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MEMORANDUM

Date: December 22, 2020

To: Todd Wietzema

Public Works Director

From: Jennifer McCoy, P.E., PTOE

Casey Kaucher, P.E.

Subject: Lake Street Pedestrian Crossings Review

Worthington, MN

Introduction

At request of the City of Worthington, a high-level traffic review was conducted for eight pedestrian crossing locations on Lake Street/Lake Avenue between 3rd Avenue and 9th Avenue (Figure 1). This review looked at the existing conditions including traffic control, geometrics, and pedestrian origin-destination demand to determine the appropriate crosswalk locations and treatments.

Lake Street/Lake Avenue is classified as a local roadway between the two major collector roadways, South Shore Drive/Second Avenue and 10th Avenue. The 30 mph two-lane roadway measures 30-foot-wide with curb, on-street parking and streetlights. Lake Okabena is located on the south side of the road along with a multiuse trail. Residential housing with driveway accesses and a sidewalk are located on the north side of the road. There are gaps in both the trail and sidewalk system. Review of the collision history over the past 5 years from the MnDOT database indicates an increased number of vehicular collisions between 7th and 8th Street. This is most likely due to the skewed geometry of the intersection and its proximity to the curve.

Review

Traffic counts and field inspections were not part of this review. Data was collected using Google Street View and the latest available information from MnDOT. The Data Collection Worksheets used to evaluate each proposed crossing location are attached. Sight distances were calculated per the AASHTO, *A Policy of Geometric Design of Highways and Streets* manual with an assumed pedestrian speed of 3.5 ft/sec.

Each proposed pedestrian crossing location has its own unique configurations. Following is a review of each crossing location.

Centennial Park

Chautauqua Park

Lake Okabena

Lake Front Park and Sailboard Beach

Google Earth

Figure 1: Proposed Crossing Locations

This proposed Lake Avenue crosswalk location is on the north side of the Lake Avenue and 9th Avenue intersection. This location provides connection to Centennial Park. The vehicular stopping sight distance is sufficient for this crossing location, but the pedestrian sight distance is not adequate. If the city wants to have a crossing here, it is recommended to reconfigure the curb line to decrease the pedestrian crossing distance. This will increase the pedestrian sight lines and limit exposure time while crossing the street. There is a fire hydrant located on the northeast corner of the intersection that will need to be considered when extending sidewalk to the new curb location. Longitudinal crosswalk markings and pedestrian crossing warning signs with downward arrow plaque (MUTCD W11-2 and W16-7P) should be installed on each approach to the crosswalk. Additional curb ramps will need to be constructed on the northwest corner of the intersection, see **Figure 2**.

Install Curb
Ramps

Rework
Curb

Well Ave
Well Ave
Well Ave

Figure 2: Crossing 1

This proposed Lake Avenue crosswalk location is 140' south of the Lake Avenue and 9th Avenue intersection. The multi-use trail becomes a signed bike route along Lake Avenue at this location. The proximity to the curve limits sight distance. Neither the pedestrian sight distance nor stopping sight distance is met. If the city wants a crossing here, it is recommended to extend the trail approximately 70' south and install the pedestrian crossing at that location. Longitudinal crosswalk markings and pedestrian crossing warning signs with downward arrow plaque (MUTCD W11-2 and W16-7P) should be installed on each approach to the crosswalk. Sidewalk and curb ramp construction will be needed at the corner of 101 Lake Avenue.

Tower St.

We sth Ave
We sth Ave

We sth Ave

Lake Ave

Coogle

Figure 3: Crossing 2 (Shifted 70' South)

This proposed Lake Avenue crosswalk location is on the west side of the Lake Avenue and Winifred Street intersection and connects to Chautauqua Park. Both pedestrian sight distance and stopping sight distance requirements are met at this location. Pedestrian crosswalk installation is recommended at this location. Longitudinal crosswalk markings and pedestrian crossing warning signs with downward arrow plaque (MUTCD W11-2 and W16-7P) should be installed on each approach to the crosswalk.

Crossing 4

This proposed Lake Avenue crosswalk location is 125' east of the Lake Avenue and May Street intersection. The pedestrian sight distance is not met at this location due to the curvature of the road and the on-street parking. Parking is currently restricted on the south side of the street. If the city wants a crossing in this area, it is recommended to change the parking restriction to the north side of the street to increase pedestrian sight distance, see **Figure 4**. Longitudinal crosswalk markings and pedestrian crossing warning signs with downward arrow plaque (MUTCD W11-2 and W16-7P) should also be installed on each approach to the crosswalk.

An alternative option would be to relocate the pedestrian crossing to the east side of the Lake Avenue and May Street intersection. The same signs and markings would need to be installed and curb ramps would need to be constructed on both sides of Lake Avenue. If the alternative location is chosen, the existing curb ramps at the location 125' east of May Street would need to be removed.

Figure 4: Crossing 4



This proposed Lake Street crosswalk location is on the south side of the Lake Street and 6th Avenue intersection. The stopping sight distance is met at this location therefore the crosswalk is recommended. Crosswalk markings are not required at this location. The existing curb ramps should remain in place and pedestrian crossing warning signs with an ahead plaque (MUTCD W11-2 and W16-9P) should be installed, refer to **Figure 6**.

Crossing 6

This proposed Lake Street crosswalk location is on the north side of the Lake Street and 5th Avenue intersection. The stopping sight distance is met at this location therefore the crosswalk is recommended. Crosswalk markings are not required at this location. The existing curb ramps should remain in place and pedestrian crossing warning signs with an ahead plaque (MUTCD W11-2 and W16-9P) should be installed, refer to **Figure 6**.

Crossing 7

This proposed Lake Street crosswalk location is on the south side of the Lake Street and 4th Avenue intersection. This location connects to Lake Front Park and Sailboard Beach. The stopping sight distance is met at this location therefore the crosswalk is recommended. Longitudinal crosswalk markings and pedestrian crossing warning signs with downward arrow plaque (MUTCD W11-2 and W16-7P) on each approach to the crosswalk should be installed. Curb ramps are already in place.

Crossing 8

This proposed Lake Street crosswalk location is on the south side of the Lake Street and 3rd Avenue intersection. This location connects to Lake Front Park and Sailboard Beach. Pedestrian sight distance is not met at this location due to the existing trees and roadway curve. If the City desires a crossing in this area, it is recommend to relocate the proposed crosswalk approximately 300' south between 2nd and 3rd Avenue. Longitudinal crosswalk markings and pedestrian crossing warning signs with downward arrow plaque (MUTCD W11-2 and W16-7P) should be installed on each approach of this midblock location.

