

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

School Marquette Elementary School

Crossing Location Williamson Street at Thornton Avenue

Elementary School Children Crossing Williamson

					POINTS	
					a.m.	p.m.
1) Number of elementary students crossing	<u>number</u>	<u>points</u>	<u>number</u>	<u>points</u>		
	0 - 19	0	50 - 74	20		
a.m. peak hour (7:00 to 7:45) <u>61</u>	20 - 29	4	75 - 99	24	20	
	30 - 34	8	100-124	28		
p.m. peak hour (to) _____	35 - 39	12	125-149	32		
* includes both elementary and middle school students	40 - 49	16	150+	36		
2) Gap Availability						
	<u>% safe</u>		<u>% safe</u>			
crossing distance = <u>42</u> feet	<u>gap time</u>	<u>points</u>	<u>gap time</u>	<u>points</u>		
	80 +	0	45 - 49	20		
	70 - 79	4	40 - 44	24		
minimum safe crossing time = <u>14</u> seconds	60 - 69	8	30 - 39	28	32	
	55 - 59	12	20 - 29	32		
	50 - 54	16	0 - 20	36		
% safe crossing time = <u>21.1</u> % a.m.						
_____ % p.m.						
3) Motor Vehicle Speed	<u>mph</u>	<u>points</u>	<u>mph</u>	<u>points</u>		
85th percentile speed = <u>est 26 - 30</u> mph a.m.	0 - 25	0	36 - 40	6	2	
	26 - 30	2	41 - 45	8		
<u>est 26 - 30</u> mph p.m.	31 - 35	4	46 +	10		
4) Sight Distance			<u>design 85th %ile speed</u>	<u>stopping distance feet</u>		
available sight distance: _____ feet _____ bound			25 - 30 mph	200		
_____ feet _____ bound			31 - 35 mph	240		
			36 - 40 mph	275		
ratio: available sight distance / design stopping distance			41 - 45 mph	310		
			46 + mph	350		
			<u>ratio</u>	<u>points</u>		
_____ feet _____ bound			2.1 +	0		
_____ feet _____ bound			1.5 - 2.0	1		
			1.0 - 1.5	5		
			< 1.0	15		
5) Safety History - Previous Five Years						
a) Number of reported crashes at study location involving elementary school children going to or coming from school.			<u>crashes</u>	<u>points</u>		
			0	0	0	
			1	5		
<u>None</u> 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.				<u>points</u>		
<u>3 in 5 years</u> reported crashes. Type: <u>Rear ends when a driver in front stops in traffic</u>				0 - 5	1	
_____ reported crashes. Type: _____				0 - 5		
_____ reported crashes. Type: _____				0 - 5		
6) Other Factors				<u>points</u>		
Foreign traffic route.				0 to +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	-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		
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		
TOTAL HAZARD RATING					50	

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

- Marquette has students in grades 3 – 5 only. Grades PK – 2 attend Lapham Elementary School.
- All 3 – 5 students north of Williamson Street to Lake Mendota attend Marquette and O’Keeffe.
- The Yahara River Path has made it easy and desirable for Marquette and O’Keeffe students living north of East Washington Ave. to walk, scooter, bike or unicycle to school.
- Thornton Avenue directly connects the Yahara River Path with Williamson Street.
- There are traffic signals for crossing Williamson 350 feet west of Thornton at Rogers and 230 feet east at Riverside/Capital City Path. For Marquette Elementary students, crossing at Rogers would not add any distance to their walk to school. The Marquette’s entrance is on Jenifer at Rogers. For O’Keeffe students, crossing at Riverside with the signal instead of at Thornton would add about 450 feet to their trip to school
- Count includes both elementary and middle school students.
 - Marquette Elementary and O’Keeffe Middle schools are the only paired schools that start and dismiss at approximately the same times. Marquette starts at 7:45 am while O’Keeffe starts at 7:35 am. Marquette dismisses at 2:37 pm and O’Keeffe at 2:47 pm. Thus while the School Crossing Protection Criteria technically only considers the number of elementary school aged students using a crossing, both elementary and middle school students are included in this study as it is difficult to count them separately.

Recommendations

Recommend assignment of an Adult School Crossing Guard. Even though the number of students used in the study includes both elementary and middle school students, the criteria are likely to still be met if it were possible to differentiate between them.

by Arthur Ross

Date October 22, 2014



Yahara River Path

Capital City Path

**Jenifer Street
Ped/Bike Bridge**

**Marquette Elementary and
O'Keeffe Middle Schools**

