 2015 in the amount of $2,620,305 ($2,096,244 FHWA). The purpose of this letter is to request a scope change (including a funding change) for the project.

Specifically, the scope change is the removal of the Dunkirk Lane roundabout from the project. Since the time of the application and as a method to attempt to provide interim relief to an ongoing concern, the City has undertaken some traffic signal and lane changes at the intersection. Specifically, we have altered the northbound outside lane, changing from a combined thru/right turn to a dedicated right turn lane. In addition, we have modified the signal to a split phase in the north-south direction. These improvements, intended as an interim solution, have significantly improved the congestion. We also believe, although there is not enough recent history to confirm, that the safety has also improved. As a result, the City believes that the level of improvement offered by the roundabout intersection is marginal relative to the construction expense (both FHWA and local funds).

However, the speed of traffic along Weaver Lake Road still presents safety and side-street delay concerns. It is still the City's intent to construct roundabouts at both Xene Lane and Niagara Lane to address these concerns. As part of this scope change, we request that our funding amount be reduced to $1,481,695 ($1,185,356 FHWA). The reduction amount corresponds exactly to the previously-requested amount for the Dunkirk Roundabout as submitted in 2012 for HSIP funding.

We are grateful to the Metropolitan Council and MnDOT for awarding these funds and for their consideration of this scope change. Should you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Jupe Hale, P.E.
Transportation Operations Engineer

JH:rkg

SCOPE CHANGE REQUEST

Weaver Lake Road Roundabouts at Dunkirk Lane, Xene Lane and Niagara Lane
S.P. 189-020-023
Maple Grove, Minnesota

Location Map

A map showing the location of the project within the area and region is attached as **Figure 1**.

Revised Project Description

Since the time of the application and as a method to attempt to provide interim relief to an ongoing concern, the City has undertaken some traffic signal and lane changes at the Dunkirk Lane intersection. Specifically, we have altered the northbound outside lane, changing from a combined thru/right turn to a dedicated right turn lane. In addition, we have modified the signal to a split phase in the north-south direction. These improvements, intended as an interim solution, have significantly improved the congestion. We also believe, although there is not enough recent history to confirm, that the safety has also improved. As a result, the City believes that the level of improvement offered by the roundabout intersection is marginal relative to the construction expense (both FHWA and local funds).

The following summarizes the proposed scope change:

1. Deletion of the proposed roundabout at Weaver Lake Road and Dunkirk Lane;
2. Construction of a multi-lane roundabout at Weaver Lake Road and Xene Lane as originally proposed in the application (see **Figure 2a**); and
3. Construction of a multi-lane roundabout at Weaver Lake Road and Niagara Lane as originally proposed in the application (see **Figure 2b**).

Work to be Completed

A preliminary traffic and corridor study were completed in advance of the original application. With the approval of the Scope Change request, the City will commence the Project Memorandum preparation and final design. The anticipated project schedule is below:

Public Open House #1	July 2014
Draft Project Memorandum Submittal	August 2014
Final Project Memorandum Submittal	September 2014
Project Memorandum Approval	November 2014
Public Open House #2	November 2014
Commence Right of Way Acquisition	November 2014
Permits	January 2015
Plan Submittal to State Aid	January 2015
Right of Way Acquisition Complete	March 2015
Plan Approval	March 2015
Bid Process	April-May 2015
Construction	June – September 2015

Revised Cost Estimate

The table below summarizes costs and funding information for the original STP project as well as the revised funding assuming the Scope Change request as proposed. A modified detailed construction cost estimate is provided as **Figure 3**.

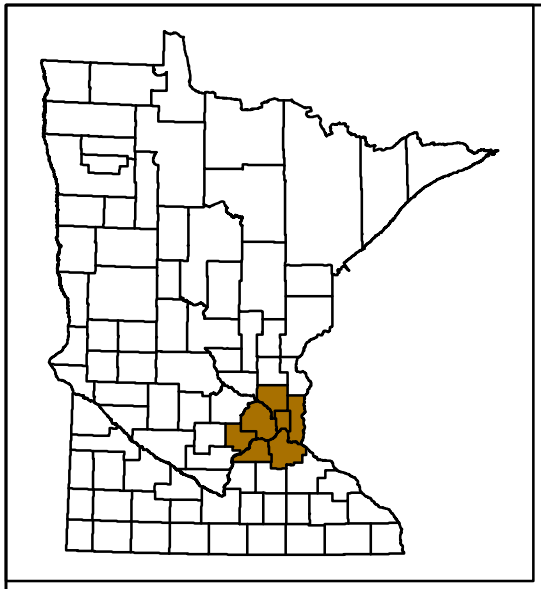
Funding Source	Original STP Project[1]	Proposed with Scope Change
STP – FY 2015	$1,905,676	$1,185,356
Local	$476,419	$296,339
Total	$2,382,096	$1,481,695

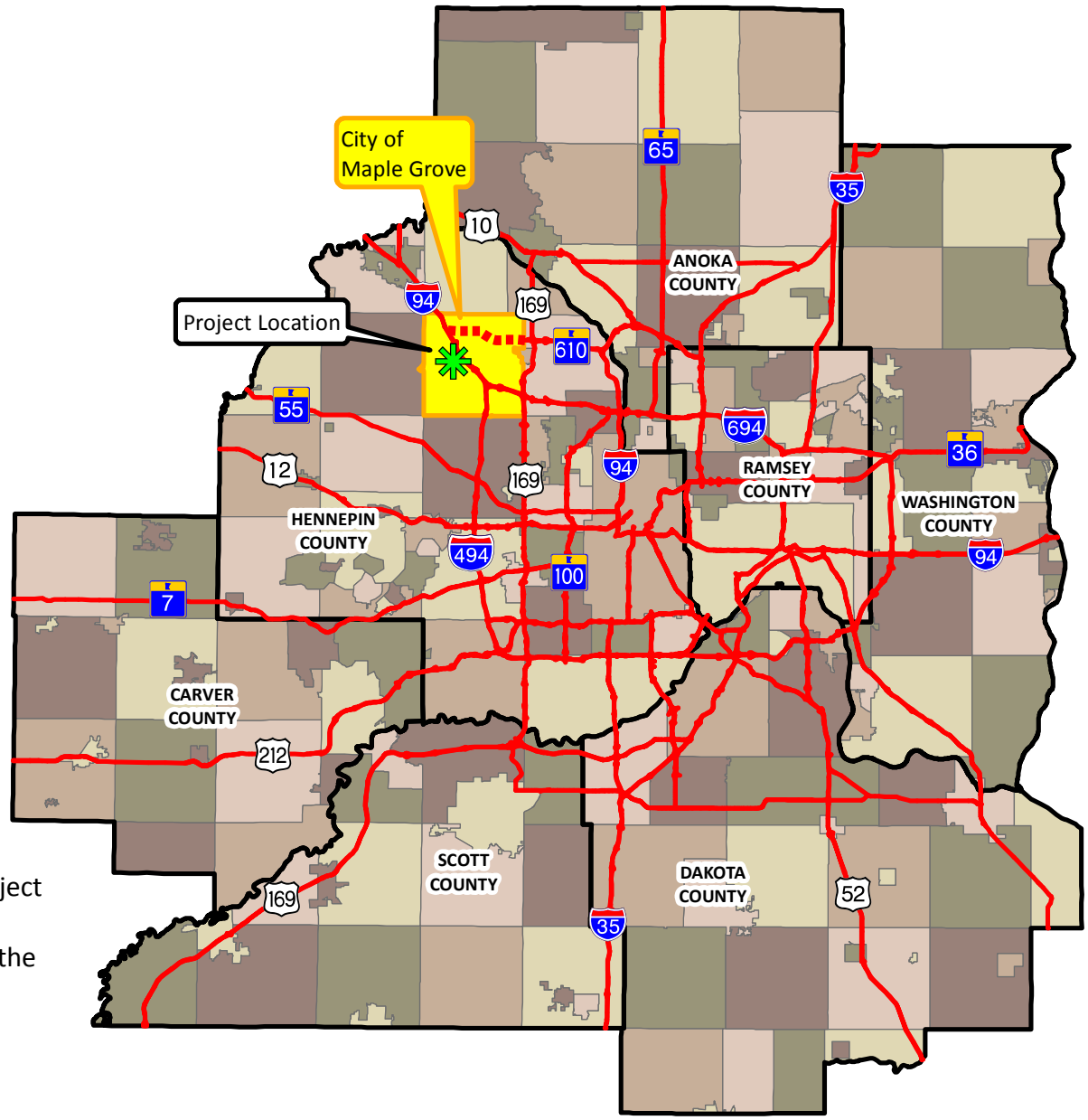
[1] *As identified in the current STIP*

Updated Project Description

Weaver Lake Road at Xene Lane and Niagara Lane; construct roundabouts.

The project description and cost will be updated in the 2105-2018 TIP.





The original Weaver Lake Road Roundabouts project included the construction of three roundabouts along a 1.3 mile portion of Weaver Lake Road in the City of Maple Grove, Hennepin county, MN

N

Miles

0 3.5 7 14

City of Maple Grove

Principal Arterial

Project Location

Municipalities and Townships shown in various colors

Figure 1a

Regional Project Location

Weaver Lake Road Roundabouts

S.P. 189-020-023

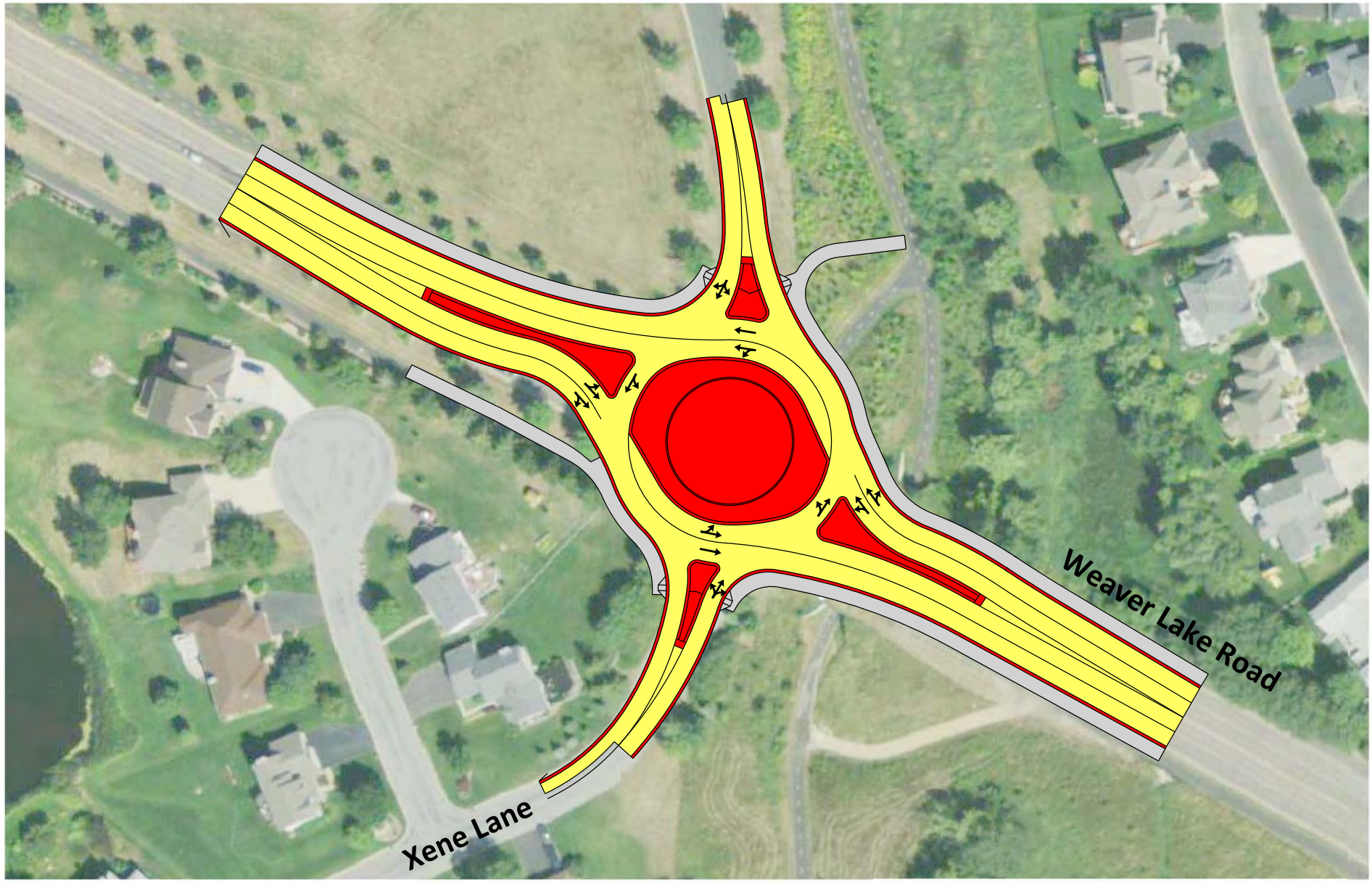
N

0 400 ft 800 ft

City of Maple Grove

Figure 1b
Proposed Roundabouts
Weaver Lake Road Roundabouts
S.P. 189 020 023

Date: Printed: 8/19/2011
WSB Filename: K:\0193-00\Cad\Exhibits\HSIP Funding Application\fig-04a Proposed Roundabouts.dgn



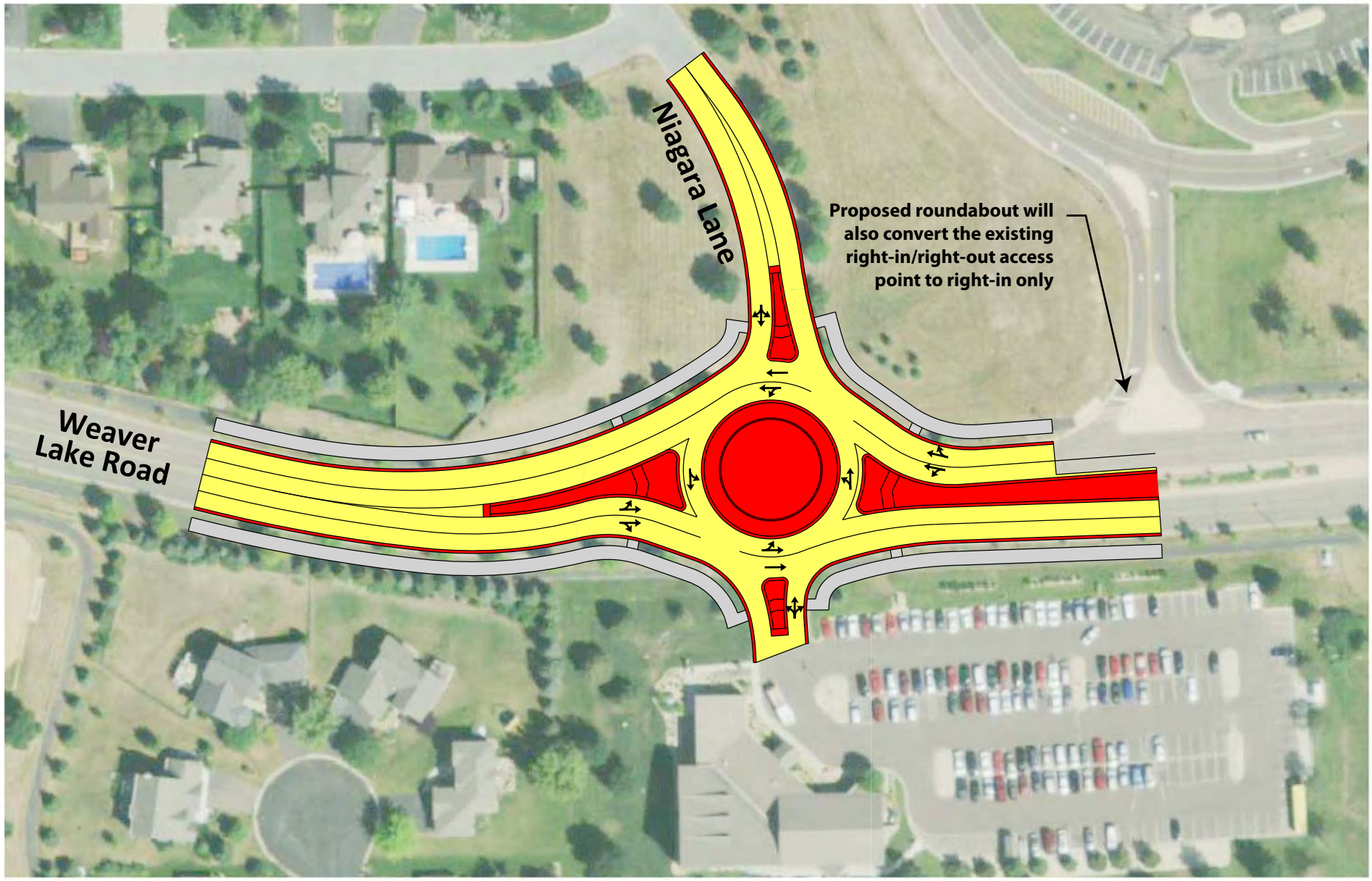
N

0 50 ft 100 ft

City of
Maple Grove

Figure 2a
Xene Lane Roundabout
Weaver Lake Road Roundabouts
S.P. 189-020-023

Date: Printed: 8/19/2011
WSB Filename: K:\0193-00\Cad\Exhibits\HSIP Funding Application\fig-04c Xene Lane Roundabout.dgn



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0 50 ft 100 ft

City of Maple Grove

Figure 2b
Niagara Lane Roundabout
Weaver Lake Road Roundabouts
S.P. 189-020-023

Date: Printed: 8/19/2011
WSB Filename: K:\0193-00\Cad\Exhibits\HSIP Funding Application\fig-04d Niagara Lane Roundabout.dgn

FIGURE 3

Revised Construction Cost for Proposed Scope Change

TOTAL		
CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES		
Check all that apply	ITEM	COST
X	Mobilization (approx. 5% of total cost)	$61,390
X	Removals (approx. 5% of total cost)	$77,215
X	Roadway (grading, borrow, etc.)	$132,630
X	Roadway (aggregates and paving)	$482,320
	Subgrade Correction (muck)	
X	Storm Sewer	$28,800
	Ponds	
X	Concrete Items (curb & gutter, sidewalks, median barriers)	$175,885
X	Pedestrian Curb Ramps (ADA)	$5,460
X	Path/Trail Construction	$91,695
X	Traffic Control	$30,000
X	Striping	$10,000
X	Signing	$10,000
X	Lighting	$84,000
X	Turf - Erosion & Landscaping	$41,000
	Bridge	
X	Retaining Walls	$47,500
	Noise Wall	
	Traffic Signals	
	Wtland Mitigation	
	Other Natural and Cultural Resource Protection	
	RR Crossing	
X	Utilities Replacement/Relocation	$10,500
X	Contingencies	$193,300
	TOTAL CONSTRUCTION COST	$1,481,695

"A" Minor EXPANDERS

Project Information				Funding Information			Scoring												
Code Number	Applicant	Project Name	Project Description	Federal Amt.	Match Amt.	Project Total	A1	B1	B2	B3	C1	C2	C3	D1	D2	D3	D4	D5	E	**Total**
AE-11-01	Anoka County	CSAH 11 Reconstruction	Reconstruction of CSAH 11 (Foley Blvd) from north of Egret Blvd to north of Northdale Blvd as a 4-lane divided roadway as well as a trail and sidewalk, ponds, traffic signals and dedicated left- and right-turn lanes	$2,988,000	$747,000	$3,735,000	55	150	50	100	125	75	67	54	50	100	52	62	60	**1000**
AE-11-05	MnDOT	TH 97/TH 61 Intersection Reconstruction with Roundabouts	Reconstruction of the intersection of TH 97 and TH 61 in Forest Lake, removing signals and construction of multi-lane roundabouts, as well as construction of a school entrance from northbound TH 61 to Forest Lake High School, and bike/pedestrian facilities including a pedestrian bridge	$4,800,000	$1,200,000	$6,000,000	60	134	41	89	120	62	75	74	13	90	74	74	93	**999**
AE-11-13	Maple Grove	Weaver Lake Road Roundabouts	Construction of roundabouts on Weaver Lake Road at Dunkirk Lane, Xene Lane, and Niagara Lane in Maple Grove	$1,905,676	$476,419	$2,382,095	65	60	20	48	121	41	74	100	25	100	32	49	67	**802**
AE-11-06	Scott County	CSAH 17 Reconstruction	Reconstruction of CSAH 17 from south of CSAH 78 to north of CSAH 42 as a 4-lane divided roadway and multi-use trail	$6,160,000	$1,540,000	$7,700,000	66	28	23	98	58	33	35	85	25	100	81	75	93	**800**
AE-11-14	Bloomington	CSAH 34 Reconstruction	Reconstruction of CSAH 34 (Normandale Blvd) from W94th St to the 8500 block of Normandale Blvd in Bloomington as a 4-lane divided roadway with left-turn lanes and multi-use trails	$5,800,000	$1,450,000	$7,250,000	82	44	45	64	87	60	10	38	50	90	85	69	67	**791**
AE-11-09	Plymouth	Vicksburg Lane Reconstruction	Reconstruction of Vicksburg Lane from Old Rockford Rd to Schmidt Lake Rd in Plymouth as a 4-lane divided roadway with turn lanes, multi-use trails, traffic signal and bus shelter	$4,001,040	$1,000,260	$5,001,300	43	16	34	88	49	56	38	55	38	95	84	71	49	**716**
AE-11-12	City of Rogers	Fletcher Bypass	Construction of a roadway from south of CR 116/Territorial Rd/Fletcher Ln intersection to CSAH 81 1.3 miles east of the TH 101/CSAH 81 intersection in Rogers	$2,384,000	$596,000	$2,980,000	31	33	35	74	107	65	21	70	25	90	79	0	47	**677**
AE-11-08	Ramsey County	Lexington Avenue Capacity and Safety Improvements	Construct turn lanes, medians, pedestrian improvements, and access controls on CSAH 51 (Lexington Ave) from just south of I-694 to just north of CSAH 19 in Arden Hills and Shoreview	$1,295,126	$323,781	$1,618,907	55	47	14	47	123	44	68	73	13	32	34	45	63	**658**
AE-11-16	Washington County	CSAH 22 Reconstruction	Reconstruction of CSAH 22 (70th St) from Goodview Ave to Hinton Ave in Cottage Grove as a 4-lane divided roadway with multi-use trails	$7,000,000	$3,391,400	$10,391,400	25	95	29	43	102	36	19	32	25	55	76	58	43	**638**
AE-11-04	Farmington	CSAH 31 & CR 64 Roundabout	Construct a multi-lane roundabout at the intersection of CSAH 31 (Pilot Knob Rd) and CR 64 (195th St) in Farmington as well as access modifications, trail, and pedestrian underpass	$1,632,000	$408,000	$2,040,000	56	29	11	21	113	21	10	50	25	90	82	59	67	**634**
AE-11-11	Hennepin County	CSAH 103 Reconstruction	Reconstruction of CSAH 103 (W Broadway) from south of Candlewood Drive North to 85th Ave North in Brooklyn Park as a 4-lane divided roadway with turn lanes, sidewalk and multi-use trail, and signal replacements.	$6,400,000	$1,600,000	$8,000,000	51	27	23	31	52	31	10	41	50	95	30	58	100	**599**
AE-11-17	Carver County	CSAH 14 Realignment/ Reconstruction	Realignment and Reconstruction of CSAH 14 (Pioneer Trail) from Village Rd to west of Bavaria Rd in Chaska as a 4-lane roadway with multi-use trail	$7,000,000	$1,850,000	$8,850,000	37	24	25	21	34	28	10	69	38	100	97	68	27	**578**
AE-11-07	Shakopee Mdewakanton Sioux Community	CSAH 83 Reconstruction	Reconstruct CSAH 83 from south of CSAH 42 to CSAH 82 within SMSC tribal land in Prior Lake as a 4-lane divided roadway, sidewalk and multi-use trails	$7,000,000	$8,742,000	$15,742,000	60	41	11	77	27	7	10	63	25	75	95	29	47	**567**
AE-11-03	Dakota County	CSAH 9 Roundabout	Construct a multi-lane roundabout at the intersection of CSAH 9 (Dodd Blvd) and Highview Avenue in Lakeville including a multi-use trail	$1,600,000	$400,000	$2,000,000	49	0	16	21	0	44	10	72	25	90	30	55	69	**481**
AE-11-18	Carver County	CSAH 18 Reconstruction Phase 3	Reconstruction of CSAH 18 from TH 41 to Powers Blvd in Chanhassen and Chaska as a 4-lane divided roadway with multi-use trail	$5,200,000	$1,300,000	$6,500,000	25	12	11	21	0	14	10	54	38	100	70	30	86	**471**
AE-11-10	Hennepin County	CSAH 101 Reconstruction	Reconstruction of CSAH 101 from just north of CSAH 62 (Townline Rd) to just north of CSAH 3 (Excelsior Blvd) in Minnetonka as a 2-lane roadway with dedicated turn lanes, with mult-use trails, bus stop improvements and signal replacement	$7,000,000	$5,000,000	$12,000,000	44	26	0	21	8	2	10	52	50	100	14	66	36	**429**
TOTAL				$72,165,842	$30,024,860	$102,190,702														

A.1.	Relative Importance of Route
B.1.	Crash Reduction
B.2.	Air Quality
B.3.	Congestion Reduction
C.1.	Crash Reduction Cost Effectiveness
C.2.	Air Quality Cost Effectiveness
C.3.	Congestion Reduction Cost Effectiveness
D.1.	Development Framework Planning Area Objectives

D.2.	Progress Toward Affordable Housi
D.3.	Land Use And Access Mgmt Planr
D.4.	Access Management Improvemen
D.5.	Integration of Modes
E	Maturity of Project Concept

Federal STP-UG Funding Application (Form 1)

INSTRUCTIONS: Complete and return completed application to Kevin Roggenbuck, Transportation Coordinator, Transportation Advisory Board, 390 North Robert St., St. Paul, Minnesota 55101. (651) 602-1728. Form 1 needs to be filled out electronically. Please go to Metropolitan Council's Regional Solicitation website for instructions. **Applications must be received by 5:00 PM at the Metropolitan Council FTP site or postmarked on July 18, 2011. *Be sure to complete and attach the Project Information form.**	Office Use Only

I. GENERAL INFORMATION

1. APPLICANT: City of Maple Grove

2. JURISDICTIONAL AGENCY (IF DIFFERENT): City of Maple Grove

3. MAILING ADDRESS: 12800 Arbor Lakes Parkway N

CITY: Maple Grove	STATE: MN	ZIP CODE: 55311	4. COUNTY: Hennepin
5. CONTACT PERSON: Marc Culver	TITLE: Traffic Engineer		PHONE NO. (763) 494-6364

CONTACT E-MAIL ADDRESS: mculver@ci.maple-grove.mn.us

II. PROJECT INFORMATION

6. PROJECT NAME: Weaver Lake Road Roundabouts Construction Project

7. BRIEF PROJECT DESCRIPTION (Include location, road name, type of improvement, etc...): The proposed project will make improvements to a 1.3 mile segment of Weaver Lake Road in Maple Grove, MN. The proposed project includes the construction of three roundabouts along the Weaver Lake Road Corridor at Dunkirk Lane, Xene Lane, and Niagara Lane. The proposed roundabouts will address corridor concerns, including safety, local roadway access, excessive vehicle speeds, and access management.

8. STP PROJECT CATEGORY - Check only one project grouping in which you wish your project to be scored.

"A" Minor Arterials:

☐ Reliever	☒ Expander	☐ Non-Fwy. Principal Arterial
☐ Connector	☐ Augmenter	☐ Bikeway/Walkway

III. PROJECT FUNDING

9. Are you applying or have you applied for funds from another source(s) to implement this project? Yes ☒ No ☐

If yes, please identify the source(s): The City has applied for HSIP funding relating to the construction of only the Dunkirk Lane Roundabout. Project implementation is not contingent upon receiving HSIP funding.

10. FEDERAL AMOUNT: $1,905,676	13. MATCH % OF PROJECT TOTAL: 80%
11. MATCH AMOUNT: $476,419	14. SOURCE OF MATCH FUNDS: State-Aid and Local Funds
12.* PROJECT TOTAL: $2,382,096	15. REQUESTED PROGRAM YEAR (CIRCLE): ☒2015 ☐2016
16. SIGNATURE	17. TITLE: TRAFFIC ENGINEER

Form 2: PROJECT INFORMATION

(To be used to assign State Project Number after project is selected)

Please fill in the following information as it pertains to your proposed project. Items that do not apply to your project, please label N/A. **Do not send this form to the State Aid Office. For project solicitation package only.**

COUNTY, CITY, OR LEAD AGENCY: ..... **City of Maple Grove**

FUNCTIONAL CLASS OF ROAD: ..... **A Minor Arterial Expander**

ROAD SYSTEM: ..... **MSAS**

NAME OF ROAD: ..... **Weaver Lake Road**

ZIP CODE WHERE MAJORITY OF WORK IS BEING PERFORMED: **55311**

APPROXIMATE BEGIN CONSTRUCTION DATE (MO/YR): **05/2015**

APPROXIMATE END CONSTRUCTION DATE (MO/YR): **10/2015**

LOCATION: From: ..... **Dunkirk Lane**
To: ..... **W Fish Lake Road**

TYPE OF WORK:
GRADE, AGG BASE, BIT BASE, BIT SURF, SIDEWALK, CURB AND GUTTER, STORM SEWER, SIGNAL REMOVAL, LIGHTING, BIKE PATH, PED RAMPS, RET WALLS, ROUNDABOUT

BRIDGE/CULVERT PROJECTS

OLD BRIDGE /CULVERT NO. NEW BRIDGE/CULVERT NO.

STRUCTURE IS OVER

Project Description

The City of Maple Grove is requesting STP funding for the construction of three roundabouts located along Weaver Lake Road. The three roundabouts will be located at the intersections of Weaver Lake Road with Dunkirk Lane, Xene Lane, and Niagara Lane. **Figure 1** shows the Project Location.

Weaver Lake Road is an "A" Minor Expander Arterial roadway that plays an important regional role in connecting residential neighborhoods with employment and commercial destinations as well as connecting to Principal Arterials such as I-94. The existing intersection of Weaver Lake Road and Dunkirk Lane is signal controlled, and both Weaver Lake Road and Dunkirk Lane are four-lane undivided roadways. The existing intersection geometry does not include turn lanes, and was identified as a high-crash location in the *Maple Grove Comprehensive Plan* (2009). Xene Lane and Niagara Lane are both local residential roadways. **Figures 2 and 3** show an aerial photograph of the existing corridor geometry.

The proposed reconstruction of the existing signalized intersection at Dunkirk Lane as a roundabout is anticipated to substantially reduce the number of crashes at this location, especially left-turn and right-angle crashes, which accounted for approximately 65% of all crashes at this location. As a result, it is also anticipated that the proposed roundabout at Dunkirk Lane will reduce the severity of the crashes at this location. **Figure 4b** shows the proposed roundabout configuration.

The proposed roundabout at Xene Lane is anticipated to improve flow into and out of the elementary school property to the north, especially for school buses. School representatives indicate that safety conditions are undesirable for buses attempting to make left-turns out of the school property. In addition, the slope of the existing driveway has been difficult for buses during winter months when roads are icy. The existing intersection of Weaver Lake Road, the school driveway, and Xene Lane are not aligned, and it currently operates as two intersections. The proposed roundabout will combine Xene Lane and the school entrance into a single intersection. The roundabout will enhance safety and operations for vehicles entering and exiting the adjacent neighborhood on Xene Lane. The proposed roundabout at this location will also improve conditions for pedestrians and cyclists crossing Weaver Lake Road. **Figure 4c** shows the proposed roundabout configuration.

The proposed roundabout at Niagara Lane is anticipated to improve safety conditions for residents accessing the residential neighborhood to the north as well as for buses accessing the park-and-ride co-located in the Cross Winds Church parking lot to the south. The project will also modify the right-in/right-out access point immediately east of Niagara Lane to be right-in only. This control of access will help Weaver Lake Road better conform to access management guidelines and responds to neighborhood complaints of vehicles making illegal U-turns at this location. Currently, some drivers will avoid waiting at the traffic signal at West Fish Lake Road by exiting the Boston Scientific property onto westbound Weaver Lake Road and make an illegal

U-turn at Niagara Lane to go eastbound on Weaver Lake Road to I-94. **Figure 4d** shows the proposed roundabout configuration.

Roundabouts were identified as the best treatment for these intersections as a result of the *Weaver Lake Road Study* (2010). The use of roundabouts along the Weaver Lake Road corridor has received support from both neighborhood residents and the Maple Grove City Council. The study also considered reconstructing the intersections with turn lanes and adding traffic signals to the corridor, but that alternative was determined to be less effective, more costly, and have greater right-of-way impacts than the proposed roundabouts.

The construction of the roundabouts is estimated to cost $2,382,096 in 2011 dollars. The City of Maple Grove is requesting STP funding for 80% of construction costs, or $1,905,676. Project engineering, legal, and administration is anticipated to cost an additional $595,524, and right-of-way acquisition will cost an additional $160,000. The City will use local funds to pay for engineering, legal, administration, right-of-way, and 20% of construction costs, a total of $1,231,943. The City will use Municipal State-Aid dollars as allowed to pay for the local share of the total project cost, supplemented by other local funds for any additional costs.

Project Elements and Estimate of Construction Costs

Fill out the scoping sheet below and provide the cost estimate for each element. You may add additional eligible costs (construction costs) that are not accounted for in the blank spaces at the bottom of the table. Applicants may instead use the more exhaustive checklist of the Mn/DOT scoping sheet in lieu of this checklist. The total cost should match the total cost reported for the project. Please use 2011 cost estimates, the TAB may apply an inflation factor to awarded projects.

TOTAL		
CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES		
Check all that apply	**ITEM**	**COST**
X	Mobilization (approx. 5% of total cost)	$67,000
X	Removals (approx. 5% of total cost)	$126,825
X	Roadway (grading, borrow, etc.)	$254,760
X	Roadway (aggregates and paving)	$639,520
	Subgrade Correction (muck)	$0
X	Storm Sewer	$44,940
	Ponds	$0
X	Concrete Items (curb & gutter, sidewalks, median barriers)	$253,660
X	Pedestrian Curb Ramps (ADA)	$7,540
X	Path/Trail Construction	$167,900
X	Traffic Control	$50,000
X	Striping	$15,000
X	Signing	$15,000
X	Lighting	$126,000
X	Turf - Erosion & Landscaping	$69,000
	Bridge	$0
X	Retaining Walls	$170,000
X	Noise Wall	$0
	Traffic Signals	$0
	Wetland Mitigation	$0
	Other Natural and Cultural Resource Protection	$0
	RR Crossing	$0
X	Utilities Replacement/Relocation	$25,625
		$0
		$0
		$0
		$0
		$0
X	Contingencies	$349,326
	TOTAL CONSTRUCTION COST	$2,382,096

Maps and Photos

All applications must include the following:

1. A map of the project limits. If it is a road project, highlight the segment of road to be constructed on a city or county roadway map. If it is a trail project, highlight the segment of trail to be constructed on a map that includes trails, bikeways or roadways. Applicants may include more than one map if the project impacts both a roadway and trail system.

2. An aerial photograph or photographs that show(s) the location of the project as it is today **OR** a plan view of the existing roadway that shows the roadway geometry and any bicycle, pedestrian and transit components.

3. A concept drawing of the proposed improvements that shows the roadway geometry and any bicycle, pedestrian and transit components upon completion of the project.

4. A 2030 Land Use Map(s) for all cities included within the project limits with TAZs identified. These can be obtained from the city's local comprehensive plan.

"A" MINOR ARTERIAL - EXPANDER - QUALIFYING CRITERIA

The applicant must show that the project meets all the following criteria to qualify for priority evaluation. Answer each criterion in a numbered sequence. **Failure to respond to any of the qualifying criteria will result in a recommendation to disqualify your project.**

1. The project must be consistent with the policies in the Metropolitan Council's officially adopted Metropolitan Development Guide, which includes the Transportation Policy Plan (TPP) (2010) and the Regional Development Framework (2004). Consistency with the TPP includes its appendix, which contains the regional functional classification criteria. Funding allocation to projects involving interchange construction and reconstruction on the Principal Arterial system (regardless of whether the project is on the Principal Arterial or and intersecting "A" Minor Arterial) are made conditional on the successful completion of the Highway Interchange Requests Procedures described in Appendix E of the Transportation Policy Plan. The applicant must list the documents and corresponding policy numbers or portions of text that help illustrate the project's consistency.

RESPONSE:

The proposed project is consistent with the Regional Development Framework (RDF) as follows:

- **Policy 1: Work with local communities to accommodate growth in a flexible, connected, and efficient manner.** The proposed project helps organize growth within a region identified as "Developing" in the RDF. While the larger community is "developing," the immediate area around the project is fully developed. The proposal encourages investment in an already-developed area and doesn't require the extension of utilities. The construction of roundabouts along Weaver Lake Road is not intended to open new areas for development. Rather, the project is intended to improve safety and efficiency within an already-developed area. Weaver Lake Road is an important commuter corridor connecting residential communities with employment opportunities. By enhancing Weaver Lake Road, the City of Maple Grove is actively planning to accommodate future growth in a way that most efficiently utilizes existing infrastructure. The potential for growth is limited along the corridor, however, the existing Boston Scientific site has been designated in the City's 2030 Land use Plan for Mixed-Use Development (see Figure 7).

- **Policy 2: Plan and invest in multi-modal transportation choices, based on the full range of costs and benefits, to slow the growth of congestion and serve the region's economic needs.** The proposed project helps to slow the growth of congestion and maintain the existing roadway network by eliminating a traffic bottleneck and other known traffic concerns. The existing signalized intersection at Weaver Lake Road and Dunkirk Lane does not efficiently accommodate the large number of southbound left-turns during AM peak hours. Likewise, the existing intersections of Weaver Lake Road with Xene Lane and the school entrance are not aligned and do not safely accommodate peak hour traffic demands associated with the school.

The roundabout at Niagara Lane will relieve congestion relating to the peak hour traffic associated with the Boston Scientific facility located to the northeast of the intersection. As the signalized intersection at W Fish Lake Road becomes congested, employees exiting the facility use the right-in-right-out access point to access westbound Weaver Lake Road, then will use one of several undesirable maneuvers to proceed on eastbound Weaver Lake Road. These undesirable maneuvers include illegal U-turns or looping through adjacent residential neighborhoods. The proposed roundabout at Niagara Lane and the removal of the existing right-out access from the Boston Scientific property will benefit residents along Niagara Lane by removing undesirable maneuvers. The proposed roundabouts will correct these deficiencies and other known traffic concerns identified in the *Weaver Lake Road Study* (2010).

Weaver Lake Road is also an existing transit corridor. Maple Grove Transit operates routes 780, 783, 787, 788, and 789 with express service to downtown Minneapolis during the AM and PM peak hours through the project area. The parking lot associated with the Cross Winds Church also functions as a park-and-ride facility. The proposed roundabout at Niagara Lane will be designed to improve bus access into and out of the park-and-ride lot to enhance both travel times and safety. The proposed project will improve travel time and reduce delay for existing transit operations along the Weaver Lake Road corridor.

The proposed project also includes the reconstruction of off-street trails as necessary to accommodate and encourage non-motorized travel. The proposed roundabouts will improve conditions for pedestrians crossing Weaver Lake Road and Dunkirk Lane by adding pedestrian refuge islands, shortening crossing distances, and striping crosswalks where they don't currently exist.

The proposed project is consistent with the Transportation Policy Plan (TPP) as follows:

- **Policy 2, Strategy 2b. Highway System Investments:** The proposed project enhances existing infrastructure and systems. The project improves the safety and efficiency of the existing roadways without increasing the long-term maintenance obligations of the City.
- **Policy 2, Strategy 2d. Bicycle and Pedestrian Investments:** The proposed project includes safety and usability enhancements for bicycles and pedestrians. The proposed roundabouts will improve conditions for pedestrians crossing Weaver Lake Road and Dunkirk Lane by adding pedestrian refuge islands, shortening crossing distances, and striping crosswalks where they don't currently exist.
- **Policy 3, Strategy 3f. Promoting Alternatives:** The proposed project includes the reconstruction of portions of off-street trails on both sides of Weaver Lake

Road and Dunkirk Lane to encourage non-motorized transportation. In addition, the roundabouts enhance the pedestrian experience and allow pedestrians to cross Weaver Lake Road and Dunkirk Lane more easily. In particular, the roundabout at Xene Lane will enhance access and safety for pedestrians accessing the adjacent elementary school and the Medicine Lake Regional Trail.

- **Policy 6, Strategy 6a**. **Public Participation**: The proposed project is the result of the *Weaver Lake Road Study* completed in 2010, a corridor study conducted by the City of Maple Grove that included several open house events and a mailing to solicit feedback from area residents. The concept of using roundabouts along the Weaver Lake Road corridor was presented at an open house and was well-accepted as a method of improving safety, moderating vehicle speeds, and improving access to adjacent neighborhoods.
- **Policy 9, Strategy 9e. Interconnected Roadway Network:** One of the primary purposes of the proposed project is to facilitate movement between local roadways and the "A" Minor Arterials. Weaver Lake Road accommodates medium-length through trips as well as short trips. The adjacent residential neighborhoods rely on Weaver Lake Road to provide access to the local low-volume roadways as well as I-94 to the east. The roundabouts at Xene Lane and Niagara Lane will improve safety for vehicles trying to enter or exit the Minor Arterial network from local roadways. The construction of a roundabout at Dunkirk Lane has been determined to be a more effective and efficient connection between Weaver Lake Road and Dunkirk Lane, two "A Minor Arterials.
- **Policy 9, Strategy 9h. Context-Sensitive Design:** The proposed roadway design is designed to respect and enhance the existing character of the community. One of the objectives of the project is for the roadway design to discourage speeding while minimizing delay for residents turning onto or off of Weaver Lake Road, which was also identified as a priority by area residents. The roundabout designs minimize the right-of-way acquisition required and minimize the overall footprint of the roadway. The three roundabout locations at Dunkirk Lane, Xene Lane, and Niagara Lane were chosen, in part, because the *Weaver Lake Road Study* determined that roundabouts could be constructed at these locations without requiring excessive right-of-way. The roundabouts are designed to facilitate pedestrian and bicycle movement, an element of the design residents identified as a priority. The proposed design is responsive to the objectives and priorities identified by the neighborhood during the *Weaver Lake Road Study* completed in 2010.
- **Policy 11, Strategy 11a. Investments in Managing the Highway System:** The proposed project is designed to manage and optimize the existing roadway. Based on observed traffic patterns and the findings of the *Weaver Lake Road Study*, roundabouts along Weaver Lake Road will help optimize the

performance of the corridor while also encouraging compliance with the posted speed limit. Roundabouts were determined to be a more efficient traffic control strategy than the installation of traffic signals, which would have resulted in excessive delay for vehicles on Weaver Lake Road.

- **Policy 11, Strategy 11e. Access Management:** The proposed project improves access management along the Weaver Lake Road corridor. The existing intersections of Xene Lane and the school entrance currently operate as independent T-intersections. The construction of a roundabout at this location and the realignment of the school entrance will consolidate access along the Weaver Lake Road corridor. In addition, incorporating the existing driveway to the Crosswinds Church located near Niagara Lane into the proposed roundabout will allow the driveway to function as an extension of Niagara Lane (rather than a private driveway). The project will also convert the existing right-in/right-out access to the Boston Scientific property east of Niagara Lane to a right-in only access. There is very little opportunity to further eliminate access locations along the corridor because of the existing roadway network topology.
- **Policy 18, Strategy 18e. Complete Streets:** The proposed project is designed to accommodate all modes of transportation, including walking, biking, transit, and automobiles. The proposed roundabouts will improve the safety of the existing intersections for pedestrians by minimizing the crossing distances at intersections, striping new crosswalks across Weaver Lake Road, and effectively moderating vehicle speeds.

2. The project must be included in, be part of, or address a transportation problem or need identified in one of the following: 1) an approved local or county comprehensive plan found to be consistent with Metropolitan Council plans; 2) a locally approved capital improvement program; 3) an officially adopted corridor study (trunk highway studies must be approved by Mn/DOT and Metropolitan Council); or 4) the official plan or program of the applicant agency. It also must not conflict with the goals and policies in these adopted regional plans; the 2030 Transportation Policy Plan (2010), the 2030 Regional Framework (2004), and the 2030 Regional Parks Policy Plan (2010). The applicant must reference the appropriate comprehensive plan, CIP, approved corridor study document, or other plan or program and provide copies of the applicable pages.

RESPONSE:

The *City of Maple Grove Transportation Plan* (2009) identifies the intersection of Dunkirk Lane and Weaver Lake Road as a high-crash location, indicating a need for improvements (see relevant pages of the Transportation Plan in Appendix G). The plan identifies a total of 38 crashes at this location from 2002 to 2006. The Weaver Lake Road and Dunkirk Lane corridors were also identified as roadways that would be approaching capacity by year 2030 based on traffic projections. As the proposed project is intended to improve safety and traffic operations through the Weaver Lake Road corridor, the proposed project is consistent in addressing the needs identified in the Transportation Plan.

The City also completed the *Weaver Lake Road Study* (2010), which recommended a roundabout for the intersections of Xene Lane and Niagara Lane. The corridor study

identified several needs for the Xene Lane and Niagara Lane intersections, including improved traffic operations, pedestrian and bicycle safety, side-street delay, and safety concerns relating to turning vehicles. The proposed roundabouts at these locations directly address the identified needs. The Weaver Lake Road Study Feasibility Report is presented in Appendix G.

3. The proposed project must be identified as on an "A" Minor Arterial Expander shown on the TAB approved roadway functional classification map adopted by the TAB on or before May 18, 2011 and recorded in the Council's electronic file. The vast majority of the project must be physically located on the "A" Minor Arterial Expander roadway between logical termini. The project may include construction on small portions of non-eligible roads, as long as the construction is essential to the operation of the entire project. Examples include but are not limited to reconstruction of the approaches on intersecting collector roads and construction or reconstruction of on-ramps or off-ramps. The applicant must provide a map or sketch of the project relative to the "A" Minor Arterial Expander system.

RESPONSE:

Weaver Lake Road is identified as "A" Minor Arterial Expander roadway as shown on the approved roadway functional classification map adopted by the TAB on or before May 18, 2011 and recorded in the Council's electronic file. The only construction involving roadways not identified as "A" Minor Arterial Expander roadways will be the intersection approaches at the three roundabouts.

4. At least seventy-five (75) percent of the length of the proposed "A" Minor Arterial Expander project must be within the 2000 urbanized area defined by the Bureau of the Census or the 2020 Metropolitan Urban Service Area (MUSA) as defined in the local comprehensive plan accepted by the Metropolitan Council; or if a route connects two MUSA areas and the Average Daily Traffic (ADT) standards qualify the roadway segment for expansion. In either case, the entire project length would be eligible for federal funding. The applicant must provide a map or sketch of the project relative to the urbanized area.

RESPONSE:

The entire length of the project is located within the 2000 urbanized area and the 2020 Metropolitan Urban Service Area (MUSA) as shown on Figure 5.

5. STP funds are available for roadway construction and reconstruction on new alignments or within existing right-of-way, including associated construction or installation of traffic signals, signs, utilities, bikeway or walkway components and public transit components. The cost of constructing a new bridge deck or reconstructing an existing bridge deck is eligible but the remainder of the superstructure and all elements of the substructure are not eligible. The applicant must describe the proposed project and state that the application includes only the eligible components.

RESPONSE:

(See the full-page project description attached to the front of this application) The proposed project includes the full reconstruction of three intersections as roundabouts. The project also includes the removal of the existing traffic signal at the intersection of Weaver Lake Road and Dunkirk Lane. This application requests

funding only for eligible costs, and does not request funding for any planning, engineering, or ROW costs.