An alternative option would be to shift the crosswalk to the north side of the Lake Street and 3rd Avenue intersection. The same pedestrian signs and markings would need to be installed. Trees located in the utility strip along the east side of the road would need to be trimmed to minimum 7' and maintained regularly to ensure minimum sight distances maintained. The existing curb ramps on the lake side of Lake Street and 3rd Avenue intersection would need to be removed in both options, see **Figure 8**.

Locate to north side of intersection and trim trees to meet minimum sight line requirements. Trees will need to be maintained on a regular basis

Locate crosswalk midblock between 3rd and 2nd Ave with high visibility markings and pedestrian warning signs

Worthington Sire Station

For all the station of the st

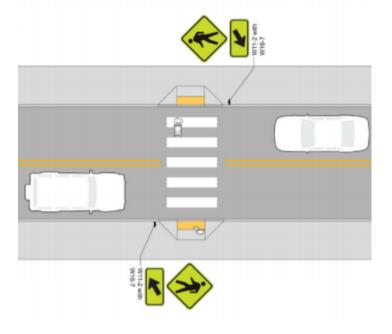
Figure 5: Crossing 8

Conclusion

Figure 6 below depicts the recommended crossing locations and pedestrian ahead signage locations. All sight line measurements need to be field verified prior to the above crosswalk recommendations being installed. All pedestrian signage (W11-2 with W16-7P or W16-9P) should be the fluorescent yellow-green sheeting material and crosswalk markings should be the high visibility longitudinal lines per the MnMUTCD manual, see **Figure 7** below. Recommend implementing parking restrictions on the approaches for each pedestrian crossing to ensure adequate sight distance for motorists and pedestrians. The minimum parking setback should be 30 feet based on the 30-mph speed limit. All crossings must meet ADA requirements.

Figure 6: Crossing Recommendations Worthington Housing Authority Splash Pad W Okabena St W.9th Ave The Easy View Video Laryngoscope Sterling Pharmacy Metro Chautauqua Park Restroom Panda House Chinese Sailboard E **LEGEND** = Recommended Crossing Location = Recommended Crossing Location with Improvements = Pedestrian Warning sign with AHEAD plaque Lake Shore Clips

Figure 7: Crosswalk Signs and Markings







Location:	Crossin	g #1 - To <mark>w</mark> er Stree	t at 9th Av enue	Date:		9-Oct	:-20			
City, State:		Worthington, Mir	nnesota	Scenario:	Scenario: Pedestrian Cro					
Reviewer(s):		Jake Pilz		Agency:		BM	11			
Project #:		0F1122838	3							
	The first step	_	g the pedestrian ne		`	g location is co	mplet	ing a		
		rev	riew of the location	n and adjacent	facilities.					
		=	crossing distance f			Crossing 1	6		ft.	
		_	re is no median. If		dian at the	Crossing 2			ft.	
	_	•	g 1 and 2 distances	5.						
		th of median at cro	=				(ft. ft.	
	_	lth: effective cross	walk width				3			
		dian Available?						Yes Yes	☑	No
ន	ADA Compliant Median Available (minimum 4' x 4' landing)?								☑	No
ţ	Curb Ramps Available?									No
Geometrics		DA Compliant Curb	Ramp Available (v	vidth, grades, truncated domes)?				Yes	☑	No
ĕ	Speed:		_	Posted or 85 th percentile speed Average walking speed			3		mph	
	Roadway Cui	3.		ft/s —						
	Is the cross		Yes	☑	No					
			ing are located on the		l a.		_		_	
		Stopping Sight Di		197	ft.	provided?		Yes		No
	Direction 2:				ft.	provided?		Yes		No
		Pedestrian Sight	·	926	ft.	provided?		Yes		No
		Pedestrian Sight			ft.	provided?		Yes		No
Traffic and		•	volume in 15-min			=	ossea.	D-31		
Pedestrian	Attach Counts	vehicles:	Dai Di 15	-	-	estrians:	DL 41	Daily		
Data	AM Peak	Hourly	Pk 15-m		Hourly		-	5-min		
	PM Peak Lighting:	Hourly	Pk 15-m	Im	Hourly		PK 13	5-min		
		hting procent and	does it light the cr	osswalk losati	on?			Yes	☑	No
	-	•	•			, marked?		Yes	☑	No
	Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? What is the condition of the markings? □ Excellent □ Good							Fair		Poor
W	VVIIacis tile	Are the markings		_	LXCCIICITE	- 0000		Yes		No
stic		Do they need rep						Yes	_	No
ē.			swalk marking patt	ern?		Nor				
raci	Signing:	Currently signed				.,		Yes		No
Cha			in advance of cross	swalk?			_	Yes	<u> </u>	No
ţe (Distances?	direction 1		ft.	direction 2	N/		ft.	
S	Enhancemen			•		Nor				
Ö	Enhancements: What enhancements are currently at the crossing location?									
Additional Site Characteristics	Adjacent Fac		ce to nearest mark	ced crosswalk?	·		N/	/A	ft.	
Ad	What pede:	strian control devi	ices are present			None				
	1	est adjacent marke	•							
			op, roundabout or	signalized int	ersection		30	00	ft.	
			the same pedestri					Yes	\square	No
	Could anotl	her location ser v e	the the movemen	t more effecti	vely?			Yes	\checkmark	No



Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations.

		orgins and destinations .	
	draw or	insert map of location being studied	
Notes:	It is unknown where the pedestrian	will be crossing to. Existing Ped Ramp angle	s and directs
	pedestrian directly into the middle	of intersection.	
Ciabt Dist	ance Calculations	where:	1.5
	ance Calculations: t distance (SSD), ft = 1.47St + 1.075S ² /a	wnere: t = brake reaction time, s	defaults: 2.5
	th distance (PedSD), ft = 1.47S(L / $S_p + t_s$)	t = brake reaction time, s a = deceleration rate, ft/s ²	11.2
redesidan sig	511. distance (red3D), it = 1.4/3(L/3p + Ls)	a – acceleration rate, 193	11.4

S = design speed, mph

L = length of crossing, ft

where:

S_p = average pedestrian walking speed, ft/s

 t_s = pedestrian start-up and end clearance time, s

3.5



Location:	Crossing #2	z - Lake Str	eet at Mildbloc	k (5. 01 9th)	Date:		9-061	-20			
City, State:		Worthing	ton, Minnesota	3	Scenario:	-	Pedestrian Cros	sing A	nalysi	s	
Reviewer(s):		Jā	ake Pilz		- Agency:		BM	II			
Project #:		OF:	1122838		_						
,	The first step	mplet	ing a								
	review of the location and adjacent facilities.										
	Crossing Length: Measure the crossing distance from curb to curb. Crossing 1								37	ft.	
	Fill in Crossir	ng 1 distan	ce if there is no	median. If th	iere is a med	dian at the	Crossing 2			ft.	
	crossing loca	ition, fill in	Crossing 1 and	2 distances.							
	Median: wid	th of medi	an at crossing l	ocation				C)	ft.	
	Crossing Wid	Ith: effecti	ve crosswalk w	idth				8	3	ft.	
	Raised Median Available?									\square	No
v	ADA Compliant Median Available (minimum 4' x 4' landing)?									✓	No
Geometrics	Curb Ramp	☑	Yes		No						
ше	A		Yes	\checkmark	No						
)eo	Speed:				Posted or 8	35 th percent	tile speed	30	0	mph	
U	Roadway Cu	rvature an	ıd Sight Distand	:es:	Average wa	alking speed	t	3.	.5	ft/s	
	Is the cross		Yes	\square	No						
	Equations to	calculate th	he following are l	ocated on the n	ext page						
	Direction 1:	Stopping	Sight Distance	(SSD)	197	ft.	provided?		Yes		No
			Sight Distance			ft.	provided?		Yes		No
			an Sight Distand		599	ft.	provided?		Yes		No
	Direction 2:	Pedestria	an Sight Distand	e (PedSD)		ft.	provided?		Yes		No
Traffic and					e increment	s on the ro	adway to be cro	ossed.			
Pedestrian	Attach Counts	v	ehicles:	Daily		ped	destrians:		Daily		
Data	AM Peak	Hourly	У	Pk 15-min		Hourly		Pk 15	5-min		
Data	PM Peak	Hourly	4	Pk 15-min		Hourly	/	Pk 15	5-min		
	Lighting:										
	Is street lig	hting pres	ent and does it	. light the cros	swalk locati	on?			Yes	\square	No
	Is street lighting present and does it light the crosswalk location? Crosswalk Pavement Markings: Is the pedestrian crossing currently marked?								Yes	☑	No
	What is the	e condition	n of the marking	gs?] Excellent	t 🗖 Good		Fair		Poor
S		Are the n	narkings easil y	defined?					Yes		No
risti		Do the y r	need replaceme	ent?					Yes		No
cte		What is t	he crosswalk m	narking patter	n?		Non	ie			
a ra	Signing:	Currently	signed at cross	swalk?					Yes	V	No
Ğ		Currently	signed in ad <mark>v</mark> a	ance of crossw	/alk?	_			Yes	\square	No
ite	Distances? direction 1 N/A ft. direction 2							N/	/A	ft.	
Additional Site Characteristics	Enhancements: What enhancements are currently at						Non	ie		_	
ion		the crossing location?									
gdit	Adjacent Fac	:ilities:	Distance to n	earest marked	d crosswalk?	ڔ		N/	/A	ft.	
Ă	What pede	strian con'	trol de <mark>v</mark> ices are	present			None				
	at the near	est adjace	nt marked cros	swalk?							
	Distance to	nearest a'	ll-way stop, rou	ındabout or si	gnalized int	ersection		14	10	ft.	
	Could anot	her locatic	on ser <mark>v</mark> e the sar	ne pedestrian	r crossing m	ovement?			Yes	☑	No
	Could anot	her locatic	on serve the the	e movement r	nore effecti	vely?			Yes	\checkmark	No



Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations.

		orgins and destinations .	
	draw or	insert map of location being studied	
Notes:	It is unknown where the pedestrian	will be crossing to. Existing Ped Ramp angle	s and directs
	pedestrian directly into the middle	of intersection.	
Ciabt Dist	ance Calculations	where:	1.5
	ance Calculations: t distance (SSD), ft = 1.47St + 1.075S ² /a	wnere: t = brake reaction time, s	defaults: 2.5
	th distance (PedSD), ft = 1.47S(L / $S_p + t_s$)	t = brake reaction time, s a = deceleration rate, ft/s ²	11.2
redesidan sig	511. distance (red3D), it = 1.4/3(L/3p + Ls)	a – acceleration rate, 193	11.4

S = design speed, mph

L = length of crossing, ft

where:

S_p = average pedestrian walking speed, ft/s

 t_s = pedestrian start-up and end clearance time, s

3.5



Location:	Crossing	#3 - Lake St	reet at Winifr	ed Street	_Date:		9-Oc	t-20				
Cit y , State:		Worthingto	n, Minnesota	ì	Scenario:		Pedestrian Cro	ssing A	nalysi	S		
Reviewer(s):		Jak	e Pilz		Agency:		BN	/II				
Project #:		0F11	L22838		ID#:							
	The first step	p in underst					ng location is c	omplet	ing a			
			review of	the location a	and adjacent	facilities.						
	_	=		g distance fro			Crossing 1	3		ft.		
		_		o median. If th	nere is a med	dian at the	Crossing 2			ft.		
			crossing 1 and									
			n at crossing l					(ft.		
	Crossing Width: effective crosswalk width								8 ft.			
	Raised Median Available?								Yes	\checkmark	No	
8		-		ailable (minim	num 4' x 4' la	anding)?			Yes	V	No	
itri	Curb Ramps Available?								Yes		No	
Geometrics	ADA Compliant Curb Ramp Available (width, grades, truncated domes)?								Yes	☑	No	
)e G	Speed:				Posted or 85 th percentile speed 30					mph		
	-		Sight Distance		Average wa	alking speed	d	3.	.5 Yes	ft/s —		
	Is the crossing location within a horizontal or vertical curve? Equations to calculate the following are located on the next page									\square	No	
			_			1.				_		
			ight Distance		197	ft.	provided?		Yes		No	
	Direction 2:		ight Distance			ft.	provided?		Yes		No	
			Sight Distand		586	ft.	provided?		Yes		No	
			Sight Distanc		•	ft.	provided?		Yes		No	
Traffic and		-					adway to be cı	ossed.				
Pedestrian	Attach Counts		hicles:	Daily		-	destrians:	DI. 41	Daily			
Data	AM Peak	Hourly		Pk 15-min		Hourly		_	5-min			
	PM Peak	Hourly		Pk 15-min		Hourly	/	PK I:	5-min			
	Lighting:	latina nyosay	-td d it	liabt the ever	المعمدال المعمدا	J		_	Voc		No	
				light the cros			الديم مجادم ما ٢		Yes Yes		No No	
	Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? What is the condition of the markings? □ Excellent □ Good								Fair		No	
ro.	VVIIacistile		arkings easily	_	_	Lxcellell	. ப G000		Yes		Poor No	
stic			ed replaceme						Yes		No	
er:		•	•	narking patter	-n?		No					
act	Signing:		signed at cros	- .	11:		110		Yes	☑	No	
la l	Jigiiiiig.		_		valk?				Yes	☑	No	
ē	Currently signed in advance of cross direction 1									ft.	110	
Additional Site Characteristics	Distances? direction 1 N/A ft. direction 2 Enhancements: What enhancements are currently at Non							/ (
ona	the crossing location?						140					
g <u>i</u>	Adjacent Fac		_	earest marked	d crosswalk?	·		N.	/A	ft.		
Αď	l -		ol devices are			<u>'</u>	None					
	•		marked cros	•								
		-		undabout or s	ignalized int	ersection		40	00	ft.		
				me pedestriar					Yes	☑	No	
				e movement r	=				Yes	\square	No	



Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations.

	orgins an	d destinations .	
	draw or insert map	of location being studied	
		bstruct sight of pedestrians. C	onsider using bump outs
Or having no parking in	n area of crossing.		
Sight Distance Calculations:		vhere:	defaults:
Stopping sight distance (SSD), ft = 1.47St + 1.07	_	= brake reaction time, s	2.5
Pedestrian sight distance (PedSD), ft = 1.47S(L		= deceleration rate, ft/s ²	11.2

S = design speed, mph

L = length of crossing, ft

where:

S_p = average pedestrian walking speed, ft/s

 t_s = pedestrian start-up and end clearance time, s

3.5



Location:	Crossing #4 - Lake Street at Midblock (E. of Mary) Date: Worthington, Minnesota Scenario:				9-Oct-20						
City, State:		Pedestrian Cros	rossing Analysis								
Reviewer(s):		Jal	ce Pilz		- Agency:		вм	I			
Project #:		0F1	122838		_ ID#:						
	The first step	mplet	ing a								
			review	of the location a	and adjacent	t facilities.					
	Crossing Len	gth: Measu	re the cros	sing distance fro	m curb to c	urb.	Crossing 1	3		ft.	
	Fill in Crossin	ıg 1 distanc	e if there is	no median. If th	nere is a me	dian at the	Crossing 2			ft.	
	crossing loca	tion, fill in (Crossing 1 a	and 2 distances.							
	Median: wid	th of media	n at crossir	ng location				()	ft.	
	Crossing Wid	l th: effectiv	e crosswall	k w idth				8	3	ft.	
	Raised Med	dian Availab	ole?						Yes	\checkmark	No
Ŋ	A	DA Complia	nt Median	Available (minim	num 4' x 4' la	anding)?			Yes	\checkmark	No
ţ	Curb Ramp	s Available i	?					\square	Yes		No
Geometrics	A	DA Complia	nt Curb Rai	mp Available (wi	(width, grades, truncated domes)?				Yes	\checkmark	No
eg G	Speed:				Posted or 85 th percentile speed 30				0	mph	
· ·	Roadway Cu	rvature and	l Sight Dist	ances:	Average wa	alking speed	l	3.	.5	ft/s	
	Is the cross	ing locatior	n within a h	orizontal or vert	ical curve?				Yes	\checkmark	No
	Equations to	calculate the	e following a	re located on the r	next page	_					
	Direction 1:	Stopping 9	Sight Distar	nce (SSD)	197	ft.	provided?		Yes		No
	Direction 2:	Stopping S	Sight Distar	nce (SSD)		ft.	provided?		Yes		No
	Direction 1:	Pedestriar	n Sight Dist	ance (PedSD)	573	ft.	provided?		Yes		No
	Direction 2:	Pedestriar	n Sight Dist	ance (PedSD)		ft.	provided?		Yes		No
Traffic and	Measure traf	fic and ped	estrian vol	ume in 15-minut	e increment	ts on the roa	adway to be cro	ossed.			
Pedestrian	Attach Counts				,	ped	estrians:		Daily		
Data	AM Peak	Hourly		Pk 15-min		Hourly		Pk 15	5-min		
Dutu	PM Peak	Hourly		Pk 15-min		Hourly		Pk 15	5-min		
	Lighting:										
	Is street lig	hting prese	nt and doe	s it light the cros	sswalk locati	ion?			Yes	\checkmark	No
	Crosswalk Pavement Markings: Is the pedestrian crossing currently marked?								Yes	✓	No
	What is the	condition	of the marl	kings?		Excellent	Good		Fair		Poor
<u>:8</u>		Are the m	arkings eas	ily defined?					Yes		No
rist		Do they n	eed replace	ement?					Yes		No
ŧ		What is th	ne crosswal	k marking patter	n?		Non	ie			
a ra	Signing:	Currently	signed at c	rosswalk?					Yes	☑	No
ಕ		Currently	signed in a	dvance of crossv	valk?		,		Yes	☑	No
Site		Distances'	?	direction 1	N/A	ft.	direction 2	N/	/A	ft.	
Additional Site Characteristics	Enhancemen	its:		ancements are c	urrentl y at		Non	ie			
ţi				ng location?							
gg	Adjacent Fac			o nearest marke	d crosswalk	?		N _i	/A	ft.	
<				are present			None				
	at the near	-									
				roundabout or s	_			14		ft.	
				same pedestriar	_			V	Yes		No
	L Could anot	her location	n cerve the	the movement i	more effecti	ively?			Ves		No



Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations.

	orgins an	d destinations .	
	draw or insert map	of location being studied	
		bstruct sight of pedestrians. C	onsider using bump outs
Or having no parking i	n area of crossing.		
Sight Distance Calculations:		vhere:	defaults:
Stopping sight distance (SSD), ft = 1.47St + 1.07	_	= brake reaction time, s	2.5
Pedestrian sight distance (PedSD), ft = 1.47S(L		= deceleration rate, ft/s ²	11.2

S = design speed, mph

L = length of crossing, ft

where:

S_p = average pedestrian walking speed, ft/s

 t_s = pedestrian start-up and end clearance time, s

3.5



ADA Compliant Median Available (minimum 4' x 4' landing)?	Location:	Crossir	ng #5 - Lake S	treet at 6th <mark>Av</mark> er	nue	Date:		9-Oct	:-20			
Project #: OF1122838 D#: The first step in understanding the pedestrian needs at a potential crossing location is completing a review of the location and adjacent facilities. Crossing Length: Measure the crossing distance from curb to curb. Crossing 1 32 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median at the Crossing 2 ft. Fill in Crossing 1 distance if there is no median at the Crossing 2 ft. Fi	City, State:	Worthington, Minnesota			Scenario: Pedestrian Cro			ossing Analysis				
The first step in understanding the pedestrian needs at a potential crossing location is completing a review of the location and adjacent facilities. Crossing Length: Measure the crossing distance from curb to curb. Crossing 1 32 ft.	Reviewer(s):		Jake	Pilz		Agency:		BN	11			
Traffic and Pedestrian Data Crossing Length: Measure the crossing distance from curb to curb. Crossing 1 32 ft.	Project #:	0F1122838 ID#:										
Crossing Length: Measure the crossing distance from curb to curb. Fill in Crossing 1 distance if there is no median. If there is a median at the crossing 2 crossing location, fill in Crossing 1 and 2 distances. Median: width of median at crossing location Crossing Width: effective crosswalk width Raised Median Available? ADA Compliant Median Available (minimum 4' x 4' landing)? ADA Compliant Median Available (minimum 4' x 4' landing)? ADA Compliant Curb Ramp Available (width, grades, truncated domes)? Speed: Roadway Curvature and Sight Distances: Roadway Curvature and Sight Distances: Average walking speed Bis the crossing location within a horizontal or vertical curve? Equations to calculate the following are located on the next page Direction 1: Stopping Sight Distance (SSD) Direction 2: Stopping Sight Distance (SSD) Direction 2: Pedestrian Sight Distance (PedSD) Direction 2: Pedestrian Sight Distance (PedSD) Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed. Traffic and Pedestrian Pake PM Peak Hourly Pk 15-min PM Peak Hourly Pk 15-min Ph Hourly Pk 15-min Ph Hourly Pk 15-min Pk 15-m		The first step in understanding the pedestrian needs at a potential crossing location is co										
Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2 crossing location, fill in Crossing 1 and 2 distances. Median: width of median at crossing location 0 ft.				review of the l	location a	nd adjacent	facilities.					
### Crossing location, fill in Crossing 1 and 2 distances. Median: width of median at crossing location 0 ft.		I							3	2	ft.	
Median: width of median at crossing location Crossing Width: effective crosswalk width Raised Median Available? Yes NADA Compliant Median Available (minimum 4' x 4' landing)? Yes NADA Compliant Median Available (minimum 4' x 4' landing)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Compliant Curb Ramp Available (width, grades, truncated domes)? Yes NADA Curb Ramp Available (width, grades, truncated domes)? Yes NADA Curb Ramp Available (width, grades, truncated domes)? Yes NADA Curb Ramp Available (width, grades, truncated domes)? Yes NADA Curb Ramp Available (width, grades, truncated domes)? Yes NADA Curb Ramp Available (width, grades, truncated domes)? Yes NADA Curb Ramp Available (width, grades, truncated domes)? Yes			0			ere is a med	lian at the	Crossing 2			ft.	
Crossing Width: effective crosswalk width Raised Median Available? ADA Compliant Median Available (minimum 4' x 4' landing)? Curb Ramps Available? ADA Compliant Curb Ramp Available (width, grades, truncated domes)? ADA Compliant Curb Ramp Available (width, grades, truncated domes)? Speed: Posted or 85 th percentile speed Roadway Curvature and Sight Distances: Average walking speed Bit he crossing location within a horizontal or vertical curve? Equations to calculate the following are located on the next page Direction 1: Stopping Sight Distance (SSD) Direction 2: Stopping Sight Distance (SSD) Direction 1: Pedestrian Sight Distance (PedSD) Direction 1: Pedestrian Sight Distance (PedSD) Traffic and Pedestrian Pota Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed. Attach Counts White Indianal Pota Indianal Indianal Pota Indianal Pota Indianal Indianal Pota Indianal Pota Indianal Indianal Indianal Indianal Ind												
Raised Median Available? ADA Compliant Median Available (minimum 4' x 4' landing)? Curb Ramps Available? ADA Compliant Curb Ramp Available (width, grades, truncated domes)? Speed: Roadway Curvature and Sight Distances: Is the crossing location within a horizontal or vertical curve? Equations to calculate the following are located on the next page Direction 1: Stopping Sight Distance (SSD) Direction 2: Stopping Sight Distance (PedSD) Direction 1: Pedestrian Sight Distance (PedSD) Direction 2: Pedestrian Sight Distance (PedSD) Traffic and Pedestrian Pata Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed. Attach Counts AM Peak Hourly Pk 15-min PM Peak Hourly Pk 15-min PM Peak Hourly Pk 15-min Hourly Pk 15-min Pk 15-mi				=								
ADA Compliant Median Available (minimum 4' x 4' landing)?		_							8		ft.	
