Study Date: November 1, 2016 AM / November 16, 2016 PM

April 26, 2017 AM / April 18, 2017 PM

SCHOOL CROSSING ANALYSIS
City of Madison
Department of Transportation
Traffic Engineering Division

School Midvale – Hamilton – Van Hise - QP

Crossing Location Midvale + Mineral Point

Elementary School Children Crossing Midvale, N Leg

			POINTS a.m.	POINTS p.m.
1) Number of elementary students crossing			1	0
a.m. peak hour (7:00 to 8:15) 1	number	points		
	1 - 5	1		
p.m. peak hour (2:40 to 3:55) 0	6 - 9	2		
	10 - 14	3		
School Schedule 8:30am-3:22pm	15 - 19	4		
	20 - 24	5		
	25 - 29	6		
	30 - 34	10		
	35 - 39	15		
	40 - 49	20		
	50 - 74	30		
	75 – 99	35		
2) Gap Availability			24	16
crossing distance = 50 **feet**	% safe gap time	points		
	80 +	0		
	70 - 79	4		
minimum safe crossing time = 17 **seconds**	60 - 69	8		
	55 - 59	12		
	50 - 54	16		
	45 - 49	20		
	40 - 44	24		
	30 - 39	28		
	20 - 29	32		
	0 - 20	36		
% safe crossing time = 44 **% a.m.**	• Signalized intersection.			
52 **% p.m.**	• Safe gap during Walk and distance half of roadway.			
3) Motor Vehicle Speed			1	1
85th percentile speed = 25 **mph a.m.**	mph	points		
	< = 20	0		
	21 - 25	1		
	26 - 30	2		
25 **mph p.m.**	31 - 35	4		
	36 - 40	7		
	41 - 45	11		
	46 +	15		
4) Sight Distance			0	0
available sight distance: _____ **feet** _____ **bound**	design stopping distance 85th %ile speed	feet		
	< = 25 mph	155		
	26 - 30 mph	200		
_____ **feet** _____ **bound**	31 - 35 mph	250		
	36 - 40 mph	305		
	41 - 45 mph	360		
	46 + mph	425		
ratio: available sight distance / design stopping distance				
	ratio	points		
_____ **feet** _____ **bound**	2.1 +	0		
	1.5 - 2.0	1		
_____ **feet** _____ **bound**	1.0 - 1.5	5		
	< 1.0	15		
5) Safety History - Previous Five Years			0	0
a) Number of reported crashes at study location involving elementary school children going to or coming from school.	crashes	points		
	0	0		
	1	8		
0 **reported crashes**	each add'l	20		
b) Reported crashed not involving children going to or coming from school, but of types and/or at times that could conflict with school crossing at this location.			4	5
		points		
4 **reported crashes. Type:** Rear End 3AM 1PM		0 - 5		
4 **reported crashes. Type:** Left Turn 1AM 3PM		0 - 5		
1 **reported crashes. Type:** Angle 1PM		0 - 5		
6) Other Factors		points		
Foreign traffic route.		0 to +5	5	5
For each approach in excess of four.		+5		
For complex signal or crossing design.		+5 to +10		
For simple signal or crossing design.		-5 to -10		
Safer crossing one block out of the way.		-10		
Large percentage of grades K and 1 students (over 40%).		0 to +5		
An intersection of two arterial streets where total weekday traffic approach volume exceeds 25,000 vehicles.		+4	4	4
Children crossing multiple crosswalks at an intersection.		0 to +10		
Stopped buses and/or other obstructions.		0 to +5		
Volume of turning traffic not reflected in gap availability.		0 to +5		
Observations of the percent and types of trucks during the times when students are using the crossing				
TOTAL HAZARD RATING			39	31

Interpretation of Hazard Rating

Using the hazard rating as a guide, the following measures are appropriate:

1. **Mark as a school crossing** when the hazard rating is greater than 20 points at a crossing used by at least 25 elementary school students during the peak crossing hour. The Traffic Engineer is authorized to mark such a crossing with appropriate warning signs and special crosswalk markings.

2. **Install flashing beacons** if any one of the following conditions is met:

a. The 85th percentile speed is in excess of 40 mph measured at existing school crossing signs which have been in place at least 30 days.

b. The street crossed is a U.S. or State Trunk Highway on which a significant percentage of "foreign " drivers can be expected.

c. The ratio of sight distance to safe stopping distance is less than 1.5.

d. The hazard rating is greater than 30 at an unguarded location where at least 25 elementary students cross and the available safe crossing gaps are less than 50 percent.

3. **Recommend the assignment of an adult school crossing guard** when the hazard rating is greater than 40 points at a crossing used by at least 25 elementary school students during the peak crossing hour.

If the school has only grades K through 2, recommend the assignment of an adult school crossing guard in the hazard rating is greater than 30 points at a crossing used by at least 15 elementary school students during the peak crossing hour.

4. **Recommend the discontinuance of adult school crossing guard protection** at a crossing where the hazard rating falls below 30 points or if the number of elementary school students crossing during the peak hour in less than 15.

At the intersection of two arterial streets where the total weekday entering traffic volume exceed 25,000 vehicles, the total number of students crossing at the intersection will be used to compare to the minimum of 15 students required to retain an adult school crossing guard.

Remarks/Recommendations

- Refuge islands on S Midvale Blvd.
- Safe gaps above 44% during peak hours.
- Signalized and 'No Right Turns on Red' intersection.
- Safe gaps calculated during Mineral Point Rd Green Time/Midvale Walk phase. Distance used is half of roadway per criteria.
- High amount of crashes in this intersection during school crossing hours.
- No elementary school students but 22 out of 32 possible middle school students who live in the area served by this crossing walked and used the crossing guard. 69%

Recommend discontinuance of Adult School Crossing Guard since this location does not meet the criteria for minimum number of elementary students.

by Gretchen M. Avilés Piñeiro **Date** May 11th, 2017