6. Studies, preliminary engineering, design, construction engineering, etc. are not eligible for STP funding and should not be included in the required local match or the total project cost. Right-of-way costs are not eligible for STP funding and should not be included in the required non-federal match or the total project cost. Noise barriers, drainage projects, fences, landscaping, etc., are not eligible for STP funding as stand-alone projects, but are eligible if included as part of a larger, eligible project. The applicant must state that pre-construction work and ROW costs are not part of the total project cost in this application.

RESPONSE:

Pre-construction work and ROW costs are not part of the total project cost submitted in this application. This application does not request funding for any planning, engineering, or ROW costs.

7. An STP construction or reconstruction project must be a permanent improvement. Traffic management projects as part of a construction project are exempt from this policy. Temporary construction is defined as work that must be essentially replaced in the immediate future (within 5 years). Staged construction is considered permanent rather than temporary so long as future stages add to, rather than replace, previous work. The applicant must state that the proposed project is a permanent improvement and does not replace any regionally funded project that was opened to traffic within five years.

RESPONSE:

The proposed project is a permanent improvement and does not replace any regionally funded project that was opened to traffic within five years.

8. Applicants can request up to a cap of $7,000,000 in STP funds for a specific "A" Minor Arterial Expander project. Other federal funds may be combined with the requested STP funds, but the source(s) must be identified in the application. The cost of preparing a project for funding authorization can be substantial. For that reason, the project's federal cost must exceed $1,000,000. The applicant must show the requested federal amount and total project cost on the cover page.

RESPONSE:

The estimated total construction cost is $2,382,096. This application is requesting 80%, or $1,905,676.

9. STP funds awarded in the regional solicitation must be matched with non-federal funds. The non-federal match for any STP project must be at least 20% of the total cost. The applicant must state that it is responsible for the local (nonfederal) share. If the applicant expects any other agency to provide all or part of the local match, the applicant must include a letter or resolution from the other agency agreeing to participate financially in the project's construction.

RESPONSE:

The City of Maple Grove is responsible for the local (nonfederal) share of the cost, including all engineering, legal, and administration costs not eligible for

reimbursement. The City of Maple Grove intends to use a combination of State-Aid and local funds to pay for its portion of the project cost.

10. The applicant must include a letter from the agency with jurisdiction over the road indicating that it is aware of and understands the project being submitted, and that it commits to operate and maintain the facility for its design life and not change the use of any right-of-way acquired without prior approval from MN/DOT and the Federal Highway Administration.

RESPONSE:

A letter from the City of Maple Grove in support of the project and the commitment to maintenance and operation of the facility is included in Appendix C.

"A" MINOR ARTERIAL - EXPANDER - PRIORITIZING CRITERIA

Applicants must respond to each of the following prioritizing criteria. Label your responses clearly. If a criterion is not applicable to your project, explain why.

A. Relative importance of the route as an "A" Minor Arterial Expander. 100 points

Although Expander routes are located in growing suburban communities, the relative importance of each Expander is not the same. Some Expanders play a more significant role than others do in providing roadway capacity in areas where travel demand cannot be met with the existing system of principal arterials and public transit service. Some Expanders are the only minor arterial roadway available to provide medium and long-range trips for many miles. The following criteria are intended to measure the relative importance of each Expander route submitted for funding in this solicitation.

Definition and characteristics of the Expander route.

0-100 points The applicant must respond to the two items below and provide a map to help answer items a) and b). The Expander 'route' is defined as the uninterrupted length of the arterial that provides medium to long trips in the expanding urban area. The route may be an existing or planned road on the TAB adopted system. The route may be longer than the proposed project and include more than one street name, but it must be continuous. The endpoints of the route must be a principal or other minor arterial, or the edge of the 2020 MUSA. Provide a map showing the length of the Expander route and the closest parallel 'A' Minor or Principal Arterials on both sides of the Expander. Two projects on the same route will not be selected for funding unless they are at least 3.5 miles apart. Points under this criterion are assigned based on the current and forecasted traffic volume on the Expander route and the current transit ridership on the Expander route.

a) Provide the current (2009) and forecasted (2030) average daily traffic volume at two or more locations on the Expander route. MN/DOT 50-series maps should be used for current counts. Use approved city or county comprehensive plans, Met Council, accepted State Aid traffic factors by county, or a transportation study with documented acceptable forecasting methodology for forecasted volume.

RESPONSE:

(See Figure 5) The proposed project is part of the Weaver Lake Road / CSAH 109 corridor, approximately 10 miles in length stretching from Dunkirk Lane on the west to TH 252 on the east. It also connects to I-94, CSAH 130, CSAH 61, CSAH 81, US 169, CSAH 14, and other county and local roadways.

To the north, CSAH 30 is the nearest east-west "A" Minor Arterial, which is generally located 1 mile north of Weaver Lake Road / CSAH 109.

To the south, CSAH 10 and CSAH 130 are the nearest east-west "A" Minor Arterials. West of I-494, CSAH 10 is located generally

1.5 miles south of the Weaver Lake Road / CSAH 109 corridor. East of I-494, CSAH 130 is located generally one mile south of the Weaver Lake Road / CSAH 109 corridor.

(See Figure 6)The most recent traffic volumes posted on the Mn/DOT 50-series maps were collected between 2007 and 2009. The current AADT on Weaver Lake Road within the proposed project area is 15,200-16,900 vehicles per day. The existing AADT on the larger Weaver Lake Road / CSAH 109 corridor ranges from 9,600, to 34,500 vehicles per day. The existing traffic volumes are highest nearest the principal arterials, specifically near I-94.

According to the *Maple Grove Transportation Plan* (2009) and the *Brooklyn Park Transportation Plan* (2009), the forecast 2030 traffic volume within the proposed project area is 21,000 vehicles per day. The forecast 2030 traffic volumes on the larger Weaver Lake Road / CSAH 109 "A" Minor Expander route range from 19,000 to 45,000 near I-94.

b) Is public transit currently provided on this Expander route? If yes, what is the average annual ridership? The applicant does not need to provide this information in its funding application. Data will be provided by the Metropolitan Council staff based on the project location map and description.

RESPONSE:

(See Figure 11) Public transit is available along Weaver Lake Road. Maple Grove Transit operates express routes 780, 783, 787, 788, and 789 through the proposed project area on Weaver Lake Road. Each of these routes connects with the Park-and-Ride facility co-located with the Cross Winds United Methodist Church near the proposed Niagara Lane roundabout.

The proposed roundabouts will reduce delay for buses along the Weaver Lake Road corridor. The proposed roundabout at Niagara Lane will improve safety conditions for buses entering and exiting the park-and-ride lot.

B. Deficiencies and Solutions on Expander. 300 points

The regional solicitation process is one means of implementing regional plans. The region's Transportation Policy Plan states that the regional highway and street system will be preserved, managed, improved and expanded to support existing and planned land uses and safety and mobility needs consistent with the Regional Development Framework, the Transportation Policy Plan and approved local and county comprehensive plans. The following criteria reflect these objectives.

1. Crash Reduction.

0-150 points Calculate the total number of crashes reduced due to improvements on the 'A' Minor Arterial Expander made by the proposed project. Points will be awarded based on the total three-year number of crashes projected to be reduced by the proposed project. The applicant must base the estimate of crash reduction on the methodology found in Appendix E. The applicant must calculate the frequency using the Mn/DOT TIS system average for calendar years 2007 through 2009.

RESPONSE:

The construction of the three proposed roundabouts is anticipated to substantially improve the safety of the overall Weaver Lake Road corridor as well as at the three intersections proposed for roundabouts. The crash analysis presented here uses primarily crashes from the Mn/DOT TIS system. However, at the intersection of Weaver Lake Road and Dunkirk Lane, an additional 9 crashes have been identified based on City of Maple Grove police records and have been included in the calculations. A copy of the police report associated with these crashes, is shown in Appendix D. In addition, the TIS contains an error related to the location of a crash that occurred at the Xene Lane intersection. The TIS incorrectly locates this crash at a nearby intersection. A copy of the police report verifying that this crash occurred at the Xene Lane intersection is included in Appendix D.

The Mn/DOT Metro District Roundabout Crash Reduction Factors were used to determine the total number of crashes to be reduced through the construction of roundabouts at these three intersections. Crash reduction factors were determined based on the existing control at each intersection (signal or stop controlled), and separate crash reduction factors were used for injury and property damage crashes. The results of the analysis are shown in the following table:

Weaver Lake Road Intersection Location	Proposed Change	Number of Crashes (2007-2009)			Crash Reduction Factors*		Number of Crashes Reduced		
		Total	Injury	Property Damage	Injury	Property Damage	Injury	Property Damage	Total
Dunkirk Lane	Signal to Multi Lane Roundabout	40	15	25	65%	35%	9.8	8.8	**18.5**
Xene Lane	Stop Controlled to Multi-lane Roundabout	1	1	0	70%	55%	0.7	0.0	**0.7**
Niagara Lane	Stop Controlled to Multi-lane Roundabout	4	2	2	70%	55%	1.4	1.1	**2.5**
Total		**45**	**18**	**27**	**N/A**	**N/A**	**11.9**	**9.9**	**21.7**

*Mn/DOT Metro District Roundabout Crash Reduction Factors

Based on the analysis, the construction of three roundabouts is estimated to reduce a total of 22 crashes throughout a three year period.

2. Air Quality. The Transportation Policy Plan strongly supports environmental considerations when making transportation funding decisions. The Council supports funding priorities for transportation projects that ensure prevention of air quality violations through the reduction of mobile source emissions.

The applicant must show that the project will reduce emissions and help the region to maintain its attainment of federal carbon monoxide standards. All assumptions and calculations must be clearly documented and explained in order to receive points. The applicant must include documentation of how the VMT reduction was determined and specify the speed used for the assumptions. Speed assumptions shall be based on the methodology found in Appendix F. Points under this criterion will be awarded based on the reduction of carbon monoxide (CO), nitrogen oxides (NOx), and/or volatile organic compounds (VOC) emissions the proposed project is expected to provide.

0-50 points The applicant must demonstrate through a quantitative analysis that CO, NOx, and/or VOC emissions (in KILOGRAMS/DAY) will be reduced compared to the no-build alternative. The applicant must estimate CO NOx, and/or VOC emissions reductions using the MOBILE6 emissions factors and vehicle emissions reduction worksheet in Appendix G.

RESPONSE:

To determine the reduction of emissions, an analysis to determine the increase in peak hour speed due to the proposed project was conducted. The improvements take place on Weaver Lake Road from Dunkirk Lane to just east of Niagara Lane. Details of the analysis are shown below:

Existing Conditions

Segment Length = 1.30 miles
Posted Speed Limit = 40 mph
Free Flow Travel Time = (1.30 miles/40 mph) x 60 = 1.95 minutes
One signal (v/c >0.9) intersection delay = 75 seconds = 1.25 minutes
9 mid-block interruptions = 9 x 10 seconds = 90 seconds = 1.5 minutes
Existing Arterial Speed = (1.30 miles/(1.95 + 1.25 + 1.5 minutes) x 60 = 16.6 mph

Proposed Conditions
Segment Length = 1.30 miles
Posted Speed Limit = 40 mph
Free Flow Travel Time = (1.30 miles/40 mph) x 60 = 1.95 minutes
Three Roundabouts (v/c < 0.8) intersection delay = 3 x 25 seconds = 75 seconds = 1.25 minute
6 mid-block interruptions = 6 x 10 seconds = 60 seconds = 1.0 minute
Proposed Arterial Speed = (1.30 miles/(1.95 + 1.25 + 1.0 minutes) x 60 = 18.6 mph

Existing VMT Calculation
Annual VMT = (ADT) x (Length) x 365 days
Annual VMT = (15,200) x (1.30) x 365 = 7,212,400 miles
Daily VMT = Annual VMT / 250 working days per year
Daily VMT = 7,212,400 / 250 = 28,850 miles/day

Proposed VMT Calculation
Annual VMT = (ADT) x (Length) x 365 days
Annual VMT = (15,200) x (1.30) x 365 = 7,212,400 miles
Daily VMT = Annual VMT / 250 working days per year
Daily VMT = 7,212,400 / 250 = 28,850 miles/day

Based on the analysis, the peak hour average speed will increase by **2.0** mph along this route after the proposed project improvements. Using the MOBILE6 emission factors and Vehicle Emissions Reduction Spreadsheet, total emissions for the No-Build (existing) and Proposed conditions were calculated. Total emissions reduction due to the proposed improvements is **46.7** kilograms/day. Please refer to Appendix F for a copy of the worksheet.

3. Congestion Reduction.

0-100 points The applicant must show that the proposed project will reduce congestion at the most congested location on the Expander. The applicant must include the current volume to capacity (v/c) ratios in the AM and PM peak hours and the improvement in the ratios resulting from the project. Projects that have low existing v/c ratios will receive less credit for the improvement resulting from the project than projects that address a problematic existing v/c ratio. The applicant must use the methodology, worksheet and look-up tables found in Appendix H. The applicant must conduct a corridor analysis for new alignments, comparing parallel routes that will be affected by the project.

RESPONSE:

The volume to capacity (v/c) ratio analysis was conducted at the intersection of Weaver Lake Road and Dunkirk Lane for the AM and PM peak hours. Turning movement counts were collected in 2010. Details are shown below:

Existing Conditions
Southbound AM peak hour volume = 798
Vehicle Capacity = 1,200 (a shared left-turn/through and a shared through/right-turn lane)
AM V/C Ratio = 798/1,200 = 0.67

Westbound PM peak hour volume = 889
Vehicle Capacity = 800 (a shared left-turn/through and a right-turn lane)
PM V/C Ratio = 889/800 = 1.11

Proposed Conditions
Southbound AM peak hour volume = 798
Vehicle Capacity = 2,040
A two-lane approach to the roundabout conflicting with one circulating lane (shared left-turn/through and a shared through/right-turn lane).
Per Lane Capacity = $1{,}130e^{(-0.001* \text{ Circ Flow})}$ *[Equation 4-3]*
NCHRP Report 672, Roundabouts: An Informational Guide, Second Edition (2010)
Capacity = 1,130*2.7183(-0.001*102) = 1,020 per lane
AM V/C Ratio = 798/2,040 = 0.39

Westbound PM peak hour volume = 889
Vehicle Capacity = 1,756
One shared left-turn/through lane and a right-turn lane approach to the roundabout conflicting with two circulating lanes.
Right Lane Capacity = $1{,}130e^{(-0.0007* \text{ Circ Flow})}$ *[Equation 4-5]*
NCHRP Report 672, Roundabouts: An Informational Guide, Second Edition (2010)
Right Lane Capacity = 1,130*2.7183(-0.0007*348) = 886
Left Lane Capacity = $1{,}130e^{(-0.00075* \text{ Circ Flow})}$ *[Equation 4-6]*
NCHRP Report 672, Roundabouts: An Informational Guide, Second Edition (2010)
Right Lane Capacity = 1,130*2.7183(-0.00075*348) = 870
Total Approach Capacity = 886 + 870 = 1,756
PM V/C Ratio = 889/1,756 = 0.51

AM Improvement in V/C Ratio = 0.67 – 0.39 = 0.28
PM Improvement in V/C Ratio = 1.11 – 0.51 = 0.60
Total Improvement in V/C Ratio = 0.28 + 0.60 = 0.88

C. Cost Effectiveness. 275 points

The Regional Development Framework and Transportation Policy Plan document the need for adequate transportation funding to implement regional transportation plans. The region must allocate transportation funds in such a way that the selected projects provide the most benefit for the amount of funding requested. Cost effectiveness is an essential component of the regional solicitation process. Cost effectiveness calculations must be based on the total cost of the project, not just the portion of the project eligible for federal funding.

1. Crash Reduction.

0-125 points The applicant must calculate the cost per crash reduced on the Expander by the proposed project. The applicant must divide the total cost of the project by the answer from criterion B.1. Points will be awarded based on the relative cost per crash reduced.

RESPONSE:

Project Cost = $2,382,096

Number of Crashes to be Reduced = 22

Crash Cost Effectiveness = **$108,277/crash**

2. Air Quality

0-75 points The applicant must calculate the cost per kilogram per day that will be reduced by the proposed project compared to the no-build alternative. The applicant must divide the total project cost by the estimated reduction in CO, NOx, and/or VOC emissions per day calculated in question B.2.

RESPONSE:

Project Cost = $2,382,096

Estimated Emissions Reduction = 46.7 kilograms/day

Emissions Reduction Effectiveness = **$51,008/kilogram/day**

3. Congestion reduction.

0-75 points The applicant must calculate the cost per increase in hourly person throughput provided by the proposed improvement. The applicant must use the worksheet in Appendix I. Points will be awarded based on the lowest cost per increase in person throughput, but if there is little congestion under existing conditions fewer points will be awarded for increasing person throughput.

RESPONSE:

The hourly throughput in the AM peak hour, in the peak direction of travel (southbound), at the most congested location (Weaver Lake Road and Dunkirk Lane) was calculated for existing and proposed conditions. Details on the analysis are shown below:

Existing Conditions

Vehicle Capacity = 1200 (a shared left-turn/through and a shared through/right-turn lane)
AM peak hour vehicle occupancy = 1.07
AM peak hour ridership = 0, assume no increase in service
Hourly person throughput = 1,284 persons/hour

Proposed Conditions
Vehicle Capacity = 2,040 (a shared left-turn/through and a shared through/right-turn lane)
AM peak hour vehicle occupancy = 1.07
AM peak hour ridership = 0, assume no increase in service
Hourly person throughput = 2,183 persons/hour

Total increase in hourly person throughput **= 899 persons/hour**

The cost per increase in hourly person throughput = $2,382,096/899 = $2,649/person/hour

D. Development Framework Implementation. 425 points

The Metropolitan Development Guide is comprised of the ***2030 Regional Development Framework*** and system plans for transportation, including highways, transit and aviation; water resources management; and regional parks and trails. Together, the Development Framework and system plans create a vision for the region and are intended to help ensure the orderly, economical development of the seven-county area. The ***Framework*** is organized around four overall goals:

- Efficient Growth. Work with local communities to accommodate growth in a flexible, connected and efficient manner.
- Multi-modal Transportation. Plan and invest in multi-modal transportation choices, based on full range of costs and benefits, to slow the growth of congestion and serve the region's economic needs.
- Housing Choices. Encourage expanded choices in housing locations and types, and improved access to jobs and opportunities
- Natural Resource protection. Work with local and regional partners to conserve, protect and enhance the region's natural resources.

Under the Metropolitan Land Planning Act, local communities must prepare and submit to the Council local comprehensive plans that are consistent with the Council's regional systems plans. Local communities have submitted plans for 2030 and these have been reviewed by the Council.

1. Development Framework Planning Area Objectives **0-100 points**

Strategies for regional development relate directly to growth patterns within the region. The ***Framework*** communities are identified according to their regional planning area designation which is based on its geographic location, existing development patterns, forecast growth, planned land uses, and the availability of infrastructure. The project's relationship to **Framework** and **TPP** are addressed in the qualifying criteria.

The objective of this section is to address the land use and transportation linkages and how the project supports development and the accommodation of growth for the communities affected.

What are the 2030 land uses proposed in the community(ies) adopted plan for the project area/corridor affected? Identify the TAZs that lie partially or wholly within the project limits.

RESPONSE:

(See Figure 7 and Figure 8) According to the City's Comprehensive Plan, the proposed 2030 land use within the immediate project area and the Weaver Lake Road corridor includes low-medium density residential, park space, mixed-use, and public/semi-public properties (elementary school). The City has established a vision for further development or redevelopment of the area northeast of the intersection of Weaver Lake Road and Niagara Lane. The space is currently used as an employment center for Boston Scientific. Much of the area is currently used for surface parking lots. The City has established a vision for further infill development to result in a mixture of uses including office, retail, and residential uses.

Further to the east along Weaver Lake Road is the City's primary commercial retail center, including the area currently used for gravel mining. The City Land Use Plan has established a vision for a wide mixture of low, medium and high density residential land uses as well as mixed use, office, commercial, warehouse, and industrial land uses.

The proposed project is contained within TAZ numbers 783 and 784.

How does the project support this 2030 land use plan in the project area? Refer to the land use map and provide the land use categories and their description from the adopted local comprehensive plan.[1]

RESPONSE:

The proposed project is consistent with the city-wide land use plan. The land immediately adjacent to the proposed roundabouts at Dunkirk Lane and Xene Lane is primarily single-family homes, and is considered fully developed. In addition, the adjacent elementary school is well-established and an important community institution. The proposed project is intended to connect the existing residential, park, and institutional land uses with the existing and planned commercial and mixed-use land uses to the east and north of the project area.

1 Future Land Use map (planned land use 2030) and description for example: "low density residential—Mostly single-family homes with some two-family homes and open space within or related to a residential development at a gross density of 2 to 4 units per acre." "residential mixed use—Residential at a gross density of 7 to 30 units per acre, neighborhood commercial uses may be appropriate." "General Commercial—Broad range of businesses, generally highway-oriented, serving other businesses and City residents and requiring buffering from surrounding residential areas." "Agriculture—primarily agricultural purpose, including farming and horticulture, including farmstead or rural residence." [Examples from City of Coon Rapids Comprehensive Plan]

Weaver Lake Road and Dunkirk Lane are important connecting routes to link these residences with commercial and industrial areas to the north and east of the project area. The proposed roundabouts are designed to avoid unwanted impacts on established residential areas while providing adequate roadway capacity to help residents access the nearby commercial properties. In particular, Weaver Lake Road east of I-94 is a substantial commercial area, including the Gravel Mining Special Area east of I-94, and the mixed-use land use planned near the intersection of Weaver Lake Road and West Fish Lake Road.

The proposed project will also help relieve congestion along Dunkirk Lane, which will help provide access to the commercial and mixed-use areas near Dunkirk Lane and I-94, and help facilitate development anticipated as a result of the construction of TH-610 north of the project area.

The City's Land Use Plan defines the land use designations as follows:

- Low-medium density residential - 1-3.5 units per acre (up to 4.8 with affordability bonuses); single-family detached houses; townhouses; and other residential buildings having an individual exterior entrance for each unit. Townhouses and other attached houses shall be limited to 10% of the total number of units in a particular development.
- Mixed-use development - allows up to 22 units/acre; office buildings; high-density housing; major retail centers; civic buildings. Vertical mixtures allowed and encouraged. Review as a planned-unit development.
- Public and Semi-public - City Hall/Government Centers; libraries; public schools and other public facilities; places of worship and similar semi-public facilities
- Park - parks or golf courses
- Industrial - manufacturing, office-warehouse, office-showroom and warehouses

How does the project support 2030 forecasts for the project area? [Council staff will evaluate this criterion and will provide the following information to assist in the evaluation of this criterion: TAZ Project Area demographic profile population, household, employment and retail employment. The applicant does not need to provide a response.]

2. Progress Towards Affordable Housing Goals **0-50 points**

NOTE: Information and analysis in this section will be provided by Council staff

Methodology for Evaluating Progress Made Towards Affordable Housing Goals

Up to 50 points can be awarded to a project, based upon a community's or group of communities' progress in addressing their affordable housing goals for 1996-2010.

For communities that participate in the Livable communities Local Housing Incentives Program, data from their 1996-2010 negotiated housing goals was used to determine the progress they have made toward providing opportunities to address their affordable housing goals.

For communities that do not participate in the Local Housing Incentives Program, progress will be measured against what the benchmarks were for their community in the Council's LCA goal setting methodology used in determining goals for 1996 to 2010.

Communities negotiated goals for both ownership and rental housing. Analysis consisted of comparing the goal, progress made to date and determining the percentage of the goal achieved for both ownership and rental combined.

Example of Analysis:

	Negotiated Goal	Progress to Date	Overall Progress Made - %
Rental Units	900	200	
Ownership Units	200	125	
Total Housing Units	**1,100**	**325**	**30%**

Scoring:

Percent of Progress Made:	Points Awarded:
90-100%	50
71-89%	40
51-70%	30
31-50%	20
11-30%	10
1-10%	5

For projects with 2 or more communities, scores are averaged and then applied to the project. Communities that do not have negotiated goals are given the same average score of the other communities within their group.

3. Land Use and Access Management Planning

0-100 points

The Development Framework includes support for connected land use patterns served by an integrated street network. Access management along highways is a key component of planning for these objectives. In addition, various access management strategies can reduce crashes, improve traffic flow, and add operational capacity for the applicable roadway. Higher scores will be given to projects that are developed using a local access management plan and to projects located in communities that have a regulatory framework established to protect and improve access control in the future. Additional points will be awarded to projects that implement these plans by reducing undesired access points.

Reference and describe the local access management plan used to develop the proposed project, and describe the corresponding county or state access management plan which supports the regional road network. Higher scores will be awarded to projects developed with an approach that is consistent with county or state access management plans.

RESPONSE:

The City of Maple Grove has an Access Management Plan included in the City's Transportation Plan. The Access Management Plan has set standards and principles designed to preserve and enhance the efficient operation of the roadway system and reduce accident exposure. The guidelines are intended to balance the mobility and access, and are used to preserve the public investment in the roadway system and to give direction to developers for plan preparation. The Access Management Plan states that effective control of driveway access on the entire roadway system requires cooperation of municipal, county, and state officials. The City Access Management Plan states that the City strives to meet the access management policies developed by Mn/DOT on all principal arterials. The City Access Management Plan also states that the City strives to meet Hennepin County guidelines for access to the minor arterial system (including Weaver Lake Road). The City has also developed policies to guide access on local City streets (Collectors and Local Roads). The City Access Management Plan is shown in Appendix E.

Provide and identify intersection spacing and signal spacing guidelines, and driveway allowance criteria used for the proposed project and the corresponding county or state access management guidelines.

RESPONSE:

As mentioned above, the City of Maple Grove strives to meet the Hennepin County access management guidelines on minor arterial roadways. The intersection and signal spacing guidelines applicable to this project are established in the *Hennepin County Transportation Systems Plan* (HC-TSP). The guidelines established in the HC-TSP allow for one-quarter mile spacing (1,320 feet) of all intersections and driveways along urban undivided Minor Arterial roadways. Private low volume (<1,000 ADT) driveways and single family residential driveways are not permitted. The guidelines do not permit secondary partial access intersections (closer than one quarter mile) on undivided roadways. Traffic signals (or roundabouts) may be installed at all primary intersections. The Hennepin County Access Management Guidelines are included in Appendix E.

Having the necessary regulatory framework is essential for protecting the efficient functioning of the regional roadway network**.** Reference (adoption date) and describe the local zoning and subdivision ordinance regulations that are in place to maintain the access plan as adjacent properties are developed and/or redeveloped. Higher scores will be awarded to projects in communities with existing or proposed local support of the access management plan through existing regulations or ordinances.

RESPONSE:

The City of Maple Grove has adopted a local subdivision ordinance giving the City the authority to manage access locations on regional roadways. Subdivision Ordinance section 30-17(2)k was adopted in 1984 and says the following: *No residential lots shall receive direct access from a high volume collector or greater volume street, nor shall any*

commercial or industrial lot receive direct access from a minor arterial street or a street of greater volume. This ordinance reinforces the County and Mn/DOT access management plans to limit access to arterial roadways.

4. Corridor Access Management Improvements

0-100 points

Projects that help to implement the access management plan by removing or modifying non-conforming access points will receive points in this criterion. Identify the access locations and access management that currently exists and that will be allowed once the project is completed. Indicate by the following classifications, the existing access locations inconsistent with the proposed access management approach and any access locations that will be modified:

a. Private Residential Driveways/Field Entrances

RESPONSE:

There are three full-access private residential driveways on Weaver Lake Road within the project area. Two of the driveways located near Terraceview Lane serve seven townhomes and a single-family home. The two access points serve two ends of a small loop roadway to which the individual driveways connect. A third driveway serving a single-family home is located near Ranchview Lane. These three driveways are not in compliance with the Hennepin County access space guidelines, as no private driveways are permitted along minor arterial roadways. However, the three driveways will remain in their current location after completion of this project. There is no feasible option available to remove these driveways without relocating the residents and removing the homes. The existing access points are shown on Figure 9, and the proposed access points are shown on Figure 10.

b. Low-Volume Private Driveways * (Under 500 trips per day)

RESPONSE:

There are three full-access low-volume driveways on Weaver Lake Road within the project area. Two of the low-volume driveways provide access to Weaver Lake Elementary School to the north between Zanzibar Lane and Xene Lane. The third low-volume driveway serves the Cross Winds United Methodist Church near Niagara Lane. These three existing driveways do not conform to the Hennepin County access spacing guidelines as this type of driveway is not permitted along minor arterials.

The eastern driveway to elementary school entrance is located only approximately 70 feet west of the existing T-intersection with Xene Lane. As part of the proposed project, the eastern driveway entrance will be realigned to create a new four-way intersection at a roundabout that combines the Xene Lane access point and the eastern school entrance. The existing western entrance to the school will remain in place, as it is necessary for the circulation of buses and separation of vehicles and buses on the school property.

The privately owned entrance to the Cross Winds church is currently aligned with the existing Niagara Lane intersection, although the intersection does not function as a four-

way intersection. The design of the church entrance does not allow the church entrance to look or function as a part of the four-way intersection. As a result, the church entrance functions like a private driveway. However, the private parking lot is also used by as a Park & Ride facility with several bus lines turning into and out of the parking lot during peak periods. The construction of a roundabout at this location will result in the church entrance functioning like an extension of Niagara Lane rather than as a separate driveway. The existing access points are shown on Figure 9, and the proposed access points are shown on Figure 10.

c. High-Volume Private Driveways * (Over 500 trips per day)

RESPONSE:

There is an existing right-in/right-out access point to the Boston Scientific property to the north located just east of Niagara lane. This access point does not conform to the access spacing guidelines as it is located only 600 feet west of West Fish Lake Road and 270 feet east of Niagara Lane. This access point will be modified to become right-in only. Maintaining right-in access at this location is important to facilitate the internal circulation of heavy trucks to the loading points at the back side of the Boston Scientific buildings. The right-in access at this location will allow heavy vehicles to bypass the existing employee parking areas and pedestrian walkways that are heavily used by pedestrians entering and exiting the building. The existing access points are shown on Figure 9, and the proposed access points are shown on Figure 10.

d. Public Streets

RESPONSE:

There are seven public street intersections within the project area between Dunkirk Lane and West Fish Lake Road. The average intersection spacing throughout the corridor is approximately 0.16 miles, less than the 0.25 miles recommended in the Hennepin County access management guidelines. While the existing roadways do not conform to the access spacing guidelines, opportunities to remove access points are limited because of the roadway topology. Many of the adjacent neighborhoods rely on only one or two access points to Weaver Lake Road or Dunkirk Lane. To guarantee emergency response access and facilitate traffic circulation through the neighborhoods, it is not desirable to remove an access point if it would result in a residential neighborhood having only a single access point to the larger roadway network. It is not feasible at this time to remove any of the existing local roadway access points. The existing access points are shown on Figure 9, and the proposed access points are shown on Figure 10.

5. Integration of Modes

0-75 points

The *Transportation Policy Plan* requires that explicit consideration of all users of the transportation system be considered in the planning and scoping phase of roadway projects. The integration of modes criteria evaluate the value of the proposed project in providing better accommodations for pedestrians, bicyclists, transit and freight vehicles. Such accommodation should be provided within the existing right-of-way and provide the same level of access as motor vehicles unless it is shown to be impractical. In such cases, the project may include facilitation of such travel outside of the roadway right-of-way

along a close parallel route. “A” Minor Expanders are routes that make connections between developing areas outside the interstate ring. These roads may or may not be able to be served by transit but serve rapidly growing areas of the region. Roadway improvements provide an opportunity to improve non-motorized connectivity between these growing areas.

Pedestrians: Examples of pedestrian improvements include construction or reconstruction of walkways or multi-use paths, separating pedestrian walkways from vehicle traffic through the installation of a buffer such as a boulevard, and providing pedestrian lighting. Equally important to improving pedestrian movement along the project area is improving the safety and ease of pedestrian crossings of the roadways. Some examples of these kinds of improvements are installation of pedestrian countdown signals with crosswalks, reducing the effective crossing distance by installing curb extensions and pedestrian medians, and reducing the speed of vehicles making turning movements at intersections. Different treatments are appropriate for different types of roadway conditions.

Include a map that shows all new or reconstructed walkways or multi-use paths that will be constructed as part of this project as well as all pathways that these walkways will connect to and any potential pedestrian destinations such as schools, residences, transit stops, parks, and businesses within ¼ mile of the project area that will be accessible to pedestrians. In the response field, indicate the characteristics of these pedestrian facilities (i.e. multi-use trail, sidewalk, or crosswalk etc.) and whether they are brand new facilities or a replacement of an existing facility.. All pedestrian facilities must be designed to be ADA-compliant at a minimum.

RESPONSE:

(See Figure 11)The existing configuration of Weaver Lake Road includes off-street mixed-use paths on both the north and south side of the roadway. There are marked crosswalks parallel to Weaver Lake Road across all of the intersecting side streets and some of the intersecting driveways (including the school entrances). Painted crosswalks across Weaver Lake Road are present at Dunkirk Lane and West Fish Lake Road, and there is a mid-block crosswalk in front of the elementary school. The mid-block crossing in front of the elementary school has button-activated flashing beacons to improve crossing safety.

The Medicine Lake Regional Trail crosses Weaver Lake Road near Xene Lane. The Medicine Lake Regional Trail connects Elm Creek Park Reserve in Maple Grove with French Regional Park and the Luce Line State Trail in Plymouth. The Medicine Lake Regional Trail is part of the Three Rivers Park District regional trail network, and passes underneath Weaver Lake Road in a box culvert underpass. The trail is an important regional transportation and recreational facility.

The existing off-street multi-use trails provide connectivity along Weaver Lake Road to many recreational, institutional, educational, industrial, and employment destinations. At the west end of the corridor, the trails provide access into Weaver Lake Park, an important recreational destination within the City of Maple Grove. The trails also provide pedestrian and bicycle access to Weaver Lake Elementary School and Crosswinds Park. In addition to the Medicine Lake Regional Trail, there are also other minor recreational trails and active transportation corridors that connect to Weaver Lake Road. Further east, the trails provide access past I-94 to important retail, business,

and employment areas. The trails are critical to promoting active living and walkability along the corridor.

The proposed project will reconstruct and realign small portions of the existing off-street trails on both the north and south side of Weaver Lake Road. The existing trails will remain in place throughout the corridor except for where construction of the roundabouts requires relocation of the trails. The project will also reconstruct the existing off-street trails along Dunkirk Lane within the project construction area as required to facilitate construction of the roundabout. The roundabouts at Dunkirk Lane, Xene Lane, and Niagara Lane will enhance the pedestrian crossing safety at each of these locations, and will be designed to meet latest design guidelines and ensure compliance with the Americans with Disabilities Act (ADA). The proposed project will result in ADA compliant pedestrian crossings at Xene Lane and Niagara Lane, both locations where striped crosswalks do not currently exist. The curb ramps at all side-streets and at the mid-block crossing will be reconstructed where necessary to ensure ADA compliance.

The existing corridor has sources and destinations for pedestrian travel on both the north and south side of the Weaver Lake Corridor, but marked crosswalks are uncommon along the corridor. Marked crosswalks currently exist only at the intersections of Dunkirk Lane and West Fish Lake Road, and at the mid-block crossing near the elementary school. The construction of roundabouts will provide both safe and legal crossings, providing enhanced and safer pedestrian connectivity. Roundabouts will also provide pedestrian refuge islands allowing pedestrians to cross only one direction of traffic at a time rather than crossing both directions of traffic at once as required at signalized or stop-controlled intersections. The geometry of roundabouts will also slow traffic at these intersections, improving safety conditions for pedestrians.

The proposed roundabout at Niagara Lane will also provide an enhanced crosswalk for pedestrians accessing the existing Park and Ride on the south side of the roadway. The Park and Ride is the primary transit hub for the corridor.

Bicyclists: Examples of bicycle improvements include striping a bike lane or a marked shoulder that is 5 feet wide or greater, installing an off-road pathway where conditions favor one, and intersection treatments designed to reduce motor vehicle and bicycle conflict. Different treatments are appropriate for different types of roadway conditions.

Include a map that shows all new or reconstructed bikeways that will be constructed (or striped) with this project, and show how they connect to an existing or planned bikeway network. Also show potential destinations along the roadway segment and within a ¼ mile of the project area that will be accessible with this bikeway network such as schools, parks residences, transit stops, and businesses. In the response field, indicate the characteristics of these bicycle facilities (i.e. bike lane, striped shoulder, cycle track, multi-use trail etc.) and whether they are brand new facilities or a replacement of an existing facility.

RESPONSE:

(See Figure 11) Currently, cycling within the Weaver Lake Corridor is accommodated primarily through off-street multi-use trails (SEE ABOVE FOR DISCUSSION OF EXISTING AND PROPOSED MULTI-USE TRAILS). There are not currently any on-street bicycle

facilities within the project area or the larger Weaver Lake Road corridor. The City anticipates that the majority of cyclists within the Weaver Lake Road corridor will prefer off-street trails to on-street cycling facilities.

However, the City of Maple Grove welcomes on-street cyclists on all city streets. The Weaver Lake Road Corridor Study (2010) considered adding on-street bicycle lanes to the corridor. As current roundabout design best practices do not include striping bicycle lanes within roundabouts, the study determined that the construction of on-street bicycle lanes would not be consistent with the proposed roundabouts. In addition, the study determined that it would be undesirable to widen Weaver Lake Road to allow for the construction of bicycle lanes.

It is anticipated that on-street cyclists in the Weaver Lake Road corridor and the project area will occupy an entire vehicle lane to defensively ensure their own safety. As the proposed roundabouts are intended to slow motorized traffic and encourage compliance with the speed limit, the proposed roundabouts will result in improved conditions for on-street cyclists.

Transit: Examples of transit improvements include improving accessibility to transit stops by pedestrians, installing bus stop amenities for passengers, and placing bus stops on the far side of intersections. In some cases, other improvements to the roadway, including curb bump-outs for bus stops or the construction of bus lanes can improve transit service reliability and speed along the roadway.

Is there transit service on the roadway? If so, what elements of this project will enhance the mobility of transit vehicles, if any? What elements of this project will improve passenger access to transit stops?

RESPONSE:

(See Figure 11) Maple Grove Transit currently operates express route 783 along Weaver Lake Road, including a Park and Ride facility at Crosswinds Methodist Church on the east end of the proposed project area. Route 783 provides express service from several Maple Grove neighborhoods to downtown Minneapolis. Maple Grove Transit currently operates approximately six (6) trips during each rush hour. Service within the Weaver Lake Corridor is directional, with AM rush hour trips destined for downtown Minneapolis and PM rush hour trips destined for Maple Grove.

Bus stops are generally located approximately every one-eighth mile along Weaver Lake Road. There are currently eight (8) stops within the proposed project area, four on each side of Weaver Lake Road, including stops at Dunkirk Lane, Zanzibar Lane, Weaver Lake Elementary School, and Xene Lane.

The proposed roundabout at Dunkirk Lane is anticipated to relieve congestion during the AM peak hour. The proposed roundabout is expected to reduce delay for the high number of southbound left-turns at this intersection. As this is the same movement the bus makes during the AM peak hour, this project is expected to improve the speed and reliability of transit service along the corridor.

The proposed roundabouts will also provide enhanced pedestrian and bicycle access to the Park and Ride.

Freight: Freight improvements will be evaluated on the role of the roadway in providing freight mobility.

What is the current daily heavy commercial traffic along the project segment? Is the roadway used to access any of the regional intermodal freight terminals in Appendix J and does the road connect any of these terminals to a freeway?

RESPONSE:

Weaver Lake Road is not a primary freight corridor. Based on traffic counts collected in 2010, and assuming that 2% of the traffic is heavy commercial vehicles, Weaver Lake Road currently carries approximately 300 heavy commercial vehicles per day. Weaver Lake Road does not provide access to any of the regional intermodal freight terminals.

E. Maturity of Project Concept. 100 points

Projects selected through this solicitation will be programmed for construction in 2015 or 2016. That is a fairly long time but it takes several years to complete preliminary engineering, environmental studies and acquire right-of-way. The region must manage the federal funds in each year of the TIP. Projects that are not implemented in their original program year are carried over to the next program year, or the funding sunset date. This requires other projects to shift program years to maintain fiscal balance in the TIP and STIP. Proposed projects that have already completed some of the work are more likely to be ready for funding authorization in their program year. A schedule is important to know what kind of work might be needed. Large projects that need right-of-way require more work than those that do not.

0-100 points Applications involving construction must complete the project implementation schedule found in Appendix K. A detailed schedule of events is expected for all phases of the project. Applications involving non-construction projects must include a detailed discussion of the timeframes involved for initiating and completing each phase of planned activities. Points under this criterion are assigned based on how many steps have been taken toward implementation of the project. These steps reflect a federally funded project development path.

RESPONSE:

Please see the project implementation schedule found in Appendix A.