Curb Ramps Available? ADA Compliant Curb Ramp Available (width, grades, truncated domes)? Speed: Posted or 85 th percentile speed Roadway Curvature and Sight Distances: Is the crossing location within a horizontal or vertical curve? Equations to calculate the following are located on the next page Direction 1: Stopping Sight Distance (SSD) Direction 2: Stopping Sight Distance (PedSD) Direction 1: Pedestrian Sight Distance (PedSD) Direction 2: Pedestrian Sight Distance (PedSD) Direction 2: Pedestrian Sight Distance (PedSD) Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed. Attach Counts Wheak Hourly Pk 15-min PM Peak Hourly Pk 15-min Fighting: Is street lighting present and does it light the crosswalk location? Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? Pccrosswalk Pavement Markings: Is the pedestrian crossing currently marked? Pccrosswalk Pavement Markings: Roadway Curvature and Sight Distance (width, grades, truncated domes)? Posted or 85 th percentile speed 30 mph ft/s N N N N N N Provided? Yes N N Attach Counts AM Peak Hourly Pk 15-min Hourly Pk 15-min Hourly Pk 15-min Posted or 85 th percentile speed 30 mph ft/s N N N Provided? Yes N N Attach Counts Attach Counts Attach Counts Attach Counts AM Peak Hourly Pk 15-min Hourly Pk 15-min Posted or 85 th percentile speed N N N Pk 15-min Hourly Pk 15-min Posted or 85 th percentile speed N N N N N Attach Counts Attach Counts Attach Counts Attach Counts N Attach Counts N Attach Counts Attach Counts N Attach Counts Attach Counts N Attach Counts At												No
Roadway Curvature and Sight Distances: Average walking speed 3.5 ft/s	8			: Median Availab	le (minim	um 4' x 4' la	ınding)?			Yes	V	No
Roadway Curvature and Sight Distances: Average walking speed 3.5 ft/s	ţŗ								☑			No
Roadway Curvature and Sight Distances: Average walking speed 3.5 ft/s	Ĕ		DA Compliant	: Curb Ramp Av a	ilable (wid			· ·		Yes	V	No
Is the crossing location within a horizontal or vertical curve? Equations to calculate the following are located on the next page Direction 1: Stopping Sight Distance (SSD)	ĕ											
Equations to calculate the following are located on the next page Direction 1: Stopping Sight Distance (SSD)											-	
Direction 1: Stopping Sight Distance (SSD) Direction 2: Stopping Sight Distance (SSD) Direction 1: Pedestrian Sight Distance (PedSD) Direction 2: Pedestrian Sight Distance (PedSD) Direction 2: Pedestrian Sight Distance (PedSD) Direction 2: Pedestrian Sight Distance (PedSD) Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed. Attach Counts AM Peak Hourly Pk 15-min PM Peak Hourly Pk 15-min Pk 15-min Hourly Pk 15-min Hourly Pk 15-min Pcrosswalk Pavement Markings: Is the pedestrian crossing currently marked? What is the condition of the markings? Direction 2: Stopping Sight Distance (SSD) ft. provided? Ft. provided? Ptes N N Pres N N N Pres N N Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? Pedestrian Podestrian: Pedestrian:										Yes	☑	No
Direction 2: Stopping Sight Distance (SSD) ft. provided? Yes NDirection 1: Pedestrian Sight Distance (PedSD) 536 ft. provided? Yes NDirection 2: Pedestrian Sight Distance (PedSD) ft. provided? Yes NDIRECTION YES NDIR				_	ı		I					
Direction 1: Pedestrian Sight Distance (PedSD) Direction 2: Pedestrian Sight Distance (PedSD) Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed. Attach Counts Attach Counts Wehicles: Daily Pk 15-min PM Peak Hourly Pk 15-min				-	-	197		· ·				No
Direction 2: Pedestrian Sight Distance (PedSD) ft. provided?				-	- 1			•				No
Traffic and Pedestrian Data Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed. Attach Counts vehicles: Daily pedestrians: Daily AM Peak Hourly Pk 15-min PM Peak Hourly Pk 15-min Lighting: Is street lighting present and does it light the crosswalk location? □ Yes ☑ N Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? □ Yes ☑ N What is the condition of the markings? □ Excellent □ Good □ Fair □ Poor					·	536		•	_			No
Pedestrian Data Attach Counts Vehicles: Daily Pk 15-min PM Peak Hourly Pk 15-min Pk 15-min Pk 15-min Hourly Pk 15-min Pk								•				No
AM Peak Hourly Pk 15-min Hourly Pk 15-min Pk 1	Traffic and		•		ı	e increment	1	=	ossed.			
PM Peak Hourly Pk 15-min Hourly Pk 15-min Lighting: Is street lighting present and does it light the crosswalk location?	Pedestrian				- 1		-		1 4			
Lighting: Is street lighting present and does it light the crosswalk location? □ Yes ☑ N Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? □ Yes ☑ N What is the condition of the markings? □ Excellent □ Good □ Fair □ Poor	Data		-				-		-	-		
Is street lighting present and does it light the crosswalk location? Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? What is the condition of the markings? Excellent Good Fair Pod			Hourly	H	k 15-min		Hourly		Pk 1:	5-min		
Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? ☐ Yes ☑ N What is the condition of the markings? ☐ Excellent ☐ Good ☐ Fair ☐ Pod							2		_	V	_	NI -
What is the condition of the markings? ☐ Excellent ☐ Good ☐ Fair ☐ Pool		1	•	J					_			No
											_	No
Do they need replacement? What is the crosswalk marking pattern? Signing: Currently signed at crosswalk? Currently signed in advance of crosswalk? Yes N Yes N Yes N Yes N Yes N		what is the			10	L	I Excellent	□ G000				
What is the crosswalk marking pattern? Signing: Currently signed at crosswalk? Currently signed in advance of crosswalk? Currently signed in advance of crosswalk? Currently signed in advance of crosswalk?	i t i											
Signing: Currently signed at crosswalk?	<u>.</u>					- n		N.L.		165		No
Currently signed in advance of crosswalk?	act	Simulum.				ır		NOI		Voc		No.
Currently signed in advance of crosswalk?	har	Signing:	-	_		درالدی			_			
Distances? direction 1 N/A ft. direction 2 N/A ft.	0						_{f+}	direction 2				NO
Distances? direction 1 N/A ft. direction 2 N/A ft.	<u>S</u> :	Enhancemen			ı		IL.			/A	IL.	
the crossing location?	na l	Enhancements: What enhancements are currently at Non						ie				
Adjacent Facilities: Distance to nearest marked crosswalk? N/A ft.	≝	the crossing location?					N	/ A				
What pedestrian control devices are present None	Ado	-			Ī	i CiOSSWaik!		None	IN	A	π.	
at the nearest adjacent marked crosswalk?				•				None				
Distance to nearest all-way stop, roundabout or signalized intersection 370 ft.						analized int	ersection		2-	70	f+	
												No
				•		=						No



Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations.

draw	or insert map of location being studied	
Notes:		
Sight Distance Calculations:	where:	defaults:
Stopping sight distance (SSD), ft = 1.47 St + 1.075 S ² /a	t = brake reaction time. s	2.5

Sight Distance Calcu	lations:	where:	defaults:
Stopping sight distance (SSI	D), ft = 1.47St + 1.075S ² /a	t = brake reaction time, s	2.5
Pedestrian sight distance (F	PedSD), ft = 1.47S(L / $S_p + t_s$)	a = deceleration rate, ft/s ²	11.2
		S_p = average pedestrian walking speed, ft/s	3.5
where:	S = design speed, mph	$t_{\scriptscriptstyle S}$ = pedestrian start-up and end clearance time, s	3.0
	L = length of crossing, ft		



Location:	Crossing #6 - Lake Street at 5th Avenue Date: 9-Oct					t-20					
City, State:	Worthington, Minnesota				Scenario:	Scenario: Pedestrian Crossing Analysis					
Reviewer(s):	Jake Pilz Agency: B						BN	11			
Project #:											
	The first step in understanding the pedestrian needs at a potential crossing location is completing a										
	review of the location and adjacent facilities.										
	Crossing Len	gth: Measu	re the cross	sing distance fr	om curb to cu	urb.	Crossing 1	3	4	ft.	
	Fill in Crossin	ng 1 distanc	e if there is	no median. If	there is a med	dian at the	Crossing 2			ft.	
	crossing loca	tion, fill in (Crossing 1 a	and 2 distances							
	Median: widt	th of media	n at crossir	ng location				(ft.	
	Crossing Wid	lth: effectiv	e crosswall	c w idth				3	3	ft.	
	Raised Med	dian Availab	ole?						Yes	☑	No
S	A[D A Complia	nt Median	Available (mini	mum 4' x 4' la	anding)?			Yes	☑	No
ţri	Curb Ramp							☑	Yes		No
Geometrics	A[D A Complia	nt Curb Rar	np Available (w					Yes	☑	No
Je G	Speed: Posted or 85 th percentile speed									mph	
	Roadway Cu		=		Average walking speed 3.5					ft/s	
		_		orizontal or v e					Yes	V	No
			_	re located on the		1					
	Direction 1:		Sight Distan	•	197	ft.	provided?		Yes		No
	Direction 2:		Sight Distar			ft.	provided?		Yes		No
	Direction 1:		_	ance (PedSD)	561	ft.	provided?		Yes		No
	Direction 2:		_	ance (PedSD)		ft.	provided?		Yes		No
Traffic and	Measure traffic and pedestrian volume in 15-minute increments on the roadway to be cro Attach Counts vehicles: Daily pedestrians:						ossed.				
Pedestrian	Attach Counts			Dai	•	-	estrians:	1	Daily		
Data	AM Peak	Hourly		Pk 15-mi		Hourly		-	5-min		
	PM Peak	Hourly		Pk 15-mi	n	Hourly		Pk 1	5-min		
	Lighting: Is street lighting present and does it light the crosswalk location?							_		_	
	_			_					Yes	☑	No
	Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? What is the condition of the markings? □ Excellent □ Good								Yes		No
	vvnat is the			•] Excellent	□ Good		Fair		Poor
<u>‡</u>			_	ily defined?					Yes		No
eri:			eed replace		3		N.I		Yes		No
act	Cii			k marking patte	ernr		Nor				
har	Signing:	•	signed at ci						Yes		No
O O		Distances i		dvance of cross direction 1] £ £	direction 2		Yes	☑ ft.	No
Sit	Enhancemen					ft.			/A	IL.	
Additional Site Characteristics	Enhancements: What enhancements are currently at Nor						ie				
i <u>ë</u>	the crossing location? Adjacent Facilities: Distance to nearest marked crosswalk?						NI.	/A	ft.		
Ado	-				ed Closswalk	<u> </u>	None	IN	А	π.	
	at the near			are present			NOHE				
		-		rosswaik r roundabout or	cignalized int	ersection		2-	70	ft.	
				same pedestria	_			<u> </u>	Yes	т	No
				the movement	=				Yes		No
										_	

Developed by Bolton & Menk, Inc. in coordination with the Local Road Research Board. Worksheets made without charge and under no circumstances shall be sold by third parties for profit.

No



Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations.

draw	or insert map of location being studied	
Notes:		
		_
Sight Distance Calculations:	where:	defaults:
Stopping sight distance (SSD), ft = 1.47 St + 1.075 S ² /a	t = brake reaction time, s	2.5

Sight Distance Calcu	lations:	where:	defaults:
Stopping sight distance (SSI	D), ft = 1.47St + 1.075S ² /a	t = brake reaction time, s	2.5
Pedestrian sight distance (PedSD), ft = 1.47S(L / $S_p + t_s$)		a = deceleration rate, ft/s ²	11.2
		S_p = average pedestrian walking speed, ft/s	3.5
where:	S = design speed, mph	$\mathbf{t}_{\scriptscriptstyle S}$ = pedestrian start-up and end clearance time, s	3.0
	L = length of crossing, ft		



Location:	Crossir	ng #7 - Lake S	Street at 4th A	v enue	e Date: 9-Oc		t-20				
City, State:		Worthington, Minnesota Scenario:					Pedestrian Crossing Analysis				
Reviewer(s):		Jake Pilz Agency: BMI					۷I				
Project #:		0F11	22838		_ ID#:						
	The first step	o in understa	anding the peo	lestrian need	ds at a poter	ntial crossin	g location is co	omplet	ing a		
			review of tl	ne location a	ınd adjacent	facilities.					
	Crossing Len	gth: Measure	e the crossing	distance fro	m curb to cu	ırb.	Crossing 1	3	34	ft.	
	Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2									ft.	
	crossing location, fill in Crossing 1 and 2 distances.										
	Median: width of median at crossing location							(ft.	
	Crossing Wid	l th: effective	crosswalk wid	dth				8	8	ft.	
	Raised Med	dian Av ailable	e?						Yes	\square	No
g	A	DA Complian	it Median Avai	lable (minim	num 4' x 4' la	anding)?			Yes	☑	No
Ţ.	Curb Ramp	s Available?						\square	Yes		No
Geometrics	A[DA Complian	it Curb Ramp A	wailable (wid			· ·		Yes	☑	No
) G	Speed:				Posted or 8	35 th percent	ile speed	3		mph	
_	-		Sight Distance		Average wa	alking speed	d	3.		ft/s	
		_	within a horiz						Yes	V	No
	· .		following are lo		ext page	1					
	Direction 1:		ight Distance (<u> </u>	197	ft.	provided?		Yes		No
	Direction 2:		ight Distance (ft.	provided?		Yes		No
	Direction 1:		Sight Distance	•	561	ft.	provided?		Yes		No
	1		Sight Distance			ft.	provided?		Yes		No
Traffic and	Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed.										
Pedestrian	Attach Counts		icles:	Daily		-	lestrians:	1 .	Daily		
Data	AM Peak	Hourly		Pk 15-min		Hourly		-	5-min		
	PM Peak	Hourly		Pk 15-min		Hourly	1	Pk 1:	5-min		
	Lighting:					_			.,	_	
	_		it and does it l	_					Yes	◪	No
	Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? What is the condition of the markings? Excellent Good						Yes	☑	No		
	What is the] Excellent	t 🛚 Good		Fair		Poor
tis			rkings easily d						Yes		No
is		Do they need replacement?						Yes		No	
ğ	l		e crosswalk ma	= -	n?		Nor				
a	Signing:	=	igned at cross						Yes	☑	No
5			igned in advar			l a.			Yes	☑	No
Sit	l	Distances?		direction 1	N/A	ft.	direction 2		/A	ft.	
Additional Site Characteristics	Enhancemen		What enhance		urrently at		Nor	ne			
急			the crossing lo					N.I.	1.6	C)	
ррү	Adjacent Fac		Distance to ne		d crosswalk:	,	NI	N,	/A	ft.	
~	1		ol devices are				None				
			marked cross					2-	70	ft.	
			way stop, rour								NI.
			serve the sam	-	=			☑ ☑	Yes Yes		No No
	Could another location serve the the movement more effectively?						لكا	162		No	



Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations.

draw	or insert map of location being studied	
Notes:		
		_
Sight Distance Calculations:	where:	defaults:
Stopping sight distance (SSD), ft = 1.47 St + 1.075 S ² /a	t = brake reaction time, s	2.5

Sight Distance Calcu	lations:	where:	defaults:
Stopping sight distance (SSI	D), ft = 1.47St + 1.075S ² /a	t = brake reaction time, s	2.5
Pedestrian sight distance (PedSD), ft = 1.47S(L / $S_p + t_s$)		a = deceleration rate, ft/s ²	11.2
		S_p = average pedestrian walking speed, ft/s	3.5
where:	S = design speed, mph	$\mathbf{t}_{\scriptscriptstyle S}$ = pedestrian start-up and end clearance time, s	3.0
	L = length of crossing, ft		



Location:	Crossing #8 - Lake Street at 3rd Avenue Dat			_Date: 9-Oct-20							
City, State:	Worthington, Minnesota				Scenario:		ssing Analysis				
Reviewer(s):	Jake Pilz			- Agency:		BN	/ 11				
Project #:		OF:	1122838		ID#:						
	The first step	o in under	standing the p	edestrian need	ds at a poter	ntial crossir	ng location is co	omplet	ing a		
			review of	the location a	and adjacent	facilities.					
	Crossing Len	gth: Measi	ure the crossir	ng distance fro	m curb to cu	urb.	Crossing 1	3	5	ft.	
	Fill in Crossing 1 distance if there is no median. If there is a median at the Crossing 2								1	ft.	
	crossing location, fill in Crossing 1 and 2 distances.										
	Median: width of median at crossing location) 1	ft.	
	Crossing Width: effective crosswalk width								3	ft.	
	Raised Med	alian Availa	ıble?						Yes	\checkmark	No
γı	IA AI	DA Compli	ant Median Av	ailable (minim	num 4' x 4' la	anding)?			Yes	☑	No
ţ	Curb Ramp	s Available	<u></u> ?					☑	Yes		No
E E	IA AI	DA Compli	ant Curb Ramp	Available (wi			·		Yes	\blacksquare	No
Geometrics	Speed:				Posted or 8	35 th percen [.]	tile speed	3	0 1	mph	
O	Roadway Cur	rvature an	nd Sight Distan	ces:	Average wa	alking speed	d	3.	5	ft/s	
	Is the cross	ing locatio	on within a hor	izontal or <mark>v</mark> ert	ical curve?				Yes	\blacksquare	No
	Equations to calculate the following are located on the next page										
	Direction 1:	Stopping	Sight Distance	(SSD)	197	ft.	provided?		Yes		No
	Direction 2:	Stopping	Sight Distance	(SSD)		ft.	provided?		Yes		No
	Direction 1:	Pedestria	an Sight Distan	ce (PedSD)	573	ft.	provided?		Yes		No
	Direction 2:	Pedestria	an Sight Distan	ce (PedSD)		ft.	provided?		Yes		No
Traffic and	Measure traf	fic and pe	destrian <mark>v</mark> olum	ne in 15-minut	e increment	s on the ro	adway to be cr	ossed.	_		
Pedestrian	Attach Counts vehicles: Daily pedestrians:			_	Daily						
Data	AM Peak	Hourly	У	Pk 15-min		Hourly	/	Pk 15	5-min		
	PM Peak	Hourl	у	Pk 15-min		Hourly	1	Pk 15	5-min		
	Lighting:										
	Is street lighting present and does it light the crosswalk location?							Yes	V	No	
	Crosswalk Pavement Markings: Is the pedestrian crossing currently marked?							Yes	☑	No	
	What is the		of the markin	_		I Excellen	t 🗖 Good		Fair		Poor
<u>:</u>			narkings easil y						Yes		No
is is	Do they need replacement?						Yes		No		
ğ			he crosswalk r	= -	n?		Noi				
arg	Signing:	_	signed at cros						Yes	<u> </u>	No
<u>5</u>		-	signed in adv] e.			Yes	. •	No
Sit	Distances? direction 1 N/A ft. direction 2					N/A ft.					
Additional Site Characteristics	Enhancemen	its:		cements are co	urrently at		Noi	ne			
遑	the crossing location? Adjacent Facilities: Distance to nearest marked crosswalk?				NI.	/ A	ft.				
Add	Adjacent Fac				d crosswaik:	<u>r </u>	None	IN	/A	rt.	
			trol devices are nt marked cros				None				
		=	II-way stop, ro		ignalized int	ersection		30	30	ft.	
			on serve the sa					<u>✓</u>	Yes	ιτ. 	No
			on serve the sa on serve the th	-	=				Yes		No
		100411	,,,							_	



Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations.

	ht distance (SSD), ft = 1.47St + 1.075S ² /a	t = brake reaction time, s	2.5
SIGHT DISI	ianice calculations.	wiicie.	defaults:
Sight Dict	tance Calculations:	where:	. مقاد د کامار
Notes:	Tree may hider sight of pedestrian		
	uraw or mis	ert map of location being studied	
	uraw or iris	ert map of location being studied	

Page	2	of	2
uge	_	0.	_

S = design speed, mph

L = length of crossing, ft

where:

S_p = average pedestrian walking speed, ft/s

 t_s = pedestrian start-up and end clearance time, s

3.5