TOTAL: 1,200 POINTS

APPENDIX A
PROJECT IMPLEMENTATION SCHEDULE

APPENDIX K

Project Implementation Schedule

Please check those that apply and fill in anticipated completion dates

1) Project Scope
- ☒ Stake Holders have been identified
- ☒ Meetings or contacts with Stake Holders have occurred

2) Layout or Preliminary Plan
- ☒ Identified Alternates
- ☒ Selected Alternates
- ☒ Layout or Preliminary Plan started
- ☒ Layout or Preliminary Plan completed

Anticipated date or date of completion: _____

3) Environmental Documentation

☐ EIS ☐ EA ☐ PM

Document Status
- ☒ Document not started
- ☐ Document in progress; environmental impacts identified
- ☐ Document submitted to State Aid for review (date submitted: _____)
- ☐ Document approved (need copy of signed cover sheet)

Anticipated date or date of completion/approval: March 2014

4) R/W
- ☐ No R/W required
- ☐ R/W required, parcels not identified
- ☒ R/W required, parcels identified
- ☐ R/W has been acquired

Anticipated date or date of acquisition June 2014

5) Railroad Involvement
- ☒ No railroad involvement on project
- ☐ Railroad R/W Agreement required; negotiations not begun
- ☐ Railroad R/W Agreement required; negotiations have begun
- ☐ Railroad R/W Agreement is complete

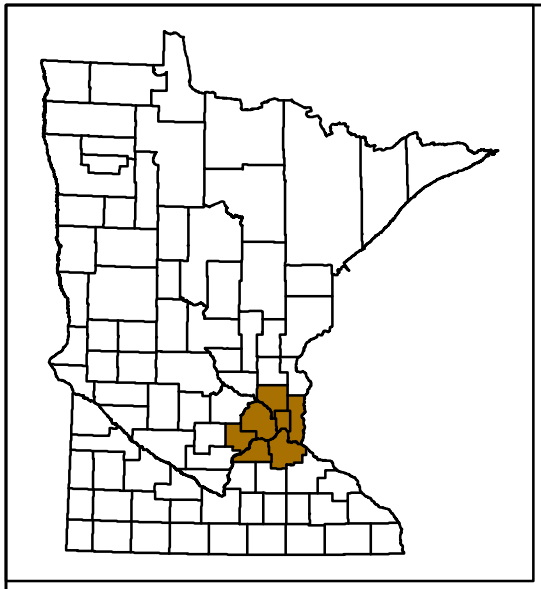
6) Construction Documents/Plan
- ☒ Construction plans have not been started
- ☐ Construction plans in progress

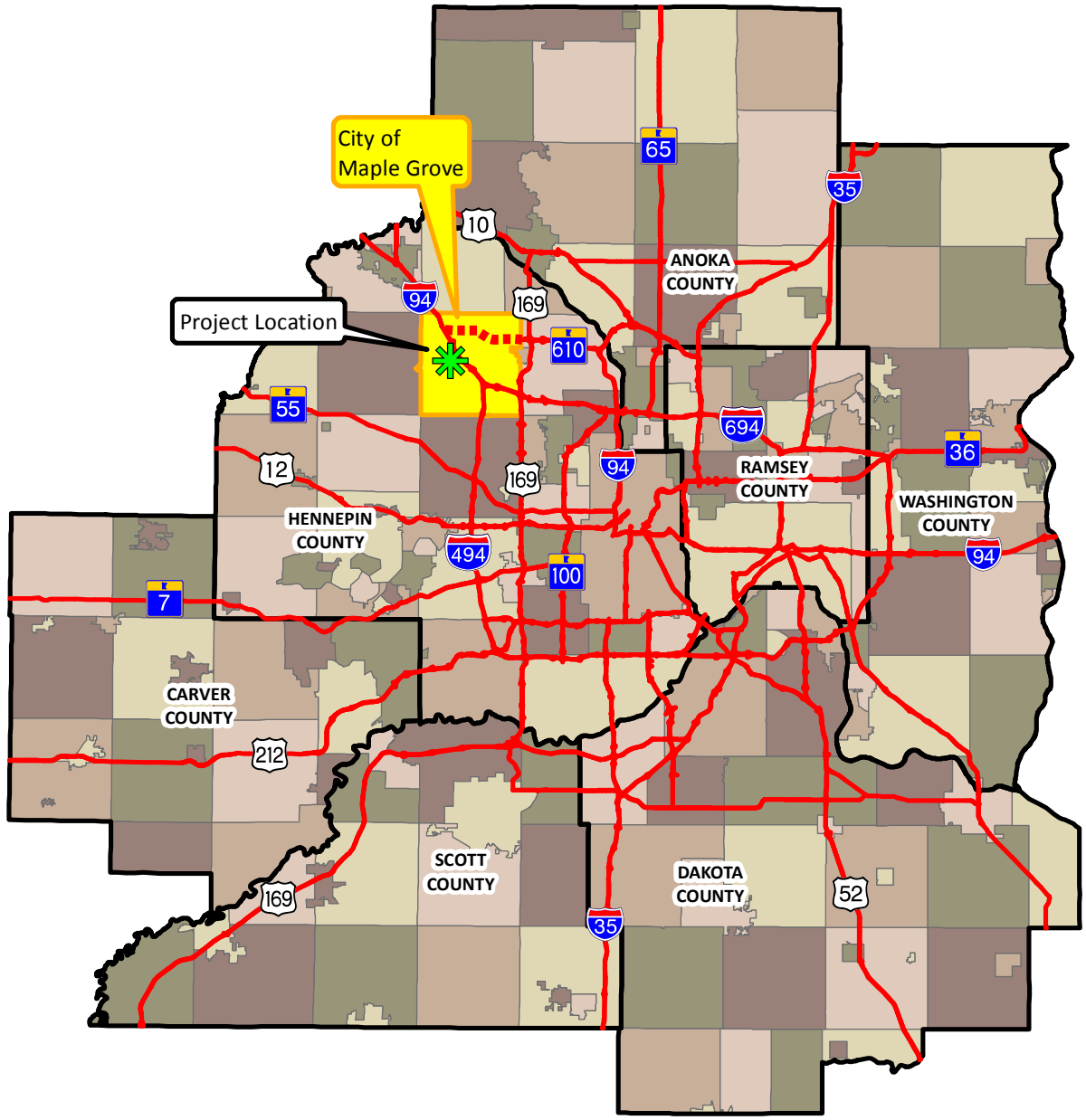
Anticipated date or date of completion: September 2014
- ☐ Construction plans completed/approved

7) Letting

Anticipated Letting Date: March 2015

APPENDIX B
FIGURES





The Weaver lake Road Roundabouts project includes the construction of three roundabouts along a 1.3 mile portion of Weaver Lake Road in the City of Maple Grove, Hennepin county, MN

N

Miles

0 3.5 7 14

City of Maple Grove

Principal Arterial

Project Location

Municipalities and Townships shown in various colors

Figure 1

Regional Project Location

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application

N

Miles

0 0.05 0.1 0.2

Proposed Roundabout

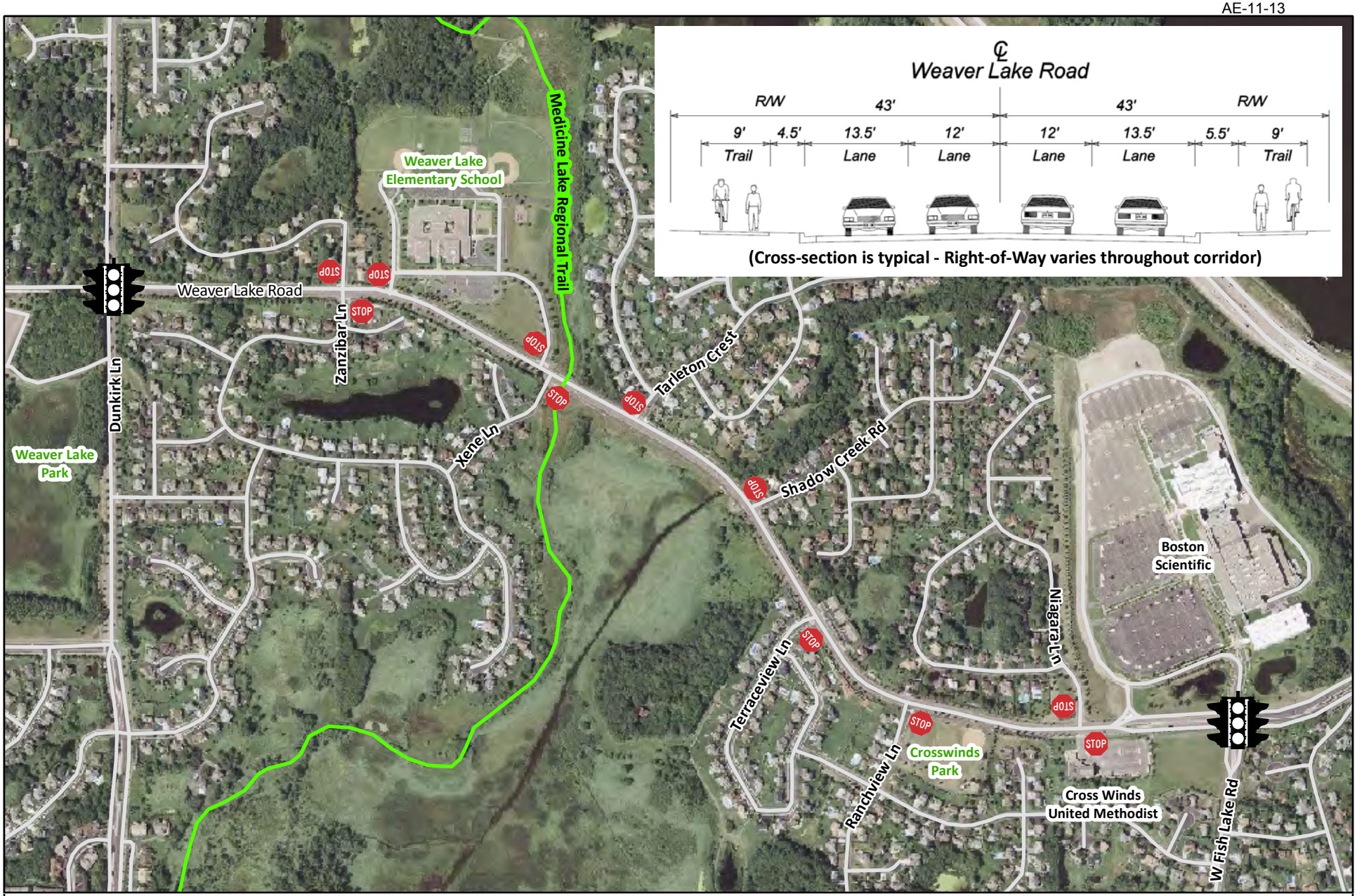
City of Maple Grove

Figure 2

Project Limits

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application



N

Feet

0 250 500 1,000

City of Maple Grove

Figure 3

Existing Conditions

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application

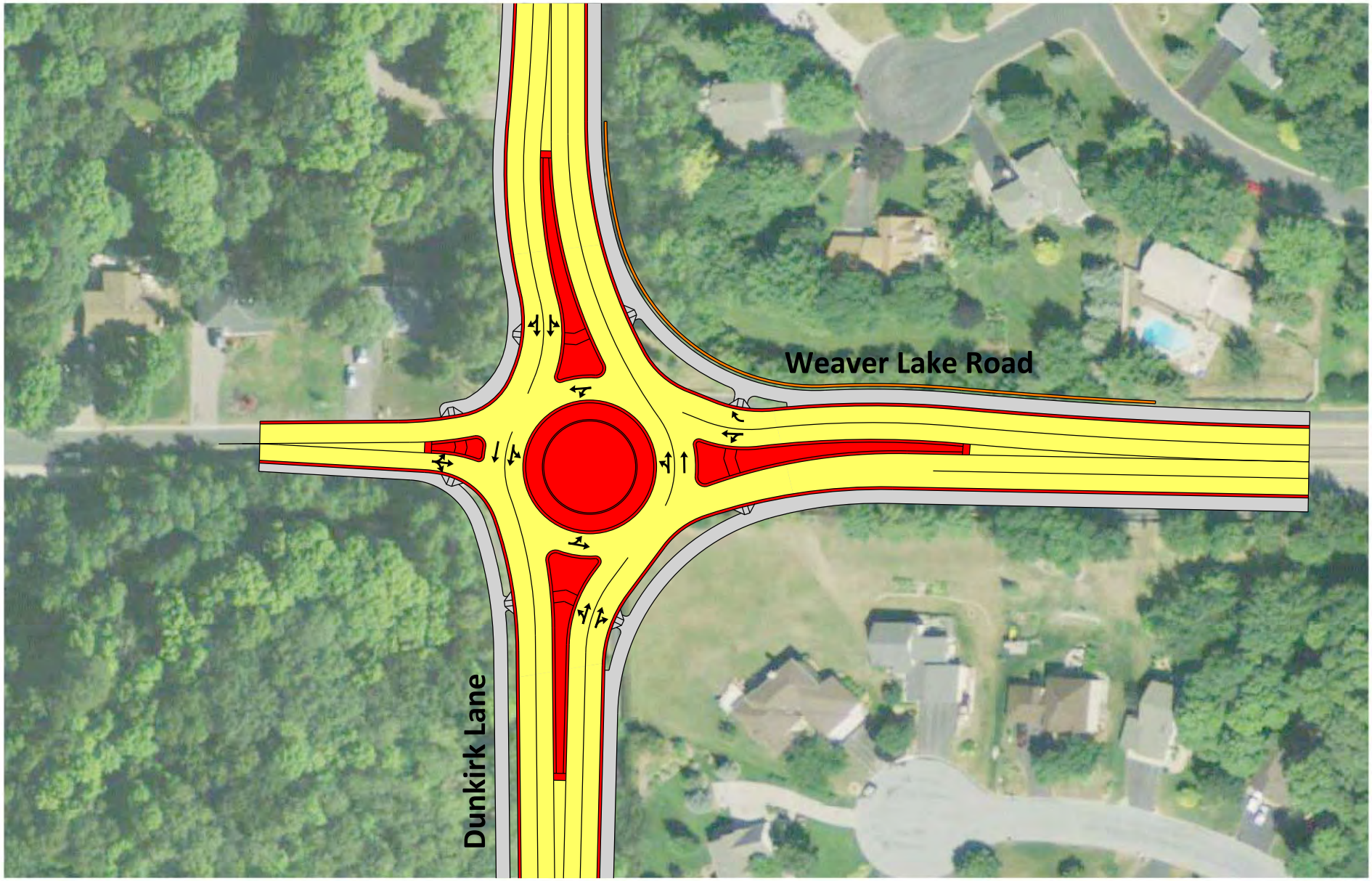
N

0 400 ft 800 ft

City of Maple Grove

Figure 4a
Proposed Roundabouts
Weaver Lake Road / Dunkirk Lane Roundabout
Highway Safety Improvement Program Funding Application

Date: Printed: 8/19/2011
WSB Filename: K:\0193-00\Cad\Exhibits\HSIP Funding Application\fig-04a Proposed Roundabouts.dgn



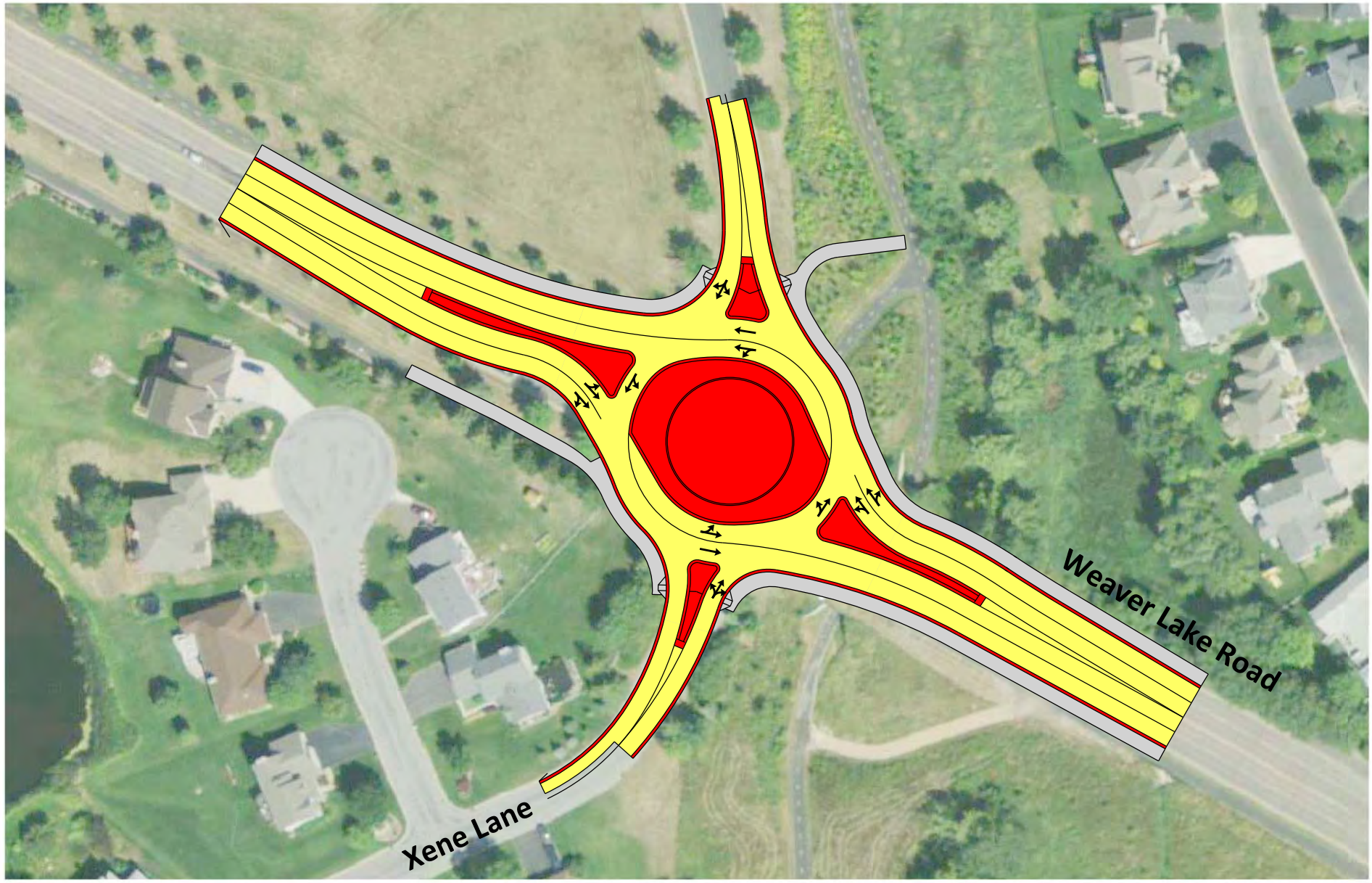
N

0 50 ft 100 ft

City of Maple Grove

Figure 4b
Dunkirk Lane Roundabout
Weaver Lake Road / Dunkirk Lane Roundabout
Highway Safety Improvement Program Funding Application

Date: Printed: 8/19/2011
WSB Filename: K:\0193-00\Cad\Exhibits\HSIP Funding Application\fig-04b Dunkirk Lane Roundabout.dgn



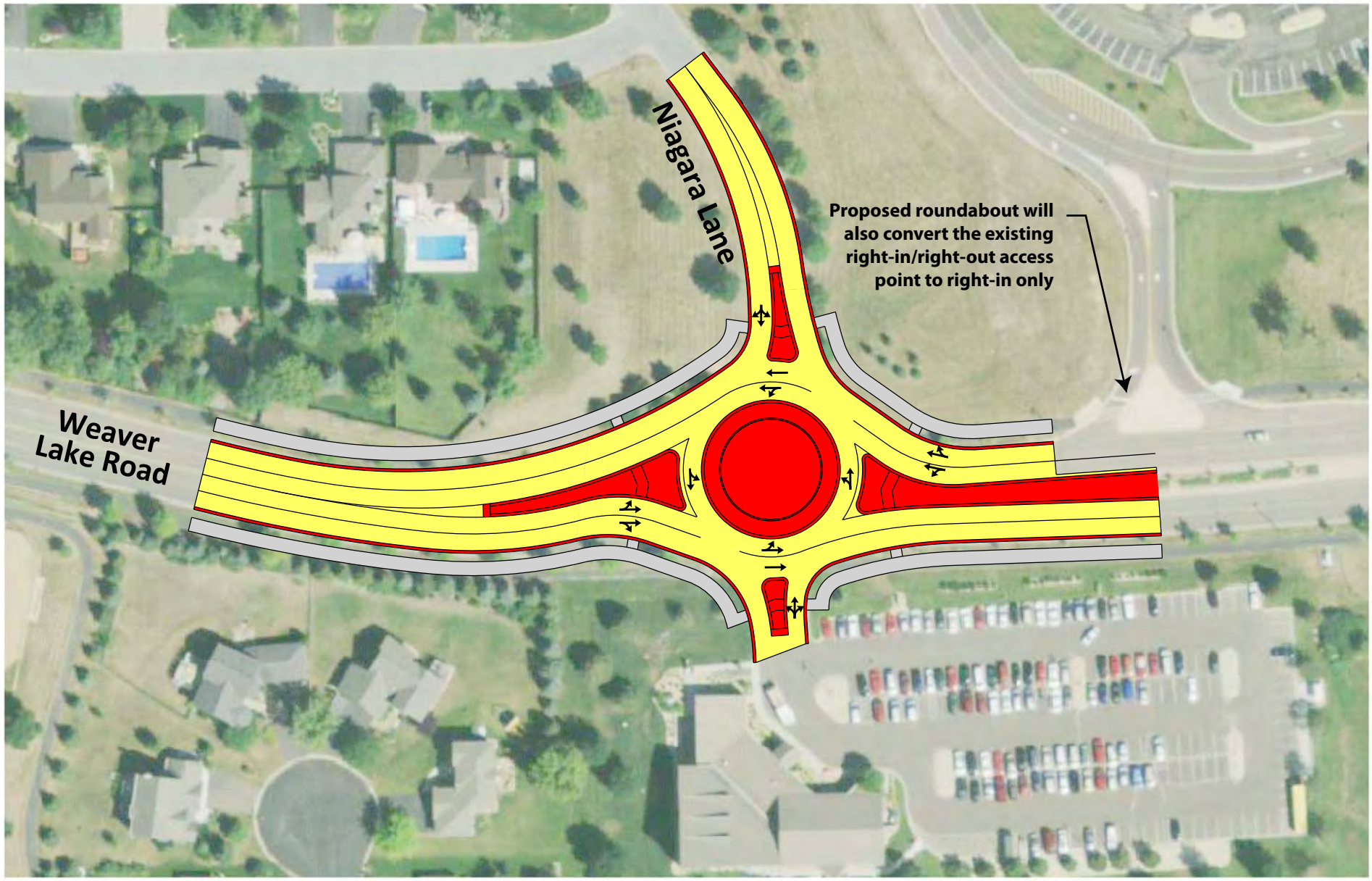
N

0 50 ft 100 ft

City of
Maple Grove

Figure 4c
Xene Lane Roundabout
Weaver Lake Road / Dunkirk Lane Roundabout
Highway Safety Improvement Program Funding Application

Date: Printed: 8/19/2011
WSB Filename: K:\0193-00\Cad\Exhibits\HSIP Funding Application\fig-04c Xene Lane Roundabout.dgn



N

0 50 ft 100 ft

City of Maple Grove

Figure 4d
Niagara Lane Roundabout
Weaver Lake Road / Dunkirk Lane Roundabout
Highway Safety Improvement Program Funding Application

Date: Printed: 8/19/2011
WSB Filename: K:\0193-00\Cad\Exhibits\HSIP Funding Application\fig-04d Niagara Lane Roundabout.dgn

AE-11-13

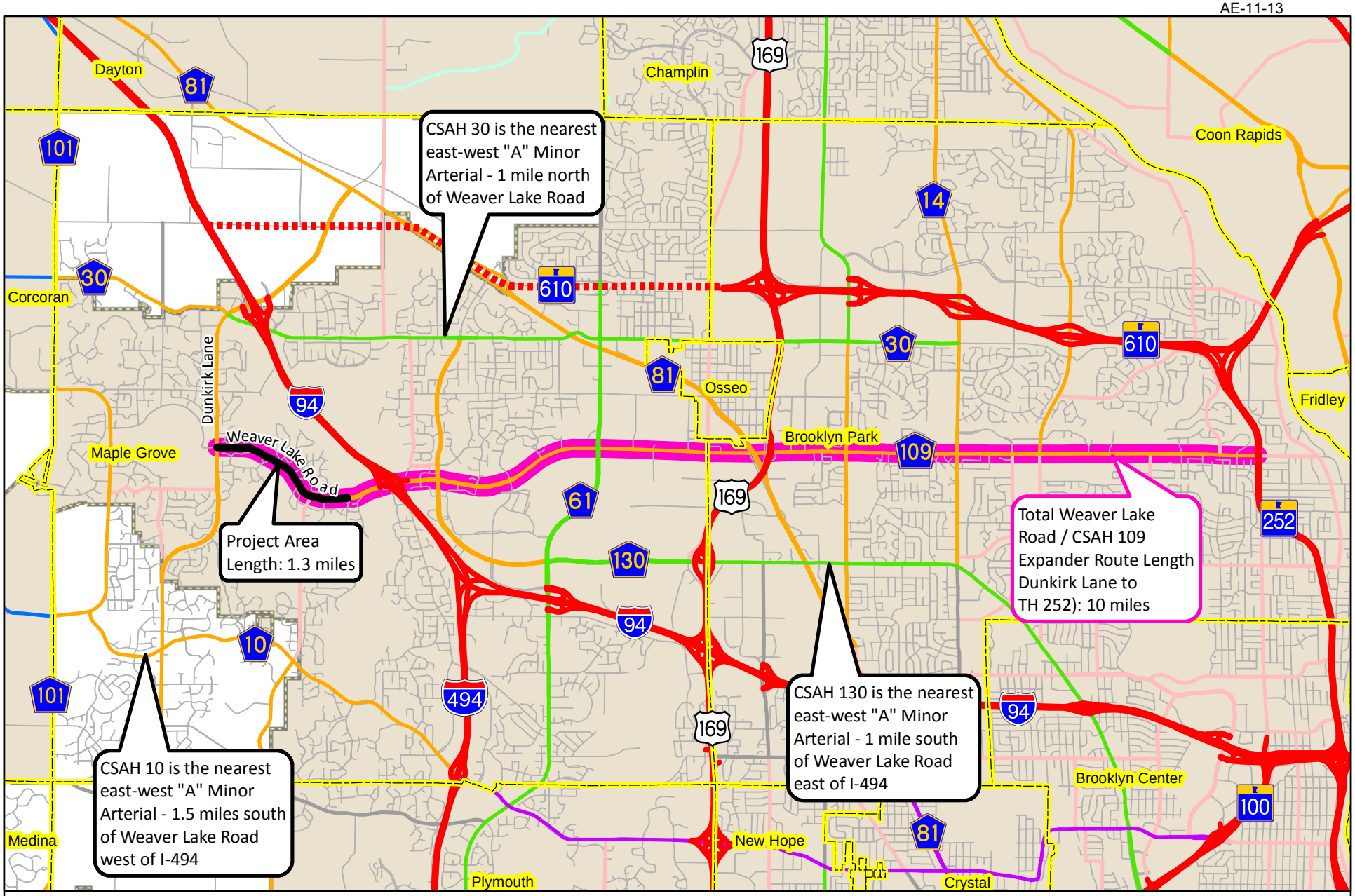
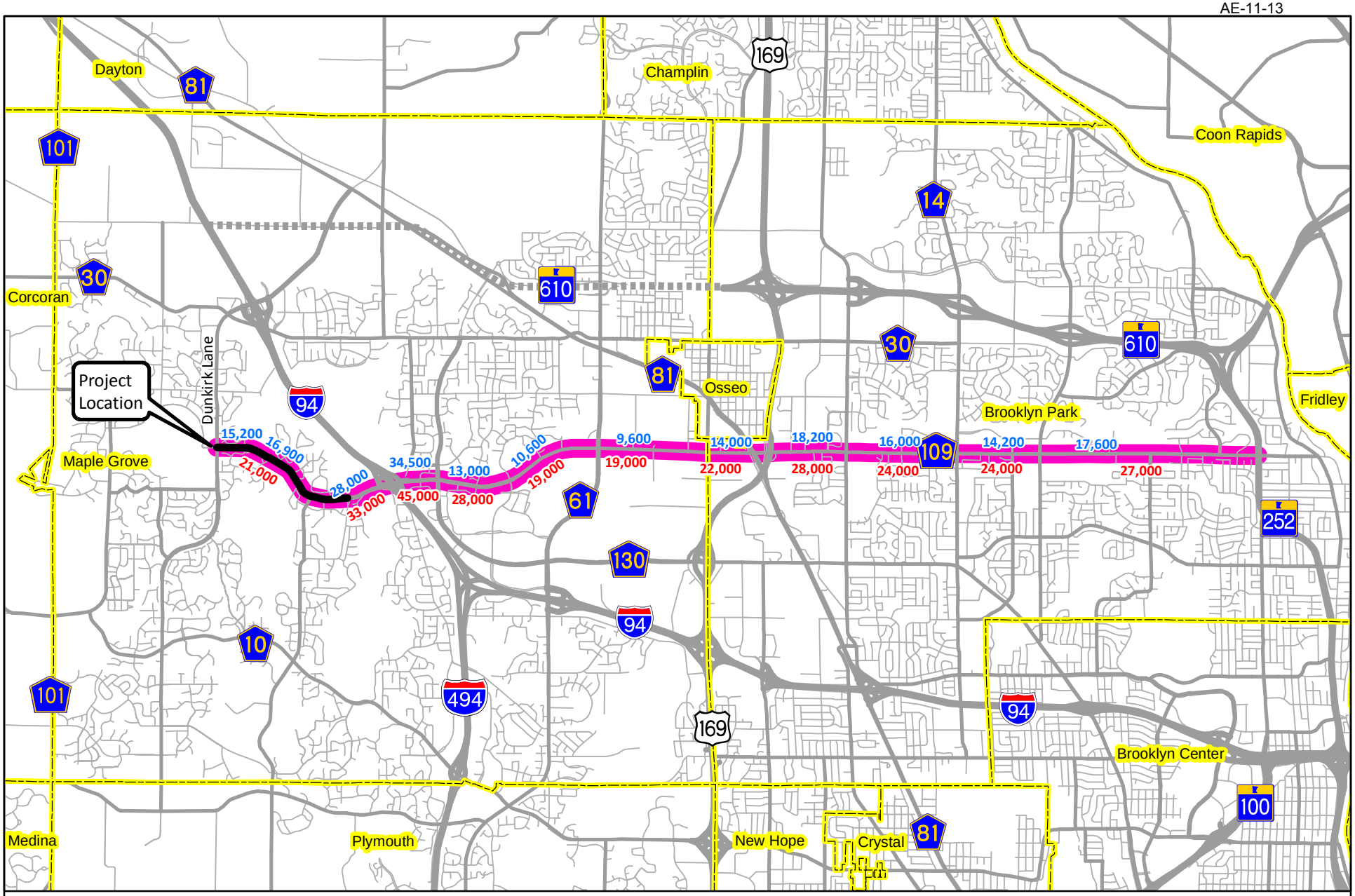


Figure 5

Project Location & Functional Classification

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application



SOURCE: MN/DOT, Maple Grove Comprehensive Plan, Brooklyn Park Comprehensive Plan

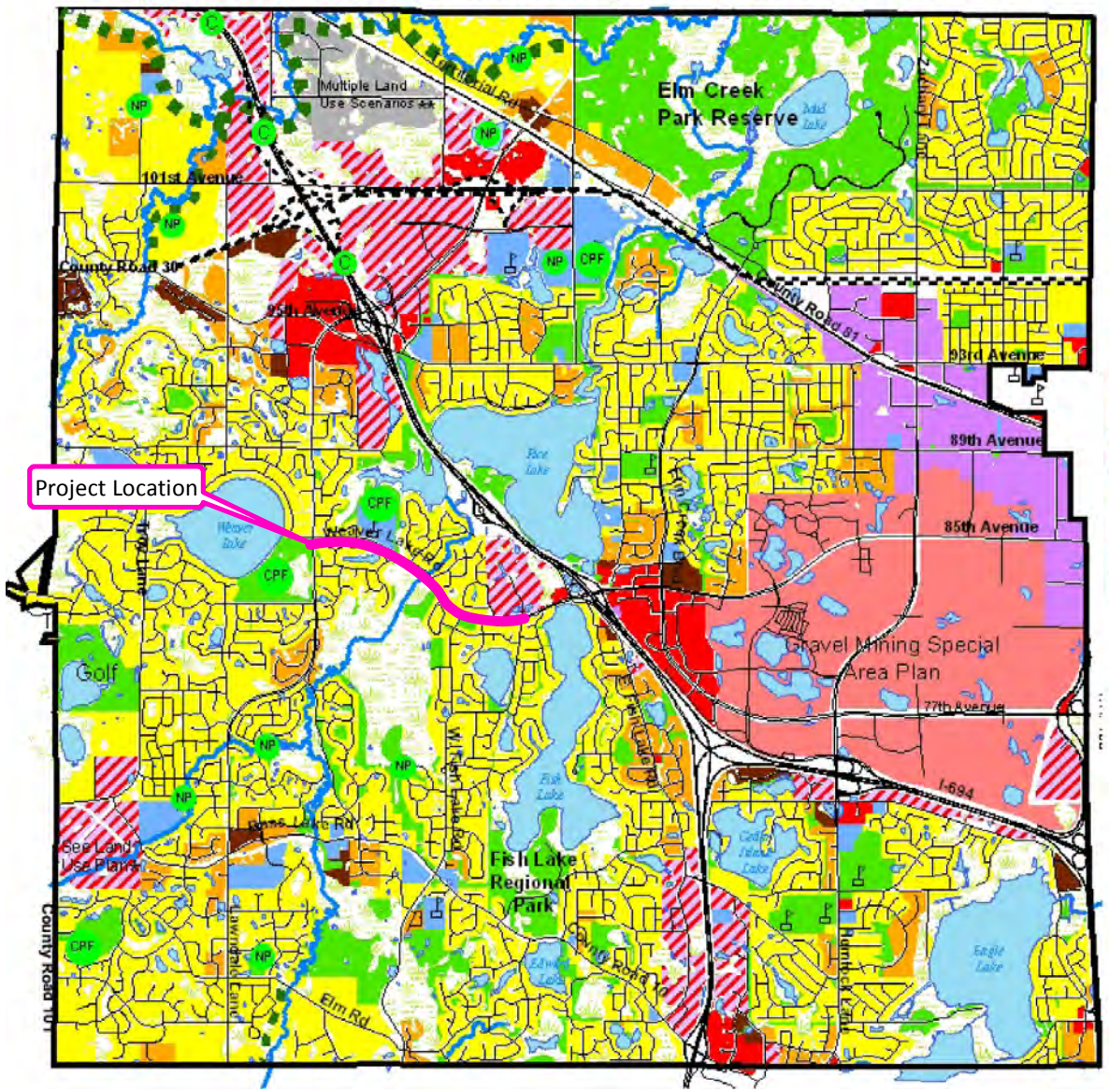
Figure 6

Existing and Future Traffic Volumes

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application

Maple Grove Land Use Plan-Proposed (Revised 11/24/08)



This graphic appears as Figure 2.8 in the Maple Grove Comprehensive Plan (2009).

N

City of Maple Grove

Figure 7

2030 Land Use

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application

AE-11-13

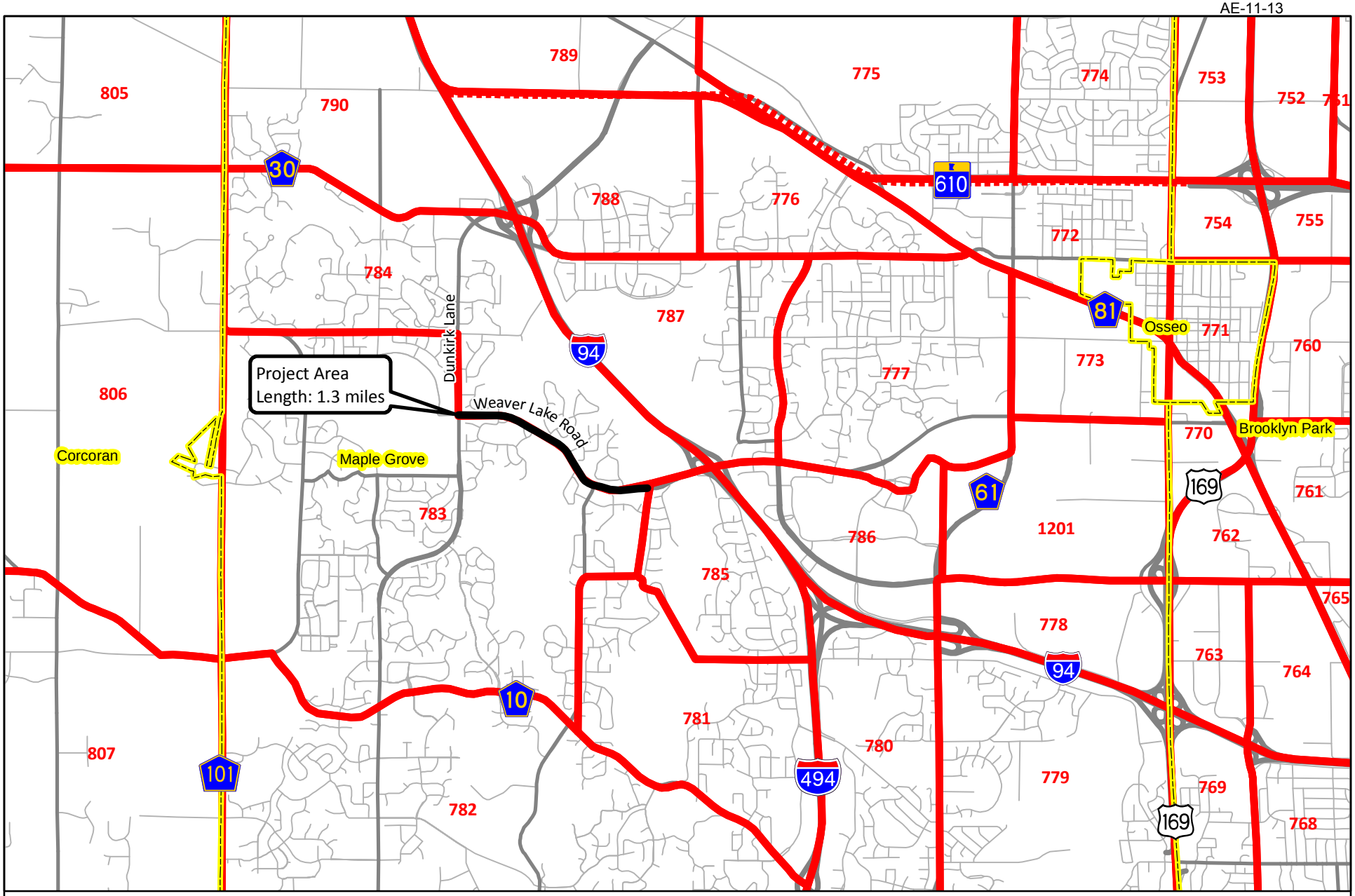
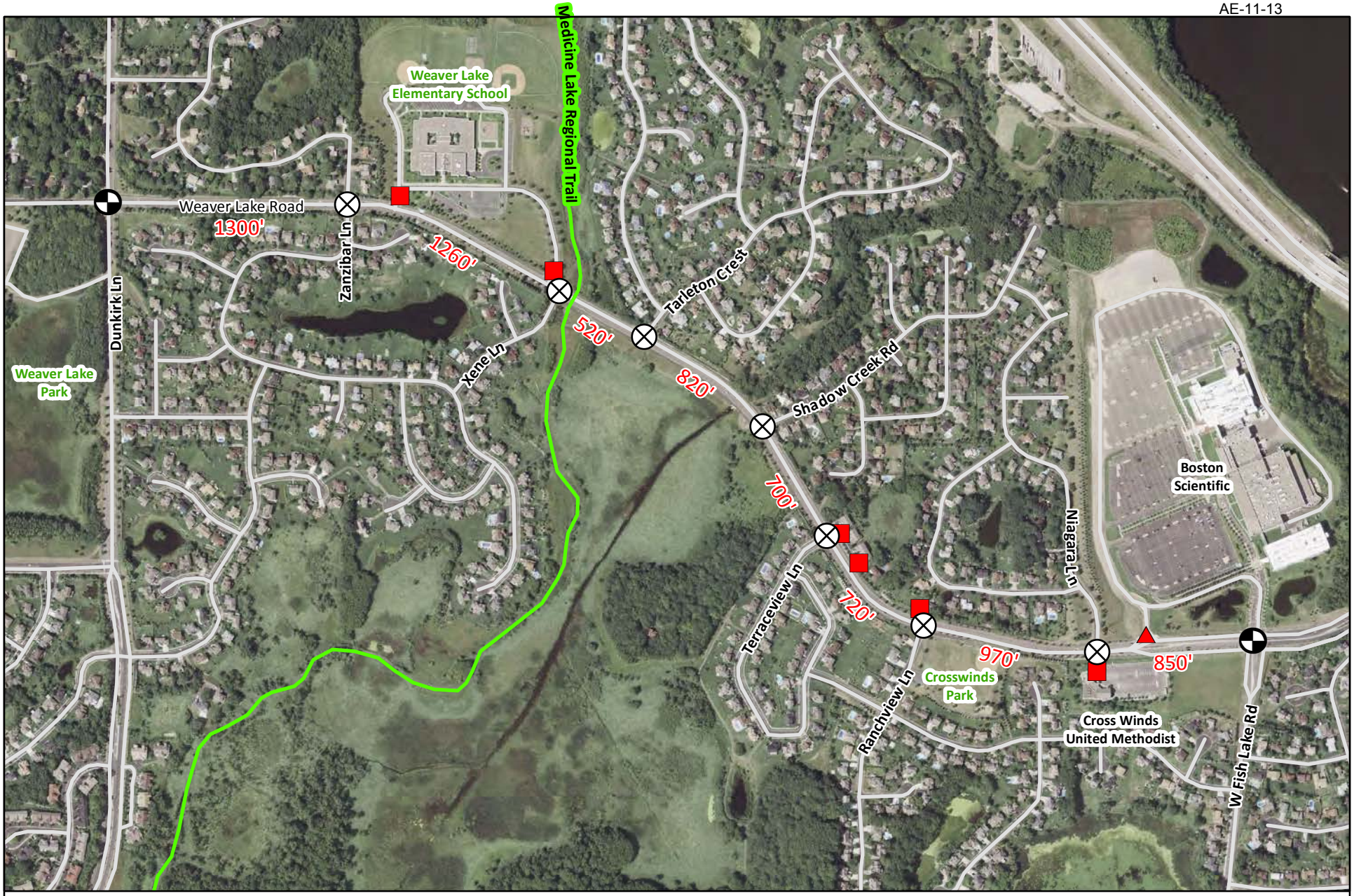


Figure 8

TAZ Boundaries

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application



N

Feet

0 250 500 1,000

City of Maple Grove

XXXX' Distance Between Public Roadways

Full Access Traffic Signal

Full Access Public Roadway

Full Access Driveway

Right-In/Right-Out Driveway

Figure 9

Existing Access

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application

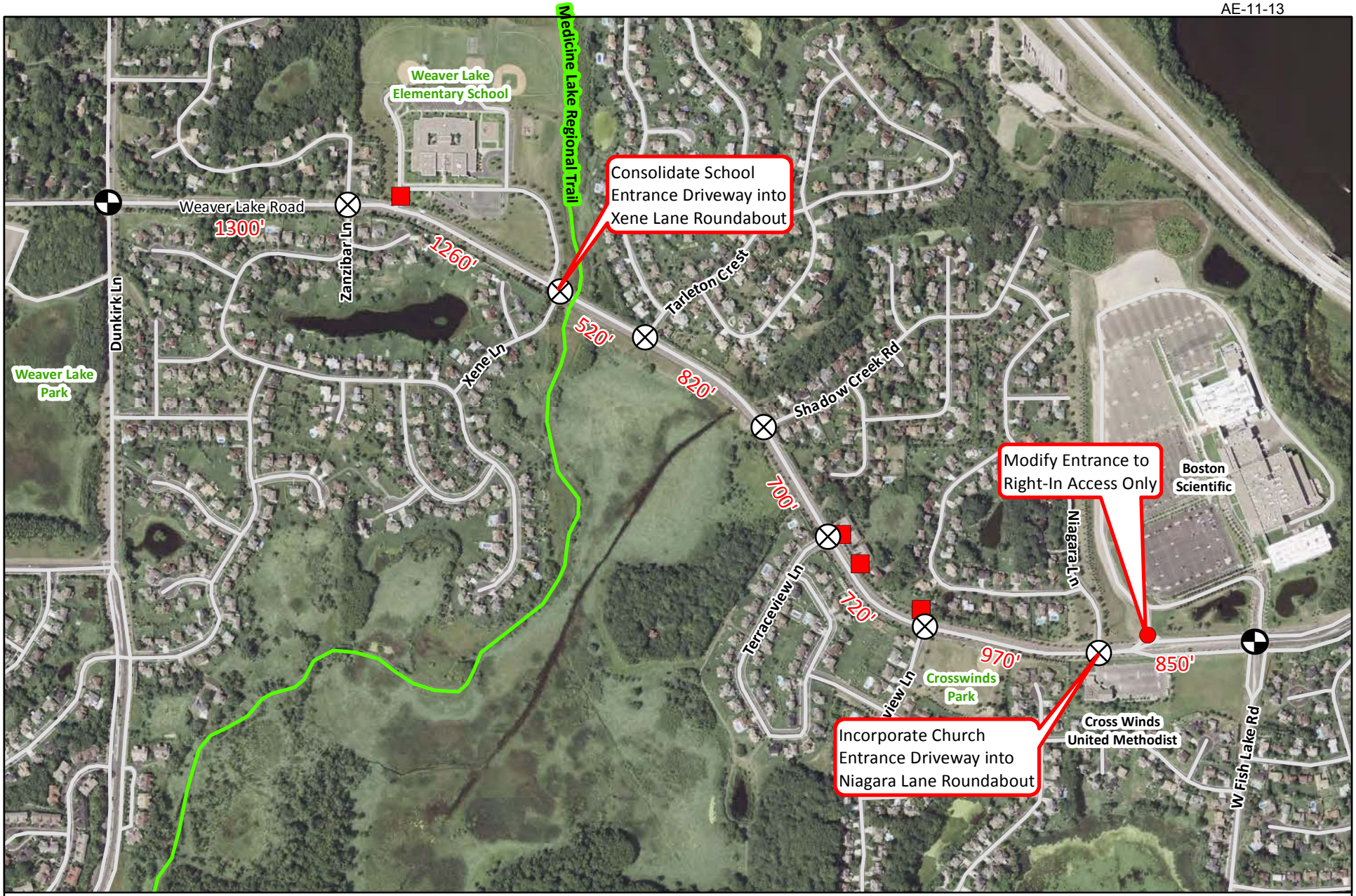
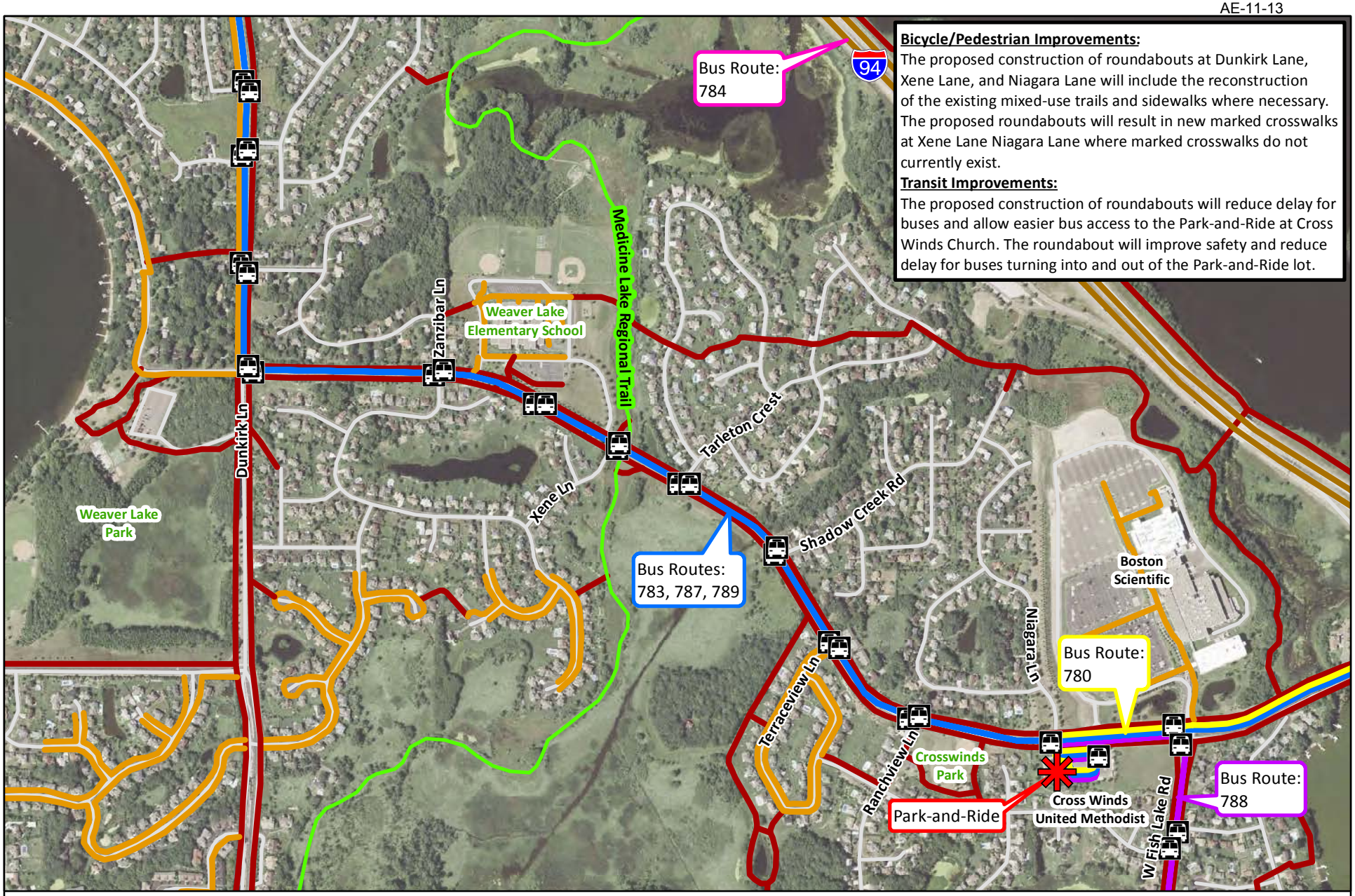


Figure 10
Proposed Access
Weaver Lake Road Roundabouts
Surface Transportation Program Funding Application



City of Maple Grove

Figure 11

Pedestrian, Bicycle, and Transit Facilities

Weaver Lake Road Roundabouts

Surface Transportation Program Funding Application

APPENDIX C
LETTER OF SUPPORT

AE-11-13

City of Maple Grove

12800 Arbor Lakes Parkway, P.O. Box 1180, Maple Grove, MN 55311-6180 763-494-6000

August 18, 2011

Kevin Roggenbuck
Transportation Coordinator
Transportation Advisory Board
390 North Robert Street
St. Paul, MN 55101

Subject: Support of STP-UG Funding Application for Weaver Lake Road Corridor

Dear Transportation Advisory Board:

The City of Maple Grove hereby expresses its support for the application for federal funding for the construction of roundabouts on the Weaver Lake Road corridor. This project will install three roundabouts along the Weaver Lake Road Corridor. The City has recently completed a corridor study where the recommended alternative was the construction of these roundabouts.

The City of Maple Grove understands the project being submitted, and commits to operate and maintain the roadway for the facility's design life. Further, the City of Maple Grove assures, to the extent it has jurisdiction of the facility or controls the right-of-way of the facility, that the City will operate and maintain the property and facility of the project for the useful life of the improvement, and not change the use of any right-of-way acquired without prior approval from the Minnesota Department of Transportation and the Federal Highway Administration.

If you have any questions or concerns regarding this letter please feel free to contact me directly.

Sincerely,

Ken Ashfeld, P.E.
Director of Public Works/City Engineer

cc: Marcus Culver, P.E., Traffic Engineer

APPENDIX D
CRASH INFORMATION

- Mn/DOT TIS Crash Listing
- Crashes from Maple Grove Police Department not included in Mn/DOT TIS
- Crash Diagrams
- Crash Reports from Maple Grove Police Department

WEAVER LAKE RD FROM DUNKIRK LN TO FISH LAKE RD (2007-2009)

LIST ACCIDENT BY REFERENCE POINT 01/01/2007 THROUGH 12/31/2009 REPORT DATE: JUN 16,2011
MSAS ROUTE SYSTEM - ROUTE 24300102 - BEGINNING AT 001+00.321 - ENDING AT 002+00.795
SELECT=NO

ROUTE NUMBER	REFERENCE POINT	ELEM	REL	INVEST	DIST	CNTY	TWNP OR CITY	DATE	TIME	SEV	#VEH	JUNC	LIMIT	TYPE	DIAG	LOC1	LOCD	LIGHT	WHR1	WHR2	SURF	CHAR	DESC	VTYP	DIR	ACCT	FCT1	FCT2	PCON	AGE	SEX	ACCIDENT NUMBER
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																								03	W	01	61	00	01	18	M	
																								01	W	01	61	46	01	54	M	
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																								03	E	11	01	00	01	24	M	
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WEAVER LAKE RD FROM DUNKIRK LN TO FISH LAKE RD (2007-2009)

LIST ACCIDENT BY REFERENCE POINT 01/01/2007 THROUGH 12/31/2009 REPORT DATE: JUN 16,2011
MSAS ROUTE SYSTEM - ROUTE 24300102 - BEGINNING AT 001+00.321 - ENDING AT 002+00.795
SELECT=NO

ROUTE NUMBER	REFERENCE POINT	ELEM	REL	INVEST	DIST	CNTY	TWNP OR CITY	DATE	TIME	SEV	#VEH	JUNC	LIMIT	TYPE	DIAG	LOC1	LOCT	LIGHT	WTHR1	WTHR2	SURF	CHAR	DEST	VTYP	DIR	ACT1	ACT2	FCT1	FCT2	PCON	AGE	SEX	ACCIDENT NUMBER
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MSAS 102	002+00.374		1	03		27	2430	11/13/2009	1612	N	2	02	40	01	01	01	04	03	03	00	02	07	05	01	W	01	15	00	01	16	M	093170130
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MSAS 102	002+00.548		1	02		27	2430	4/12/2007	0554	C	2	01	40	03	02	01	98	06	04	02	05	01	05	31	W	07	61	01	01	39	M	071020067
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																								03	W	11	01	00	01	17	M	
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																								01	E	01	01	01	01	35	M	
MSAS 102	002+00.719		1	03		27	2430	10/16/2009	1917	N	2	04	40	01	01	01	01	04	03	00	02	03	03	03	E	07	02	01	01	19	F	092900064
																								01	E	01	01	01	01	24	M	
MSAS 102	002+00.729		1	90		27	2430	1/23/2007	0359	N	1	04	40	29	07	04	01	04	01	00	02	02	05	01	NE	06	03	00	01	25	M	070240013
MSAS 102	002+00.729		1	03		27	2430	3/12/2007	0526	N	2	04	40	01	08	01	01	04	01	90	02	02	90	01	W	37	02	01	01	66	M	070710027
																								01	E	01	01	01	01	52	M	

1 Crash identified at Xene Lane

4 Crashes identified at Niagara Lane

WEAVER LAKE RD FROM DUNKIRK LN TO FISH LAKE RD (2007-2009)

LIST ACCIDENT BY REFERENCE POINT 01/01/2007 THROUGH 12/31/2009 REPORT DATE: JUN 16,2011

MSAS ROUTE SYSTEM - ROUTE 24300102 - BEGINNING AT 001+00.321 - ENDING AT 002+00.795

SELECT=NO

ROUTE NUMBER	REFERENCE POINT	ELEM	REL	INVS	DIST	CNTY	TWNP OR CITY	DATE	TIME	SEV	#VH	JUNC	LIMT	TYPE	DIAG	LOC1	LOCT	LIGHT	WTHR1	WTHR2	SURF	CHAR	DEAG	VTYP	DIRT	ACTN	FCR1	FCR2	PCOD	AGE	SEX	ACCIDENT NUMBER
MSAS 102	002+00.729		1	03		27	2430	5/15/2007	1924	N	2	04	40	01	02	01	01	01	01	01	01	05	03	E	03	02	01	01	44	F	071360194
																								01	E	06	01	01	01	51	M	
MSAS 102	002+00.729		1	03		27	2430	8/02/2007	1700	N	2	04	45	01	01	01	98	01	01	00	01	02	05	03	W	01	90	00	01	26	F	072140245
																								01	W	01	01	00	01	45	M	

FATAL ACCIDENTS	INCAPACITATING INJURY ACCIDENTS	NON-INCAPACITATING INJURY ACCIDENTS	POSSIBLE INJURY ACCIDENTS	SUBTOTAL INJURY ACCIDENTS	PROPERTY DAMAGE ACCIDENTS	TOTAL ACCIDENTS
0	0	3	19	22	40	62

TRUNK HIGHWAY LOGPOINT LISTING

ROUTE NUMBER	REF-POINT (MILES)	FEATURES	ACCUM (MILES)	C D	M A	CNTRL SECTN	PTRL STAT	CITY	TWN NUM	2009 AADT
MSAS 102	001+00.359	DUNKIRK LN MSAS-106 X-ING	1.359			27		2430	000	15322
MSAS 102	001+00.609	ZANZIBAR LN M-254 X-ING	1.609			27		2430	000	15322
MSAS 102	001+00.778	W END BR#27950 85TH AVE N OVER TH 94	1.778			27		2430	000	15322
MSAS 102	001+00.810	BR#27950 85TH AVE N OVER TH 94	1.810			27		2430	000	15322
MSAS 102	001+00.844	84TH AVE N M-755 RT	1.844			27		2430	000	15322
MSAS 102	001+00.944	TARLETON CREST M-760 LT	1.944			27		2430	000	17035
MSAS 102	002+00.104	SHADOW CREEK RD M-762 LT	2.104			27		2430	000	17035
MSAS 102	002+00.239	TERRACEVIEW LA RT M-1014	2.239			27		2430	000	17035
MSAS 102	002+00.374	RANCHVIEW LN N M-570 RT	2.374			27		2430	000	17035
MSAS 102	002+00.529	NIAGARA LN M-976 LT	2.529			27		2430	000	17035
MSAS 102	002+00.564	BEGIN DIVIDED ROADWAY	2.564			27		2430	000	17035
MSAS 102	002+00.719	W FISH LK RD MSAS-108 RT	2.719			27		2430	000	28225

WEAVER LAKE RD @ DUNKIRK LN (2007-2009)

LIST ACCIDENT BY REFERENCE POINT 01/01/2007 THROUGH 12/31/2009 REPORT DATE: JUN 16,2011

MSAS ROUTE SYSTEM - ROUTE 24300106 - BEGINNING AT 003+00.237 - ENDING AT 003+00.312

SELECT=NO

ROUTE NUMBER	REFERENCE POINT	ELEM	REL	INVIST	DIST	CNTY	TWNP OR CITY	DATE	TIME	SEV	#VEH	JUNC	LIMIT	TYPE	DIAG	LOC1	LOCT	LOCD	LIGHT	WTHR1	WTHR2	SURF	CHAR	DEAG	DVTYP	DIRN	ACTN	FCTR1	FCTR2	PCOND	AGE	SEX	ACCIDENT NUMBER
MSAS 106	003+00.256		A	03		27	2430	6/04/2008	1410	N	2	07	40	01	02	01	01	01	01	00	01	02	03	02	S	14	02	00	01	84	M	081560404
																									02	S	01	01	00	01	17	M	
MSAS 106	003+00.275		A	03		27	2430	10/07/2008	1156	C	3	07	40	01	01	01	01	01	03	00	02	01	05	03	N	01	16	15	01	60	M	082810230
																									01	N	11	01	00	01	34	F	
																									03	N	11	01	00	01	35	F	

FATAL ACCIDENTS	INCAPACITATING INJURY ACCIDENTS	NON-INCAPACITATING INJURY ACCIDENTS	POSSIBLE INJURY ACCIDENTS	SUBTOTAL INJURY ACCIDENTS	PROPERTY DAMAGE ACCIDENTS	TOTAL ACCIDENTS
0	0	0	1	1	1	2

Crashes known to the Maple Grove Police Department that are not included in the Mn/DOT crash database										
Location	**Local Case No.**	**Date**	**Time**	**Severity**	**Type**	**Diagram**	**Weather1**	**Weather 2**	**Light**	**Surface**
Dunkirk	08-00893	1/9/2008	1836	N	1	6	1	1	4	1
Dunkirk	08-06447	2/28/2008	1900	N	26	98	2	4	4	3
Dunkirk	08-06452	2/28/2008	1935	C	1	2	2	4	4	3
Dunkirk	08-06454	2/28/2008	2000	N	1	1	4	5	7	5
Dunkirk	08-06460	2/28/2008	2118	B	1	1	5	4	4	2
Dunkirk	08-20635	6/22/2008	1234	N	1	1	-	-	-	-
Dunkirk	08-44268	12/31/2008	1908	N	1	1	-	-	-	-
Dunkirk	09-31995	9/6/2009	1410	N	6	9	-	-	-	-
Dunkirk	09-033123	9/16/2009	1850	C	1	3	1	-	1	1
Xene*	08-35960	10/22/2008	711	C	1	5	3	-	4	2

*Crash is already in TIS database, but is incorrectly located at intersection of Weaver Lake Road and Tarleton Crest

Mn/DOT 2942 (rev 9-11-92)

AE-11-13

Collision Diagram

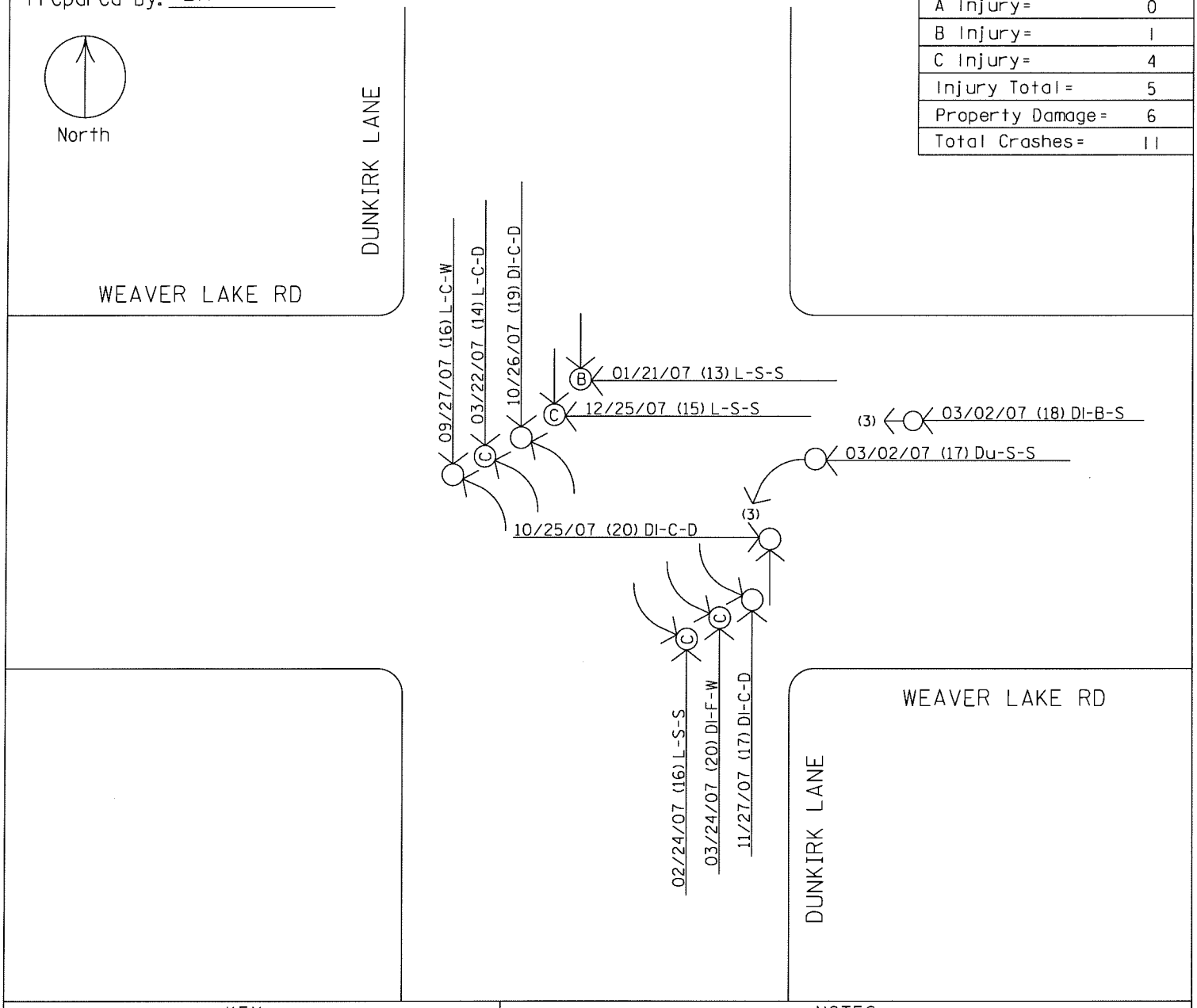
Minnesota Department of Transportation

Location: WEAVER LAKE RD @ DUNKIRK LANE R.P. 001+00.359

Time Period: 2007 Date: 06/14/11

Prepared By: BR

No. of Crashes	
Fatal =	0
A Injury =	0
B Injury =	1
C Injury =	4
Injury Total =	5
Property Damage =	6
Total Crashes =	11



KEY

- Motor Vehicle Out of Control
- Motor Vehicle Backing Up
- Motor Vehicle Rollover
- Motor Vehicle Sideswipe
- Fixed Object
- Fatal Crash
- (A) A Injury Crash
- (B) B Injury Crash
- (C) C Injury Crash
- Property Damage Crash
- Pedestrian
- B Bicycle
- M Motorcycle
- Parked Vehicle
- Rear End Property Damage
- (B) Right Angle B Injury

NOTES

[1]

[2]

[3]

Light:	Weather:	Surface:
L = Daylight (1)	C = Clear or Cloudy (1 or 2)	D = Dry (1)
Dn = Dawn (2)	R = Rain (3)	W = Wet (2)
Du = Dusk (3)	S = Snow or Sleet (4 or 5)	S = Snow, Ice, Slush (3,4 or 5)
DI = Dark, Lighted (4)	F = Fog, Smog, Smoke (6)	M = Muddy (7)
Do = Dark, Lights Off (5)	B = Blowing Sand/Dust (7)	Db = Debris (8)
D = Dark, Unlighted (6)	W = Severe Crosswinds (8)	O = Oily (9)
X = Unknown (99)	X = Other or Unknown (99)	X = Other or Unknown (99)

(X) = Number of Vehicles In Crash (X) Other Vehicle — Injury Type — [Date] – [Time (hrs)] – [Light-Weather-Surface]

AE-11-13

Mn/DOT 2942 (rev 9-11-92)

Collision Diagram

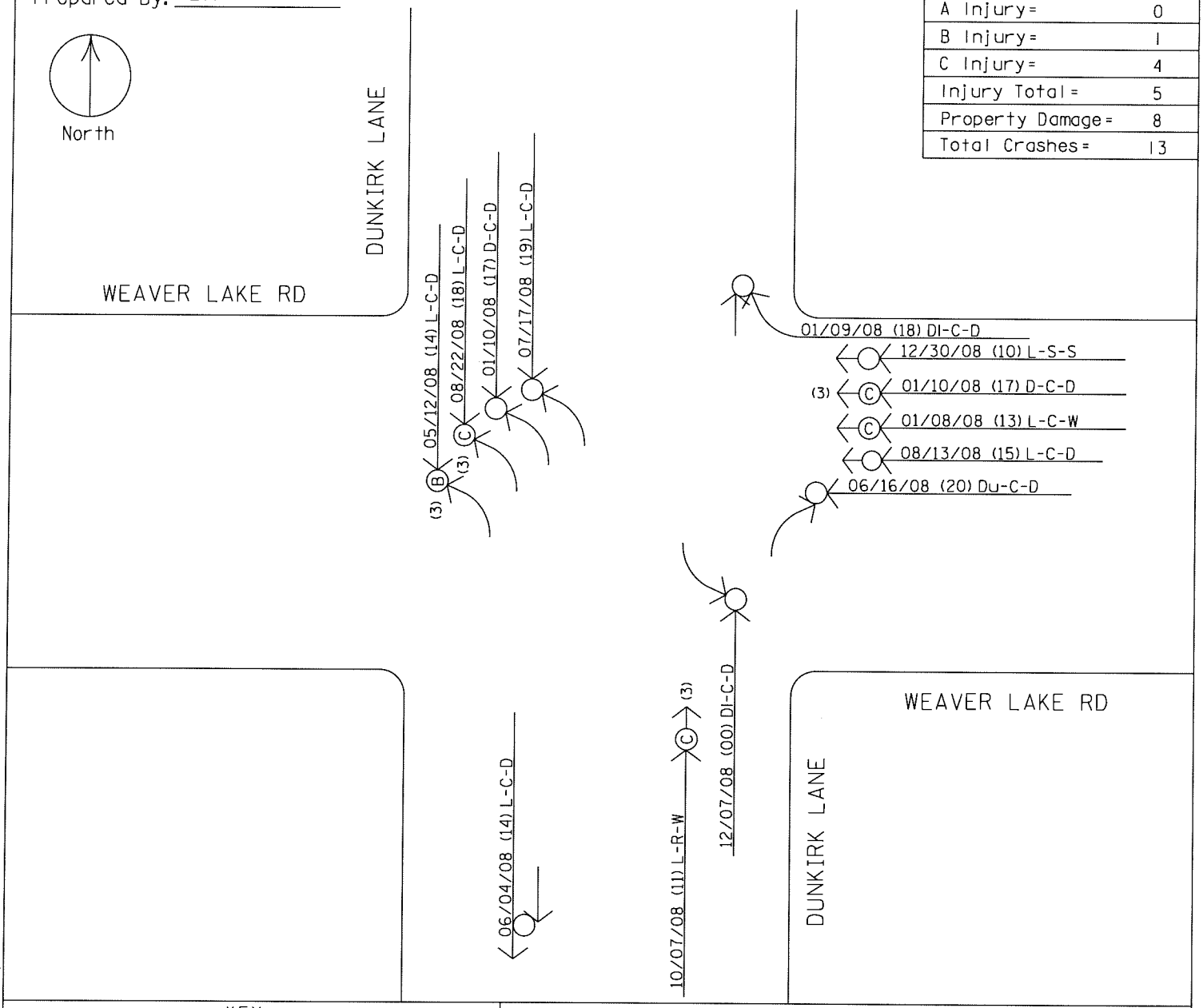
Minnesota Department of Transportation

Location: WEAVER LAKE RD @ DUNKIRK LANE R.P. 001+00.359

Time Period: 2008 Date: 06/14/11

Prepared By: BR

No. of Crashes	
Fatal =	0
A Injury =	0
B Injury =	1
C Injury =	4
Injury Total =	5
Property Damage =	8
Total Crashes =	13



KEY

- Motor Vehicle Out of Control
- Motor Vehicle Backing Up
- Motor Vehicle Rollover
- Motor Vehicle Sideswipe
- Fixed Object
- Fatal Crash
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- Property Damage Crash
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- Parked Vehicle
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NOTES

[1]

[2]

[3]

Light:	Weather:	Surface:
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Dn = Dawn (2)	R = Rain (3)	W = Wet (2)
Du = Dusk (3)	S = Snow or Sleet (4 or 5)	S = Snow, Ice, Slush (3,4 or 5)
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Do = Dark, Lights Off (5)	B = Blowing Sand/Dust (7)	Db = Debris (8)
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X = Unknown (99)	X = Other or Unknown (99)	X = Other or Unknown (99)

(X) = Number of Vehicles In Crash (X) Other Vehicle — Injury Type — [Date] – [Time (hrs)] – [Light-Weather-Surface]

Mn/DOT 2942 (rev 9-11-92)

Collision Diagram

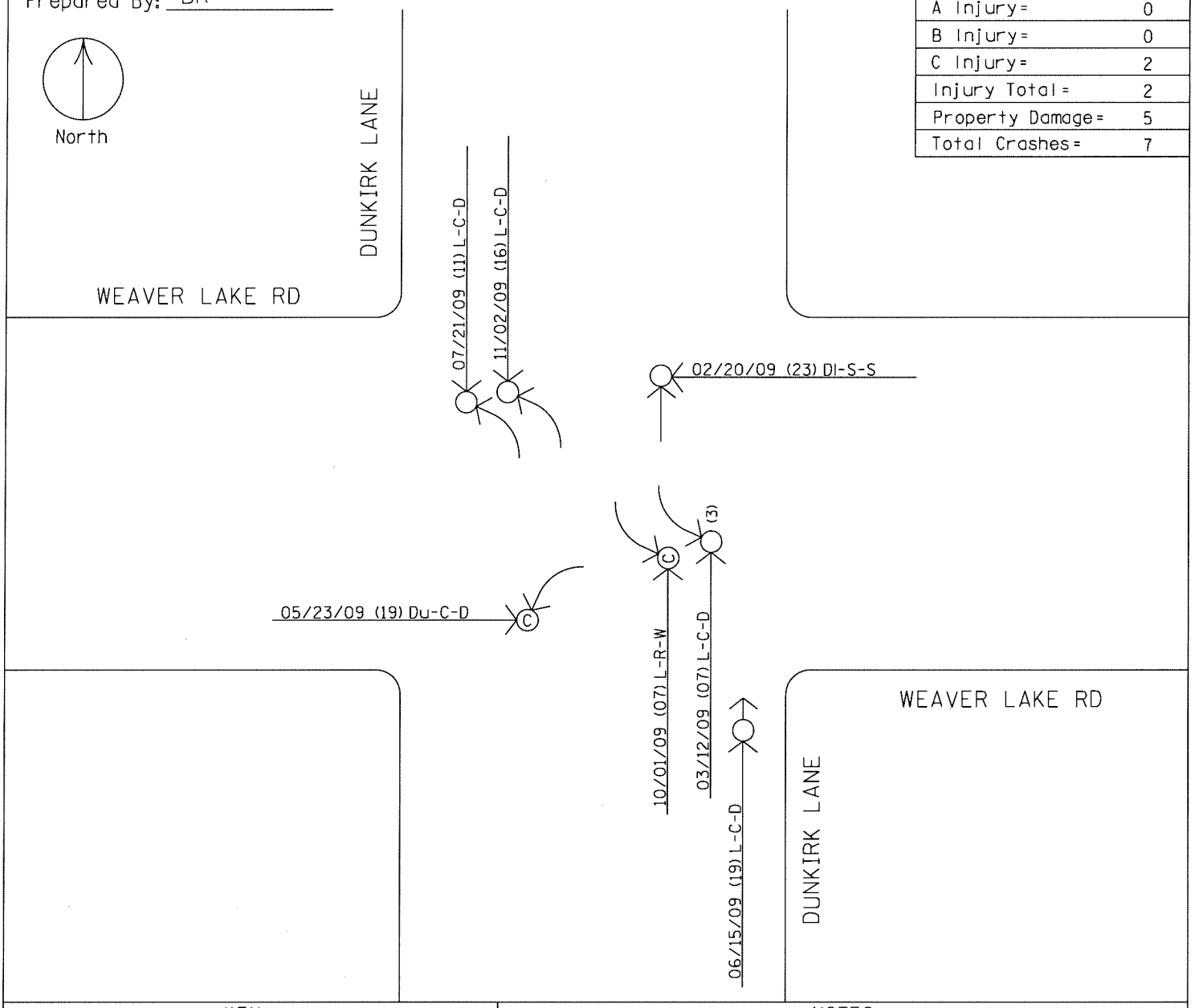
Minnesota Department of Transportation

Location: WEAVER LAKE RD @ DUNKIRK LANE R.P. 001+00.359

Time Period: 2009 Date: 06/14/11

Prepared By: BR

No. of Crashes	
Fatal =	0
A Injury =	0
B Injury =	0
C Injury =	2
Injury Total =	2
Property Damage =	5
Total Crashes =	7



KEY

- Motor Vehicle Out of Control
- Motor Vehicle Backing Up
- Motor Vehicle Rollover
- Motor Vehicle Sideswipe
- Fixed Object
- Fatal Crash
- (A) A Injury Crash
- (B) B Injury Crash
- (C) C Injury Crash
- Property Damage Crash
- Pedestrian
- B Bicycle
- M Motorcycle
- Parked Vehicle
- Rear End Property Damage
- (B) Right Angle B Injury

NOTES

[1]

[2]

[3]

Light:
L = Daylight (1)
Dn = Dawn (2)
Du = Dusk (3)
DI = Dark, Lighted (4)
Do = Dark, Lights Off (5)
D = Dark, Unlighted (6)
X = Unknown (99)

Weather:
C = Clear or Cloudy (1 or 2)
R = Rain (3)
S = Snow or Sleet (4 or 5)
F = Fog, Smog, Smoke (6)
B = Blowing Sand/Dust (7)
W = Severe Crosswinds (8)
X = Other or Unknown (99)

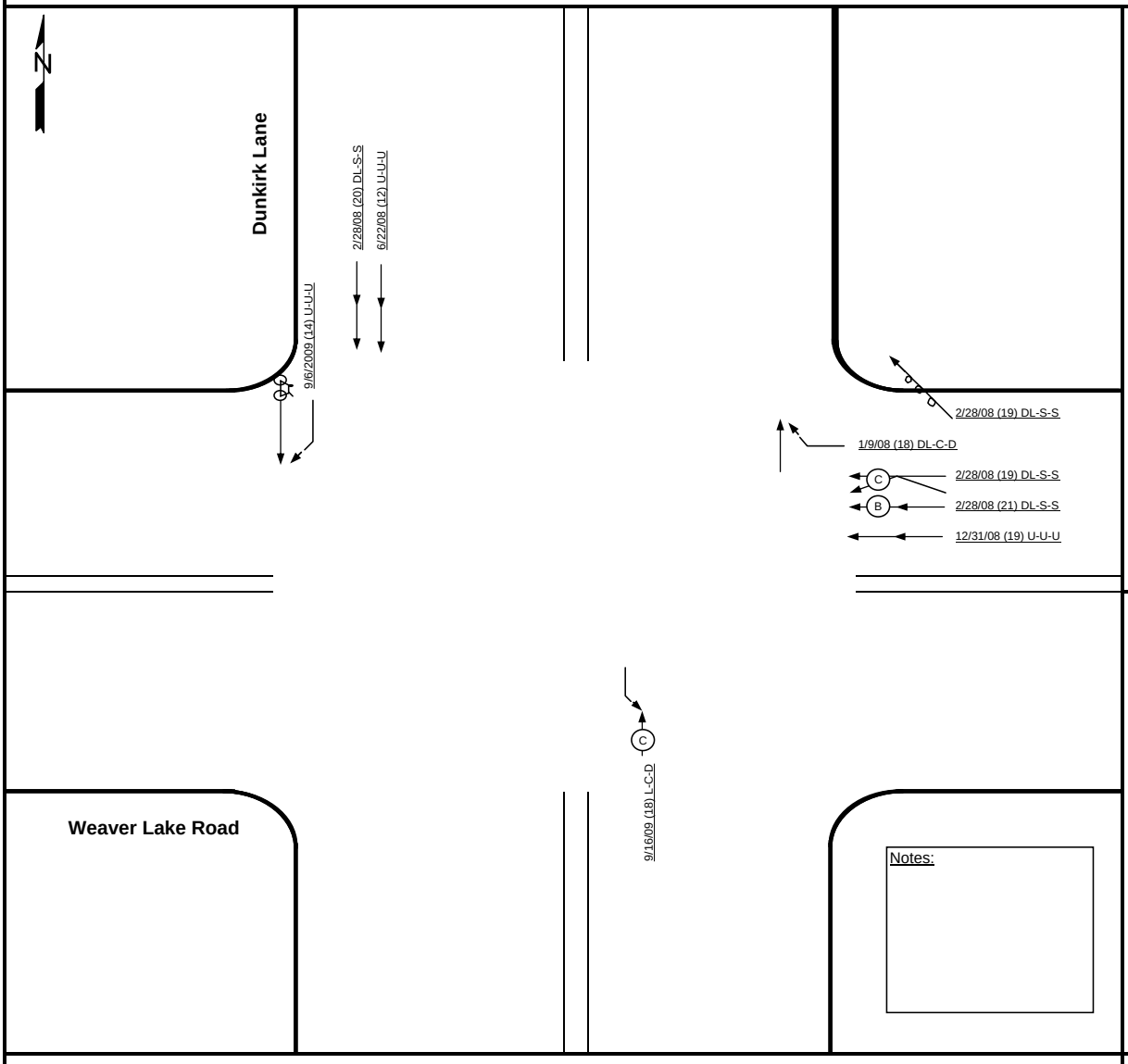
Surface:
D = Dry (1)
W = Wet (2)
S = Snow, Ice, Slush (3,4 or 5)
M = Muddy (7)
Db = Debris (8)
O = Oily (9)
X = Other or Unknown (99)

(X) = Number of Vehicles in Crash (X) Other Vehicle — Injury Type — [Date] – [Time (hrs)] – [Light-Weather-Surface]

Crash Diagram
Weaver Lake Road & Dunkirk Lane

(This diagram shows only the additional crashes from City of Maple Grove police records not included in the Mn/DOT crash database. A separate crash diagram shows crashes at this location from the Mn/DOT database)

From: Jan 2007 Through: Dec 2009



Symbols
Moving Vehicle
Backing Vehicle
Non-moving Vehicle
Pedestrian
Parked Vehicle
Object
Bicycle
Fatality
Injury

Collision Types
Rear End
Head-On
Side Swipe
Out of Control
Left Turn
Right Angle

Classification by Type

	Side Swipe	Rear End	Right Angle	Left Turn	Pedestrian	Bicycle	Other
Fatal	0	0	0	0	0	0	0
Personal Injury	1	1	0	1	0	0	0
Prop. Damage	0	3	0	0	0	1	2
Total	**1**	**4**	**0**	**1**	**0**	**1**	**2**

Light
L = Daylight
DN = Dawn
DU = Dusk
DL = Dark Lighted
DO = Dark, Lights Off
D = Dark, Unlighted

Weather	
Clear	2
Cloudy	0
Fog	0
Rain	0
Sleet	0
Snow	4
Mist	0
Unknown	3

Pavement	
Dry	2
Wet	0
Icy	0
Snow	4
Unknown	3

Time of Year	
Winter (Dec - Feb)	6
Spring (Mar - May)	0
Summer (Jun - Aug)	1
Fall (Sep - Nov)	2

Time of Day	
6:00 AM - 10:00 AM	0
10:00 AM - 4:00 PM	2
4:00 PM - 7:00 PM	5
7:00 PM - 12:00 AM	2
12:00 AM - 6:00 AM	0
Unknown	0

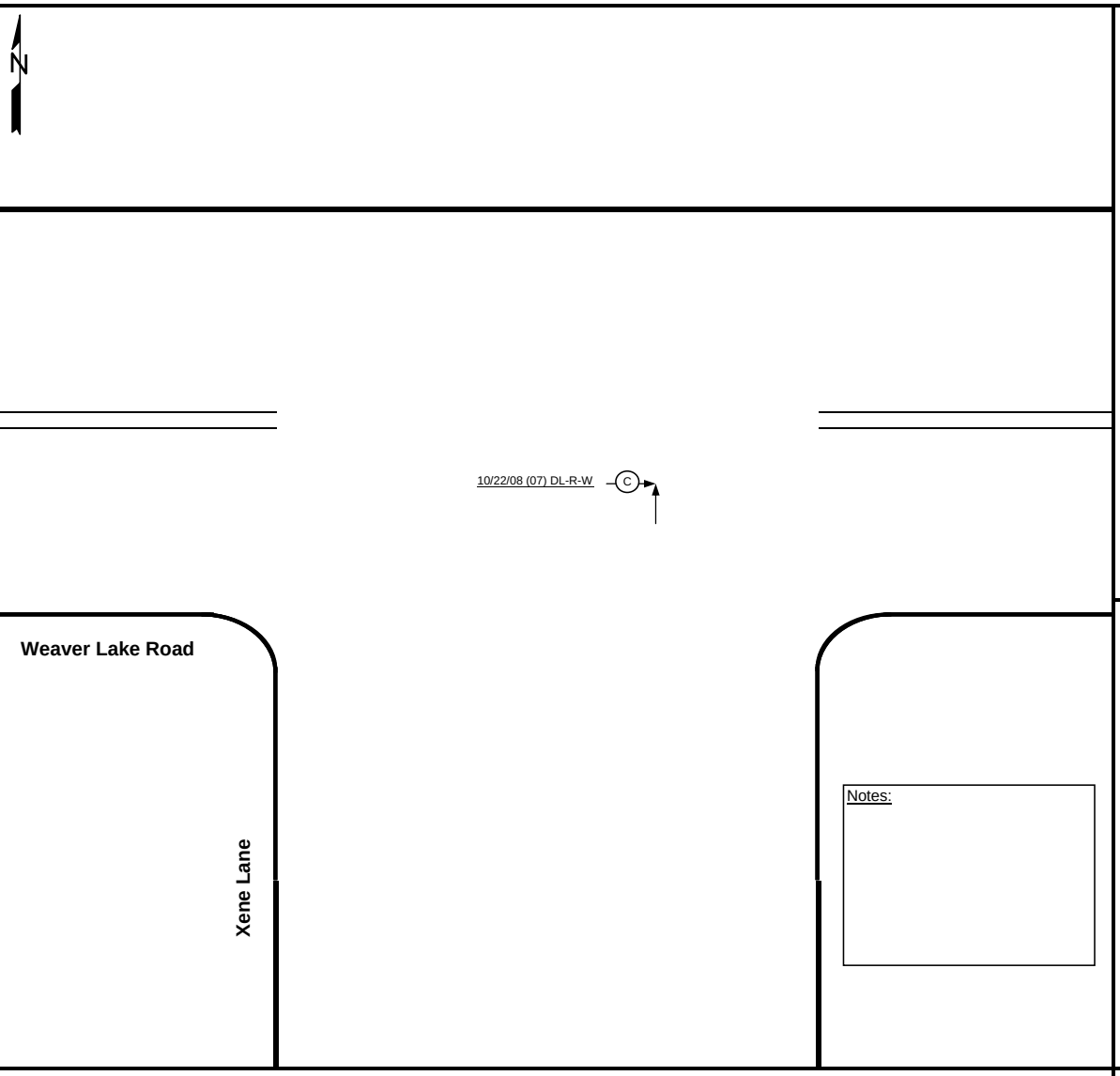
Weather
C = Clear
CL = Cloudy
R = Rain
S = Snow
SL = Sleet
F = Fog

Surface
D = Dry
I = Icy
W = Wet
S=Snow

Crash Diagram
Weaver Lake Road & Xene Lane

(This diagram shows only one crash, which is already in the Mn/DOT crash database. However, this crash was incorrectly located in the database.)

From: Jan 2007 Through: Dec 2009



Classification by Type

	Side Swipe	Rear End	Right Angle	Left Turn	Pedestrian	Bicycle	Other
Fatal	0	0	0	0	0	0	0
Personal Injury	0	0	1	0	0	0	0
Prop. Damage	0	0	0	0	0	0	0
Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**

Weather		Pavement		Time of Year		Time of Day	
Clear	0	Dry	0	Winter (Dec - Feb)	0	6:00 AM - 10:00 AM	1
Cloudy	0	Wet	1	Spring (Mar - May)	0	10:00 AM - 4:00 PM	0
Fog	0	Icy	0	Summer (Jun - Aug)	0	4:00 PM - 7:00 PM	0
Rain	1	Snow	0	Fall (Sep - Nov)	1	7:00 PM - 12:00 AM	0
Sleet	0	Unknown	0			12:00 AM - 6:00 AM	0
Snow	0					Unknown	0
Mist	0						
Unknown	0						

Light
L = Daylight
DN = Dawn
DU = Dusk
DL = Dark Lighted
DO = Dark, Lights Off
D = Dark, Unlighted

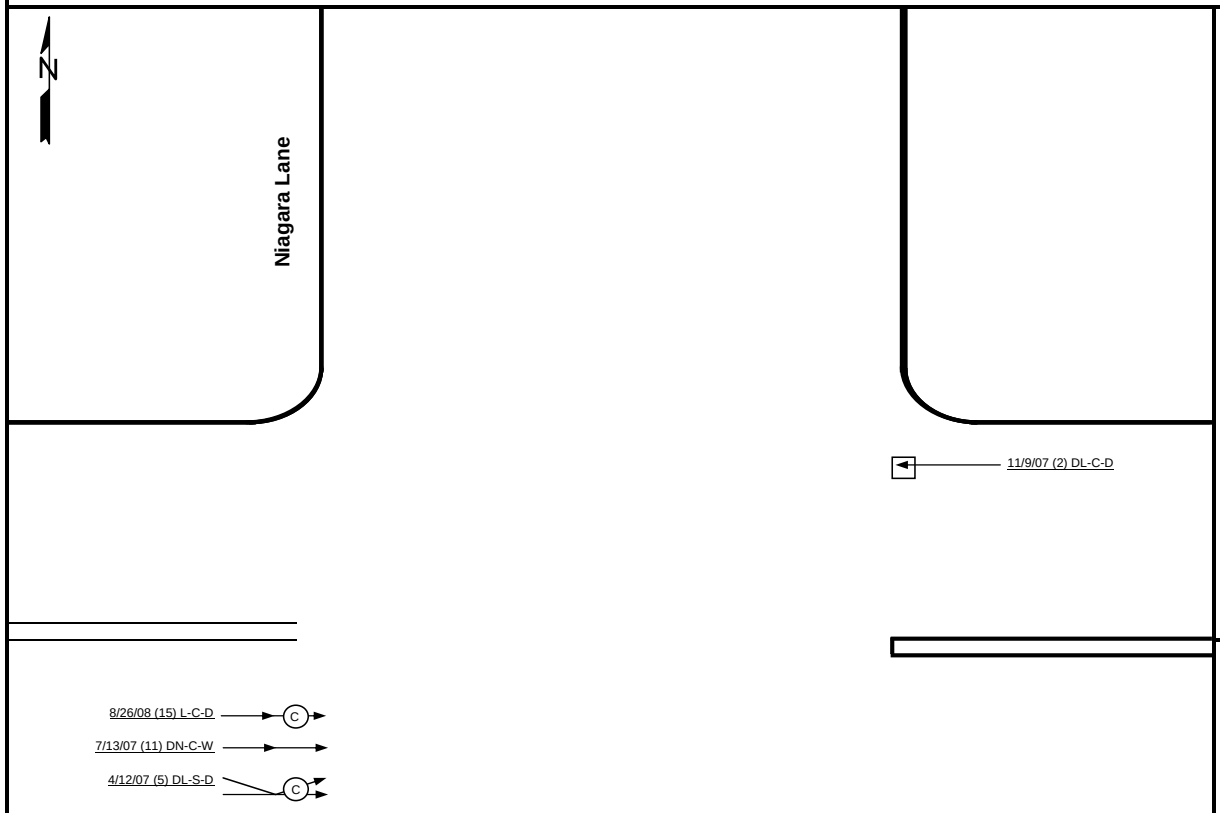
Weather
C = Clear
CL = Cloudy
R = Rain
S = Snow
SL = Sleet
F = Fog

Surface
D = Dry
I = Icy
W = Wet
S=Snow

Crash Diagram
Weaver Lake Road & Niagara Lane

(All crashes shown on this diagram are included in the Mn/DOT crash database.)

From: Jan 2007 Through: Dec 2009



Notes:

Symbols
Moving Vehicle
Backing Vehicle
Non-moving Vehicle
Pedestrian
Parked Vehicle
Object
Bicycle
Fatality
Injury

Collision Types
Rear End
Head-On
Side Swipe
Out of Control
Left Turn
Right Angle

Classification by Type

	Side Swipe	Rear End	Right Angle	Left Turn	Pedestrian	Bicycle	Other
Fatal	0	0	0	0	0	0	0
Personal Injury	1	1	0	0	0	0	0
Prop. Damage	0	1	0	0	0	0	1
Total	**1**	**2**	**0**	**0**	**0**	**0**	**1**

Weather		Pavement		Time of Year		Time of Day	
Clear	3	Dry	3	Winter (Dec - Feb)	0	6:00 AM - 10:00 AM	0
Cloudy	0	Wet	1	Spring (Mar - May)	1	10:00 AM - 4:00 PM	2
Fog	0	Icy	0	Summer (Jun - Aug)	2	4:00 PM - 7:00 PM	0
Rain	0	Snow	0	Fall (Sep - Nov)	1	7:00 PM - 12:00 AM	1
Sleet	0	Unknown	0			12:00 AM - 6:00 AM	2
Snow	1					Unknown	0
Mist	0						
Unknown	0						

Light
L = Daylight
DN = Dawn
DU = Dusk
DL = Dark Lighted
DO = Dark, Lights Off
D = Dark, Unlighted

Weather
C = Clear
CL = Cloudy
R = Rain
S = Snow
SL = Sleet
F = Fog

Surface
D = Dry
I = Icy
W = Wet
S=Snow

AE-11-13

STATE OF MINNESOTA — DEPARTMENT OF PUBLIC SAFETY
ACCIDENT REPORT
(NOT FOR USE ON PRIVATE PROPERTY OR WITH PRIVATE PLOWED HIGHWAY)

FOR DPS USE ONLY

LOCAL CASE NO.	AMENDED
08-00893	N

HIT-AND-RUN	PUB PROP	VEHICLES	KILLED	INJURED	$ MIN
N	N	02	00	00	Y

MONTH	DATE	YEAR	DAY	MILITARY TIME
1	9	2008	Wed	1836

ROUTE SYSTEM: ON 10 — ROUTE NUMBER OR STREET NAME: DUNKIRK LANE — ROADWAY DIRECTION: N S E W — AT INTERSECTION WITH ↓ — OR ____ MI FT N S E W OF ↓

ACPD

COUNTY NO: 27 — CITY / TWP: MAPLE GROVE — INT ELEM: — REFERENCE POINT: ____ + ____ · ____

ROUTE SYS: 10 — ROUTE #, STREET, CORP LIMIT, OR FEATURE: WEAVER LAKE ROAD

UNIT 1

FACTOR 1	POSITION	DRIVER LICENSE NUMBER - 1	STATE	CLASS	DL STATUS
02	01	Q577133323219	MN	D	

FACTOR 2	NAME (FIRST, MIDDLE, LAST)	DATE OF BIRTH
01	CARLA ANN NELSON	10/19/74

MNUVER	ADDRESS	DR VIOLTNS	RESTRICT
03	6939 POLARIS LN N	N	

PHYSCL	CITY, STATE, ZIP
01	MAPLE GROVE 55311

RCOMND	ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV
01	Y	F	04	04	06	05	N

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
N	98	N	98	N	☐ AMB ☐ OTHER		

OCCUP	OWNER NAME	FIRE
02	NELSON DAVID CHRISTIAN	N

VEH TYP	ADDRESS	TOWED
04	6939 POLARIS LN N	N

VEH USE	CITY, STATE, ZIP	PULLING UNIT	DIRECT
01	MAPLE GROVE MN 55311	N	08

OMG LOC	MAKE	MODEL	YEAR	COLOR
08	CHRY	TWC	2005	

DMG SEV	PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
03	NZV953	MN	08	01	98	98	98	01

INSURANCE	POLICY NUMBER
STATE AUTO INSURANCE	AMN6258605

UNIT 2

POSITION	DRIVER LICENSE NUMBER - 2	STATE	CLASS	DL STATUS	FACTOR 1
01	T460258357910	MN	D	01	01

NAME (FIRST, MIDDLE, LAST)	DATE OF BIRTH	FACTOR 2
PATRICK TIMOTHY LYNCH	11/19/81	01

ADDRESS	OR VIOLTNS	RESTRICT	MNUVER
17303 BASS LAKE RD	N		01

CITY, STATE, ZIP	PHYSCL
MAPLE GROVE 55311	01

ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV	RCOMND
Y	M	04	04	98	05	N	01

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
N	98	N	98	N	☐ AMB ☐ OTHER		

OCCUP	OWNER NAME	FIRE
02	LYNCH TIMOTHY OWEN	N

VEH TYP	ADDRESS	TOWED
01	17303 BASS LAKE RD	N

VEH USE	CITY, STATE, ZIP	PULLING UNIT	DIRECT
01	OSSEO MN 55311	N	01

OMG LOC	MAKE	MODEL	YEAR	COLOR
01	OLDS	FRB	1986	

DMG SEV	PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
02	XCB628	MN	08	01	98	98	98	01

INSURANCE (UNIT 2)	POLICY NUMBER
LIBERTY MUTUAL	AO2248968550006

CARGO BDY TYPE	HAZ MAT PLAC	WAIVED	INSPECTION #	INSP BADGE #

IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).

WAIVED	HAZ MAT PLAC	CARGO BDY TYPE

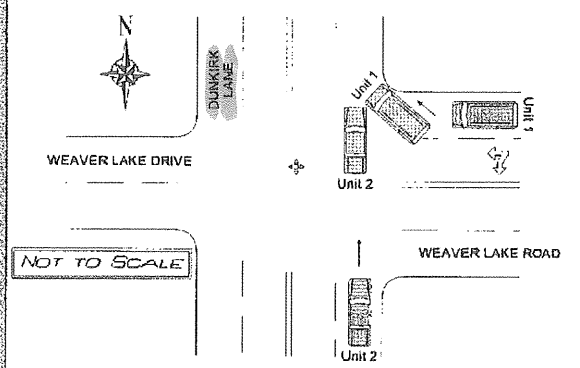
COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME	DOT NUMBER

COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME	DOT NUMBER

PASSENGERS / WITNESSES	UNIT	POSTN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
LAUREN NELSON	01	07	10/22/2003	F	05	07	06	05	N	N	☐ AMB ☐ OTHER		
BRIAN TIMOTHY LYNCH	02	03	6/3/1970	M	04	99	98	05	N	N	☐ AMB ☐ OTHER		
											☐ AMB ☐ OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S) — DAMAGED PROPERTY / YELLOW TAG NUMBER

ACC TYP	SCHL BUS	LOCATN	ON BRIDGE	TYPE OF WZ	LOC OF CRASH/WZ	WORKERS PRESENT	RDDESGN	RD SURF	RD CHAR
01	03	01	N	98	98	I	05	01	02



NARRATIVE:

UNIT 1 MAKING RIGHT TURN FAILED TO YIELD AND TURNED IN FRONT OF UNIT 2. UNIT 2 WAS DRIVING NB DUNKIRK LANE AND STRUCK UNIT 1 AS TURNED IN FRONT OF HIM. NO INJURIES, BOTH VEHICLES DROVE FROM SCENE.

DEVICE	WORKING	INT REL	SPEED LIMIT	WEATHER 1	WEATHER 2	LIGHT	PHOTOS TAKEN	DIAGRAM
01	01	04	45	01	01	04	N	05

OFFICER RANK, NAME AND BADGE #	AGENCY	PATROL STATION	
PATROL Ryan Modeen 113	Maple Grove PD		☐ STATE PATROL ☐ SHERIFF ☒ LOCAL ☐ OTHER

113

AE-11-13

STATE OF MINNESOTA - DEPARTMENT OF PUBLIC SAFETY
ACCIDENT REPORT
(LAW ENFORCEMENT ONLY)

PAGE 1 OF 1

FOR DPS USE ONLY

LOCAL CASE NO.	AMENDED
08-6447	N

HIT-AND-RUN	PUB PROP	VEHICLES	KILLED	INJURED	S MIN
N	Y	01	00	00	Y

MONTH	DATE	YEAR	DAY	MILITARY TIME
2	28	2008	Thu	1900

ROUTE SYSTEM: ON 10 — ROUTE NUMBER OR STREET NAME: WEAVER LK RD — DIVIDED HIGHWAY — ROADWAY DIRECTION: N E S W — AT INTERSECTION WITH — OR 0.5 MI FT N S E W OF

COUNTY NO: 27 — CITY / TWP: MAPLE GROVE — INT ELEM — REFERENCE POINT — ROUTE SYS: 10 — ROUTE #, STREET, CORP LIMIT, OR FEATURE: DUNKIRK LN

UNIT 1

FACTOR 1	POSITION	DRIVER LICENSE NUMBER - 1	STATE	CLASS	DL STATUS
46	01	A111026886603	MN	D	01

FACTOR 2	NAME (FIRST, MIDDLE, LAST)	DATE OF BIRTH
	ANTHONY ROBERT SANTIAGO	03/20/89

MNUVER	ADDRESS	DR VIOLTNS	RESTRICT
01	2416 84TH AVE N	N	01

PHYSCL	CITY, STATE, ZIP	
01	BROOKLYN PARK 55444	763-432-0704

RCOMND	ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV
01	Y	M	04	04	06	05	N

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
N	98	N	98	N	☐ AMB ☐ OTHER		

OCCUP	OWNER NAME	FIRE
01	K & L AUTO SALES	N

VEH TYP	ADDRESS	TOWED
01	822 E RIVER RD	Y

VEH USE	CITY, STATE, ZIP	PULLING UNIT	DIRECT
01	ANOKA MN 55433	N	07

DMG LOC	MAKE	MODEL	YEAR	COLOR
03	PONT	GAS	1995	WHT

DMG SEV	PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
04	UJT311	MN	08	01	13			13

INSURANCE	POLICY NUMBER
DAIRYLAND INS	230235635

UNIT 2

☐ VEHICLE ☐ NON-MOTORIST

POSITION	DRIVER LICENSE NUMBER - 2	STATE	CLASS	DL STATUS	FACTOR 1

NAME (FIRST, MIDDLE, LAST)	DATE OF BIRTH	FACTOR 2

ADDRESS	DR VIOLTNS	RESTRICT	MNUVER

CITY, STATE, ZIP		PHYSCL

ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV	RCOMND

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
					☐ AMB ☐ OTHER		

OWNER NAME	FIRE	OCCUP

ADDRESS	TOWED	VEH TYP

CITY, STATE, ZIP	PULLING UNIT	DIRECT	VEH USE

MAKE	MODEL	YEAR	COLOR	DMG LOC

PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT	DMG SEV

INSURANCE (UNIT 2)	POLICY NUMBER

CARGO BDY TYPE	HAZ MAT PLAC	WAIVED	INSPECTION #	INSP BADGE #

IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).

WAIVED	HAZ MAT PLAC	CARGO BDY TYPE

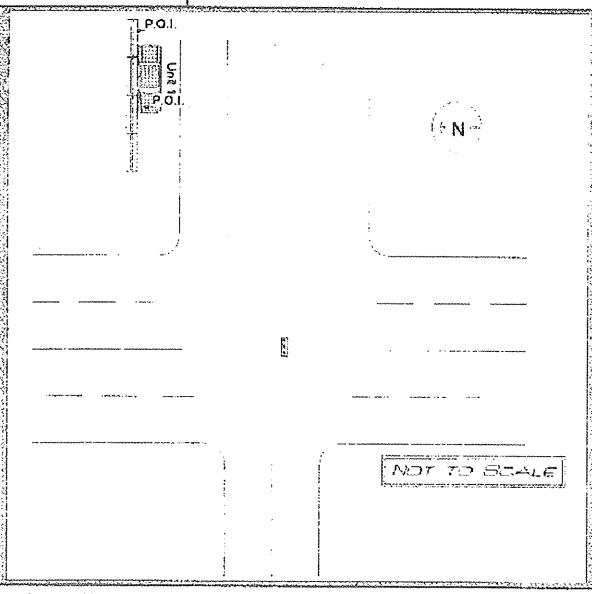
COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME	DOT NUMBER

COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME	DOT NUMBER

PASSENGERS / WITNESSES	UNIT	POSTN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
											☐ AMB ☐ OTHER		
											☐ AMB ☐ OTHER		
											☐ AMB ☐ OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S)	DAMAGED PROPERTY / YELLOW TAG NUMBER
NO DAMAGE TO RETAINING WALRETAINING WALL	

ACC TYP	SCHL BUS	LOCATN	ON BRIDGE	TYPE OF WZ	LOC OF CRASH/WZ	WORKERS PRESENT	RDDESGN	RD SURF	RD CHAR
26	03	01	N	98	01	N	05	03	02



NARRATIVE:

VEHICLE #1 WAS GOING WEST ON WEAVER LK RD JUST EAST OF DUNKIRK LN, HE STATED THAT HE LOST CONTROL ON THE ICE AND HIT THE RETAINING WALL JUST NORTH OF WEAVER LK RD, HE WAS NOT INJURED, THE VEHICLE WAS TOWED FROM THE SCENE. DRIVER WAS ALSO TOLD TO COMPLETE A STATED ACCIDENT REPORT WITHIN 10 DAYS.

DEVICE	WORKING	INT REL	SPEED LIMIT	WEATHER 1	WEATHER 2	LIGHT	PHOTOS TAKEN	DIAGRAM
98	98	01	45	02	04	04	N	98

OFFICER RANK, NAME AND BADGE #	AGENCY	PATROL STATION	
PATROL Andy Sandberg 119	Maple Grove PD		☐ STATE PATROL ☑ LOCAL ☐ SHERIFF ☐ OTHER

AE-11-13

STATE OF MINNESOTA - DEPARTMENT OF PUBLIC SAFETY
ACCIDENT REPORT
(LAW ENFORCEMENT ONLY)

PAGE 1 OF 1

FOR DPS USE ONLY

LOCAL CASE NO.	AMENDED	HIT-AND-RUN	PUB PROP	VEHICLES	KILLED	INJURED	$ MIN
08-6452	N	N	N	02	00	02	Y

MONTH	DATE	YEAR	DAY	MILITARY TIME
2	28	2008	Thu	1935

IF DIVIDED HIGHWAY, ROADWAY DIRECTION:

ROUTE SYSTEM	ROUTE NUMBER OR STREET NAME	AT INTERSECTION WITH	OR	
ON 10	WEAVER LK RD		0.5 MI FT N S E W OF	

COUNTY NO	CITY / TWP	INT ELEM	REFERENCE POINT	ROUTE SYS	ROUTE #, STREET, CORP LIMIT, OR FEATURE
27	CITY MAPLE GROVE			10	DUNKIRK LN N

UNIT 1

FACTOR 1	POSITION	DRIVER LICENSE NUMBER - 1	STATE	CLASS	DL STATUS
46	01	A891042407418	MN	D	01

FACTOR 2	NAME (FIRST, MIDDLE, LAST)	DATE OF BIRTH
	MAHIN SOLTANI	09/04/59

MNUVER	ADDRESS	DR VIOLTNS	RESTRICT
01	18136 89TH PLACE N	N	01

PHYSCL	CITY, STATE, ZIP	
01	MAPLE GROVE 55311	763-416-9918

RCOMND	ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV
01	Y	F	04	04	06	05	C

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
N	98	N	98	N	AMB / OTHER		

OCCUP	OWNER NAME	FIRE
01	SOLTANI TINA JINOUS	N

VEH TYP	ADDRESS	TOWED
01	18136 89TH PL N	N

VEH USE	CITY, STATE, ZIP	PULLING UNIT	DIRECT
01	MAPLE GROVE MN 55311	N	07

DMG LOC	MAKE	MODEL	YEAR	COLOR
03	TOYT	UVL	2000	

DMG SEV	PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
03	MGR534	MN	08	01	13			13

INSURANCE	POLICY NUMBER
SECURA SUPREME INS	PX2619832

UNIT 2 — VEHICLE / NON-MOTORIST

FACTOR 1	POSITION	DRIVER LICENSE NUMBER - 2	STATE	CLASS	DL STATUS
46	01	X324210138509	MN	D	01

FACTOR 2	NAME (FIRST, MIDDLE, LAST)	DATE OF BIRTH
	SUNG-YUN KIM SMITH	09/28/76

MNUVER	ADDRESS	DR VIOLTNS	RESTRICT
01	9348 TEWSBURY GATE	N	01

PHYSCL	CITY, STATE, ZIP	
01	MAPLE GROVE 55311	612-237-1291

RCOMND	ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV
01		F	04	04	06	05	C

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
N	98	N	98	N	AMB / OTHER		

OCCUP	OWNER NAME	FIRE
01	CAB WEST LLC	N

VEH TYP	ADDRESS	TOWED
01	PO BOX 105704	N

VEH USE	CITY, STATE, ZIP	PULLING UNIT	DIRECT
01	ATLANTA MN 303485074	N	07

DMG LOC	MAKE	MODEL	YEAR	COLOR
01	FORD	F/E	2007	SIL

DMG SEV	PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
02	UTN444	MN	08	01	13			13

INSURANCE (UNIT 2)	POLICY NUMBER
GEICO	4014043626

CARGO BDY TYPE	HAZ MAT PLAC	WAIVED

INSPECTION # / INSP BADGE #

IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).

WAIVED	HAZ MAT PLAC	CARGO BDY TYPE

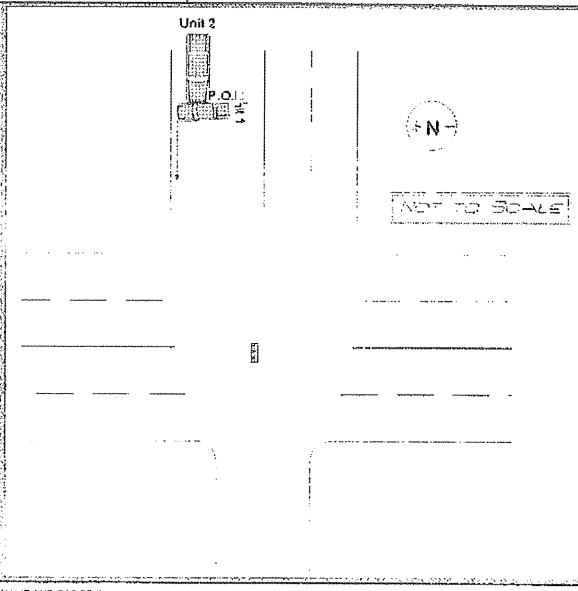
COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME / DOT NUMBER

COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME / DOT NUMBER

PASSENGERS / WITNESSES	UNIT	POSTN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
											AMB / OTHER		
											AMB / OTHER		
											AMB / OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S) / DAMAGED PROPERTY / YELLOW TAG NUMBER

ACC TYP	SCHL BUS	LOCATN	ON BRIDGE	TYPE OF WZ	LOC OF CRASH/WZ	WORKERS PRESENT	RDESGN	RD SURF	RD CHAR
01	03	01	N	98	98	I	05	03	02



NARRATIVE:

VEHICLE #1 DRIVER STATED SHE WAS GOING WESTBOUND ON WEAVER LK RD JUST EAST OF DUNKIRK LN WHEN SHE TAPPED THE BREAKS AND LOST CONTROL OF THE VEHICLE, THE VEHICLE WAS NOW SIDEWAYS IN BOTH WESTBOUND LANES AND WAS STILL SLIDING, THEN SHE WAS STRUCK IN THE PASSENGER SIDE DOOR BY VEHICLE #2, BOTH VEHICLE CAME TO A STOP AND THEN PULLED OVER.
VEHICLE #2 DRIVER STATED SHE WAS GOING WESTBOUND ON WEAVER LK RD, WHEN A VEHICLE THAT WAS IN LEFT LANE AND SHE WAS IN THE RIGHT LANE LOST CONTROL AND WENT SIDEWAYS IN THE ROADWAY AND WAS SLIDING, SHE TRIED TO STOP AND SLID ON THE ICE MAKING CONTACT WITH HER VEHICLE FRONT END.
VEHICLE #1 DRIVER STATED SHE HAD RIGHT SHOULDER AND BACK PAIN BUT DID NOT WANT ANY MEDICAL ATTENTION. VEHICLE #2 DRIVER STATED HE LEFT KNEE WAS SORE BUT SHE DID NOT WANT ANY MEDICAL
(continued on attached page)

DEVICE	WORKING	INT REL	SPEED LIMIT	WEATHER 1	WEATHER 2	LIGHT	PHOTOS TAKEN	DIAGRAM
98	01	01	45	02	04	04	N	02

OFFICER RANK, NAME AND BADGE #	AGENCY	PATROL STATION	
PATROL Andy Sandberg 119	Maple Grove PD		STATE PATROL / LOCAL / SHERIFF / OTHER

Case #: 08-6452
Report Date: 2/29/2008
Accident Narrative, continued:

ATTENTION EITHER.
BOTH PARTIES WERE TOLD TO EXCHANGE INFORMATION AND TO COMPLETE A STATE ACCIDENT REPORT.

AE-11-13

STATE OF MINNESOTA - DEPARTMENT OF PUBLIC SAFETY
ACCIDENT REPORT

(DRIVER'S REPORT IF ONLY)

FOR DPS USE ONLY

LOCAL CASE NO.	AMENDED	HIT-AND-RUN	PUB PROP	VEHICLES	KILLED	INJURED	$ MIN
08-6454	N	N	Y	02	00	00	Y

MONTH	DATE	YEAR	DAY	MILITARY TIME
2	28	2008	Thu	2000

IF DIVIDED HIGHWAY

ROUTE SYSTEM	ROUTE NUMBER OR STREET NAME	ROADWAY DIRECTION
ON 10	DUNKIRK LN	

AT INTERSECTION WITH ↓ | OR ____ . ____ MI/FT N/S E/W OF ↓

COUNTY NO	CITY / TWP	INT ELEM	REFERENCE POINT	ROUTE SYS	ROUTE #, STREET, CORP LIMIT, OR FEATURE
27	CITY MAPLE GROVE		____ + ____ . ____	10	WEAVER LAKE ROAD

UNIT 1

FACTOR 1	POSITION	DRIVER LICENSE NUMBER - 1	STATE	CLASS	DL STATUS
46	01	H728031692617	MN	D	01

FACTOR 2

NAME (FIRST, MIDDLE, LAST): SAO NENG VUE

DATE OF BIRTH: 04 10 88

MNUVER: 10

ADDRESS: 3826 BRYANT AVE N

DR VIOLTN: N | RESTRICT: 01

PHYSCL: 01

CITY, STATE, ZIP: MPLS 55412

(612)242-8121

RCOMND: 01

ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV
Y	M	04	04	06	05	N

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
N	98	N	98	N	☐ AMB ☐ OTHER		

OCCUP: 01

OWNER NAME: VUE SAO NENG

FIRE: N

VEH TYP: 01

ADDRESS: 3826 BRYANT AVE N

TOWED: Y

VEH USE: 01

CITY, STATE, ZIP: MPLS MN 55412

PULLING UNIT: N | DIRECT: 05

DMG LOC: 01

MAKE	MODEL	YEAR	COLOR
HOND	CLX	1993	RED

DMG SEV: 04

PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS: FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
KNN557	MN	08	01				01

INSURANCE: GUIDE 1 ELITE INS

POLICY NUMBER: 021065678

UNIT 2

FACTOR 1	POSITION	DRIVER LICENSE NUMBER - 2	STATE	CLASS	DL STATUS
01	01	B6525388404705	WI	D	01

FACTOR 2

NAME (FIRST, MIDDLE, LAST): LOGAN THEODORE BRANJORD

DATE OF BIRTH: 02 07 84

MNUVER: 01

ADDRESS: 1573 210TH AVENUE

DR VIOLTN: Y | RESTRICT: 01

PHYSCL: 01

CITY, STATE, ZIP: NEW RICHMOND 54017

(715)222-2580

RCOMND: 01

ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV
Y	M	04	04	06	05	N

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
N	98	N	98	N	☐ AMB ☐ OTHER		

OCCUP: 01

OWNER NAME: LOGAN BRANJORD

FIRE: N

VEH TYP: 01

ADDRESS: 1573 210TH AVENUE

TOWED: Y

VEH USE: 01

CITY, STATE, ZIP: NEW RICHMOND, WI 54017

PULLING UNIT: N | DIRECT: 05

DMG LOC: 05

MAKE	MODEL	YEAR	COLOR
FORD	ESCO		

DMG SEV: 04

PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS: FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
987EEC	WI	2008					

INSURANCE (UNIT 2):

POLICY NUMBER:

CARGO BDY TYPE | HAZ MAT PLAC | WAIVED | INSPECTION # | INSP BADGE #

IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).

WAIVED | HAZ MAT PLAC | CARGO BDY TYPE

COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME | DOT NUMBER

COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME | DOT NUMBER

PASSENGERS / WITNESSES	UNIT	POSTN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
											☐ AMB ☐ OTHER		
											☐ AMB ☐ OTHER		
											☐ AMB ☐ OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S)

DAMAGED PROPERTY / YELLOW TAG NUMBER

ACC TYP: 01

SCHL BUS: 03

LOCATN: 01

ON BRIDGE: N

TYPE OF WZ: 98

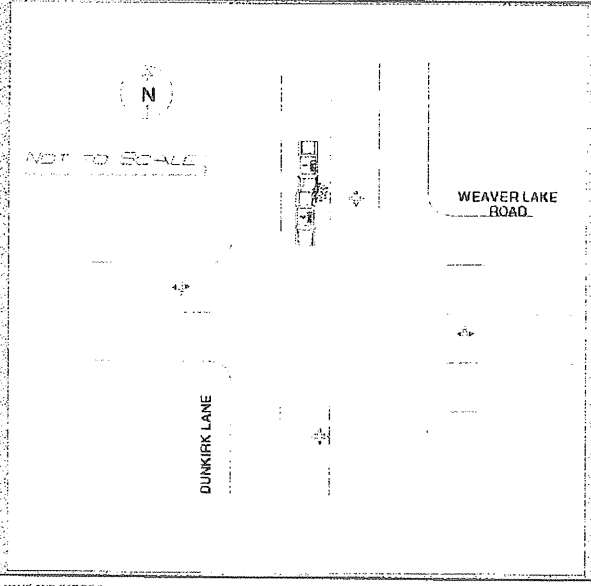
LOC OF CRASH WZ: 98

WORKERS PRESENT: I

RDESGN: 03

RD SURF: 05

RD CHAR: 02



NARRATIVE:

UNIT #2 WAITING FOR NORTH TRAFFIC TO TRAVEL THROUGH INTERSECTION, WHICH HAD RIGHT-OF-WAY, BEFORE MAKING A LEFT TURN ON TO WEAVER LAKE ROAD.

DRIVER OF UNIT #1 STATED HE ATTEMPTED TO SLOW TO AVOID A COLLISION, BUT DUE TO ICE COVERED ROAD, HE WAS UNABLE TO.

UNIT #1 THEN REAR ENDED UNIT #2.

A CITATION WAS ISSUED TO THE DRIVER OF UNIT #2 FOR NO CURRENT PROOF OF INSURANCE.

DEVICE: 01

WORKING: 01

INT REL: 07

SPEED LIMIT: 40

WEATHER 1: 04

WEATHER 2: 05

LIGHT: 07

PHOTOS TAKEN: N

DIAGRAM: 01

OFFICER RANK, NAME AND BADGE #: PATROL OFFICER Jesse Mathwig 120

AGENCY: Maple Grove PD

PATROL STATION:

☐ STATE PATROL ☒ LOCAL ☐ SHERIFF ☐ OTHER

ACPD GN

AE-11-13

FOR DPS USE ONLY

LOCAL CASE NO.	AMENDED
08-6460	N

HIT-AND-RUN	PUB PROP	VEHICLES	KILLED	INJURED	$ MIN
N	N	02	00	01	Y

MONTH	DATE	YEAR	DAY	MILITARY TIME
2	28	2008	Thu	2118

ROUTE SYSTEM	ROUTE NUMBER OR STREET NAME	ROADWAY DIRECTION
ON 10	WEAVER LAKE ROAD	N E S W

AT INTERSECTION ↓ OR _____ . _____ [ ] FT [ ] N [ ] S [ ] E [ ] W OF ↓

COUNTY NO	CITY / TWP	INT ELEM	REFERENCE POINT	ROUTE SYS	ROUTE #, STREET, CORP LIMIT, OR FEATURE
27	[x] CITY [ ] TWP MAPLE GROVE		_____ + _____ . _____	10	DUNKIRK LANE

Driver 1

FACTOR 1	POSITION	DRIVER LICENSE NUMBER - 1	STATE	CLASS	DL STATUS
01	01	Y385231894416	MN	D	01

FACTOR 2	NAME (FIRST, MIDDLE, LAST)	DATE OF BIRTH
	MELANIE MARIE BLAIS	07 18 73

MNUVER	ADDRESS	OR VIOLTNS	RESTRICT
06	8179 JEWEL LANE N	N	01

PHYSCL	CITY, STATE, ZIP	
01	MAPLE GROVE 55311	763-494-5580

RCOMND	ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV
01	Y	F	04	04	06	05	B

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
1	98	1	98	N	[ ] AMB [ ] OTHER	NORTH MEMORI	AL86864

OCCUP	OWNER NAME	FIRE
01	BLAIS MELANIE MARIE	N

VEH TYP	ADDRESS	TOWED
03	8179 JEWEL LN N	N

VEH USE	CITY, STATE, ZIP	PULLING UNIT	DIRECT
01	MAPLE GROVE MN 55311	N	06

DMG LOC	MAKE	MODEL	YEAR	COLOR
05	NISS	MUR	2006	SIL

DMG SEV	PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
03	THR889	MN	08	01				

INSURANCE	POLICY NUMBER
FARMERS INSURANCE	JN84Z08WX6W53 1154

Driver 2

FACTOR 1	POSITION	DRIVER LICENSE NUMBER - 2	STATE	CLASS	DL STATUS
03	01	N694128463219	MN	D	01

FACTOR 2	NAME (FIRST, MIDDLE, LAST)	DATE OF BIRTH
16	TREVOR DANIEL FREDRICKSON	07 15 91

MNUVER	ADDRESS	OR VIOLTNS	RESTRICT
01	5721 94TH AVE N	N	01

PHYSCL	CITY, STATE, ZIP	
01	LORETTO 55357	763-498-7984

RCOMND	ADDRESS CORRECT	SEX	SAFE EQPT TYPE	SAFE EQPT USE	AIRBAG	EJECT	INJ SEV
01	Y	M	04	04	01	05	N

ALCHL TEST	TYPE	DRUG TEST	TYPE	TO HOSP	TRANSPORT	AMBULANCE SERVICE	RUN NUMBER
1	98	1	98	N	[ ] AMB [ ] OTHER	NORTH MEMORI	AL86864

OCCUP	OWNER NAME	FIRE
01	FREDRICKSON GENE ERLAND	N

VEH TYP	ADDRESS	TOWED
02	5721 94TH AVE N	N

VEH USE	CITY, STATE, ZIP	PULLING UNIT	DIRECT
01	GREENFIELD MN 55357	N	06

DMG LOC	MAKE	MODEL	YEAR	COLOR
01	FORD	RNG	1997	BLU

DMG SEV	PLATE #	ST REG	YEAR REG	SEQUENCE OF EVENTS FIRST	SECOND	THIRD	FOURTH	MOST HARM EVENT
04	XMT927	MN	08	01				01

INSURANCE (UNIT 2)	POLICY NUMBER
ILLINOIS FARMERS INSURANCE	69325217

CARGO BDY TYPE	HAZ MAT PLAC	WAIVED	INSPECTION #	INSP BADGE #

IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).

WAIVED	HAZ MAT PLAC	CARGO BDY TYPE

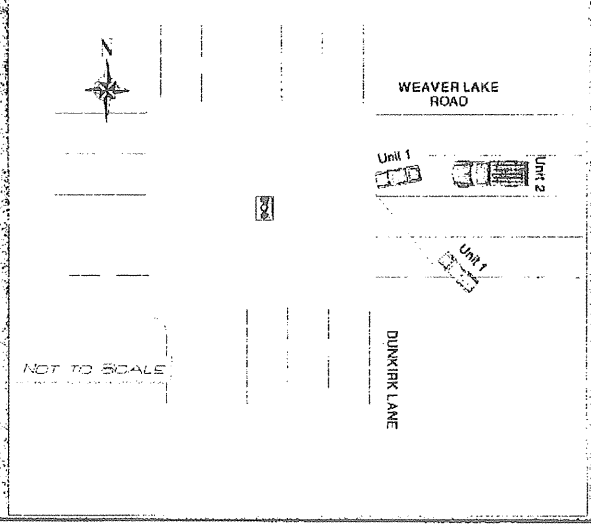
COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME	DOT NUMBER

COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME	DOT NUMBER

PASSENGERS / WITNESSES	UNIT	POSTN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
											[ ] AMB [ ] OTHER		
											[ ] AMB [ ] OTHER		
											[ ] AMB [ ] OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S)	DAMAGED PROPERTY / YELLOW TAG NUMBER

ACC TYP	SCHL BUS	LOCATN	ON BRIDGE	TYPE OF WZ	LOC OF CRASH WZ	WORKERS PRESENT	RDESGN	RD SURF	RD CHAR
01	03	01	N	98	98	I	05	02	04



NARRATIVE:

DRIVER #1 WAS AT THE STOP LIGHT FOR WB WEAVER LAKE RD. THE LIGHT HAD JUST CHANGED AND SHE WAS STARTING TO GO ONTO SB DUNKIRK LANE. DRIVER #2 WAS COMING UP BEHIND HER. HE SLID AND COULD NOT STOP AS A RESULT OF HIS SPEED AND POSITION ON THE HILL CREST COMING DOWN. hE HIT THE REAR OF THE VEHICLE AND SPUN HER VEHICLE AROUND.

DRIVER #2 SAID THAT HE APPROACHED THE INTERSECTION AND COULD NOT SLOW DOWN ENOUGH TO STOP FROM HITTING DRIVER #1.

DEVICE	WORKING	INT REL	SPEED LIMIT	WEATHER 1	WEATHER 2	LIGHT	PHOTOS TAKEN	DIAGRAM
01	01	04	40	05	04	04	N	01

OFFICER RANK, NAME AND BADGE #	AGENCY	PATROL STATION	
OFFICER Shawn Watson 79	Maple Grove PD		[ ] STATE PATROL [x] LOCAL [ ] SHERIFF [ ] OTHER

MAPLE GROVE POLICE DEPARTMENT
INCIDENT REPORT

MN0272700 AE-11-13

DATE REPORTED	R	A	C	REPORTING OFFICER	ASSISTING OFFICER(S)	JCF ☐	CASE NUMBER
062208	1234	1236	1300	Miller			08 20635

INCIDENT M☐ GM☐ F☐	MOC	STATUTE/ORD NUMBER
Prop. Damage Crash	ACPD NP	—

INCIDENT M☐ GM☐ F☐	MOC	STATUTE/ORD NUMBER

LOCATION OF OCCURRENCE	DATE(S) OCCURRED	TIME(S) OCCURRED
Weaver / Dunkirk MN 55311	062208	1234

PERSONS

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE
D	Regseth Kaare Ann	012374	7634428537	—

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES
6130 Quinwood Ln #3313 Plymouth MN 55442	F	W	502	125	Red	Hzl

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)
S639 169 654 218

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE
Dz	Huidston David Brooks	031965	612 749 0624	—

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES
7012 Fernbrook Ln MN 55311	M	W	511	210	Brn	Grn

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)
(205) 108 791 312

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES

ADDITIONAL INFO (SCHOOL/GRADE, PARENTS, OTHER)

RUNAWAY/MISSING PERSON

DATE LAST SEEN _____ LOCATION _____
SCARS, TATTOOS _____ DESTINATION _____
I CERTIFY THAT THE PERSON DESCRIBED ABOVE IS ABSENT DUE TO THE FOLLOWING: (CHECK ONE)
1. ☐ MENTAL/PHYSICAL DISABILITY 2. ☐ INVOLUNTARY DISAPPEARANCE
3. ☐ PHYSICAL SAFETY ENDANGERED 4. ☐ JUVENILE RUNAWAY
5. ☐ OTHER (DESCRIBE) _____ SIGNED _____

PROPERTY INFORMATION:

STOLEN ☐ RECOVERED ☐ FOUND ☐ DAMAGED ☐ IMPOUNDED ☐ EVIDENCE ☐ SAFE KEEPING ☐ LOST ☐
DOLLAR AMOUNT $
PROPERTY SHEET ATTACHED YES ☐ NO ☒ CRIME SCENE PROCESSED YES ☐ NO ☒ PHOTOS YES ☐ NO ☒

VEHICLE INFORMATION

AE-11-13

VEH 1 — TYPE: AUTO ☒ CYCLE ☐ SNOWMOBILE ☐ WATERCRAFT ☐ TRAILER ☐ BIKE ☐
INCIDENT: STOLEN ☐ RECOVERY ☐ IMPOUND ☐ ABANDONED ☐ ACCIDENT ☒
DAMAGED ☐ OTHER ☐ _____ WILL OWNER PROSECUTE? YES ☐ NO ☐
KEYS IN VEHICLE? YES ☐ NO ☐
VEHICLE LOCKED? YES ☐ NO ☐

LIC/ XDK762 LIS/ MN LIY/ 08 VCO/ B/lc VYR/ 01 MAKE/ Toy MODEL/ Corolla

OWNER/ Same As D. ADDRESS → PHONE →

FINANCE CO _____ INS CO Country VIN# A22 A654405

FOR BIKE THEFTS ONLY: SPEED 1 3 5 10 12 _____ WHEEL SIZE 16 20 24 26 27 28 _____ Boys/Girls

I HEREBY CERTIFY THAT I AM THE OWNER OF THE ABOVE VEHICLE/PROPERTY AND THAT NO ONE IS ALLOWED TO USE OR POSSESS THIS VEHICLE/PROPERTY FOR ANY REASON, AND THAT THE INFORMATION IS TRUE AND CORRECT. SIGNED _____

VEH 2 — TYPE: AUTO ☒ CYCLE ☐ SNOWMOBILE ☐ WATERCRAFT ☐ TRAILER ☐ BIKE ☐
INCIDENT: STOLEN ☐ RECOVERY ☐ IMPOUND ☐ ABANDONED ☐ ACCIDENT ☒
DAMAGED ☐ OTHER ☐ _____
KEYS IN VEHICLE? YES ☐ NO ☐
VEHICLE LOCKED? YES ☐ NO ☐

LIC/ VJY882 LIS/ MN LIY/ 09 VCO/ B/W VYR/ 07 MAKE/ Toy MODEL/ Can

OWNER/ Same as D2 ADDRESS → PHONE →

FINANCE CO _____ INS CO State Farm VIN# 338 0632 D01 23D

FOR BIKE THEFTS ONLY: SPEED 1 3 5 10 12 _____ WHEEL SIZE 16 20 24 26 27 28 _____ Boys/Girls

NARRATIVE:

Responded to property damage crash. Arrived. No injuries. No passenger. Two drivers. Two Vehicles. Both SB Dunkirk approaching weaver in inside lane. Both going to go left (East) onto Weaver D2 stopped for red light at that intersection D1 (Regseth) did not stop fast enough. Regseth rear ended D2. Semaphores working properly. D1 stated she simply did not stop fast enough. No evidence of alcohol. No tows. No injuries. Rear damage to D2 veh. Front damage to D1 veh. Clear.

ATTACHED:

NARRATIVE ☐ CRIMINAL HISTORY ☐ STATEMENT FORMS ☐
ADDITIONAL: PERSONS ☐ VEHICLES ☐ DOMESTIC/VICT INFO ☐
SUPPLEMENTAL REPORTS ☐ OTHER ☐:
REFERENCE OTHER CASE #

DISPOSITION (CLEARED BY)

ARREST ☐ TAG ISSUED ☐ OPEN/ACTIVE ☐
OPEN/INACTIVE ☐ EXCEPT CLEARED ☒
REF TO OTHER AGENCY ☐ UNFOUNDED ☐

DATA ENTRY:

ENTERED: NCIC ☐ MNCIS ☐ DATE/TIME _____ BY: _____
CANCELLED: NCIC ☐ MNCIS ☐ DATE/TIME _____ BY: _____
MNCIS # _____ NCIC # _____

SUP APP	INV ASSIGNED	ENTRY
MS		

MAPLE GROVE POLICE DEPARTMENT
INCIDENT REPORT

MN0272700 AE-11-13

DATE REPORTED	R	A	C	REPORTING OFFICER	ASSISTING OFFICER(S)	JCF ☐	CASE NUMBER
12/31/08	1908	1917	1929	Struckmann #118			08-44268

INCIDENT M☐ GM☐ F☐	MOC	STATUTE/ORD NUMBER
PD Accident	ACPD KW	

LOCATION OF OCCURRENCE	DATE(S) OCCURRED	TIME(S) OCCURRED
Weaver Lk Rd / Dunkirk Ln. Mb. 55311	12/31/08	1908

PERSONS

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	~~WORK PHONE~~ (cell)
D1	Kourdaev, Arthur	5/18/90	(763) 416-4611	(612) 702 0171

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES
8172 Everest Ln. Maple Grove, MN 55311	M	W				

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)
Progressive Ins. Pol # 16376113-4

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	~~WORK PHONE~~ (cell)
D2	Schwartz, James, Allen	2/12/84	(763) 420 7518	(763) 439 7518

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES
16399 Bass Lk Rd Maple Grove, MN 55311	M	W				

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)
Safeco Ins. Pol # Z4089080

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES

ADDITIONAL INFO (SCHOOL/GRADE, PARENTS, OTHER)

RUNAWAY/MISSING PERSON

DATE LAST SEEN _____ LOCATION _____
SCARS, TATTOOS _____ DESTINATION _____
I CERTIFY THAT THE PERSON DESCRIBED ABOVE IS ABSENT DUE TO THE FOLLOWING: (CHECK ONE)
1. ☐ MENTAL/PHYSICAL DISABILITY 2. ☐ INVOLUNTARY DISAPPEARANCE
3. ☐ PHYSICAL SAFETY ENDANGERED 4. ☐ JUVENILE RUNAWAY
5. ☐ OTHER (DESCRIBE) _____ SIGNED _____

PROPERTY INFORMATION:

STOLEN ☐ RECOVERED ☐ FOUND ☐ DAMAGED ☐ IMPOUNDED ☐ EVIDENCE ☐ SAFE KEEPING ☐ LOST ☐
DOLLAR AMOUNT $ —
PROPERTY SHEET ATTACHED YES ☐ NO ☒ CRIME SCENE PROCESSED YES ☐ NO ☒ PHOTOS YES ☐ NO ☒

VEHICLE INFORMATION

AE-11-13

VEH 1	TYPE: AUTO ☒ CYCLE ☐ SNOWMOBILE ☐ WATERCRAFT ☐ TRAILER ☐ BIKE ☐ INCIDENT: STOLEN ☐ RECOVERY ☐ IMPOUND ☐ ABANDONED ☐ ACCIDENT ☒ DAMAGED ☐ OTHER ☐ _____ WILL OWNER PROSECUTE? YES ☐ NO ☐	KEYS IN VEHICLE? YES ☐ NO ☐ VEHICLE LOCKED? YES ☐ NO ☐

LIC/ LLW441 LIS/ MN LIY/ 09 VCO/ Bro VYR/ 03 MAKE/ chevy MODEL/ Tahoe

OWNER/ Alexandr Kourdaev ADDRESS 8172 Everest Ln. Mle. 55311 PHONE _____

FINANCE CO _____ INS CO _____ VIN # _____

FOR BIKE THEFTS ONLY: SPEED 1 3 5 10 12 _____ WHEEL SIZE 16 20 24 26 27 28 _____ Boys/Girls

I HEREBY CERTIFY THAT I AM THE OWNER OF THE ABOVE VEHICLE/PROPERTY AND THAT NO ONE IS ALLOWED TO USE OR POSSESS THIS VEHICLE/PROPERTY FOR ANY REASON, AND THAT THE INFORMATION IS TRUE AND CORRECT. SIGNED _____

VEH 2	TYPE: AUTO ☒ CYCLE ☐ SNOWMOBILE ☐ WATERCRAFT ☐ TRAILER ☐ BIKE ☐ INCIDENT: STOLEN ☐ RECOVERY ☐ IMPOUND ☐ ABANDONED ☐ ACCIDENT ☒ DAMAGED ☐ OTHER ☐ _____	KEYS IN VEHICLE? YES ☐ NO ☐ VEHICLE LOCKED? YES ☐ NO ☐

LIC/ LMY517 LIS/ MN LIY/ 09 VCO/ Grn VYR/ 97 MAKE/ Honda MODEL/ Civic

OWNER/ James Schwartz ADDRESS 16399 Bass Lk Rd Mle. 55311 PHONE _____

FINANCE CO _____ INS CO _____ VIN # _____

FOR BIKE THEFTS ONLY: SPEED 1 3 5 10 12 _____ WHEEL SIZE 16 20 24 26 27 28 _____ Boys/Girls

NARRATIVE:

- Responded to an accident
- On arrival Schwartz said his car stalled at the intersection of Weaver Lk Rd and Dunkirk Ln. in the turn lane
- Kourdaev thought Schwartz was making the turn but then accidentally rear ended his car
- Scrapes to the front of Kourdaev's vehicle; there was a crack through the center of the rear bumper of Schwartz's car
- No injuries or tows needed
- Both drivers were given the case number

ATTACHED:

NARRATIVE ☐ CRIMINAL HISTORY ☐ STATEMENT FORMS ☐
ADDITIONAL: PERSONS ☐ VEHICLES ☐ DOMESTIC/VICT INFO ☐
SUPPLEMENTAL REPORTS ☐ OTHER ☐:
REFERENCE OTHER CASE #

DISPOSITION (CLEARED BY)

ARREST ☐ TAG ISSUED ☐ OPEN/ACTIVE ☐
OPEN/INACTIVE ☐ EXCEPT CLEARED ☒
REF TO OTHER AGENCY ☐ UNFOUNDED ☐

DATA ENTRY:

ENTERED: NCIC ☐ MNCIS ☐ DATE/TIME _____ BY: _____
CANCELLED: NCIC ☐ MNCIS ☐ DATE/TIME _____ BY: _____
MNCIS # _____ NCIC # _____

SUP APP	INV ASSIGNED	ENTRY

MAPLE GROVE POLICE DEPARTMENT
INCIDENT REPORT

MN0272700 AE-11-13

DATE REPORTED	R	A	C	REPORTING OFFICER	ASSISTING OFFICER(S)	JCF ☐	CASE NUMBER
9/6/09	1629	1629	1629	Winckler #109			09-31995

INCIDENT M☐ GM☐ F☐	MOC	STATUTE/ORD NUMBER
P.D Accident	ACPI B VN	

LOCATION OF OCCURRENCE	DATE(S) OCCURRED	TIME(S) OCCURRED
Dunkirk Ln / Weaver Lk Rd	Same	1410

PERSONS

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE
V	Miller, David Charles	4/4/65	763-494-9515	612-791-5125

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES
8156 Everest Ln N, MPG 55311	M	W				

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE
DI	Lavigne, Faith Marie	7/18/47		

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES
12790 Primrose Ln #405, Eden Prarie 55344	F	W				

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)

MN DL: N784160660419 NPC

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE
WI	Miller, Tyler Allen	7/26/91	763-493-3382	

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES
8037 Narcissus Ln N MPG 55311						

ADDITIONAL INFO (D.L. #, SCHOOL/GRADE, PARENTS, OTHER)

No Relation to victim NPC

TYPE	NAME (LAST, FIRST, MIDDLE)	DOB	HOME PHONE	WORK PHONE

ADDRESS	SEX	RACE	HGT	WT	HAIR	EYES

ADDITIONAL INFO (SCHOOL/GRADE, PARENTS, OTHER)

RUNAWAY/MISSING PERSON

DATE LAST SEEN _____ LOCATION _____

SCARS, TATTOOS _____ DESTINATION _____

I CERTIFY THAT THE PERSON DESCRIBED ABOVE IS ABSENT DUE TO THE FOLLOWING: (CHECK ONE)

1. ☐ MENTAL/PHYSICAL DISABILITY
2. ☐ INVOLUNTARY DISAPPEARANCE
3. ☐ PHYSICAL SAFETY ENDANGERED
4. ☐ JUVENILE RUNAWAY
5. ☐ OTHER (DESCRIBE) _____ SIGNED _____

PROPERTY INFORMATION:

STOLEN ☐ RECOVERED ☐ FOUND ☐ DAMAGED ☐ IMPOUNDED ☐ EVIDENCE ☐ SAFE KEEPING ☐ LOST ☐

DOLLAR AMOUNT $

PROPERTY SHEET ATTACHED YES ☐ NO ☐ CRIME SCENE PROCESSED YES ☐ NO ☐ PHOTOS YES ☐ NO ☐

R shld, elbow, knee

VEHICLE INFORMATION

AE-11-13

VEH 1 | TYPE: AUTO [X] CYCLE [ ] SNOWMOBILE [ ] WATERCRAFT [ ] TRAILER [ ] BIKE [ ]
INCIDENT: STOLEN [ ] RECOVERY [ ] IMPOUND [ ] ABANDONED [ ] ACCIDENT [X]
DAMAGED [ ] OTHER [ ] _____ WILL OWNER PROSECUTE? YES [ ] NO [ ]
KEYS IN VEHICLE? YES [ ] NO [ ]
VEHICLE LOCKED? YES [ ] NO [ ]

LIC/ XCC674 LIS/ MN LIY/ 10 VCO/ RED VYR/ 08 MAKE/ Toyota MODEL/ Corolla

OWNER/ Lavigne, Faith Marie ADDRESS 12790 Primrose Ln #405 Eden Prarie 55344 PHONE _____

FINANCE CO _____ INS CO Allstate 912378864 VIN # _____

FOR BIKE THEFTS ONLY: SPEED 1 3 5 10 12 _____ WHEEL SIZE 16 20 24 26 27 28 _____ Boys/Girls

I HEREBY CERTIFY THAT I AM THE OWNER OF THE ABOVE VEHICLE/PROPERTY AND THAT NO ONE IS ALLOWED TO USE OR POSSESS THIS VEHICLE/PROPERTY FOR ANY REASON, AND THAT THE INFORMATION IS TRUE AND CORRECT. SIGNED _____

VEH 2 | TYPE: AUTO [ ] CYCLE [ ] SNOWMOBILE [ ] WATERCRAFT [ ] TRAILER [ ] BIKE [X]
INCIDENT: STOLEN [ ] RECOVERY [ ] IMPOUND [ ] ABANDONED [ ] ACCIDENT [ ]
DAMAGED [ ] OTHER [ ] _____
KEYS IN VEHICLE? YES [ ] NO [ ]
VEHICLE LOCKED? YES [ ] NO [ ]

LIC/ _____ LIS/ ____ LIY/ ___ VCO/ _____ VYR/ ____ MAKE/ _____ MODEL/ _____

OWNER/ _____ ADDRESS _____ PHONE _____

(MAKE) MERCIER CORVUS (MODEL) BLACK $1000,00

FINANCE CO _____ INS CO _____ VIN # _____

FOR BIKE THEFTS ONLY: SPEED 1 3 5 10 12 27 WHEEL SIZE 16 20 24 26 27 28 _____ Boys/Girls

NARRATIVE:

-Dispatched a phonecall regarding P.D. accident. Spoke with Miller via phone. He stated:

- He was S/B Dunkirk Ln at Weaver Lk Rd on the sidewalk riding his bike. He had a solid green light and walk symbol. He proceeded into the intersection when the front tire of his bike was struck by the front passenger side of XCC674.
- The veh then left the area without stopping or exchanging info. It then returned approx 10 minutes later to exchange info.

- Minor Scrapes to Miller's Right shoulder, elbow and knee, refused medical treatment.
- Info exchanged. - No contact with Lavigne or witness Miller

ATTACHED: - No need for follow-up.

DISPOSITION (CLEARED BY)

NARRATIVE [ ] CRIMINAL HISTORY [ ] STATEMENT FORMS [ ]
ADDITIONAL: PERSONS [ ] VEHICLES [ ] DOMESTIC/VICT INFO [ ]
SUPPLEMENTAL REPORTS [ ] OTHER [ ]:
REFERENCE OTHER CASE #

ARREST [ ] TAG ISSUED [ ] OPEN/ACTIVE [ ]
OPEN/INACTIVE [ ] EXCEPT CLEARED [X]
REF TO OTHER AGENCY [ ] UNFOUNDED [ ]

DATA ENTRY:

ENTERED: NCIC [ ] MNCIS [ ] DATE/TIME _____ BY: _____
CANCELLED: NCIC [ ] MNCIS [ ] DATE/TIME _____ BY: _____
MNCIS # _____ NCIC # _____

SUP	APP	INV ASSIGNED	ENTRY

DRAFT REPORT

FOR DPS USE ONLY

LOCAL CASE NO.	AMENDED	HIT-AND-RUN	PUB PROP	VEHICLES	KILLED	INJURED	5 MIN	MONTH	DATE	YEAR	DAY	MILITARY TIME
09033123	N	N	N	02	00	01	Y	9	16	2009	Wed	1850

ROUTE SYSTEM	ROUTE NUMBER OR STREET NAME	COUNTY NO	CITY / TWP	INT ELEM	REFERENCE POINT	AT INTERSECTION WITH	ROUTE SYS	ROUTE #, STREET, CORP LIMIT, OR FEATURE
ON 10	DUNKIRK LN	27	[X] CITY MAPLE GROVE		___ + ___ . ___	[X]	10	WEAVER LAKE RD

Unit 1

Field	Value
FACTOR 1	02
FACTOR 2	10
MNUVER	06
PHYSCL	01
RCOMND	01
POSITION	01
DRIVER LICENSE NUMBER-1	P356120557414
STATE	MN
CLASS	D
DL STATUS	01
NAME (FIRST, MIDDLE, LAST)	KAREN ELIZABETH BESTE
DATE OF BIRTH	06 06 41
ADDRESS	7637 INSKIP TRL S
DR VIOLTNS	N
RESTRICT	01
CITY, STATE, ZIP	COTTAGE GROVE 55016
Phone	651-459-3700
ADDRESS CORRECT	Y
SEX	F
SAFE EQPT TYPE	04
SAFE EQPT USE	04
AIRBAG	01
EJECT	05
INJ SEV	C
ALCHL TEST	N
TYPE	98
DRUG TEST	N
TYPE	98
TO HOSP	Y
TRANSPORT	[X] AMB
AMBULANCE SERVICE	NORTH MEMORI
RUN NUMBER	AL929768
OCCUP	01
OWNER NAME	BESTE KAREN ELIZABETH
FIRE	N
VEH TYP	01
ADDRESS	7637 INSKIP TRL S
TOWED	Y
VEH USE	01
CITY, STATE, ZIP	COTTAGE GROVE MN 55016
PULLING UNIT	N
DIRECT	07
DMG LOC	01
MAKE	NISS
MODEL	AXE
YEAR	2001
COLOR	
DMG SEV	04
PLATE #	XLZ312
ST REG	MN
YEAR REG	10
SEQUENCE OF EVENTS (FIRST / SECOND / THIRD / FOURTH)	01 / 12 / 98 / 98
MOST HARM EVENT	12
INSURANCE	NORTH STAR MUTUAL
POLICY NUMBER	000059179

Unit 2

Field	Value
POSITION	01
DRIVER LICENSE NUMBER-2	c263029471711
STATE	MN
CLASS	D
DL STATUS	01
FACTOR 1	01
NAME (FIRST, MIDDLE, LAST)	SANDRA DEE MAHLEN
DATE OF BIRTH	08 07 66
FACTOR 2	01
ADDRESS	9497 NIAGARA LN N
DR VIOLTNS	N
RESTRICT	01
MNUVER	01
CITY, STATE, ZIP	MAPLE GROVE 55369
Phone	612-965-1050
PHYSCL	01
ADDRESS CORRECT	Y
SEX	F
SAFE EQPT TYPE	04
SAFE EQPT USE	04
AIRBAG	01
EJECT	05
INJ SEV	N
RCOMND	01
ALCHL TEST	N
TYPE	98
DRUG TEST	N
TYPE	98
TO HOSP	N
TRANSPORT	AMB / OTHER
AMBULANCE SERVICE	
RUN NUMBER	
OWNER NAME	SANDRA DEE MAHLEN
FIRE	N
OCCUP	01
ADDRESS	9497 NIAGARA LN N
TOWED	Y
VEH TYP	03
CITY, STATE, ZIP	MAPLE GROVE, MN 55369
PULLING UNIT	N
DIRECT	05
VEH USE	01
MAKE	TOYT
MODEL	4 RU
YEAR	2001
COLOR	GRY
DMG LOC	01
PLATE #	2ab169
ST REG	MN
YEAR REG	2001
SEQUENCE OF EVENTS (FIRST / SECOND / THIRD / FOURTH)	01 / 12 / 98 / 98
MOST HARM EVENT	12
DMG SEV	04
INSURANCE (UNIT 2)	ALLSTATE
POLICY NUMBER	062713568

CARGO BDY TYPE	HAZ MAT PLAC	WAIVED	INSPECTION #	INSP BADGE #

IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).

WAIVED | HAZ MAT PLAC | CARGO BDY TYPE

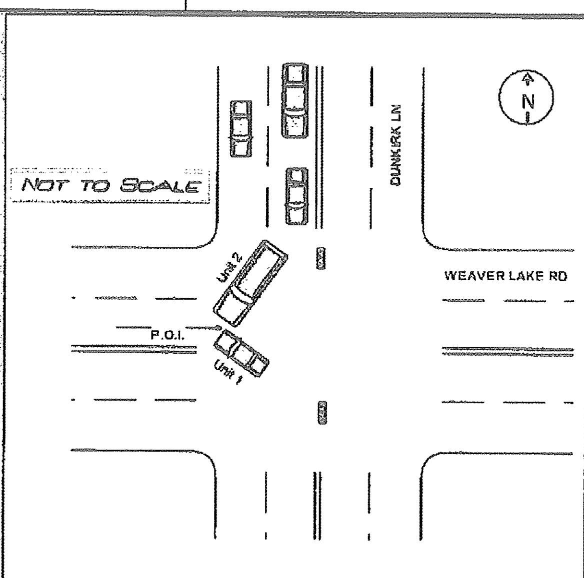
COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME | DOT NUMBER

COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME | DOT NUMBER

PASSENGERS / WITNESSES	UNIT	POSTN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
KYLE PAUL PETERMAN (763-218-4110)	W		5/4/1977	M							AMB / OTHER		
MARY PATRICIA ANN GUY WUESTEWALD (763-494-56	W		2/13/1967	F							AMB / OTHER		
MICHAEL SHAWN GRAMS (612-986-3244)	W		2/27/1969	M							AMB / OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S) | DAMAGED PROPERTY / YELLOW TAG NUMBER

Field	Value
ACC TYP	01
SCHL BUS	03
LOCATN	01
ON BRIDGE	N
TYPE OF WZ	98
LOC OF CRASH/WZ	98
WORKERS PRESENT	N
RDESGN	05
RD SURF	01
RD CHAR	02



NARRATIVE:

D2 WAS DRIVING V2 SB ON DUNKIRK LN IN THE #2 LN. D1 WAS DRIVING V1 NB ON DUNKIRK LN IN THE #1 LN. D1 TRIED TO MAKE A LEFT TURN ONTO WEAVER LAKE RD. BOTH CARS HAD SOLID GREEN LIGHTS. D1 FAILED TO YEILD THE RIGHT OF WAY TO D2 AND ALLOWED V1 TO COLLIDE WITH V2 CAUSING SEVERE FRONT END DAMAGE TO BOTH V1 AND V2. W1 WAS BEHIND D2, W3 WAS IN THE #1 LN FOR SB DUNKIRK, AND W2 WAS DRIVING BEHIND W3. ALL WITNESSES GAVE THE SAME INFORMATION.

Field	Value
DEVICE	01
WORKING	01
INT REL	04
SPEED LIMIT	40
WEATHER 1	01
WEATHER 2	01
LIGHT	01
PHOTOS TAKEN	N
DIAGRAM	05

OFFICER RANK, NAME AND BADGE #	AGENCY	PATROL STATION	
OFFICER Stephen Parker 125	Maple Grove PD		STATE PATROL / SHERIFF / [X] LOCAL / OTHER

AE-11-13

STATE OF MINNESOTA — DEPARTMENT OF PUBLIC SAFETY
ACCIDENT REPORT

FOR DPS USE ONLY

LOCAL CASE NO. 08-35960	AMENDED N												
HIT-AND-RUN N	PUB PROP N	VEHICLES 02	KILLED 00	INJURED 02	$ MIN Y			MONTH 10	DATE 22	YEAR 2008	DAY Wed	MILITARY TIME 0711	
ROUTE SYSTEM ON 10	ROUTE NUMBER OR STREET NAME WEAVER LAKE RD ACP1					ROADWAY DIRECTION		[x] AT INTERSECTION WITH	OR				
COUNTY NO 27	[x] CITY [ ] TWP 2430	INT ELEM	REFERENCE POINT			ROUTE SYS 10	ROUTE #, STREET, CORP LIMIT, OR FEATURE XENE LN						

UNIT 1

FACTOR 1 33	POSITION 01	DRIVER LICENSE NUMBER - 1 R528115437515	STATE MN	CLASS D	DL STATUS 01								
FACTOR 2	NAME (FIRST, MIDDLE, LAST) ALEXANDRA MARIE BAER				DATE OF BIRTH 03 15 92								
MNUVER 05	ADDRESS 8170 XENE LN N				DR VIOLTNS N	RESTRICT 99							
PHYSCL 01	CITY, STATE, ZIP MAPLE GROVE 55311	763-420-2165											
RCOMND 01	ADDRESS CORRECT Y	SEX F	SAFE EQPT TYPE 04	SAFE EQPT USE 04	AIRBAG 03	EJECT 05	INJ SEV N						
ALCHL TEST N	TYPE	DRUG TEST N	TYPE	TO HOSP N	TRANSPORT [ ] AMB [ ] OTHER	AMBULANCE SERVICE	RUN NUMBER						

UNIT 2

[ ] VEHICLE [ ] NON-MOTORIST

POSITION 01	DRIVER LICENSE NUMBER - 2 D834012428215	STATE MN	CLASS D	DL STATUS 01	FACTOR 1 01								
NAME (FIRST, MIDDLE, LAST) CATHY ANN STIEFEL				DATE OF BIRTH 03 27 73	FACTOR 2								
ADDRESS 16551 LK RDG DR N				DR VIOLTNS N	RESTRICT 01	MNUVER 01							
CITY, STATE, ZIP MAPLE GROVE 55311	763-416-0690					PHYSCL 01							
ADDRESS CORRECT Y	SEX F	SAFE EQPT TYPE 04	SAFE EQPT USE 04	AIRBAG 01	EJECT 05	INJ SEV C	RCOMND 01						
ALCHL TEST N	TYPE	DRUG TEST N	TYPE	TO HOSP N	TRANSPORT [ ] AMB [ ] OTHER	AMBULANCE SERVICE NORTH	RUN NUMBER AL833898						

OCCUP 01	OWNER NAME BAER JACOB WILLIAM	FIRE N											
VEH TYP 01	ADDRESS 8170 XENE LANE N	TOWED Y											
VEH USE 01	CITY, STATE, ZIP MAPLE GROVE MN 55311	PULLING UNIT N	DIRECT 01										
DMG LOC 08	MAKE VOLK	MODEL JWE	YEAR 2007	COLOR SIL									
DMG SEV 04	PLATE # XGC091	ST REG MN	YEAR REG 09	SEQUENCE OF EVENTS FIRST 01	SECOND	THIRD	FOURTH	MOST HARM EVENT 01					
INSURANCE STATE FARM	POLICY NUMBER 1281210C0423A												

OCCUP 02	OWNER NAME STIEFEL CATHY ANN	FIRE N											
VEH TYP 04	ADDRESS 16551 LK RDG DR N	TOWED Y											
VEH USE 01	CITY, STATE, ZIP MAPLE GROVE MN 55311	PULLING UNIT N	DIRECT 03										
DMG LOC 01	MAKE HOND	MODEL UDY	YEAR 2001	COLOR TAN									
DMG SEV 03	PLATE # 901AL	ST REG MN	YEAR REG 09	SEQUENCE OF EVENTS FIRST 01	SECOND	THIRD	FOURTH	MOST HARM EVENT 01					
INSURANCE (UNIT 2) ILLINOIS FARMERS	POLICY NUMBER 13155463295												

CARGO BDY TYPE	HAZ MAT PLAC	WAIVED	INSPECTION #	INSP BADGE #	IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).	WAIVED	HAZ MAT PLAC	CARGO BDY TYPE

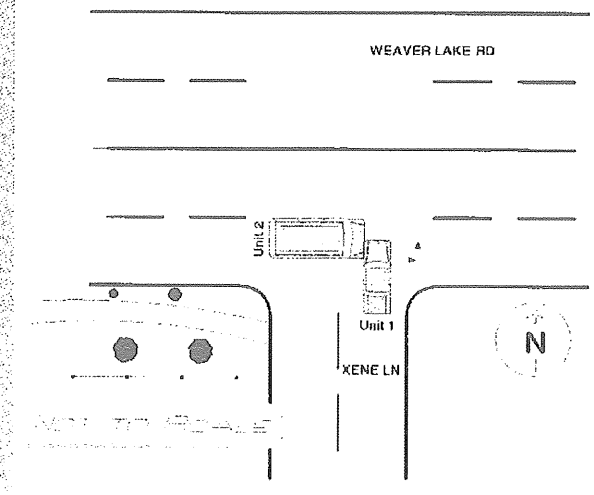
COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME | DOT NUMBER

COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME | DOT NUMBER

PASSENGERS / WITNESSES	UNIT	POSTN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
PETER ALAN STIEFEL	02	04	7/20/2003	M	06	10	01	05	C	N	[ ] AMB [ ] OTHER		
											[ ] AMB [ ] OTHER		
											[ ] AMB [ ] OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S) | DAMAGED PROPERTY / YELLOW TAG NUMBER

ACC TYP 01	
SCHL BUS 03	
LOCATN 01	
ON BRIDGE N	
TYPE OF WZ 98	
LOC OF CRASH-WZ 98	
WORKERS PRESENT I	
ROADSIGN 05	
RD SURF 02	
RD CHAR 03	



NARRATIVE:

UNIT 1 WAS STOPPED FOR A STOP SIGN NB AT WEAVER LAKE RD ON XENE LN. UNIT 2 WAS EB ON WEAVER LAKE RD IN THE RIGHT LANE APPROACHING XENE LN. DRIVER 1 WAS ATTEMPTING TO DRIVE ONTO WEAVER LAKE RD AND COULDN'T SEE THE EASTBOUND TRAFFIC BECAUSE OF A SLIGHT GRADE INCREASE AND LANDSCAPING ON THE SOUTHWEST SIDE OF THIS INTERSECTION, SHE WAS MOVING FORWARD SLOW AND PULLED INTO THE EB LANE OF WEAVER WHEN SHE THOUGHT THERE WAS A SAFE GAP IN TRAFFIC. DRIVER 2 SAID SHE SAW THE CAR PULLING OUT FROM THE SIDE STREET AND DIDN'T HAVE TIME TO AVOID A CRASH, SHE TRIED TO STEER TO THE LEFT LANE BUT DIDN'T HAVE TIME BEFORE IMPACT. DRIVER 2 HAD KNEE PAIN FROM HITTING THE DASH AREA. PASSENGER 2 STRUCK HIS HEAD ON THE INTERIOR OF THE VEH ON INMACT CAUSING A MINOR CONTUSION ON HIS HEAD.

DEVICE 98	
WORKING 98	
INT REL 02	
SPEED LIMIT 40	
WEATHER 1 03	
WEATHER 2	
LIGHT 04	
PHOTOS TAKEN N	
DIAGRAM 05	

OFFICER RANK, NAME AND BADGE # Ofc Albers 88 | AGENCY Maple Grove PD | PATROL STATION | [ ] STATE PATROL [x] LOCAL [ ] SHERIFF [ ] OTHER

APPENDIX E
ACCESS MANAGEMENT MATERIALS

- City of Maple Grove Access Management Plan
- Hennepin County Access Spacing Guidelines

ACCESS MANAGEMENT

Control of access to roadways, both in terms of cross-street spacing and driveway placement, is a critical means of preserving or enhancing the efficient operation of the roadway system and improving safety by reducing accident exposure. Access control guidelines are used to preserve the public investment in the roadway system and to give direction to developers for plan preparation. The guidelines balance the public interest (mobility) with the interests of property owners (access). Effective control of driveway access on the entire street system requires cooperation of municipal, County and state officials.

Mn/DOT has developed a policy on access management and guidelines for access spacing. Mn/DOT's Highway Access Category System and Spacing Guidelines can be found at http://www.oim.dot.state.mn.us/access/pdfs/MnDOTAccessGuidelines.pdf

Access to Principal Arterials

The City of Maple Grove may follow metropolitan guidelines for access to principal arterials (see web link above). These guidelines recommend limiting cross-street access to one-half mile spacing within urbanized areas, with one- to two-mile spacing being optimal. No new driveway access is permitted to principal arterials.

Access to Minor Arterials

The City strives to meet Hennepin County guidelines (see Appendix C) for access to the minor arterial system. These guidelines generally call for one-quarter mile spacing of all access points (cross streets and driveways).

Driveway Access on City Streets (Collectors and Local Roads)

Driveways contribute to accidents and reduced traffic flow on major streets in municipalities because they add to the number of locations where vehicle conflicts can occur. Hence, it is desirable to have guidelines in place that:

- Limit the number of driveways to those that are actually needed to safely accommodate the traffic generated by each development.
- Provide adequate spacing between driveways so conflicts (and resulting accidents) between vehicles maneuvering at adjacent driveways do not arise.
- Ensure proper design to accommodate driveway traffic and minimize vehicle conflicts without significantly reducing roadway capacity.

Occasionally topographic features of a particular site or the needs of a particular land use may require special access features in a proposed development. The City may wish to withhold approval of such developments or site changes until a study has been made of the potential

impacts on the affected roadways and the adequacy of the proposed access design determined. The City may require that the following steps be included in the traffic study for the site:

- Estimate site traffic generation and future non-site traffic.
- Determine directional distribution of trips.
- Estimate turning movements at driveway and the resulting level of service.
- Analyze current and future access requirements.
- Provide necessary geometric and operational improvements to safely accommodate the site's access requirements without negative impacts to traffic operation on the adjoining roadways.

RIGHT-OF-WAY

Right-of-way (ROW) is a valuable public asset. Therefore, it needs to be protected and managed in a way that respects the roadway's intended function, while serving the greatest public good.

Maple Grove will, with its current and anticipated growth, need to reconstruct, widen or construct new roadway segments to meet future capacity and connectivity demands. Such improvements will require that adequate ROW be maintained or secured. To ensure consistency and wise use of taxpayer dollars, a set of ROW guidelines, were prepared and reviewed by city staff. Table 6 presents these ROW guidelines by functional classification and facility type. Upon adoption of the Plan, and by referencing these guidelines, it is recommended that both public works and planning and zoning staff familiarize themselves with these guidelines so that they can be administered in a uniform manner. Use of these guidelines during the ROW acquisition or corridor preservation process will, over time, reduce cost and streamline project development.

Table 6
Maple Grove Right-of-Way Guidelines

Functional Class	ROW Widths *
A Minor Arterial	120 – 150 feet
B Minor Arterial	100-120 feet
Major Collector	80-100 feet
Minor Collector	60-80 feet

***** *Due to certain development conditions or physical features of the site or highway, the City may require additional right-of-way width greater than shown in right-of-way guidelines. At intersections, ROW widths may be greater to accommodate additional geometric configurations (i.e., signals, turn lanes, roundabouts, etc.).*

Right-of-Way Preservation

When future expansion or realignment of a roadway is proposed, but cannot immediately be constructed, the City may consider ROW preservation strategies to reduce costs and maintain the

What is Access Management ?

Access Management has become an important subject as transportation professionals grapple with the issues of increasing congestion and deteriorating roadway operations. The goal of managing access, whether it be street entrances or individual driveways, is to achieve an optimal balance between what is needed for safe, efficient roadway operations, and the need to provide access to adjacent properties and businesses.

The term access management is applied to a number of ***measures that can be used to enhance a roadway's safety and its ability to move vehicular traffic through management and control of access points to the roadway.*** These measures include:

- Limiting the driveway access points to decrease turning conflicts
- Locating entrance or access points further from adjacent intersections
- Providing sufficient spacing between intersecting streets
- Spacing traffic signals to optimize traffic flow
- Implementing sight distance guidelines to improve safety
- Use of channelization to preclude selected turning conflicts

This brochure has been prepared to explain the entrance / driveway permitting process in Hennepin County, and the basis behind the evaluation and regulation of access to county roadways.

Access Spacing Guidelines

Hennepin County has adopted access spacing guidelines that are based on local and national research that shows that crash rates decrease markedly as the spacing between driveways and streets increases. The guidelines address five types of access and they differentiate for Urban and Rural situations (see next column):

Access Spacing Guidelines – Urban

Facilities Requesting Access to County Roadways	Type of Access	Access Spacing Criteria on County Roadway: Minor Arterial Roadways Undivided	Minor Arterial Roadways Divided	Collector Streets
Non-Public - Low Volume (< 1,000 ADT) • Residental Driveways • Low Trip Generating Commercial	**Full Movement Access**	⊘	⊘	1/8 Mile (660 ft)
	Partial Access	⊘	1/8 Mile (660 ft)	1/16 Mile (330 ft)
Local Public Streets • Local Residential Streets • Local Minor Collector Streets	**Full Movement Access**	1/4 Mile (1,320 ft)	1/4 Mile (1,320 ft)	1/8 Mile (660 ft)
	Partial Access	Not Applicable	1/8 Mile (660 ft)	Not Applicable
Non-Public - High Volume (> 1,000 ADT) • Shopping Center entrances • Large Apt. Complexes • Large Industries, Industrial Park Entrances	**Full Movement Access**	1/4 Mile (1,320 ft)	1/4 Mile (1,320 ft)	1/8 Mile (660 ft)
	Partial Access	Not Applicable	1/8 Mile (660 ft)	Not Applicable
Arterial and Major Collector Roadways • Principal Arterials (state highways) • Minor Arterials and Major Collector Roads	**Full Movement Access**	1/4 Mile (1,320 ft)	1/4 Mile (1,320 ft)	1/4 Mile (1,320 ft)
	Partial Access	Not Applicable	Full Access Allowed	Not Applicable

⊘ - Access via alternative facility required
- Further changes considered under hardship conditions

Notes: 1) Urban definition is based on being within the Year 2000 Metropolitan Urban Service Area boundary (
2) Average Daily Traffic (ADT) volumes are based on 20-year forecasts
3) Measurements for spacing are taken to next access (driveway or street) on the same roadway side f
4) Measurements for spacing are taken to next access on either side of road for undivided minor arteria
5) Existing medians will not be broken (even if the above guidelines would suggest full access is allowe
6) Other criteria are also reviewed such as sight distance, speeds, traffic volumes and other elements (vehicle types, land u

Access Spacing Guidelines – Rural

Facilities Requesting Access to County Roadways	Type of Access	Access Spacing Criteria on County Roadway: Minor Arterial Roadways Undivided – Greater Than 7,500 ADT *	Minor Arterial Roadways Undivided – Less Than 7,500 ADT *	Collector Streets
Non-Public - Low Volume (< 1,000 ADT) • Residental Driveways • Low Trip Generating Commercial	**Full Movement Access**	1/4 Mile (1,320 ft)	1/8 Mile (660 ft)	1/8 Mile (660 ft)
Local Public Streets • Local Residential Streets • Local Minor Collector Streets	**Full Movement Access**	1/4 Mile (1,320 ft)	1/4 Mile (1,320 ft)	1/8 Mile (660 ft)
Non-Public - High Volume (> 1,000 ADT) • Shopping Center entrances • Large Apt. Complexes • Large Industries, Industrial Park Entrances	**Full Movement Access**	1/4 Mile (1,320 ft)	1/4 Mile (1,320 ft)	1/8 Mile (660 ft)
Arterial and Major Collector Roadways • Principal Arterials (state highways) • Minor Arterials and Major Collector Roads	**Full Movement Access**	1/2 Mile (2,640 ft)	1/4 Mile (1,320 ft)	1/4 Mile (1,320 ft)

Notes: 1) Measurements for spacing are taken to next access (driveway or street) on the same roadway side for divided minor arterials
2) Measurements for spacing are taken to next access on either side of road for undivided minor arterials
3) Chart assumes all rural County roadways are undivided
4) Other criteria are also reviewed such as sight distance, speeds, traffic volumes and other elements (vehicle types, land use activity, etc.)
5) Rural area is defined as being outside the Year 2000 Metropolitan Service Area (MUSA) as defined by the Metropolitan Council

Changes to the above spacing guidelines may be granted where sufficient justification is provided.

When is a Permit Required ?

An entrance permit is required:

- Whenever a new driveway or street connection is proposed on a county road.
- Whenever an existing driveway is proposed to be modified (widened, channelized, relocated, etc.)
- Whenever a driveway is removed (required for work in the County roadway right-of-way)
- Changes in site land uses (even if no modifications to existing driveways are proposed)
- If temporary access is needed to facilitate construction activities
- If development-driven traffic impacts predicate needed changes on the county roadway (such as the need for turn or auxiliary lanes)

A permit is ***not*** required if:

- The request is for an entrance located within the project limits of an active county roadway project (requires coordination with Construction project manager).
- Tenant changes on the property that do not change the land use activity.
- Changes due to county maintenance operations or utility permit actions
- The entrance is within Minneapolis (permitting is delegated to City)

The entrance permit process includes:

1) An application submitted by the property owner, developer or City
2) A permit issued by Hennepin County to the applicant
3) A request from the applicant for County final inspection and permit sign-off

Permit Process

After the application is submitted to the county, the county staff will often perform a field review and then complete the permit. The permit will be sent to the property owner noting any specific requirements or special provisions. If the county guidelines for design, access spacing or sight distance can not be met, further justification may be required, or additional evaluation and analysis may need to be completed by the property owner.

It should be noted if the entrance is associated with a development undergoing platting, then the preliminary plat reviews and city approvals are necessary prior to issuance of an entrance permit. However, the county encourages early informal submittals of site plans and access proposals prior to the submittal of an entrance permit application to allow County staff to identify any possible issues and give time for discussion and the investigation of mitigation options.

If a permit is issued for an entrance that is later found to be part of a platting or zoning action (that was not previously approved by the City) the entrance permit may be declared null and void. This may result in significant delays to the development project, a possible order to stop work, and requirements for significant changes or removal of the entrance.

Permit Fees

Current fees are:

Residential Driveway - $ 50
Temporary Entrance - $ 100
Commercial Driveway or Street - $ 200

- Multiple driveway entrances or street accesses can be combined for the same development within a single permit application and fee payment
- Temporary permits are for short-term construction access, or conditions that are expected to have duration of less than one year. The temporary permit may be issued with specific termination dates.
- No fees are charged for removals of driveways.
- No fees are charged for an extension of a current access permit if the applicant applies prior to the permit expiration date (see below).

The permit process normally takes approximately 2 weeks from the application to issuance of the permit to allow construction. However, larger more involved developments can take up to 30 days or longer if complex design issues need to be resolved.

An entrance permit is valid for 1-year from the date of issuance. If construction can not begin within this time period, an extension is available for an additional 6 months upon the written request of the applicant (made prior to the expiration of the permit). An extension can be granted one time without any additional fee. Once the permit expires or if additional extensions are needed, the renewal may require resubmittal of a permit application and payment of the appropriate application fee.

Contacts for More Information

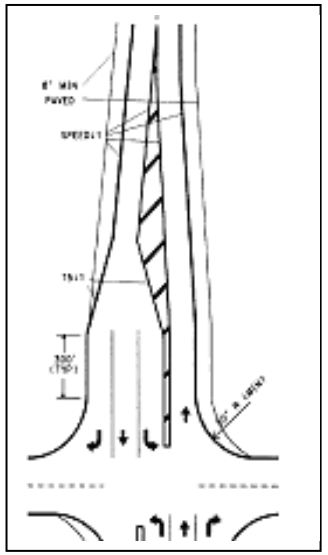
Further information and permit forms are available on the Hennepin County website at: co.hennepin.mn.us (search on the term "entrance permit"). Additional questions or requests can be referred to:

Robert H. Byers, Senior Transportation Engineer
Phone: (612) 596-0354 FAX: (763) 478-4000
E-mail: robert.byers@co.hennepin.mn.us
Or:
Dave Zetterstrom, Entrance Permit Coordinator
Phone: (612) 596-0355

AE-11-13

Access Management Guidelines

Entrance & Driveway Permits



Hennepin

September 2007

Hennepin County Public Works – Transportation Dept.
1600 Prairie Drive, Medina, MN 55340-5421
(612) 596-0300

APPENDIX F
VEHICLE EMISSIONS CALCULATIONS

VEHICLE EMISSIONS REDUCTION WORKSHEET (APPENDIX G)

System Management

BASELINE EMISSIONS WITHOUT PROJECT					
Average Weekday Travel Speed Before Installation:				17	mph
	Emissions Factor (grams/mile)*	**Daily VMT (miles)**	**Emissions (kg/day)**		
CO Emissions	27.22	28,850	785.3	kg/day	
NO_x Emissions	1.62	28,850	46.7	kg/day	
VOC Emissions	2.25	28,850	64.9	kg/day	
Total Emissions			**896.9**	kg/day	
EMISSIONS AFTER PROJECT					
Average Weekday Travel Speed After Installation:				19	mph
	Emissions Factor (grams/mile)*	**Daily VMT (miles)**	**Emissions (kg/day)**		
CO Emissions	25.74	28,850	742.6	kg/day	
NO_x Emissions	1.61	28,850	46.4	kg/day	
VOC Emissions	2.12	28,850	61.2	kg/day	
Total Emissions			**850.2**	kg/day	
Net Emissions Reductions due to Project			**46.7**	kg/day	
COST EFFECTIVENESS					
Total Cost of the Project:				$2,388,141	
Cost Effectiveness:				$51,097.44	

*Use auto emissions factors in Appendix for speeds in F4 and F5

APPENDIX G
SUPPORTING PLANS

- City of Maple Grove Transportation Plan (relevant portions only)
- Weaver Lake Road Feasibility Report
- Weaver Lake Road Alternatives Memo

- TH 169 from 63rd Avenue to the south limits of the City

In addition, the following roadways are currently approaching congestion:

- CSAH 81 from Ranchview Lane to just west of Maple Grove Parkway
- Fernbrook Lane (CSAH 121) from just south of 101st Avenue to 93rd Avenue (CSAH 30)
- East Fish Lake Road from Weaver Lake Road to Timber Crest Drive
- TH 169 from 63rd Avenue to I-694
- I-494 from the southern limits of the City to Weaver Lake Road

The methodology described above is a planning-level analysis that uses average daily traffic volumes and is not appropriate for all traffic conditions. For example, traffic conditions that do not fit the average daily traffic criteria (i.e., weekend travel, holiday travel, special events, etc.) are likely to produce different levels of congestion. Additionally, factors such as the amount of access and roadway geometrics may also influence capacity.

Congestion on the Regional Highway System

Mn/DOT defines congestion on freeway or highway facilities as traffic flowing at speeds less than or equal to 45 miles per hour (mph). According to Mn/DOT's annual (2006) *Metropolitan Freeway System Congestion Report*, there are segments of I-494 and I-94 in Maple Grove that experience a.m. and p.m. congestion. The highest level of peak hour congestion in Maple Grove occurs along I-94 near its intersection with I-494. Appendix A contains the 2006 Mn/DOT *Freeway System Congestion Report* figures that illustrate the congested locations along these roadways in Maple Grove during the peak periods. These peak period congested segments are also shown on Figure 6.

In addition to the Metropolitan Freeway System Congestion Report, according to the Mn/DOT TSP, the segment of I-494 in Maple Grove is identified as having a high-mobility deficiency ranking. The segment of I-94 in Maple Grove is identified as having a medium-mobility deficiency ranking. Corridors with a high-deficiency ranking are targeted for improvements to enhance mobility between 2008 and 2014. Corridors with a medium-deficiency ranking are planned to be improved between 2015 and 2023. Mn/DOT's overall objective in identifying freeway and arterial roadway improvement areas, associated investments/costs and construction timelines is to lower congestion to 33 percent on the metro freeway and arterial trunk highway system by year 2030. The state's system plan also identifies roadway expansion investments to meet congestion/mobility targets between 2008 and 2030. I-94 and portions of I-494 are identified for freeway expansion as well as the extension of TH 610 by the state's system plan.

ROADWAY SAFETY

A central concern of transportation professionals is roadway safety. To assist in the evaluation of crashes, Mn/DOT maintains a database of crash records from around the State of Minnesota. These records identify the location, severity and circumstances associated with each crash. This

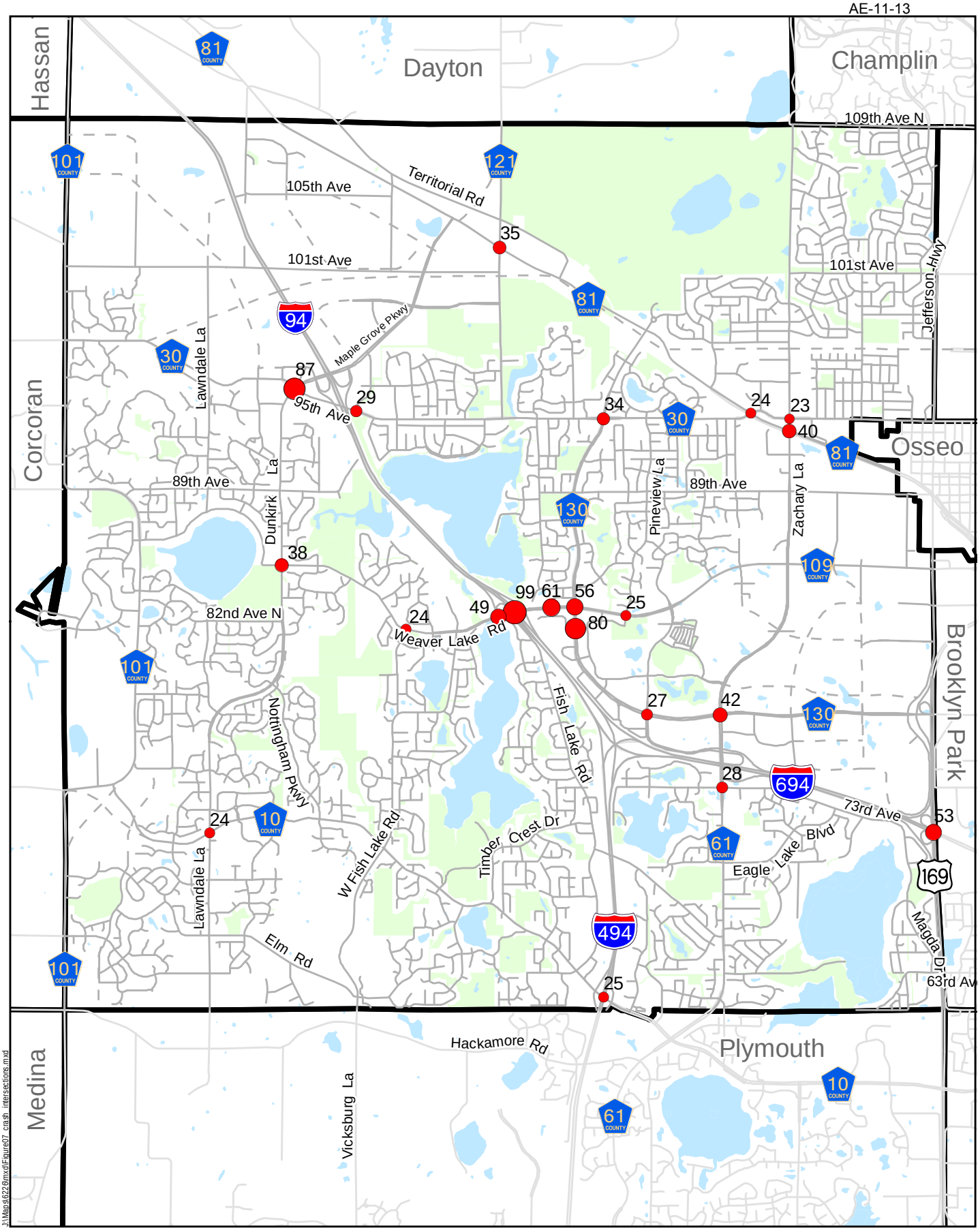
dataset was reviewed to identify the number, location and severity of crashes in the City of Maple Grove for the years 2002-2006. Overall there were 4,175 crashes, of which 17 involved fatalities, 1,185 involved personal injury and 2,973 involved property damage (see Table 3).

Table 3
Motor Vehicle Crashes in Maple Grove 2002-2006
(Including Interstates and Trunk Highways)

	Number of Crashes					
Year	**Fatal Crashes**	**Personal Injury Crashes**			**Property Damage Crashes**	**Total Crashes**
		Type A Incapacitating Injury	**Type B Non-Incapacitating Injury**	**Type C Possible Injury**		
2002	4	10	103	116	641	874
2003	4	17	117	117	527	782
2004	2	10	107	128	606	853
2005	6	8	68	170	631	883
2006	1	7	61	146	568	783
5-Year Total	17	52	456	677	2973	4175
5-Year Average	**3**	**10**	**91**	**135**	**595**	**835**

These crashes were generally widely distributed throughout the City with most locations accounting for only one or two incidents, suggesting that a crash at that location was a random event. However, several of these crashes were concentrated at a limited number of locations[2]. The locations with the most crashes are listed in Table 4 and illustrated in Figure 7.

[2] In order to focus on crashes occurring on the local system (i.e., City and County roads), the following analysis does not include Interstates and Trunk Highways.



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SRF Consulting Group, Inc.

Crashes at Intersections (2002-2006) — *Figure 7*

Maple Grove Transportation Plan Update

City of Maple Grove

Source: Mn/DOT

Table 4
Top Crash Locations in Maple Grove 2002-2006 - by frequency of crashes (Excluding Interstates and Trunk Highways)

Intersection	Total number of Crashes (2002-2006)
Weaver Lake Road (CSAH 109) and I-94 Bridge	99
95th Avenue and Dunkirk Lane	87
Grove Drive and Elm Creek Boulevard	80
Weaver Lake Road (CSAH 109) and 83rd Way	61
Weaver Lake Road (CSAH 109) and Elm Creek Boulevard	56
I-694 Bridge and Hemlock Lane	53
Weaver Lake Road and Fish Lake Road	49
Elm Creek Boulevard and Hemlock Lane	42
CSAH 81 and Zachary Lane	40
Weaver Lake Road and Dunkirk Lane	38
CSAH 81 and Fernbrook Lane	35
93rd Avenue and Elm Creek Boulevard	34
Dunkirk Lane and I-94 Bridge	29
93rd Avenue and Upland Lane	29
73rd Avenue and Hemlock Lane (CSAH 61)	28
Elm Creek Boulevard and Main Street	27
Weaver Lake Road (CSAH 109) and Pineview Lane	25
Bass Lake Road (CSAH 10) and I-494 Bridge	25
Weaver Lake Road and West Fish Lake Road	24
93rd Avenue (CSAH 30) and CSAH 81	24
Bass Lake Road (CSAH 10) and Lawndale Avenue	24
93rd Avenue (CSAH 30) and Zachary Lane	23

In keeping with the state's goal of "Toward Zero Deaths," additional analysis of the fatal crashes within the City over the five-year study period was also conducted using crash reports. Based on the reports, roadway geometry was not cited as contributing factors in the fatal crashes. Instead, the reports showed the following:

FEASIBILITY REPORT

WEAVER LAKE ROAD CORRIDOR
STREET AND UTILITY IMPROVEMENTS

FOR THE
CITY OF MAPLE GROVE, MINNESOTA

February 2, 2011

Prepared By:

WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
763-541-4800
763-541-1700 (Fax)

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Alternatives Analysis Memorandum

APPENDIX C

Opinion of Probable Cost

1. EXECUTIVE SUMMARY

This study examines the feasibility of improvements on Weaver Lake Road between Dunkirk Lane and West Fish Lake Road to address neighborhood safety and access concerns.

The study recommends pursuing federal funding for the reconstruction of two intersections on Weaver Lake Road to address the safety and access concerns in the corridor:

- Weaver Lake Road & Dunkirk Lane
- Weaver Lake Road & Xene Lane (including the Weaver Lake Elementary School access)

Depending on the operating conditions after these intersections are improved a roundabout at Niagara Lane may be considered in the future.

Reason for Study

This study was initiated in response to anecdotal accounts from residents about unsafe travel conditions on Weaver Lake Road. The recommendations are the result of a detailed analysis of several options to improve safety and traffic operations along the Weaver Lake Road corridor between Dunkirk Lane and West Fish Lake Road.

Data Collection and Analysis

The study involved collecting traffic data and input from the public to determine where safety and access were issues within the corridor. Residents were asked to comment regarding their experiences with the corridor and provide input about how the corridor could be improved. Several initial concepts were presented at an open house including roundabouts.

The analysis compared several alternatives for the Weaver Lake Road corridor. In addition to roundabouts, the alternatives analysis also considered a full reconstruction and widening of Weaver Lake Road, re-striping Weaver Lake Road, widening Weaver Lake Road at selected locations, and introducing traffic signals.

The alternatives analysis determined that evenly spaced roundabouts along the Weaver Lake Road corridor is the most effective option to improve safety conditions and operational efficiency for all roadway users. Roundabouts would eliminate the need for vehicles to queue in the through lanes on Weaver Lake Road while waiting to make a left-turn. Roundabouts will also reduce delay and improve safety conditions for vehicles waiting on the local side streets to turn onto Weaver Lake Road.

An analysis of crash data from 2006-2009 indicated that the intersection of Weaver Lake Road and Dunkirk Lane has a crash rate substantially higher than other similar intersections around the Twin Cities Metro Area. The higher crash rate is attributed to the fact that there is a large southbound left-turn volume on Dunkirk Lane that is in a combined through-left lane. As a result there are significant conflicts between these left-turns and the opposing through traffic.

The analysis at Dunkirk Lane compared the impacts of construction of a roundabout with the construction of a traffic signal and exclusive left-turn lanes on Dunkirk Lane. The preliminary

analysis indicated that a roundabout at the intersection of Weaver Lake Road and Dunkirk Lane would result in better traffic operations and fewer injury accidents than exclusive left-turn lanes for a lower cost and less right-of-way impact. However, due to the significant grades of the roadways leading into this intersection, it is recommended that the design project include a more detailed analysis of the two alternatives to determine the best intersection treatment.

Recommendations

The analysis considered the impacts of constructing roundabouts at Xene Lane, Shadow Creek Road, and Niagara Lane with an improved intersection treatment at Dunkirk Lake.. At this time, it is not feasible to construct all of these intersection treatments. The improvement at Dunkirk Lane is the highest priority based on the observed crash history. A roundabout at Xene Lane is also recommended because it will allow the City to correct several deficiencies relating to visibility at that location as well as to incorporate the nearby elementary school entrance into the intersection. It is also anticipated that the roundabout at Xene Lane will be better positioned to compete for outside funding sources than roundabouts at Shadow Creek Road and Niagara Lane.

It is our recommendation to pursue funding for the construction of the two intersection treatments, with a roundabout recommended at Xene Lane and either a revised traffic signal with left-turn lanes or a roundabout at Dunkirk Lane to be determined after additional analysis. The estimated construction cost of left turn lanes and a modified traffic signal at Dunkirk Lane is $1,853,600, while the estimated construction cost of the roundabout at Dunkirk Lane is $1,006,900. The estimated construction cost of the roundabout at Xene Lane is $789,100. Should Federal funding be obtained, the City match is expected to be 20% of the construction costs and could range from $359,200 to $528,540 for both improvements. In addition, the City would be required to fund engineering, legal, and administrative costs, estimated to range from $449,000 to $660,700 for both improvements. In total, the anticipated costs for both improvements will range from $2,245,100 to $3,303,400 with the City's share between $808,200 and $1,189,200. These estimates do not include right-of-way costs.

2. INTRODUCTION

2.1 Authorization

The City of Maple Grove Engineering Department initiated a study of the Weaver Lake Road corridor in April of 2010.

2.2 Scope of Study

The study included the area of Weaver Lake Road between Dunkirk Lane and West Fish Lake Road. Traffic counts, travel speeds, traffic delay, and crash data was collected along Weaver Lake Road, as well as on the intersecting residential roadways along the corridor to determine potential safety or access issues. Public input was also solicited from residents of all neighborhoods immediately surrounding the study corridor.

The analysis process included modeling traffic operations at intersections along the corridor, and analyzing the crash history along the corridor for selected improvement alternatives. The result of the study is a set of recommendations to improve the traffic safety and operations along the corridor.

2.3 Data Available

The analysis used existing traffic data from Mn/DOT, Hennepin County, and the City, as well as crash data available from Mn/DOT and the City Police Department. Peak hour turning volumes into and out of the adjacent residential neighborhoods were counted along with peak hour delay data and travel speeds on Weaver Lake Road. Additional data about existing public utilities was obtained from the City. Parcel data was obtained from Hennepin County. Additional topographical information was obtained from the City and from existing GIS data sources.

2.4 Project Purpose

The City began the project in response to reports from members of the community about the need to improve safety along the corridor. Residents reported that they felt unsafe turning off of Weaver Lake Road onto the residential side streets because they were worried about being rear ended while they wait to execute the turn. In addition, residents reported difficulty turning off of the side streets onto Weaver Lake Road during peak periods because of speeding and congestion on Weaver Lake Road. Residents reported having to wait for long periods for an acceptable gap in traffic to execute a turn onto Weaver Lake Road. Residents also expressed concerns about visibility and sight distance along the corridor. Residents reported that vehicles waiting to execute a turn onto Weaver Lake Road from one of the side streets often couldn't see oncoming traffic because of grade and alignment issues on Weaver Lake Road.

2.5 Public Involvement

The city distributed a survey to area residents in April 2010 requesting feedback regarding the issues that corridor users experience. The notice indicated that the City was conducting a study of the corridor and encouraged residents to contribute ideas and experiences to inform the study. Residents were encouraged to respond by email or telephone. Responses were received from 139

households. In addition, throughout the study period, information was placed online about the progress of the study, and an open house was held to present several conceptual alternatives.

2.6 Data Collection

Traffic data was recorded during April 2010 at most intersections along Weaver Lake Road. The traffic data collected includes turning movement counts at the intersecting residential streets, delay studies at most of the intersecting residential streets, and traffic counts & speed data collected at several points along Weaver Lake Road.

3. EXISTING CONDITIONS

3.1 Roadway Geometry and Context

Weaver Lake Road is a minor arterial roadway that connects several residential neighborhoods to each other and to the rest of the City. The existing roadway network is designed to separate the single family homes into several distinct neighborhoods. In some instances, these residential neighborhoods are connected by non-motorized trails. Automobile access to several neighborhoods is provided only by Weaver Lake Road.

Weaver Lake Road is a four-lane undivided roadway with a 40 mile-per-hour speed limit. The study area includes approximately 1.3 miles of Weaver Lake Road. Most of the surrounding land use is single-family residential and parks/open space. Weaver Lake Elementary is located on the north side of Weaver Lake Road near Xene Lane. Just east of Xene Lane, there is a pedestrian underpass connecting the trails on either side of Weaver Lake Road with the larger trail network. The most significant traffic generator along the corridor is the Boston Scientific campus located north of Weaver Lake Road at West Fish Lake Road.

The western terminus of the study area is Dunkirk Lane, a four-lane undivided roadway with a 40 mile-per-hour speed limit. The eastern terminus of the study area is West Fish Lake Road. Because the intersection of Weaver Lake Road and West Fish Lake Road was reconstructed relatively recently, this study assumes that traffic control at this intersection will not be modified.

The existing corridor includes a bicycle and pedestrian sidewalk/trail on both the north and south sides of Weaver Lake Road. While pedestrians are permitted to cross Weaver Lake Road at any existing intersection along the corridor, marked crosswalks are only present at the West Fish Lake Road, Ranchview Lane, and Dunkirk Lane intersections. In addition, there is a mid-block crosswalk in front of Weaver Lake Elementary School as well as the pedestrian underpass east of Xene Lane.

The intersection of Weaver Lake Road with Dunkirk Lane and West Fish Lake Road are currently signal controlled. All other intersections along the corridor are side-street stop controlled. There is an additional access to the Boston Scientific facility immediately west of West Fish Lake Road that allows only right-in/right-out access to Weaver Lake Road.

3.2 Traffic

Traffic data was recorded during April 2010 at most intersections along Waver Lake Road. The traffic data collected includes turning movement counts at the intersecting residential streets, delay studies at most of the intersecting residential streets, and traffic counts & speed data collected at several points along Weaver Lake Road. The additional traffic data collected is displayed on **Figure 1** and **Figure 2**.

The traffic data indicated that between 15,400 and 16,800 vehicles travel on Weaver Lake Road within the study area each day. Traffic on the intersecting residential streets ranged from 300 to 1,800 vehicles per day. The traffic speed data collected on Weaver Lake Road between Tarleton Crest and Shadow Creek Road indicates that many vehicles travel above the posted 40 mph speed limit. The observed average speed of vehicles on Weaver Lake Road was 40 miles per

hour, indicating that nearly half of all vehicles are traveling above the posted speed limit. The 85th percentile speed, which is typically used to set speed limits, was as high as 50 miles per hour near Shadow Creek Road.

A delay study was performed for each of the stop-controlled intersecting residential streets within the study area to gain an understanding of how long vehicles are waiting at stop signs to be able to access Weaver Lake Road during peak hours. The study determined that the average vehicle is waiting between 9 and 12 seconds for an acceptable gap during the AM peak hour and between 8 and 26 seconds for an acceptable gap during the PM peak hour. These delay measurements correspond with Level of Service (LOS) A to LOS B during the AM peak hour and LOS A to LOS D during the PM peak hour. Although the data indicates that the average vehicle does not experience excessive delay while waiting on one of the side streets, it indicates that some vehicles are experiencing unacceptable levels of delay, in excess of two minutes at some intersections.

3.3 Safety

The crash history between the years 2006-2009 was obtained from the Mn/DOT crash mapping database and from the City of Maple Grove. All of the data collected for each of the intersections along the corridor are presented in **Table 1**.

Table 1: Weaver Lake Road Corridor Intersection Crash Summary (2006-2009)

Intersection	Control	Total Number of Crashes	Crash Description							Crash Severity					Crash Rate (crashes per million entering vehicles)	Severity Rate (no units)
			Ran off Road	Head On	Rear End	Sideswipe	Right Angle	Right Turn	Left Turn	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage Only		
Dunkirk Lane	Signal	43	1	3	13	6	16	1	3	0	1	2	13	27	1.37	2.01
Zanzibar Lane	Thru-Stop	3	0	0	2	1	0	0	0	0	0	1	0	2	0.13	0.22
Xene Lane	Thru-Stop	3	0	0	1	0	1	0	0	0	0	1	1	1	0.12	0.24
Tarleton Crest	Thru-Stop	9	0	0	5	1	2	0	0	0	0	0	2	7	0.36	0.45
Shadow Creek Road	Thru-Stop	5	0	0	5	0	0	0	0	0	0	1	2	2	0.20	0.35
Terraceview Lane	Thru-Stop	4	0	0	1	0	0	0	0	0	0	0	0	4	0.16	0.16
Ranchview Lane	Thru-Stop	9	2	0	2	3	1	0	0	0	0	0	1	8	0.34	0.38
Niagara Lane	Thru-Stop	5	0	0	2	2	0	0	0	0	0	0	2	3	0.20	0.28
West Fish Lake	Signal	17	2	2	6	3	2	0	2	0	0	1	2	14	0.43	0.53
Metro District Average for Signalized Intersections															0.6	0.9
Metro District Average for Unsignalized Intersections															0.2	0.3

SOURCE: City of Maple Grove, WSB & Associates, Mn/DOT

The crash analysis indicates that there are real safety risks along the corridor, particularly at Dunkirk Lane. The intersection of Dunkirk Lane and Weaver Lake Road has a crash and severity rate over twice as other similar intersections in the Mn/DOT Metro District. This strongly suggests a need for improvements at this location. This intersection experienced a substantial number of rear end and right angle crashes.

The crash rates at the through-stop intersections along the Weaver Lake Road corridor are all fairly typical for similar intersections throughout the Mn/DOT Metro Area. Because of the relatively low traffic volumes on all of the side streets, caution should be used when directly comparing the calculated crash and severity rates with the Metro District averages.

In addition to the crash analysis, the public participation process revealed several perceived safety concerns based on the experiences of corridor users and nearby residents. The following concerns were identified:

- Fear of being rear-ended while decelerating or stopped on Weaver Lake Road while waiting to make a left-turn or right-turn onto a neighborhood street.
- Excessive speeds along the corridor make it difficult to find an appropriate gap to turn onto or off of Weaver Lake Road from the neighborhood streets.
- Crossing Weaver Lake Road is difficult for pedestrians and cyclists (including school children) because of vehicle speeds and poor visibility due to grade and alignment.
- The intersection of Xene Lane and Weaver Lake Road was identified numerous times as having poor visibility due to roadway alignment and adjacent topography and vegetation.

3.4 Public Perception

The city distributed a survey to area residents requesting feedback regarding the issues that corridor users experience. The city received responses from a total of 139 households that provided open-ended responses. The responses were catalogued, and several recurring themes were identified. **Table 2** displays a characterized version of the most common recurring themes expressed by members of the community and the number of comments that included these themes. It was common for one of the responses received from community members to include more than one of the recurring themes.

All of the responses received are shown in graphic format on **Figure 3**, with the results grouped based on household location. The analysis considered that residents from different neighborhoods may perceive the function of the roadway differently. One important observation at the neighborhood level is that a large number of individuals living near the Xene Lane intersection identified “poor visibility” as an issue to be corrected.

Table 2: Characterized Responses from Public Input Process

Characterized Response from Public Input	Number of Responses*
"It's Difficult to Enter/Exit Neighborhood Streets."	63
"I'm concerned about vehicle speeds."	59
"Weaver Lake Road would benefit from more traffic signals."	36
"I'm concerned about safety along the corridor."	33
"I am opposed to any new traffic signals on Weaver Lake Road."	29
"Please do nothing. The corridor is acceptable the way it is."	29
"There is poor visibility and/or sight distance along the corridor."	27
"Weaver Lake Road would benefit from turn lanes."	19
"The corridor would benefit from fixing (re-timing/modifying) the existing traffic signals."	17
"There is poor bicycle and/or pedestrian safety along the corridor."	15
"The Dunkirk Lane/Weaver Lake Road intersection is a problem."	14
"Weaver Lake Road would benefit from the construction of roundabouts"	5**

*NOTE: Most of the responses received included more than one of the characterized responses.

**A low number of responses in support of roundabouts does not indicate a lack of support for the recommended improvements. Roundabouts were not mentioned as an option in the initial mailing.

3.5 Utilities

There are existing storm sewer, sanitary sewer, and water lines within the Weaver Lake Road and Dunkirk Lane right-of-ways.

3.6 Geotechnical

The condition of the soils along the corridor is unknown. However, it is not anticipated that the proposed roundabouts would require any extensive soils correction. Additional data regarding the soils will be required during the final design phase of the project.

4. ALTERNATIVES ANALYSIS

A full discussion of the alternatives analysis is presented in **Appendix B**.

4.1 Roadway Concepts

Corridor Alternatives
Several alternatives were identified to be evaluated as to their effectiveness at improving the safety and operations efficiencies for the study. The alternatives vary based on the number of lanes on Weaver Lake Road and the traffic control used at each of the intersecting residential streets. The analysis considered 3-, 4-, and 5-lane roadway configurations utilizing thru-stop, signal, and roundabout control at selected intersections.

All of the concepts assume that no changes will be made to the West Fish Lake Road intersection, and the Dunkirk Lane intersection is considered in a separate analysis. The following is a summary of the alternatives analysis. The purpose of this alternatives analysis is to determine the appropriate roadway cross section and intersection control for the existing through-stop intersections along the corridor. Since it was not feasible to model every possible combination of intersection control at every intersection along the corridor, assumptions were made about the most likely locations for these improvements. A full description of each of the alternatives and typical layouts or cross sections for the alternatives are presented in **Appendix B**.

The corridor alternatives considered are as follows:

- **No Build Alternative: 4-Lane Roadway, Thru-Stop Intersection Control (Existing Conditions)** - This alternative represents the "do nothing" option. This is the existing condition.
- **Alternative 1: 4-Lane Roadway, Turn Lanes, Thru-Stop Intersection Control** - This alternative assumes that Weaver Lake Road is widened for 500 feet on each side of all the intersections and that left-turn lanes are added at all of the intersections along the corridor. No changes are made to intersection control (all intersections remain through-stop controlled). This option would require full reconstruction of portions of Weaver Lake Road.
- **Alternative 2: 3-Lane Roadway, Thru-Stop Intersection Control** - This alternative assumes that Weaver Lake Road is re-striped to become a three-lane roadway (one through lane in each direction with a continuous two-way left-turn lane in the center). No changes are made to intersection control (all intersections remain through-stop controlled).
- **Alternative 3: 5-Lane Roadway, Thru-Stop Intersection Control** - This alternative assumes that the entire Weaver Lake Road corridor is reconstructed and widened to allow for a continuous two-way left-turn lane down the center of the roadway in addition to two through lanes in each direction. This alternative may include the elimination of the trail along the south side of the roadway.
- **Alternative 4: 4-Lane Roadway, Signal Intersection Control** - This alternative assumes that no changes are made to the roadway cross section. Traffic signals are added at Xene Lane, Shadow Creek Road, and Ranchview Lane.

- **Alternative 5: 4-Lane Roadway, Roundabout Intersection Control** - This alternative assumes that no changes are made to the roadway cross section. Two-lane roundabouts are added at Xene Lane, Shadow Creek Road, and Niagara Lane.
- **Alternative 6: 3-Lane Roadway, Signal Intersection Control** - This alternative assumes that Weaver Lake Road is re-striped to become a three-lane roadway (one through lane in each direction with a continuous two-way left-turn lane in the center). Traffic signals are added at Xene Lane, Shadow Creek Road, and Ranchview Lane.
- **Alternative 7: 3-Lane Roadway, Roundabout Intersection Control** - This alternative assumes that Weaver Lake Road is re-striped to become a three-lane roadway (one through lane in each direction with a continuous two-way left-turn lane in the center). One-lane roundabouts are added at Xene Lane, Shadow Creek Road, and Niagara Lane.

Dunkirk Lane Intersection Alternatives

Two alternatives were considered for the intersection of Dunkirk Lane and Weaver Lake Road. The alternatives considered are as follows:

- **Revised Traffic Signal with Left-Turn Lanes** - This alternative assumes that left-turn lanes are added to the north and south approaches on Dunkirk Lane. The existing traffic signal would be revised and updated. The north approach would have a 500 foot left-turn lane, and the south approach would have a 300 foot left-turn lane. A layout of this alternative is shown in **Figure 5**.
- **Roundabout** - This alternative assumes that a roundabout would be constructed at this location. The roundabout would allow two lanes of through traffic in the northbound and southbound directions. Eastbound and westbound directions would have a single circulating lane to improve roundabout safety and minimize cost. A layout of this alternative is shown in **Figure 6**.

4.2 Concepts Evaluation

Corridor Evaluation

Alternatives 6 and 7 were eliminated from the study after modeling efforts indicated that they did not maintain an acceptable Level of Service for vehicles on Weaver Lake Road. Each of the remaining five alternatives were evaluated according to their effectiveness at reducing delay, managing corridor speeds, improving safety, minimizing right-of-way impacts, and minimizing cost. A summary of the alternatives analysis is shown in **Table 3**. Boxes shaded in green indicate an improvement compared to the No Build Alternative. Boxes shaded in orange indicate a detriment compared to the No Build Alternative

The analysis indicates that a four-lane roadway cross section with multi-lane roundabouts is the preferred alternative for the Weaver Lake Road corridor. An enhanced layout for the roundabout at Xene Lane is shown in **Figure 4**. The following general observations can be drawn from the analysis:

- The three-lane alternatives result in higher vehicle density along Weaver Lake Road. This helps moderate vehicle speeds along the corridor, and allows left-turning vehicles to exit the through lanes to wait for an acceptable gap. However, the increased vehicle density is likely to result in increased delay for vehicles on the side streets.

- Traffic signals are effective at improving the safety conditions for vehicles waiting to turn onto Weaver Lake Road by stopping traffic to provide a gap. However, they do not help vehicles on Weaver Lake Road to make left-turns into the neighborhoods. They may be somewhat effective at reducing vehicle speeds along the corridor, however they may also be associated with an increase in rear-end collisions.
- The alternatives that involve widening Weaver Lake Road to allow for turn lanes as well as two through lanes in each direction have substantial cost and right-of-way impacts. In addition, by increasing roadway capacity, speeding is likely to increase, resulting in additional crashes. While the turn lanes improve conditions for vehicles making left-turns off Weaver Lake Road, these Alternatives do not improve conditions for vehicles trying to turn onto Weaver Lake Road from the side streets.
- The Alternatives involving roundabouts most effectively balance the needs of the corridor. Roundabouts most effectively reduce the crash potential for vehicles both turning onto and off of Weaver Lake Road. Roundabouts will also effectively manage speeds along the corridor without sacrificing much corridor travel time.

Table 3: Summary of Alternatives Analysis

Alternative	Vehicles Making Left-Turns from WLR into Neighborhoods		Vehicles Making Left-Turns from Neighborhoods onto WLR		Reduce Vehicle Speeds on WLR	Minimize Corridor Travel Time (PM peak hour)		Minimize Right-of-Way Requirements	Cost
	Reduce Delay	Reduce Crash Potential	Reduce Delay	Reduce Crash Potential		EB (seconds)	WB (seconds)		
No Build Alternative (no changes)	no change	no change	no change	no change	no change	149	157	no change	none
Alternative 1 (add left-turn lanes along Weaver Lake Road)	Little or No Impact	Improvement	Little or No Impact	Little or No Impact	Slight Detriment	146	151	Some Impact	high
Alternative 2 (restripe as 3-lane roadway)	Slight Detriment	Improvement	Slight Detriment	Little or No Impact	Improvement	153	178	Little or No Impact	low
Alternative 3 (reconstruct as 5-lane roadway)	Little or No Impact	Improvement	Little or No Impact	Little or No Impact	Slight Detriment	146	151	Some Impact	high
Alternative 4 (add traffic signals)	Little or No Impact	Little or No Impact	Little or No Impact	Improvement	Improvement	153	170	Little or No Impact	medium
Alternative 5 (add roundabouts)	Little or No Impact	Improvement	Improvement	Improvement	Improvement	157	165	Some Impact	medium

Dunkirk Intersection Evaluation

The analysis of the Dunkirk Lane/Weaver lake Road intersection resulted in two proposed alternatives that will require additional analysis in order to make a final choice. While the preliminary analysis indicates that a roundabout (shown in **Figure 5**) more effectively accommodates traffic, limits right-of-way impacts on private property owners, and more

effectively enhances safety than a traffic signal (shown in **Figure 6**) at this location, the significant grades of the roadways leading up to this intersection may have an impact on the constructability and operation of the roundabout.

The right-of-way impacts associated with the construction of the traffic signal alternative are greater than the impacts associated with the roundabout alternative. The traffic signal alternative will require the reconstruction of Dunkirk Lane from 400 feet south of Weaver Lake Road to 600 feet north of Weaver Lake Road to accommodate medians and the additional turn lanes. The conceptual layout shown in **Figure 6** assumes that Dunkirk Lane is widened on the west side only, leaving the east side of the roadway in its current location. This will concentrate all right-of-way impacts on the west side of Dunkirk Lane in the traffic signal alternative.

The impacts of each intersection alternative are displayed in **Table 4**. The exact right of way requirements associated with each alternative will be clarified during the preliminary design phase of the project. The traffic signal alternative will have a substantial impact on the residential property immediately northwest of the intersection. Due to the amount of property that would be required and the elevation of the roadway relative to the home, this may result in a full taking of the property.

The roundabout alternative will have a substantial impact on the property immediately southeast of the intersection. While the quantity of land required from this parcel cannot be dismissed as insignificant, it will not require relocation and is not anticipated to threaten the quality of life for this homeowner. In addition, the impacts to Weaver Lake Park of the traffic signal alternative appear to be greater than the impacts associated with the roundabout alternative.

Table 4: Right-of-Way Impacts by Quadrant at Dunkirk Lane Intersection

Intersection Quadrant	Land Use	Roundabout		Traffic Signal with Turn Lanes	
		Number of Impacts	Area (s.f.)	Number of Impacts	Area (s.f.)
NW	Residential	1	38	4*	13,854*
SW	Weaver Lake Park	1	1506	1	25,810
NE	Residential	2	312	0	0
SE	Residential	1	5,537	0	0
	TOTAL:	**5**	**7,393**	**5**	**39,664**

*May require a total take of the corner property. This estimate assumes only a strip taking.

A cost estimate indicates that the roundabout alternative is less costly than the traffic signal alternative. **Table 5** presents cost estimates for the roundabout and signal alternatives. The difference in cost between the two alternatives is largely due to the larger footprint required for the traffic signal alternative. The traffic signal alternative will require additional retaining walls and the cost of a traffic signal. While the right-of way costs were not quantified, it is also anticipated that the right-of-way will be less costly for the roundabout alternative compared to the traffic signal alternative.

Table 5: Dunkirk Intersection Cost Estimates

Construction Element	Estimated Cost	
	Roundabout	Signal
Mobilization	$ 27,000	$ 45,200
Removal	$ 58,100	$ 42,400
Roadway	$ 424,900	$ 639,800
Retaining Wall	$ 157,500	$ 437,300
Drainage	$ 20,100	$ 42,000
Utilities	$ 13,800	$ 10,500
Trails/Sidewalks	$ 57,300	$ 52,900
Temporary Construction	$ 20,000	$ 54,600
Traffic Signal	$ -	$ 220,000
Lighting	$ 42,000	$ -
Restoration	$ 23,000	$ 7,500
20% Contingency	$ 163,300	$ 301,400
Itemized Subtotal	**$ 1,006,900**	**$ 1,853,600**
25% Engineering / Legal / Administration	$ 251,700	$ 463,400
Total Costs	**$ 1,258,700**	**$ 2,317,000**

NOTE: Estimate does not include Right-of-Way costs.

In order to better understand all of the factors of the two proposed alternatives at the Dunkirk Lane intersection, it is recommended that detailed layouts be developed for both the traffic signal and roundabout options. At that time, a more thorough analysis of the right-of-way, utility and construction impacts can be performed and a final option will be selected for final design.

4.3 Public Involvement

The results of the alternatives analysis were presented to the public at an open house to receive feedback from the community. Members of the public were presented several conceptual layouts of the corridor Alternatives. Generally, there was no clear consensus from the public that any single Alternative was preferred of the others. Most residents in attendance seemed to understand the strengths and weaknesses of all the Alternatives.

5. PROPOSED IMPROVEMENTS

5.1 Roadway

The analysis considered the impacts of roundabouts at Xene Lane, Shadow Creek Road, and Niagara Lane along with an improved intersection treatment at Dunkirk Lane. The alternatives analysis indicated that a series of roundabouts evenly spaced throughout the Weaver Lake Road corridor would be the most effective strategy to improve the overall safety and efficiency of the corridor. In addition, the preliminary analysis of the Dunkirk Lane intersection indicated that this intersection in particular would benefit from the construction of either a traffic signal with added left turn lanes or a roundabout.

At this time, it is not feasible to construct all four intersection treatments at once. It is recommended that improvements initially be made at Dunkirk Lane and Xene Lane. Based on the observed crash rates along the Weaver Lake Road corridor, the improvement at Dunkirk Lane should be the highest priority improvement along the corridor. Xene Lane is recommended as the site for a roundabout because it provides an opportunity to correct several known deficiencies unique to this location. In particular, the roundabout at Xene Lane will provide the following opportunities:

- The public input process identified this location in particular as having poor visibility and sight distance. The reconstruction of this intersection would allow these deficiencies to be corrected.
- The reconstruction of this intersection would allow the entrance to the elementary school to be incorporated into the roundabout as a fourth leg to this existing T-intersection, improving safety and accessibility for the school.

The roundabout at Xene Lane (and at Dunkirk if the roundabout option is selected) will utilize a combination of one- and two-lane circulating lanes to enhance safety and improve the overall performance of the roundabouts. The proposed improvements at Xene Lane are shown on **Figure 4** and the proposed improvements at Dunkirk Lane (two alternatives) are shown on Figure 5 and **Figure 6**. After these improvements are constructed and evaluated, the City can consider the construction of additional roundabouts along the Weaver Lake Road corridor.

5.2 Traffic

The Alternatives Analysis indicated that between Dunkirk Lane and West Fish Lake Road roundabouts would be more effective at minimizing delay and queue lengths than traffic signals. Roundabouts will also moderate traffic speeds along Weaver Lake Road, as well as reduce side street delay for vehicles turning onto Weaver Lake Road. The preliminary analysis of the Dunkirk Lane and Weaver Lake Road intersection indicted that a roundabout at Dunkirk Lane and Weaver Lake Road would provide Level of Service A operations while the traffic signal with left turn lanes would operate at Level of Service C. However, additional study of the signal and roundabout alternatives at Dunkirk Lane and Weaver Lake Road is recommended due to the grades on the approaches to this intersection.

5.3 Safety

The proposed roundabout at Xene Lane will improve safety conditions at the intersection and will allow vehicles on Weaver Lake Road to make a left-turn lane onto Xene Lane while reducing the risk of being rear-ended. Since roundabouts give vehicles in the roundabout priority over vehicles waiting to enter the roundabout, the roundabout at Xene Lane will eliminate the need for left-turning vehicles to wait for a gap to turn off of or onto Weaver Lake Road. Reconstruction of the intersection will provide an opportunity to improve visibility and sight distance, as well as safety conditions for pedestrians and cyclists.

The number of crashes that will be reduced at Xene can be predicted using Mn/DOT's Crash Reduction Factors. According to Mn/DOT, injury crashes can be reduced by 65%, and all crashes can be reduced by 35% when an intersecton is converted to a roundabout in an urban environment. The number of predicted crashes that can be prevented through the construction of a roundabout at Xene is shown in **Table 6**.

Table 6: Predicted Number of Crashes Prevented

Location	All Crashes				Injury Crashes Only			
	Existing Annual Number of Crashes	% Crash Reduction	Predicted Annual Number of Crashes Prevented	Predicted Annual Number of Crashes	Existing Annual Number of Injury Crashes	% Crash Reduction	Predicted Annual Number of Injury Crashes Prevented	Predicted Annual Number of Injury Crashes
Weaver Lake Road & Xene Lane	0.8	-35%	0.3	0.5	2.0	-65%	1.3	0.7

5.4 Utilities

The construction of the two intersections will require the removal and reconstruction of approximately 250 feet of storm sewer, 250 feet of water main, minor adjustments to sanitary sewer, and the replacement of approximately 12 storm sewer structures. It is also anticipated that some privately owned utilities in the area will require realignment; however, the cost to realign private utilities is typically born by the private utility owners.

5.5 Geotechnical

The necessary improvements required to correct any deficiencies in the underlying roadway structure are unknown. Additional data will be required during the final design phase of this project.

5.6 Right of Way and Easements

Additional right-of-way will be required at both intersections to accommodate the proposed improvements. An estimate of the right-of-way impacts for the Xene Lane roundabout and the Dunkirk Lane improvements are shown in **Table 7**. The right of way impacts can be seen on **Figure 4, Figure 5** and **Figure 6**.

Table 7: Right-of-Way Impacts at Dunkirk Lane and Xene Lane

Intersection Quadrant	Dunkirk Lane Intersection					Xene Lane Intersection		
	Land Use	Traffic Signal with Turn Lanes		Roundabout		Land Use	Roundabout	
		Number of Impacts	Area (s.f.)	Number of Impacts	Area (s.f.)		Number of Impacts	Area (s.f.)
NW	Residential	4*	13,854*	1	38	Weaver Lake Elementary	1	11,978
SW	Weaver Lake Park	1	25,810	1	1506	Residential	2	1,519
NE	Residential	0	0	2	312	Three Rivers Park District	1	8,628
SE	Residential	0	0	1	5,537	Three Rivers Park District	1	716
TOTAL:		**5**	**39,664**	**5**	**7,393**		**5**	**22,841**

*May require a total take of the corner property. This estimate assumes only a strip taking.

6. FINANCING

6.1 Opinion of Probable Cost

An estimate of the cost of the Xene Lane roundabout is shown in **Table 8**. The estimated costs do not include right-of-way costs. The project is eligible to compete for federal funding through the Surface Transportation Program. If the city is successful in obtaining federal funding for the project, the grant will pay for 80% of construction costs. The City must supply the remaining 20% of construction costs, as well as the engineering, legal, and administration costs associated with the project. **Table 9** presents a breakdown showing the portion of the project eligible for federal funding and the amount of local match funding the City will need to provide. The amount shown in the Total column presents a range of costs depending on whether a signal or roundabout is selected for the Dunkirk Lane intersection.

Table 8: Estimated Project Costs

Project Element	Estimated Cost		
	Dunkirk Lane Signal	Dunkirk Lane Roundabout	Xene Lane Roundabout
Mobilization	$ 45,200	$ 27,000	$ 20,000
Removal	$ 42,400	$ 58,100	$ 30,400
Roadway	$ 639,800	$ 424,900	$ 426,800
Retaining Wall	$ 437,300	$ 157,500	$ 47,500
Drainage	$ 42,000	$ 20,100	$ 14,400
Utilities	$ 10,500	$ 13,800	$ 5,300
Trails/Sidewalks	$ 52,900	$ 57,300	$ 36,600
Temporary Construction	$ 54,600	$ 20,000	$ 15,000
Traffic Signal	$ 220,000	$ -	$ -
Lighting	$ -	$ 42,000	$ 42,000
Restoration	$ 7,500	$ 23,000	$ 23,000
20% Contingency	$ 301,400	$ 163,300	$ 128,200
Construction Cost Subtotal	**$ 1,853,600**	**$ 1,006,900**	**$ 789,100**
25% Engineering / Legal / Administration	$ 463,400	$ 251,700	$ 197,300
Total Cost	**$ 2,317,000**	**$ 1,258,700**	**$ 986,400**

NOTE: Estimate does not include Right-of-Way costs.

Table 9: Portion of Estimated Costs Eligible for Federal Funding (in Thousands of Dollars)

Item	Dunkirk Lane Intersection						Xene Lane Intersection			Total		
	Traffic Signal with Turn Lanes			Roundabout			Roundabout					
	City Funds	Federal Funds	Total	City Funds	Federal Funds	Total	City Funds	Federal Funds	Total	City Funds	Federal Funds	Total
Construction Cost Subtotal	$ 371	$ 1,483	$ 1,854	$ 201	$ 806	$ 1,007	$ 158	$ 631	$ 789	$ 359 - 529	$ 1,437 - 2,114	$1,796 - 2,643
Engineering, Legal, & Administration Costs	$ 463	$ -	$ 463	$ 253	$ -	$ 252	$ 197	$ -	$ 197	$ 449 - 661	$ -	$ 449 - 661
Total Costs	**$ 834**	**$ 1,483**	**$ 2,317**	**$ 453**	**$ 806**	**$ 1,259**	**$ 355**	**$ 631**	**$ 986**	**$ 808 - 1,189**	**$ 1,437 - 2,114**	**$2,245 - 3,303**

NOTE: All costs are shown in thousands of dollars.

6.2 Funding

The most likely source of funding for these improvements is through the Federal Surface Transportation Program (STP). The STP is a competitive funding source that typically accepts applications every two years. The Metropolitan Council administers the program within the Metro Area. It is anticipated that funding applications will be due in July 2011. If this project is successful in securing funding, the money will likely be available for reimbursement in 2015-2016. The City will be required to provide 20% of the project cost. Municipal State Aid funds will be used to offset the local 20% match.

7. PRELIMINARY SCHEDULE

In consideration of the effort required to complete the project as presented, the following preliminary schedule is proposed. The schedule may be revised as the project progresses.

City Council Accepts Feasibility Report/
Authorizes Public Works Department to Seek STP Funding ..... January 2011

City Includes 20% Local Funding Match in Capital Improvement Plan.....2011

City Authorizes Preparation
of Plans and Specifications 2012-2013

City Council Approves Plans and Specifications/
Authorizes Advertisement for Bids 2014-2015

Final Completion 2015-2016

8. FEASIBILITY AND RECOMMENDATION

The recommended improvements include the construction of a roundabout at Xene Lane and intersection control improvements at the intersection of Dunkirk Lane with a final option of either a traffic signal with added left turn lanes or a roundabout. The project is estimated to cost $2,245,100 with a roundabout at Dunkirk Lane and $3,303,400 with a traffic signal at Dunkirk Lane. If the city is successful in obtaining federal funding for the project, the City's portion of the total cost will range from $808,300 to $1,243,640.

The project is feasible and recommended based on engineering standards and practices. WSB & Associates, Inc. recommends construction of these improvements as outlined in this report.

WSB & Associates, Inc.
Engineering ■ Planning ■ Environmental ■ Construction

701 Xenia Avenue South
Suite 300
Minneapolis, MN 55416
Tel: 763-541-4800
Fax: 763-541-1700

Memorandum

To: ***Maple Grove***

From: ***Reuben Collins, EIT***
Jupe Hale, P.E.
Tony Heppelmann, P.E.

Date: ***February 2, 2011***

Re: ***Weaver Lake Road Study***
WSB Project No. 01913-00

The purpose of this memorandum is to document the existing conditions on Weaver Lake Road between Dunkirk Lane and West Fish Lake Road in Maple Grove, MN, and to identify several options to improve the operations and safety along the corridor.

Weaver Lake Road is a four-lane undivided roadway with a 40 mph speed limit. The study area includes approximately 1.3 miles of Weaver Lake Road. Most of the surrounding land use is single-family residential and parks/open space. Weaver Lake Elementary is located on the north side of Weaver Lake Road near Xene Lane. Just east of Xene Lane, there is a pedestrian underpass connecting the trails on either side of Weaver Lake Road with the larger trail network. The most significant traffic generator along the corridor is the Boston Scientific campus located north of Weaver Lake Road at West Fish Lake Road.

The western terminus of the study area is Dunkirk Lane, a four-lane undivided roadway with a 40 mile-per-hour speed limit. The eastern terminus of the study area is West Fish Lake Road. Because the intersection of Weaver Lake Road and West Fish Lake Road was reconstructed relatively recently, this study assumes that traffic control at this intersection will not be modified.

The existing corridor includes a bicycle and pedestrian sidewalk/trail on both the north and south sides of Weaver Lake Road. While pedestrians are permitted to cross Weaver Lake Road at any existing intersection along the corridor, marked crosswalks are present at the West Fish Lake Road, Ranchview Lane, and Dunkirk Lane intersections. In addition, there is a mid-block crosswalk in front of Weaver Lake Elementary School as well as the pedestrian underpass east of Xene Lane.

Weaver Lake Road is a collector roadway that connects the several residential neighborhoods to each other. The existing roadway network is designed to separate the single family homes into several distinct neighborhoods. In some instances, these residential neighborhoods are

connected by non-motorized trails. Automobile access to several neighborhoods is provided only by Weaver Lake Road.

The intersection of Weaver Lake Road with Dunkirk Lane and West Fish Lake Road are currently signal controlled. All other intersections along the corridor are side-street stop controlled. There is an additional access to the Boston Scientific facility immediately west of West Fish Lake Road that allows only right-in/right-out access to Weaver Lake Road.

Data Collection & Public Input

Traffic data was recorded during April 2010 at most intersections along Waver Lake Road. The traffic data collected includes turning movement counts at the intersecting residential streets, delay studies at most of the intersecting residential streets, and traffic counts & speed data collected at several points along Weaver Lake Road. The additional traffic data collected is displayed on **Figure 1** and **Figure 2**.

The traffic data indicated that between 15,400 and 16,800 vehicles travel on Weaver Lake Road within the study area each day. Traffic on the intersecting residential streets ranged from 300 to 1,800 vehicles per day. The traffic speed data collected on Weaver Lake Road between Tarleton Crest and Shadow Creek Road indicates that many vehicles travel above the posted 40 mph speed limit. The observed average speed of vehicles on Weaver Lake Road was 40 miles per hour, indicating that nearly half of all vehicles are traveling above the posted speed limit.

A delay study was performed for each of the stop-controlled intersecting residential streets within the study area to gain an understanding of how long vehicles are waiting at stop signs to be able to access Weaver Lake Road during peak hours. The study determined that the average vehicle is waiting between 9 and 12 seconds for an acceptable gap during the AM peak hour and between 8 and 26 seconds for an acceptable gap during the PM peak hour. These delay measurements correspond with Level of Service (LOS) A to LOS B during the AM peak hour and LOS A to LOS D during the PM peak hour.

In addition, a crash history between the years 2006-2009 was obtained from the Mn/DOT crash mapping database and from the City of Maple Grove. All of the data collected for each of the intersections along the corridor are presented in **Table 1**.

Table 1: Weaver Lake Road Corridor Intersection Crash Summary (2006-2009)

Intersection	Control	Total Number of Crashes	Crash Description							Crash Severity					Crash Rate (crashes per million entering vehicles)	Severity Rate (no units)
			Ran off Road	Head On	Rear End	Sideswipe	Right Angle	Right Turn	Left Turn	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage Only		
Dunkirk Lane	Signal	43	1	3	13	6	16	1	3	0	1	2	13	27	1.37	2.01
Zanzibar Lane	Thru-Stop	3	0	0	2	1	0	0	0	0	0	1	0	2	0.13	0.22
Xene Lane	Thru-Stop	3	0	0	1	0	1	0	0	0	0	1	1	1	0.12	0.24
Tarleton Crest	Thru-Stop	9	0	0	5	1	2	0	0	0	0	0	2	7	0.36	0.45
Shadow Creek Road	Thru-Stop	5	0	0	5	0	0	0	0	0	0	1	2	2	0.20	0.35
Terraceview Lane	Thru-Stop	4	0	0	1	0	0	0	0	0	0	0	0	4	0.16	0.16
Ranchview Lane	Thru-Stop	9	2	0	2	3	1	0	0	0	0	0	1	8	0.34	0.38
Niagara Lane	Thru-Stop	5	0	0	2	2	0	0	0	0	0	0	2	3	0.20	0.28
West Fish Lake	Signal	17	2	2	6	3	2	0	2	0	0	1	2	14	0.43	0.53
Metro District Average for Signalized Intersections															0.6	0.9
Metro District Average for Unsignalized Intersections															0.2	0.3

SOURCE: City of Maple Grove, WSB & Associates, Mn/DOT

The crash analysis indicates that there are real safety risks along the corridor, particularly at Dunkirk Lane. The intersection of Dunkirk Lane and Weaver Lake Road has a crash and severity rate over twice as other similar intersections in the Mn/DOT Metro District. This strongly suggests a need for improvements at this location. This intersection experienced a substantial number of rear end and right angle crashes, which is typical for signalized intersections with reduced visibility. The grade of the north and east approaches, as well as the vegetation and topography of the adjacent land does not permit vehicles to easily see conflicting vehicles.

The crash rates at the through-stop intersections along the Weaver Lake Road corridor are all fairly typical for similar intersections throughout the Mn/DOT Metro Area. Because of the relatively low traffic volumes on all of the side streets, caution should be used when directly comparing the calculated crash and severity rates with the Metro District averages.

In addition to the crash analysis, the public participation process revealed several perceived safety concerns based on the experiences of corridor users and nearby residents. The following concerns were identified:

- Fear of being rear-ended while decelerating or stopped on Weaver Lake Road while waiting to make a left-turn or right-turn onto a neighborhood street.
- Excessive speeds along the corridor make it difficult to find an appropriate gap to turn onto or off of Weaver Lake Road from the neighborhood streets.
- Crossing Weaver Lake Road is difficult for pedestrians and cyclists (including school children) because of vehicle speeds and poor visibility due to grade and alignment.
- The intersection of Xene Lane and Weaver Lake Road was identified numerous times as having poor visibility due to roadway alignment and adjacent topography and vegetation.

The city distributed a notice to area residents requesting feedback regarding the issues that corridor users experience. The city received responses from a total of 139 households that provided open-ended responses. The responses were catalogued, and several recurring themes were identified. An overall summary of the survey results are shown on **Figure 3**, with

the results grouped based on household location. The figure displays the number of responses that mentioned some of the recurring themes. **Table 2** displays a characterized version of the most common recurring themes expressed by members of the community and the number of comments that included these themes. It was common for one of the responses received from community members to include more than one of the recurring themes.

Table 2: Characterized Responses from Public Input Process

Characterized Response from Public Input	Number of Responses*
"It's Difficult to Enter/Exit Neighborhood Streets"	63
"I'm concerned about vehicle speeds."	59
"I'm concerned about safety along the corridor."	33
"Weaver Lake Road would benefit from turn lanes."	19
"Weaver Lake Road would benefit from more traffic signals."	36
"I am opposed to any new traffic signals on Weaver Lake Road."	29
"The corridor would benefit from fixing (re-timing/modifying) the existing traffic signals."	17
"Weaver Lake Road would benefit from the construction of roundabouts"	5
"There is poor visibility and/or sight distance along the corridor."	27
"There is poor bicycle and/or pedestrian safety along the corridor."	15
"Please do nothing. The corridor is acceptable the way it is."	29
"The Dunkirk Lane/Weaver Lake Road intersection is a problem."	14

*NOTE: Most of the responses received included more than one of the characterized responses.

A summary of all data collected at each intersection along the Weaver Lake Road corridor is shown on **Figures 4-12**.

Study Objectives

Based on the feedback received from the residents and the data collected, several objectives for this study were identified. The objectives for this study are as follows:

- Slow traffic along the corridor to encourage all vehicles to travel at or below the 40 mph speed limit.
- Allow easier and safer access for vehicles on Weaver Lake Road executing left-turn movements onto intersecting residential streets
- Allow easier and safer access for vehicles on intersecting residential streets executing left-turn movements onto Weaver Lake Road or through movements across Weaver Lake Road (where applicable)
- Reduce or remove the perceived safety threat of rear-end crashes involving vehicles waiting on Weaver Lake Road to execute a left-turn
- Preserve the existing efficiency of through movements along the Weaver Lake Road corridor

Corridor Alternatives Selection

Several alternatives were identified to be evaluated regarding their effectiveness at accomplishing the stated objectives for the study. The alternatives vary based on the number of lanes on Weaver Lake Road, and the traffic control used at each of the intersecting residential streets. The analysis considered 3-, 4-, and 5-lane roadway configurations utilizing thru-stop, signal, and roundabout control at selected intersections. The corridor alternatives considered are as follows:

- No Build Alternative: 4-Lane Roadway, Thru-Stop Intersection Control (Existing Conditions)
- Alternative 1: 4-Lane Roadway, Turn Lanes, Thru-Stop Intersection Control
- Alternative 2: 3-Lane Roadway, Thru-Stop Intersection Control
- Alternative 3: 5-Lane Roadway, Thru-Stop Intersection Control
- Alternative 4: 4-Lane Roadway, Signal Intersection Control
- Alternative 5: 4-Lane Roadway, Roundabout Intersection Control
- Alternative 6: 3-Lane Roadway, Signal Intersection Control
- Alternative 7: 3-Lane Roadway, Roundabout Intersection Control

Additional discussion of each alternative is presented in the next section along with the results of the alternatives evaluation.

Corridor Alternatives Evaluation

Each of the alternatives was modeled using Synchro/SimTraffic and/or RODEL to determine the operations efficiency. Alternatives 6 and 7 were eliminated from the study after modeling efforts indicated that they did not maintain an acceptable Level of Service for vehicles on Weaver Lake Road. Each of the remaining five alternatives were evaluated according to their effectiveness at reducing delay, managing corridor speeds, improving safety, minimizing right-of-way impacts, and minimizing cost.

Each of the corridor alternatives were first evaluated to determine their effectiveness to minimize the delay experienced by vehicles on the side streets. The results of this evaluation are shown in **Table 3**. Alternatives 1 and 3 were not modeled because they are not anticipate to reduce side street delay. Alternative 2 (3-lane unsignalized) experienced increased levels of side street delay compared to the No Build Alternative. Alternatives 4 (4-lane with signals) and 5 (4-lane with roundabouts) both experienced levels of delay similar to the No Build Alternative.

Table 3: AM and PM Peak Hour Side Street Delay Estimates

AM PEAK HOUR SIDE STREET AVERAGE DELAY PER VEHICLE*								
Intersection	**No-Build Alternative**	**Alternative 1 4-Lane w/ Turn Lanes**	**Alternative 2 3-Lane Unsignalized**	**Alternative 3 5-Lane**	**Alternative 4 4-Lane w/ Signals**	**Alternative 5 4-Lane w/ Roundabouts**	**Alternative 6 3-Lane w/ Signals**	**Alternative 7 3-Lane w/ Roundabouts**
Zanzibar Lane NB	7	Alternative Not Modeled***	17	Alternative Not Modeled***	7	7	Alternative Failed - Removed from Evaluation	Alternative Failed - Removed from Evaluation
Zanzibar Lane SB	11		27		10	11		
Xene Lane NB	8		21		8	7		
Tarleton Crest SB	9		32		9	9		
Shadow Creek Road SB	9		27		16	4		
Terraceview Lane NB	9		15		8	11		
Ranchview Lane NB	13		32		12	13		
Niagara Lane SB	11		14		10	4		
PM PEAK HOUR SIDE STREET AVERGE DELAY PER VEHICLE*								
Intersection	**No-Build Alternative**	**Alternative 1 4-Lane w/ Turn Lanes**	**Alternative 2 3-Lane Unsignalized**	**Alternative 3 5-Lane**	**Alternative 4 4-Lane w/ Signals**	**Alternative 5 4-Lane w/ Roundabouts**	**Alternative 6 3-Lane w/ Signals**	**Alternative 7 3-Lane w/ Roundabouts**
Zanzibar Lane NB	5	Alternative Not Modeled***	5	Alternative Not Modeled***	4	5	Alternative Failed - Removed from Evaluation	Alternative Failed - Removed from Evaluation
Zanzibar Lane SB	8		23		22	13		
Xene Lane NB	17		12		9	5		
Tarleton Crest SB	14		36		14	16		
Shadow Creek Road SB	13		32		17	8		
Terraceview Lane NB	9		16		8	11		
Ranchview Lane NB	11		23		15	14		
Niagara Lane SB	13		33		14	7		

*All delay estimates were obtained from SimTraffic & RODEL. The No-Build delay estimates can be compared to the Observed delay measurements to determine the accuracy of the Synchro/SimTraffic model.

**Based on a small sample size - may not be an accurate representation of typical delay.

***These Alternatives were not modeled because their anticipated benefits relate to improving safety conditions rather than improving traffic operations. The delay estimates for vehicles exiting adjacent neighborhoods are expected to be similar to the No-Build Alternative.

A summary of the alternatives analysis is shown in **Table 4**. Boxes shaded in green indicate an improvement compared to the No Build Alternative. Boxes shaded in orange indicate a detriment compared to the No Build Alternative

Table 4: Summary of Alternatives Analysis

Alternative	Vehicles Making Left-Turns from WLR into Neighborhoods		Vehicles Making Left-Turns from Neighborhoods onto WLR		Reduce Vehicle Speeds on WLR	Minimize Corridor Travel Time (PM peak hour)		Minimize Right-of-Way Requirements	Cost
	Reduce Delay	Reduce Crash Potential	Reduce Delay	Reduce Crash Potential		EB (seconds)	WB (seconds)		
No Build Alternative (no changes)	no change	no change	no change	no change	no change	149	157	no change	none
Alternative 1 (add left-turn lanes along Weaver Lake Road)	Little or No Impact	Improvement	Little or No Impact	Little or No Impact	Slight Detriment	146	151	Some Impact	high
Alternative 2 (restripe as 3-lane roadway)	Slight Detriment	Improvement	Slight Detriment	Little or No Impact	Improvement	153	178	Little or No Impact	low
Alternative 3 (reconstruct as 5-lane roadway)	Little or No Impact	Improvement	Little or No Impact	Little or No Impact	Slight Detriment	146	151	Some Impact	high
Alternative 4 (add traffic signals)	Little or No Impact	Little or No Impact	Little or No Impact	Improvement	Improvement	153	170	Little or No Impact	medium
Alternative 5 (add roundabouts)	Little or No Impact	Improvement	Improvement	Improvement	Improvement	157	165	Some Impact	medium

The following general observations can be drawn from the analysis:

- The three-lane alternatives result in higher vehicle density along Weaver Lake Road. This helps moderate vehicle speeds along the corridor, and allows left-turning vehicles to exit the through lanes to wait for an acceptable gap. However, the increased vehicle density is likely to result in increased delay for vehicles on the side streets.
- Traffic signals are effective at improving the safety conditions for vehicles waiting to turn onto Weaver Lake Road by stopping traffic to provide a gap. However, they do not help vehicles on Weaver Lake Road to make left-turns into the neighborhoods. They may be somewhat effective at reducing vehicle speeds along the corridor, however they may also be associated with an increase in rear-end collisions.
- The alternatives that involve widening Weaver Lake Road to allow for turn lanes as well as two through lanes in each direction have substantial cost and right-of-way impacts. In addition, by increasing roadway capacity, speeding is likely to increase, resulting in additional crashes. While the turn lanes improve conditions for vehicles making left-turns off Weaver Lake Road, these Alternatives do not improve conditions for vehicles trying to turn onto Weaver Lake Road from the side streets.
- The Alternatives involving roundabouts most effectively balance the needs of the corridor. Roundabouts most effectively reduce the crash potential for vehicles both

turning onto and off of Weaver Lake Road. Roundabouts will also effectively manage speeds along the corridor without sacrificing much corridor travel time.

No Build Alternative: 4-Lane Roadway, Thru-Stop Intersection Control

Weaver Lake Road is currently a 4-lane undivided roadway between Dunkirk Lane and Niagara Lane. East of Niagara Lane, Weaver Lake Road is a 4-lane roadway with a center median and left turn lanes at the intersection with W Fish Lake Road. A typical existing roadway cross-section from the study area is shown in **Figure 13** . The results of the operations analysis for the 4-Lane Roadway, Thru-Stop Intersection Control (Existing Conditions) alternative are shown in **Table 5** and **Table 6.**

The existing conditions analysis confirms the public comments indicating that the corridor does not experience substantial congestion during the AM or PM peak hours. During both peak hour periods, all intersections along the corridor operate at an overall LOS B or better. There are no individual turning movements at any intersection that operate at LOS E or F.

The public comments, however, indicate that the current roadway configuration is perceived to be unsafe. Vehicles on Weaver Lake Road waiting to turn left or right onto a residential street at a thru-stop controlled intersection must decelerate and wait for an acceptable gap in one of the through lanes. Several of the comments indicated that drivers felt unsafe making left-turn movements off of Weaver Lake Road. Several of the comments also indicated that residents feel unsafe making a left-turn movement onto Weaver Lake Road during peak hours. In addition, the traffic data collected indicates that average vehicle speeds are well above the posted 40mph speed limit.

Table 5: LOS Analysis - AM 4-Lane Roadway, Thru-Stop Intersection Control (Existing Conditions)

Intersection	Control	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																	Left Turn		Through		Right Turn	
			L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk	Signal	EB	6	69	11	86	20	21	8	B	C	A	19	B	11	B	N/A	86	N/A	86	N/A	86
		WB	96	5	127	228	26	21	3	C	C	A	13	B			1200	104	1200	104	1200	57
		NB	1	265	414	680	9	6	5	A	A	A	6	A			1100	65	1100	145	1100	145
		SB	511	283	4	798	21	6	1	C	A	A	15	B			630	304	630	304	630	152
Zanzibar	Thru-Stop	EB	2	989	3	994	7	2	1	A	A	A	2	A	2	A	1200	9	1200	9	1200	0
		WB	3	225	2	230	3	0	0	A	A	A	0	A			1200	9	1200	9	1200	0
		NB	3	0	22	25	9	0	7	A	A	A	7	A			N/A	42	N/A	0	N/A	42
		SB	14	0	0	14	11	0	0	B	A	A	11	B			N/A	39	N/A	0	N/A	39
West School	Thru-Stop	EB	60	965		1025	2	0		A	A		0	A	1	A	180	34	180	34		
		WB		188	10	198		0	0		A	A	0	A					900	3	900	3
		NB																				
		SB	0		42	42	0		3	A		A	3	A			500	51			500	51
Xene & East School	Thru-Stop	EB	13	949	3	965	2	1	1	A	A	A	1	A	2	A	900	19	900	19	900	0
		WB	16	196	26	238	6	1	0	A	A	A	1	A			500	35	500	35	500	0
		NB	2	0	87	89	9	0	8	A	A	A	8	A			N/A	0	N/A	63	N/A	63
		SB	23	0	0	23	10	0	0	A	A	A	10	A			625	42	625	42	625	0
Tarleton	Thru-Stop	EB	12	1047		1059	1	1		A	A		1	A	1	A	500	13	500	13		
		WB		211	16	227		0	0		A	A	0	A					750	0	750	0
		NB																				
		SB	82		27	109	11		6	B		A	9	A			N/A	74			N/A	74
Shadow Creek	Thru-Stop	EB	10	1119		1129	2	1		A	A		1	A	1	A	750	17	750	17		
		WB		218	6	224		0	0		A	A	0	A					630	0	630	0
		NB																				
		SB	44		9	53	11		4	B		A	9	A			N/A	53			N/A	53
Terraceview	Thru-Stop	EB		1155	8	1163		1	0		A	A	1	A	1	A			630	0	630	0
		WB	2	218		220	4	0		A	A		0	A			675	11	675	11		
		NB	6		15	21	14		7	B		A	9	A			N/A	43			N/A	43
		SB																				
Ranchview	Thru-Stop	EB		1135	35	1170		1	1		A	A	1	A	2	A			675	35	675	35
		WB	14	200		214	8	1		A	A		1	A			900	68	900	68		
		NB	20		55	75	19		11	C		B	13	B			N/A	0			N/A	0
		SB																				
Niagara & Church	Thru-Stop	EB	3	1145	42	1190	1	1	1	A	A	A	1	A	2	A	900	0	900	0	900	0
		WB	9	202	10	221	7	1	1	A	A	A	2	A			775	25	775	25	775	0
		NB	5	0	11	16	17	0	7	C	A	A	10	B			N/A	40	N/A	40	N/A	0
		SB	37	0	7	44	12	0	5	B	A	A	11	B			N/A	58	N/A	0	N/A	58
Boston Sci West	Thru-Stop	EB		1193		1193		1			A		1	A	1	A			N/A	N/A		
		WB		178	185	363		2	5		A	A	4	A					N/A	N/A	125	0
		NB																				
		SB			43	43			2			A	2	A							N/A	0
W Fish Lake Rd	Signal	EB	124	1053	16	1193	10	17	13	B	B	B	16	B	14	B	300	73	775	253	775	253
		WB	169	346	310	825	19	12	6	B	B	A	11	B			250	111	1000	114	300	66
		NB	17	23	290	330	20	17	15	C	B	B	15	B			100	30	550	78	100	140
		SB	27	0	0	27	21	0	0	C	A	A	21	C			175	33	N/A	0	175	0

Table 6: LOS Analysis - PM 4-Lane Roadway, Thru-Stop Intersection Control (Existing Conditions)

Intersection	Control	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																	Left Turn		Through		Right Turn	
			L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk	Signal	EB	1	44	6	51	16	9	1	B	A	A	8	A	14	B	N/A	57	N/A	57	N/A	57
		WB	376	96	496	968	22	23	6	C	C	A	14	B			1200	269	1200	269	1200	126
		NB	3	344	284	631	13	12	8	B	B	A	10	B			1100	108	1100	166	1100	166
		SB	208	272	1	481	33	11	2	C	B	A	21	C			630	202	630	202	630	108
Zanzibar	Thru-Stop	EB	6	528	2	536	6	1	2	A	A	A	1	A	1	A	1200	22	1200	22	1200	0
		WB	24	968	10	1002	3	1	0	A	A	A	1	A			1200	43	1200	43	1200	0
		NB	0	1	16	17	0	30	4	A	D	A	5	A			N/A	36	N/A	36	N/A	36
		SB	2	0	0	2	8	0	0	A	A	A	8	A			N/A	14	N/A	0	N/A	14
West School	Thru-Stop	EB	10	536		546	5	0		A	A		0	A	1	A	180	30	180	30		
		WB		949	0	949		1	0		A	A	1	A					900	0	900	0
		NB																				
		SB	10		53	63	14		7	B		A	8	A			500	62			500	62
Xene & East School	Thru-Stop	EB	13	532	9	554	5	1	1	A	A	A	1	A	2	A	900	31	900	31	900	3
		WB	59	926	51	1036	4	2	1	A	A	A	2	A			500	66	500	66	500	13
		NB	9	0	38	47	15	0	5	C	A	A	6	A			N/A	49	N/A	0	N/A	49
		SB	47	0	14	61	20	0	7	C	A	A	17	C			625	62	625	0	625	62
Tarleton	Thru-Stop	EB	22	595		617	7	1		A	A		1	A	1	A	500	47	500	47		
		WB		1019	59	1078		1	1		A	A	1	A					750	3	750	3
		NB																				
		SB	28		17	45	18		8	C		A	14	B			N/A	59			N/A	59
Shadow Creek	Thru-Stop	EB	10	613		623	6	1		A	A		1	A	1	A	750	30	750	30		
		WB		1066	34	1100		1	1		A	A	1	A					630	0	630	0
		NB																				
		SB	18		12	30	18		7	C		A	13	B			N/A	44			N/A	44
Terraceview	Thru-Stop	EB		624	7	631		1	0		A	A	0	A	1	A			630	0	630	0
		WB	7	1088		1095	5	1		A	A		1	A			675	20	675	20		
		NB	12		12	24	13		5	B		A	9	A			N/A	45			N/A	45
		SB																				
Ranchview	Thru-Stop	EB		606	30	636		1	1		A	A	1	A	1	A			675	0	675	0
		WB	28	1062		1090	3	1		A	A		1	A			900	43	900	43		
		NB	33		24	57	16		5	C		A	11	B			N/A	57			N/A	57
		SB																				
Niagara	Thru-Stop	EB	8	618	4	630	7	1	0	A	A	A	1	A	2	A	900	26	900	26	900	0
		WB	6	1067	48	1121	3	2	2	A	A	A	2	A			775	16	775	16	775	4
		NB	16	0	20	36	16	0	5	C	A	A	9	A			N/A	51	N/A	0	N/A	51
		SB	19	0	7	26	17	0	7	C	A	A	13	B			N/A	42	N/A	0	N/A	42
Boston Sci West	Thru-Stop	EB		657		657		0			A		0	A	2	A			N/A	N/A		
		WB		990	10	1000		3	4		A	A	3	A					N/A	N/A	125	0
		NB																				
		SB			131	131			2			A	2	A							N/A	17
W Fish Lake Rd	Signal	EB	1	637	19	657	10	19	15	B	B	B	19	B	16	B	300	6	775	169	775	169
		WB	311	985	19	1315	21	11	5	C	B	A	13	B			250	164	1000	160	300	27
		NB	15	1	311	327	20	23	12	B	C	B	12	B			100	29	550	7	100	127
		SB	302	15	0	317	24	16	0	C	B	A	23	C			175	99	N/A	18	175	18

Alternative 1: 4-Lane Roadway, Turn Lanes, Thru-Stop Intersection Control
Alternative 3: 5-Lane Roadway, Thru-Stop Intersection Control

These Alternatives consider the implications of either widening Weaver Lake Road at selected intersections to provide a left-turn lane or fully reconstructing Weaver Lake Road with a five-lane configuration. These two alternatives are similar from an operations standpoint, although they differ in terms of right-of-way requirements and cost. At some locations, the required widening may be accomplished by widening to only one side of the corridor. **Figure 13** displays a typical cross-section of the 5-lane alternative. In some areas, the distance between adjacent intersections is small enough that it may be more cost effective to reconstruct as a five-lane

segment rather than widening for individual intersections. **Figure 14** displays a conceptual layout of the addition of left-turn lanes at the Zanzibar Lane intersection.

These alternatives will not encourage through traffic on Weaver Lake Road to drive the speed limit. As the left-turn lanes allow turning vehicles to exit the through lanes, vehicle speeds on Weaver Lake Road may even increase as a result of these alternatives. These alternatives are also not anticipated to help left-turning vehicles from side-streets find additional gaps when turning onto Weaver Lake Road. These options are anticipated to have little overall impact on corridor operations. However, by allowing left-turning vehicles on Weaver Lake Road to wait for an appropriate gap in a turn lane, these Alternatives will reduce the risk of rear-end crashes along the corridor.

In addition, similar to the 3-Lane configuration, these alternatives would allow for the construction of pedestrian crossing islands in the unused portion of the left-turn lane at T-intersections, if there is a need and desire to do so.

Alternative 2: 3-Lane Roadway, Thru-Stop Intersection Control

This Alternative assumes that the existing roadway cross-section is re-striped to a three-lane configuration between Dunkirk Lane and West Fish Lake Road. The existing lane configurations would remain in place at the signalized intersections at Dunkirk Lane and West Fish Lake, but transition to a 3-Lane segment between the signals. A typical 3-Lane roadway cross-section along the study area is shown in **Figure 13**. The analysis assumes that no new intersection control is added to the corridor and that all cross streets remain stop controlled. This is the most affordable of the build Alternatives because it does not involve any reconstruction. This option may be implemented easily by re-striping the existing roadway. The results of the capacity analysis of the 3-Lane Roadway, Thru-Stop Intersection Control alternative are shown in **Table 7** and **Table 8**.

The three-lane configuration will help slow through traffic along Weaver Lake Road by not permitting motorists to pass each other. The introduction of left-turn lanes along the corridor will also permit left-turning vehicles to exit the through lanes to decelerate and wait for an appropriate gap. The left-turn lanes may result in fewer rear-end crashes on Weaver Lake Road.

The three-lane configuration will impose additional delay on vehicles exiting the side-streets, however. By consolidating all through vehicles into a single lane, the available gaps become smaller and less-frequent, which may make it more difficult for vehicles exiting the adjacent neighborhoods to find an acceptable gap. This may lead some drivers to take additional risks by choosing shorter gaps than they currently select, which could increase the risk of crashes.

An additional benefit of the three-lane configuration is that the resulting unused roadway space provides opportunities to implement additional bicycle or pedestrian infrastructure. The three-lane configuration results in 6’ shoulders on both sides of the roadway. If desired, this space would allow for the option of introducing on-street bicycle lanes or pedestrian bump-outs. Also, at each of the T-intersections along the corridor, a portion of the center-turn lane is unnecessary since the left-turn movement does not exist (for example, the westbound left-turn

movement at Tarleton Crest). The unnecessary turn-lane space could be used to provide pedestrian islands that would assist pedestrians crossing Weaver Lake Road.

In general, the peak-hour traffic volumes on Weaver Lake Road are nearing the point where a three-lane roadway will be operating at full capacity. The operations analysis indicates that through vehicles on Weaver Lake Road will not be subjected to substantial additional delay, however, a three-lane configuration leaves little unused capacity for future growth. While additional development or growth is not anticipated along the corridor, there may still be a need to accommodate general background growth in the future.

Table 7: LOS Analysis - AM 3-Lane Roadway, Thru-Stop Intersection Control

Intersection	Control	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																	Left Turn		Through		Right Turn	
			L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk	Signal	EB	6	69	11	86	20	21	8	B	C	A	19	B	11	B	N/A	80	N/A	80	N/A	80
		WB	96	5	127	228	26	21	3	C	C	A	13	B			1200	103	1200	103	1200	59
		NB	1	265	414	680	9	6	5	A	A	A	6	A			1100	76	1100	136	1100	136
		SB	511	283	4	798	21	6	1	C	A	A	15	B			630	336	630	336	630	142
Zanzibar	Thru-Stop	EB	2	989	3	994	1	1	0	A	A	A	1	A	1	A	1200	0	1200	0	1200	0
		WB	3	225	2	230	9	0	0	A	A	A	0	A			70	12	1200	0	1200	0
		NB	3	0	22	25	23	0	17	C	A	C	17	C			N/A	46	N/A	0	N/A	46
		SB	14	0	0	14	27	0	0	D	A	A	27	D			N/A	45	N/A	0	N/A	45
West School	Thru-Stop	EB	60	965		1025	2	1		A	A		1	A	1	A	70	31	180	0		
		WB		188	10	198		1	0		A	A	1	A					900	0	900	0
		NB																				
		SB	0		42	42	0		3	A		A	3	A			500	50			500	50
Xene & East School	Thru-Stop	EB	13	949	3	965	3	2	1	A	A	A	2	A	4	A	500	13	900	0	900	0
		WB	16	196	26	238	8	1	0	A	A	A	1	A			200	32	500	0	500	0
		NB	2	0	87	89	4	0	21	A	A	C	21	C			N/A	95	N/A	0	N/A	95
		SB	23	0	0	23	25	0	0	D	A	A	25	D			625	54	625	0	625	54
Tarleton	Thru-Stop	EB	12	1047		1059	3	2		A	A		2	A	4	A	200	16	500	0		
		WB		211	16	227		1	0		A	A	1	A					750	0	750	0
		NB																				
		SB	82		27	109	38		19	E		C	32	D			N/A	115			N/A	115
Shadow Creek	Thru-Stop	EB	10	1119		1129	3	2		A	A		2	A	3	A	500	16	750	0		
		WB		218	6	224		1	0		A	A	0	A					630	0	630	0
		NB																				
		SB	44		9	53	30		13	D		B	27	D			N/A	74			N/A	74
Terraceview	Thru-Stop	EB		1155	8	1163		2	1		A	A	1	A	2	A			630	0	630	0
		WB	2	218		220	13	1		B	A		1	A			500	9	675	0		
		NB	6		15	21	17		14	C		B	15	B			N/A	43			N/A	43
		SB																				
Ranchview	Thru-Stop	EB		1135	35	1170		3	2		A	A	3	A	4	A			675	3	675	3
		WB	14	200		214	11	1		B	A		1	A			400	33	900	0		
		NB	20		55	75	39		30	E		D	32	D			N/A	91			N/A	91
		SB																				
Niagara & Church	Thru-Stop	EB	3	1145	42	1190	3	4	3	A	A	A	4	A	4	A	400	6	900	5	900	5
		WB	9	202	10	221	14	2	1	B	A	A	2	A			100	27	775	0	775	0
		NB	5	0	11	16	27	0	6	D	A	A	14	B			N/A	35	N/A	0	N/A	35
		SB	37	0	7	44	16	0	5	C	A	A	14	B			N/A	53	N/A	0	N/A	53
Boston Sci West	Thru-Stop	EB		1193		1193		1			A		1	A	1	A			N/A	N/A		
		WB		178	185	363		2	5		A	A	4	A					N/A	N/A	125	0
		NB																				
		SB			43	43			2			A	2	A							N/A	0
W Fish Lake Rd	Signal	EB	124	1053	16	1193	10	16	13	A	B	B	15	B	14	B	300	71	775	239	775	239
		WB	169	346	310	825	21	12	6	C	B	A	11	B			250	113	1000	96	300	67
		NB	17	23	290	330	24	17	14	C	B	B	15	B			100	31	550	50	100	137
		SB	27	0	0	27	21	0	0	C	A	A	21	C			175	32	N/A	0	175	0

Table 8: LOS Analysis - PM 3-Lane Roadway, Thru-Stop Intersection Control

Intersection	Control	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																	Left Turn		Through		Right Turn	
			L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk	Signal	EB	1	44	6	51	16	9	1	B	A	A	8	A	14	B	N/A	60	N/A	60	N/A	60
		WB	376	96	496	968	22	23	6	C	C	A	14	B			1200	357	1200	357	1200	139
		NB	3	344	284	631	13	12	8	B	B	A	10	B			1100	110	1100	170	1100	170
		SB	208	272	1	481	33	11	2	C	B	A	20	C			630	399	630	399	630	263
Zanzibar	Thru-Stop	EB	6	528	2	536	10	2	2	A	A	A	2	A	1	A	1200	18	1200	0	1200	0
		WB	24	968	10	1002	4	1	0	A	A	A	1	A			70	30	1200	0	1200	0
		NB	0	1	16	17	0	14	4	A	B	A	5	A			N/A	40	N/A	40	N/A	40
		SB	2	0	0	2	23	0	0	C	A	A	23	C			N/A	7	N/A	0	N/A	7
West School	Thru-Stop	EB	10	536		546	8	0		A	A		0	A	2	A	70	28	180	0		
		WB		949	0	949		2	0		A	A	2	A					900	0	900	0
		NB																				
		SB	10		53	63	18		9	C		A	11	B			500	61			500	61
Xene & East School	Thru-Stop	EB	13	532	9	554	10	2	1	B	A	A	2	A	4	A	500	30	900	3	900	3
		WB	59	926	51	1036	6	3	2	A	A	A	3	A			200	47	500	3	500	3
		NB	9	0	38	47	30	0	8	D	A	A	12	B			N/A	54	N/A	0	N/A	54
		SB	47	0	14	61	48	0	35	E	A	D	45	E			625	103	625	0	625	103
Tarleton	Thru-Stop	EB	22	595		617	9	1		A	A		1	A	3	A	200	36	500	0		
		WB		1019	59	1078		4	2		A	A	3	A					750	0	750	0
		NB																				
		SB	28		17	45	45		24	E		C	36	E			N/A	77			N/A	77
Shadow Creek	Thru-Stop	EB	10	613		623	9	1		A	A		1	A	2	A	500	20	750	0		
		WB		1066	34	1100		2	1		A	A	2	A					630	0	630	0
		NB																				
		SB	18		12	30	42		16	E		C	32	D			N/A	61			N/A	61
Terraceview	Thru-Stop	EB		624	7	631		1	0		A	A	1	A	1	A			630	0	630	0
		WB	7	1088		1095	3	1		A	A		1	A			500	18	675	0		
		NB	12		12	24	25		8	C		A	16	C			N/A	48			N/A	48
		SB																				
Ranchview	Thru-Stop	EB		606	30	636		2	1		A	A	2	A	3	A			675	0	675	0
		WB	28	1062		1090	6	2		A	A		2	A			400	39	900	0		
		NB	33		24	57	32		11	D		B	23	C			N/A	65			N/A	65
		SB																				
Niagara	Thru-Stop	EB	8	618	4	630	12	2	1	B	A	A	2	A	4	A	400	27	900	0	900	0
		WB	6	1067	48	1121	4	4	3	A	A	A	4	A			100	15	775	0	775	0
		NB	16	0	20	36	66	0	12	F	A	B	38	E			N/A	75	N/A	0	N/A	75
		SB	19	0	7	26	39	0	21	E	A	C	33	D			N/A	49	N/A	0	N/A	49
Boston Sci West	Thru-Stop	EB		657		657		0			A		0	A	4	A			N/A	N/A		
		WB		990	10	1000		7	4		A	A	6	A					N/A	N/A	125	0
		NB																				
		SB			131	131			3			A	3	A							N/A	31
W Fish Lake Rd	Signal	EB	1	637	19	657	0	18	14	A	B	B	17	B	22	C	300	3	775	163	775	163
		WB	311	985	19	1315	27	26	6	C	C	A	26	C			250	220	1000	427	300	23
		NB	15	1	311	327	22	20	12	C	C	B	12	B			100	31	550	35	100	119
		SB	302	15	0	317	25	23	0	C	C	A	24	C			175	110	N/A	16	175	16

Alternative 4: 4-Lane Roadway, Signal Intersection Control

This alternative includes adding traffic signals to several key intersections along the corridor that will create gaps in the traffic flow on Weaver Lake Road to allow vehicles to safely turn from the side streets onto Weaver Lake Road. This analysis assumed that traffic signals were located at Xene Lane, Shadow Creek Road, and Ranchview Lane, which results in relatively equal signal spacing along the corridor. The locations of the traffic signals assumed in this analysis are shown on **Figure 15**. Determining the number and locations of traffic signals along the corridor that optimize traffic operations for all corridor users requires further study. The

results of the analysis of the 4-Lane Roadway, Signal Intersection Control are shown in **Table 9** and **Table 10**.

The additional regulation of vehicles exiting the side streets will prevent drivers from taking unnecessary risks in choosing acceptable gaps, so it is anticipated that traffic signals would reduce the likelihood of crashes from vehicles attempting to make left-turning movements onto Weaver Lake Road from the side streets at signalized locations. However, as vehicles on the side streets will be expected to wait for a green signal, it is not anticipated that traffic signals will reduce delay for vehicles exiting the side streets. In addition, the addition of traffic signals along the corridor without left-turn lanes does not help vehicles safely make a left-turn movement off of Weaver Lake Road. The introduction of traffic signals will not decrease the risk of rear-end crashes on Weaver Lake Road as vehicles will still be required to decelerate and stop to wait for an acceptable gap at the signals.

Overall, the introduction of traffic signals along the corridor is not likely to result in a substantial increase in delay for vehicles on Weaver Lake Road. The analysis assumed that the traffic signals were coordinated with each other, and also that traffic is only stopped on Weaver Lake Road if a vehicle is detected on the side street at the signalized intersection. The additional gaps created by interrupting the traffic flow on Weaver Lake Road may help vehicles exiting the side streets at the non-signalized intersections by creating additional gaps.

The introduction of traffic signals along the corridor is anticipated to have only a small impact on reducing vehicle speeds along Weaver Lake Road. The traffic signals will require some of the through traffic to slow or stop, however, while the through movements have a green signal, vehicle speeds will likely remain at current levels.

Table 9: LOS Analysis - AM 4-Lane Roadway, Signal Intersection Control

Intersection	Control	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																	Left Turn		Through		Right Turn	
			L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk	Signal	EB	6	69	11	86	23	25	9	C	C	A	22	C	12	B	N/A	95	N/A	95	N/A	95
		WB	96	5	127	228	27	26	3	C	C	A	13	B			1200	104	1200	104	1200	51
		NB	1	265	414	680	10	6	5	A	A	A	6	A			1100	58	1100	145	1100	145
		SB	511	283	4	798	21	5	1	C	A	A	16	B			630	303	630	303	630	135
Zanzibar	Thru-Stop	EB	2	989	3	994	3	2	1	A	A	A	2	A	2	A	1200	13	1200	13	1200	0
		WB	3	225	2	230	3	0	0	A	A	A	0	A			1200	0	1200	0	1200	0
		NB	3	0	22	25	13	0	6	B	A	A	7	A			N/A	44	N/A	0	N/A	44
		SB	14	0	0	14	10	0	0	A	A	A	10	A			N/A	38	N/A	0	N/A	38
West School	Thru-Stop	EB	60	965		1025	2	0		A	A		0	A	1	A	180	34	180	34		
		WB		188	10	198		1	0		A	A	1	A					900	0	900	0
		NB																				
		SB	0		42	42	0		3	A		A	3	A			500	51			500	51
Xene & East School	Signal	EB	13	949	3	965	3	3	2	A	A	A	3	A	3	A	900	76	900	100	900	100
		WB	16	196	26	238	8	2	1	A	A	A	2	A			500	43	500	43	500	34
		NB	2	0	87	89	22	0	7	C	A	A	8	A			N/A	69	N/A	0	N/A	69
		SB	23	0	0	23	21	0	0	C	A	A	21	C			625	44	625	0	625	0
Tarleton	Thru-Stop	EB	12	1047		1059	3	1		A	A		1	A	2	A	500	22	500	22		
		WB		211	16	227		1	1		A	A	1	A					750	0	750	0
		NB																				
		SB	82		27	109	10		5	B		A	9	A			N/A	69			N/A	69
Shadow Creek	Signal	EB	10	1119		1129	4	3		A	A		3	A	3	A	750	83	750	102		
		WB		218	6	224		1	0		A	A	1	A					630	36	630	36
		NB																				
		SB	44		9	53	19		5	C		A	16	C			N/A	62			N/A	62
Terraceview	Thru-Stop	EB		1155	8	1163		1	1		A	A	1	A	1	A			630	0	630	0
		WB	2	218		220	8	1		A	A		1	A			675	10	675	10		
		NB	6		15	21	11		7	B		A	8	A			N/A	41			N/A	41
		SB																				
Ranchview	Signal	EB		1135	35	1170		3	2		A	A	3	A	3	A			675	120	675	120
		WB	14	200		214	10	1		B	A		2	A			900	44	900	44		
		NB	20		55	75	21		9	C		A	12	B			N/A	71			N/A	71
		SB																				
Niagara & Church	Thru-Stop	EB	3	1145	42	1190	3	2	2	A	A	A	2	A	2	A	900	11	900	11	900	0
		WB	9	202	10	221	9	1	1	A	A	A	1	A			775	23	775	23	775	0
		NB	5	0	11	16	17	0	8	C	A	A	12	B			N/A	41	N/A	0	N/A	41
		SB	37	0	7	44	11	0	4	B	A	A	10	B			N/A	51	N/A	0	N/A	51
Boston Sci West	Thru-Stop	EB		1193		1193		1			A		1	A	1	A			N/A	N/A		
		WB		178	185	363		2	5		A	A	4	A					N/A	N/A	125	0
		NB																				
		SB			43	43			2			A	2	A							N/A	0
W Fish Lake Rd	Signal	EB	124	1053	16	1193	10	18	17	B	B	B	17	B	15	B	300	70	775	308	775	308
		WB	169	346	310	825	20	12	6	B	B	A	11	B			250	111	1000	116	300	63
		NB	17	23	290	330	20	19	14	C	B	B	15	B			100	33	550	73	100	131
		SB	27	0	0	27	21	0	0	C	A	A	21	C			175	34	N/A	0	175	0

Table 10: LOS Analysis - PM 4-Lane Roadway, Signal Intersection Control

Intersection	Control	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																	Left Turn		Through		Right Turn	
			L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk	Signal	EB	1	44	6	51	9	10	3	A	A	A	9	A	15	B	N/A	57	N/A	57	N/A	57
		WB	376	96	496	968	25	26	7	C	C	A	16	B			1200	300	1200	300	1200	164
		NB	3	344	284	631	18	12	8	B	B	A	10	B			1100	96	1100	152	1100	152
		SB	208	272	1	481	30	11	1	C	B	A	19	B			630	181	630	181	630	103
Zanzibar	Thru-Stop	EB	6	528	2	536	6	1	1	A	A	A	1	A	1	A	1200	23	1200	23	1200	0
		WB	24	968	10	1002	3	1	0	A	A	A	1	A			1200	44	1200	44	1200	14
		NB	0	1	16	17	0	15	4	A	B	A	4	A			N/A	38	N/A	38	N/A	38
		SB	2	0	0	2	22	0	0	C	A	A	22	C			N/A	11	N/A	11	N/A	11
West School	Thru-Stop	EB	10	536		546	6	0		A	A		0	A	2	A	180	27	180	27		
		WB		949	0	949		2	0		A	A	2	A					900	0	900	0
		NB																				
		SB	10		53	63	13		7	B		A	8	A			500	63			500	63
Xene & East School	Signal	EB	13	532	9	554	8	2	1	A	A	A	2	A	4	A	900	58	900	67	900	67
		WB	59	926	51	1036	7	4	3	A	A	A	4	A			500	128	500	128	500	116
		NB	9	0	38	47	26	0	5	C	A	A	9	A			N/A	57	N/A	0	N/A	57
		SB	47	0	14	61	21	0	8	C	A	A	18	B			625	65	625	0	625	65
Tarleton	Thru-Stop	EB	22	595		617	8	1		A	A		1	A	2	A	500	44	500	44		
		WB		1019	59	1078		2	2		A	A	2	A					750	3	750	3
		NB																				
		SB	28		17	45	19		7	C		A	14	B			N/A	57			N/A	57
Shadow Creek	Signal	EB	10	613		623	9	2		A	A		2	A	2	A	750	48	750	58		
		WB		1066	34	1100		2	2		A	A	2	A					630	105	630	105
		NB																				
		SB	18		12	30	21		9	C		A	17	B			N/A	49			N/A	49
Terraceview	Thru-Stop	EB		624	7	631		1	1		A	A	1	A	1	A			630	0	630	0
		WB	7	1088		1095	4	1		A	A		1	A			675	22	675	22		
		NB	12		12	24	13		4	B		A	8	A			N/A	41			N/A	41
		SB																				
Ranchview	Signal	EB		606	30	636		2	1		A	A	2	A	3	A			675	74	675	74
		WB	28	1062		1090	5	3		A	A		3	A			900	110	900	126		
		NB	33		24	57	21		6	C		A	15	B			N/A	59			N/A	59
		SB																				
Niagara	Thru-Stop	EB	8	618	4	630	10	1	1	A	A	A	1	A	2	A	900	29	900	29	900	0
		WB	6	1067	48	1121	4	2	1	A	A	A	2	A			775	14	775	14	775	0
		NB	16	0	20	36	15	0	6	C	A	A	10	A			N/A	48	N/A	0	N/A	48
		SB	19	0	7	26	17	0	8	C	A	A	14	B			N/A	45	N/A	0	N/A	45
Boston Sci West	Thru-Stop	EB		657		657		0			A		0	A	2	A			N/A	N/A		
		WB		990	10	1000		3	4		A	A	3	A					N/A	N/A	125	0
		NB																				
		SB			131	131			2			A	2	A							N/A	26
W Fish Lake Rd	Signal	EB	1	637	19	657	16	18	12	B	B	B	18	B	16	B	300	8	775	188	775	188
		WB	311	985	19	1315	23	11	5	C	B	A	13	B			250	179	1000	177	300	22
		NB	15	1	311	327	23	8	12	C	A	B	12	B			100	31	550	28	100	118
		SB	302	15	0	317	24	17	0	C	B	A	23	C			175	96	N/A	18	175	18

Alternative 5: 4-Lane Roadway, Roundabout Intersection Control

This alternative assumes that several roundabouts are constructed along the Weaver Lake Corridor. This alternative assumes that roundabouts are constructed at Xene Lane, Shadow Creek Road, Niagara Lane, and West Fish Lake Road. The locations of the roundabouts assumed in this analysis are shown on **Figure 16**. Determining the number and locations of roundabouts along the corridor that optimize traffic operations for all corridor users requires further study. The roundabouts are assumed to be multi-lane roundabouts with two lane entrance and exit roadways for Weaver Lake Road. The residential side streets are assumed to have single entrance and exit lanes. The exact dimensions and lane configurations required to accommodate the existing dual-left-turn lanes at the roundabout at Weaver Lake Road and

Scimed Place will require further study, however, the capacity of the roundabout can be estimated. The results of the 4-Lane Roadway, Roundabout Intersection Control analysis are shown in **Table 11**, **Table 12**, **Table 13**, and **Table 14**. **Figure 17** displays a layout of a roundabout at the Xene Lane intersection.

The introduction of roundabouts to the Weaver Lake Road corridor is anticipated to regulate vehicle speeds along the corridor more effectively than traffic signals or thru-stop controlled intersections. The analysis indicates that dual-lane roundabouts will provide ample capacity for operation at LOS A, a condition which will result in greater compliance with the speed limit without introducing substantial delay for through vehicles.

Roundabouts are anticipated to improve conditions for vehicles on Weaver Lake Road making left or right-turn movements onto the side streets. Roundabouts will reduce the rear-end crash potential for turning vehicles while also reducing delay. Vehicles exiting the side streets will also benefit from the increased safety provided by a roundabout.

In addition to operational and safety impacts to the corridor, the introduction of roundabouts to the Weaver Lake Road corridor is likely to change the cultural perception or "feel" of the roadway. The current roadway corridor allows drivers to easily exceed the speed limit. The introduction of roundabouts will encourage drivers to slow down and will draw additional attention to the adjacent neighborhoods.

Table 11: LOS Analysis - Weaver Lake Road & Xene Lane Intersection - 4-Lane Roadway, Roundabout Intersection Control

Intersection	Peak Hour	Approach	# of Lanes	Demand Volumes (veh/hour)				50% Confidence Interval						85% Confidence Interval					
								Approach		Intersection		Maximum Queue		Approach		Intersection		Maximum Queue	
				L	T	R	Total	Delay (sec)	LOS	Delay (sec)	LOS	Storage (ft)	Queue (ft)	Delay (sec)	LOS	Delay (sec)	LOS	Storage (ft)	Queue (ft)
Weaver Lake Road & Xene Lane	AM	EB	2	13	949	3	965	3	A	3	A	1180	20	4	A	4	A	1180	26
		WB	2	16	196	26	238	2	A			475	2	2	A			475	4
		NB	1	2	0	87	89	6	A			N/A	4	8	A			N/A	6
		SB	1	23	0	0	23	3	A			N/A	0	4	A			N/A	0
	PM	EB	2	13	532	9	554	2	A	3	A	1180	8	3	A	4	A	1180	10
		WB	2	59	926	51	1036	3	A			475	24	4	A			475	30
		NB	1	9	0	38	47	4	A			N/A	2	5	A			N/A	2
		SB	1	47	0	14	61	6	A			N/A	2	8	A			N/A	4

Table 12: LOS Analysis - Weaver Lake Road & Shadow Creek Lane Intersection - 4-Lane Roadway, Roundabout Intersection Control

Intersection	Peak Hour	Approach	# of Lanes	Demand Volumes (veh/hour)				50% Confidence Interval						85% Confidence Interval					
								Approach		Intersection		Maximum Queue		Approach		Intersection		Maximum Queue	
				L	T	R	Total	Delay (sec)	LOS	Delay (sec)	LOS	Storage (ft)	Queue (ft)	Delay (sec)	LOS	Delay (sec)	LOS	Storage (ft)	Queue (ft)
Weaver Lake Road & Shadow Creek Road	AM	EB	2	10	1119		1129	4	A	4	A	700	30	5	A	4	A	700	40
		WB	2		218	6	224	2	A			1350	2	2	A			1350	2
		NB																	
		SB	1	44		9	53	3	A			N/A	2	4	A			N/A	2
	PM	EB	2	10	613		623	2	A	3	A	700	10	3	A	4	A	700	12
		WB	2		1066	34	1100	4	A			1350	28	5	A			1350	34
		NB																	
		SB	1	18		12	30	6	A			N/A	2	10	A			N/A	2

Table 13: LOS Analysis - Weaver Lake Road & Niagara Lane Intersection - 4-Lane Roadway, Roundabout Intersection Control

Intersection	Peak Hour	Approach	# of Lanes	Demand Volumes (veh/hour)				50% Confidence Interval						85% Confidence Interval					
								Approach		Intersection		Maximum Queue		Approach		Intersection		Maximum Queue	
				L	T	R	Total	Delay (sec)	LOS	Delay (sec)	LOS	Storage (ft)	Queue (ft)	Delay (sec)	LOS	Delay (sec)	LOS	Storage (ft)	Queue (ft)
Weaver Lake Road & Niagara Lane	AM	EB	2	3	1145	42	1190	4	A	4	A	900	34	5	A	5	A	900	46
		WB	2	9	202	10	221	2	A			775	2	2	A			775	2
		NB	1	5	0	11	16	6	A			N/A	0	9	A			N/A	2
		SB	1	37	0	7	44	3	A			N/A	0	4	A			N/A	2
	PM	EB	2	8	618	4	630	2	A	3	A	900	10	3	A	4	A	900	12
		WB	2	6	1067	48	1121	4	A			775	28	5	A			775	38
		NB	1	16	0	20	36	4	A			N/A	0	5	A			N/A	2
		SB	1	19	0	7	26	6	A			N/A	0	8	A			N/A	2

Table 14: LOS Analysis - Weaver Lake Road & West Fish Lake Road Intersection - 4-Lane Roadway, Roundabout Intersection Control

Intersection	Peak Hour	Approach	# of Lanes	Demand Volumes (veh/hour)				50% Confidence Interval						85% Confidence Interval					
								Approach		Intersection		Maximum Queue		Approach		Intersection		Maximum Queue	
				L	T	R	Total	Delay (sec)	LOS	Delay (sec)	LOS	Storage (ft)	Queue (ft)	Delay (sec)	LOS	Delay (sec)	LOS	Storage (ft)	Queue (ft)
Weaver Lake Road & West Fish Lake Road	AM	EB	2	124	1053	16	1193	5	A	4	A	775	40	6	A	5	A	775	58
		WB	2	169	346	500	1015	4	A			1000	26	5	A			1000	34
		NB	1	17	23	290	330	4	A			550	8	5	A			550	12
		SB	1	27	0	50	77	2	A			N/A	2	2	A			N/A	2
	PM	EB	2	1	637	19	657	4	A	5	A	775	18	5	A	8	A	775	26
		WB	2	311	985	50	1346	5	A			1000	48	7	A			1000	70
		NB	1	15	1	311	327	4	A			550	8	4	A			550	10
		SB	0	500	15	200	715	8	A			N/A	46	15	C			N/A	100

Alternative 6: 3-Lane Roadway, Signal Intersection Control

This Alternative assumes that the existing roadway cross-section is re-striped to a three-lane configuration between Dunkirk Lane and West Fish Lake Road. The analysis assumes that traffic signals are added at Xene Lane, Shadow Creek Road, and Ranchview Lane, which results in relatively equal signal spacing along the corridor. The locations of the traffic signals assumed in this analysis are shown on **Figure 15**. Determining the number and locations of traffic signals along the corridor that optimize traffic operations for all corridor users requires further study.

The results of the operations analysis of the 3-Lane Roadway, Signal Intersection Control alternative are shown in **Table 15** and **Table 16**. The introduction of traffic signals while also consolidating all eastbound and westbound through traffic into a single through lane results in additional delay for both through traffic on Weaver Lake Road as well as for vehicles turning onto and off of the side streets. The results indicate that a three-lane configuration with traffic signals is not a viable option for the Weaver Lake Road corridor.

Table B15: LOS Analysis - AM 3-Lane Roadway, Signal Intersection Control

Intersection	Control	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																	Left Turn		Through		Right Turn	
			L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk	Signal	EB	6	69	11	86	28	24	8	C	C	A	22	C	13	B	N/A	89	N/A	89	N/A	89
		WB	96	5	127	228	29	24	4	C	C	A	14	B			1200	103	1200	103	1200	68
		NB	1	265	414	680	2	7	6	A	A	A	6	A			1100	68	1100	136	1100	136
		SB	511	283	4	798	24	6	3	C	A	A	17	B			630	326	630	326	630	141
Zanzibar	Thru-Stop	EB	2	989	3	994	2	1	0	A	A	A	1	A	1	A	1200	6	1200	307	1200	0
		WB	3	225	2	230	9	0	0	A	A	A	0	A			70	7	1200	0	1200	0
		NB	3	0	22	25	16	0	14	C	A	B	14	B			N/A	46	N/A	0	N/A	46
		SB	14	0	0	14	31	0	0	D	A	A	31	D			N/A	45	N/A	0	N/A	45
West School	Thru-Stop	EB	60	965		1025	3	1		A	A		1	A	1	A	70	35	180	0		
		WB		188	10	198		3	2		A	A	2	A					900	3	900	3
		NB																				
		SB	0		42	42	0		4	A		A	4	A			500	47			500	47
Xene & East School	Signal	EB	13	949	3	965	13	20	15	B	B	B	20	B	18	B	500	167	900	554	900	554
		WB	16	196	26	238	34	7	3	C	A	A	9	A			200	42	500	115	500	115
		NB	2	0	87	89	16	0	15	B	A	B	15	B			N/A	78	N/A	0	N/A	78
		SB	23	0	0	23	22	0	0	C	A	A	22	C			625	44	625	0	625	44
Tarleton	Thru-Stop	EB	12	1047		1059	7	8		A	A		8	A	14	B	200	14	500	326		
		WB		211	16	227		2	1		A	A	2	A					750	0	750	0
		NB																				
		SB	82		27	109	103		86	F		F	99	F			N/A	283			N/A	283
Shadow Creek	Signal	EB	10	1119		1129	16	29		B	C		29	C	26	C	500	146	750	897		
		WB		218	6	224		6	6		A	A	6	A					630	113	630	113
		NB																				
		SB	44		9	53	32		7	C		A	28	C			N/A	68			N/A	68
Terraceview	Thru-Stop	EB		1155	8	1163		15	12		C	B	15	C	15	B			630	625	630	625
		WB	2	218		220	16	1		C	A		1	A			500	3	675	0		
		NB	6		15	21	77		157	F		F	135	F			N/A	89			N/A	89
		SB																				
Ranchview	Signal	EB		1135	35	1170		32	28		C	C	32	C	29	C			675	826	675	826
		WB	14	200		214	59	7		E	A		11	B			400	47	900	118		
		NB	20		55	75	30		29	C		C	29	C			N/A	93			N/A	93
		SB																				
Niagara & Church	Thru-Stop	EB	3	1145	42	1190	9	7	6	A	A	A	7	A	7	A	400	8	900	0	900	0
		WB	9	202	10	221	13	2	1	B	A	A	2	A			100	25	775	0	775	0
		NB	5	0	11	16	58	0	8	F	A	A	21	C			N/A	37	N/A	0	N/A	37
		SB	37	0	7	44	20	0	6	C	A	A	17	C			N/A	60	N/A	0	N/A	60
Boston Sci West	Thru-Stop	EB		1193		1193		1			A		1	A	1	A			N/A	N/A		
		WB		178	185	363		2	5		A	A	4	A					N/A	N/A	125	0
		NB																				
		SB			43	43			2			A	2	A							N/A	0
W Fish Lake Rd	Signal	EB	124	1053	16	1193	10	17	15	B	B	B	17	B	15	B	300	74	775	263	775	263
		WB	169	346	310	825	19	12	6	B	B	A	11	B			250	102	1000	97	300	73
		NB	17	23	290	330	24	19	15	C	B	B	16	B			100	30	550	66	100	136
		SB	27	0	0	27	22	0	0	C	A	A	22	C			175	31	N/A	0	175	0

Table 16: LOS Analysis - PM 3-Lane Roadway, Signal Intersection Control

Intersection	Control	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																	Left Turn		Through		Right Turn	
			L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk	Signal	EB	1	44	6	51	0	11	6	A	B	A	11	B	24	C	N/A	58	N/A	58	N/A	58
		WB	376	96	496	968	33	32	10	C	C	A	21	C			1200	367	1200	367	1200	221
		NB	3	344	284	631	11	12	9	B	B	A	11	B			1100	90	1100	167	1100	167
		SB	208	272	1	481	103	12	4	F	B	A	51	D			630	399	630	399	630	220
Zanzibar	Thru-Stop	EB	6	528	2	536	9	2	1	A	A	A	2	A	1	A	1200	18	1200	0	1200	0
		WB	24	968	10	1002	3	1	0	A	A	A	1	A			70	29	1200	0	1200	0
		NB	0	1	16	17	0	0	5	A	A	A	5	A			N/A	40	N/A	40	N/A	40
		SB	2	0	0	2	21	0	0	C	A	A	21	C			N/A	15	N/A	0	N/A	15
West School	Thru-Stop	EB	10	536		546	8	0		A	A		0	A	4	A	70	24	180	0		
		WB		949	0	949		5	0		A	A	5	A					900	0	900	0
		NB																				
		SB	10		53	63	23		15	C		B	16	C			500	62			500	62
Xene & East School	Signal	EB	13	532	9	554	33	10	7	C	B	A	11	B	17	B	500	30	900	275	900	275
		WB	59	926	51	1036	24	20	16	C	C	B	20	C			200	138	500	570	500	570
		NB	9	0	38	47	26	0	8	C	A	A	11	B			N/A	61	N/A	0	N/A	61
		SB	47	0	14	61	24	0	21	C	A	C	23	C			625	77	625	0	625	77
Tarleton	Thru-Stop	EB	22	595		617	26	2		D	A		3	A	9	A	200	43	500	0		
		WB		1019	59	1078		10	8		A	A	10	A					750	245	750	245
		NB																				
		SB	28		17	45	78		57	F		F	68	F			N/A	98			N/A	98
Shadow Creek	Signal	EB	10	613		623	46	10		D	A		10	B	16	B	500	45	750	335		
		WB		1066	34	1100		18	14		B	B	18	B					630	625	630	625
		NB																				
		SB	18		12	30	21		22	C		C	22	C			N/A	48			N/A	48
Terraceview	Thru-Stop	EB		624	7	631		3	2		A	A	3	A	5	A			630	0	630	0
		WB	7	1088		1095	9	6		A	A		6	A			500	19	675	140		
		NB	12		12	24	59		20	F		C	42	E			N/A	62			N/A	62
		SB																				
Ranchview	Signal	EB		606	30	636		8	5		A	A	7	A	10	B			675	228	675	228
		WB	28	1062		1090	15	11		B	B		11	B			400	49	900	304		
		NB	33		24	57	22		9	C		A	16	B			N/A	61			N/A	61
		SB																				
Niagara	Thru-Stop	EB	8	618	4	630	11	3	3	B	A	A	3	A	5	A	400	26	900	0	900	0
		WB	6	1067	48	1121	5	4	2	A	A	A	4	A			100	14	775	3	775	3
		NB	16	0	20	36	45	0	12	E	A	B	27	D			N/A	58	N/A	0	N/A	58
		SB	19	0	7	26	62	0	23	F	A	C	51	F			N/A	64	N/A	0	N/A	64
Boston Sci West	Thru-Stop	EB		657		657		0			A		0	A	4	A			N/A	N/A		
		WB		990	10	1000		6	4		A	A	6	A					N/A	82	125	0
		NB																				
		SB			131	131			3			A	3	A							N/A	41
W Fish Lake Rd	Signal	EB	1	637	19	657	12	20	14	B	B	B	19	B	21	C	300	7	775	202	775	202
		WB	311	985	19	1315	24	25	4	C	C	A	25	C			250	224	1000	413	300	24
		NB	15	1	311	327	19	12	12	B	B	B	12	B			100	29	550	5	100	117
		SB	302	15	0	317	23	15	0	C	B	A	22	C			175	99	N/A	16	175	16

Alternative 7: 3-Lane Roadway, Roundabout Intersection Control

This Alternative assumes that the existing roadway cross-section is re-striped to a three-lane configuration between Dunkirk Lane and West Fish Lake Road. The analysis assumes that roundabouts are added at Xene Lane, Shadow Creek Road, and Ranchview Lane, which results in relatively equal roundabout spacing along the corridor. The locations of the roundabouts assumed in this analysis are shown on **Figure 16**. Determining the number and locations of roundabouts along the corridor that optimize traffic operations for all corridor users requires further study. Single-lane roundabouts are not anticipated to have sufficient capacity to accommodate existing peak-hour volumes. During the AM and PM peak hours, all roundabout

intersections along the corridor are anticipated to operate at Level of Service E or F, an unacceptable level of delay. The analysis indicates that a three-lane configuration with single-lane roundabouts is not a viable option for the Weaver Lake Road corridor.

Dunkirk Lane Intersection Alternatives

The intersection of Dunkirk Lane and Weaver Lake Road was considered separately from the Weaver Lake Road corridor because of the unusually high crash rate and because traffic volumes on Dunkirk Lane are significantly higher than at other intersections along Weaver Lake Road. Several alternatives were considered for this location. The alternatives considered are as follows:

- **Revised Traffic Signal with Turn Lanes** - This alternative assumes that left-turn lanes are added to the north and south approaches on Dunkirk Lane. The existing traffic signal would be revised and updated. The north approach would have a 500 foot left-turn lane, and the south approach would have a 300 foot left-turn lane. A conceptual layout of this alternative is shown in **Figure 18**.
- **Roundabout** - This alternative assumes that a roundabout would be constructed at this location. The roundabout would allow two lanes of through traffic in the northbound and southbound directions. Eastbound and westbound directions would have a single circulating lane to improve roundabout safety and minimize cost. A conceptual layout of this alternative is shown in **Figure 19**.

Dunkirk Lane Intersection Alternatives Evaluation

The results of the operations analysis for the signalized alternative are shown in **Table 17**, and the results of the operations analysis for the roundabout alternative are shown in **Table 18**. The analysis of a signalized intersection or a roundabout controlled intersection indicates that a roundabout is the preferred intersection control alternative at this location. The roundabout alternative results in less delay for all vehicles, but particularly for the northbound and southbound left-turn movements. The roundabout also results in shorter queue lengths than the signalized alternative. This intersection experienced a substantial number of right angle crashes between 2006 and 2009. It is anticipated that a roundabout will result in fewer overall crashes at this location.

Table 17: Dunkirk Lane Intersection Signalized Operations Analysis

Intersection	Control	Time	Approach	Demand Volumes (veh/hour)				Delay by Movement (sec/veh)			LOS by Movement			LOS by Approach		LOS by Intersection		95th Percentile Traffic Queue (feet)					
																		Left Turn		Through		Right Turn	
				L	T	R	Total	L	T	R	L	T	R	Delay	LOS	Delay	LOS	Storage	Queue	Storage	Queue	Storage	Queue
Dunkirk Lane & Weaver Lake Road	Signal	AM	EB	6	69	11	86	22	21	8	C	C	A	20	B	20	C			N/A	86		
			WB	96	5	127	228	28	21	3	C	C	A	13	B					1200	102	1200	54
			NB	1	265	414	680	39	20	15	D	B	B	17	B			300	19	1100	259		
			SB	511	283	4	798	36	5	5	D	A	A	25	C			500	419	630	147		
		PM	EB	1	44	6	51	5	13	3	A	B	A	12	B	21	C			N/A	63		
			WB	376	96	496	968	27	28	9	C	C	A	18	B					1200	320	1200	144
			NB	3	344	284	631	41	25	19	D	C	B	22	C			300	11	1100	239		
			SB	208	272	1	481	44	12	11	D	B	B	26	C			500	210	630	89		

Table 18: Dunkirk Lane Intersection Roundabout Operations Analysis

Intersection	Control	Time	Approach	Demand Volumes (veh/hour)				LOS by Approach		LOS by Intersection		Max Traffic Queue (feet)	
												Approach	
				L	T	R	Total	Delay	LOS	Delay	LOS	Storage	Queue
Dunkirk Lane & Weaver Lake Road	Roundabout	AM	EB	6	69	11	86	6	A	5	A	N/A	5
			WB	96	5	127	228	2	A			1200	5
			NB	1	265	414	680	4	A			1100	23
			SB	511	283	4	798	10	A			630	33
		PM	EB	1	44	6	51	5	A	4	A	N/A	3
			WB	376	96	496	968	4	A			1200	35
			NB	3	344	284	631	3	A			1100	15
			SB	208	272	1	481	6	A			630	10

Recommendations and Conclusions

Based on the analysis presented in this report, it is recommended that roundabouts be implemented along the Weaver Lake Road corridor to improve safety conditions and enhance traffic operations. The roundabout option effectively balances the need to accommodate through traffic along the corridor with the need for nearby residents to access the roadway. Roundabouts will improve safety conditions for vehicles on Weaver Lake Road by moderating traffic speeds and eliminating the need to wait in traffic to execute a left-turn. Roundabouts will also reduce delay for vehicles on side streets waiting to enter Weaver Lake Road.

The proposed roundabouts at Dunkirk Lane and Xene Lane will improve safety conditions at both intersections. The roundabouts at both intersections are anticipated to operate at Level of Service A during both AM and PM peak hours. The roundabout at Dunkirk Lane will reduce the number of right-angle and left-turn crashes and will lessen the severity of future crashes. The roundabout at Xene Lane will allow vehicles on Weaver Lake Road to make a left-turn lane onto Xene Lane while reducing the risk of being rear-ended. Since roundabouts give vehicles in the roundabout priority over vehicles waiting to enter the roundabout, the roundabout at Xene Lane will eliminate the need for left-turning vehicles to wait for a gap to turn off of or onto Weaver Lake Road. Reconstruction of both intersections will provide an opportunity to improve visibility and sight distance, as well as safety conditions for pedestrians and cyclists.

The number of crashes that will be reduced at these intersections can be predicted using Mn/DOT's Crash Reduction Factors. According to Mn/DOT, injury crashes can be reduced by 65%, and all crashes can be reduced by 35% when signalized intersections are converted to multi-lane roundabouts in urban environments. The number of predicted crashes that can be prevented through the construction of roundabouts are shown in **Table 19**.

Table 19: Predicted Number of Crashes Prevented

Location	All Crashes				Injury Crashes Only			
	Existing Annual Number of Crashes	% Crash Reduction	Predicted Annual Number of Crashes Prevented	Predicted Annual Number of Crashes	Existing Annual Number of Injury Crashes	% Crash Reduction	Predicted Annual Number of Injury Crashes Prevented	Predicted Annual Number of Injury Crashes
Weaver Lake Road & Dunkirk Lane	10.8	-35%	3.8	7.0	4.0	-65%	2.6	1.4
Weaver Lake Road & Xene Lane	0.8	-35%	0.3	0.5	2.0	-65%	1.3	0.7

The analysis considered the impacts of roundabouts constructed at Dunkirk Lane, Xene Lane, Shadow Creek Road, and Niagara Lane. At this time, it is not feasible to construct all four roundabouts at once. It is recommended that roundabouts be constructed at Dunkirk Lane and Xene Lane. These roundabouts will utilize a combination of one- and two-lane circulating lanes to enhance safety and improve the overall performance of the roundabouts. The proposed improvements at Xene Lane are shown on **Figure 17** and the proposed improvements at Dunkirk Lane are shown on **Figure 19**. After these roundabouts are constructed, the City can consider the construction of additional roundabouts along the Weaver Lake Road corridor.