

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

School Leopold Elementary School

Crossing Location Post Road at Leopold Way

Elementary School Children Crossing Post Road, west leg marked crosswalk

					POINTS	
					a.m.	p.m.
1) Number of elementary students crossing	<u>number</u>	<u>points</u>	<u>number</u>	<u>points</u>		
a.m. peak hour (7:00 to 7:45) <u>22</u>	0 - 19	0	50 - 74	20	4	
am – an additional 3 students crossed Leopold Way	20 - 29	4	75 - 99	24		
p.m. peak hour (2:00 to 3:00) <u>18</u>	30 - 34	8	100-124	28		4
pm – an additional 11 students crossed Leopold Way	35 - 39	12	125-149	32		
	40 - 49	16	150+	36		
2) Gap Availability						
	<u>% safe</u>		<u>% safe</u>			
crossing distance = <u>44</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>15</u> seconds	60 - 69	8	30 - 39	28		
	55 - 59	12	20 - 29	32		
	50 - 54	16	0 - 20	36		
% safe crossing time = <u>32.4</u> % a.m. average 7:15 – 7:45					36	
am – 18% during the 15 minute period when most students were crossing						24
<u>51</u> % p.m. average 2:00 – 3:00						
pm – 40% during the 15 minute period when most students were crossing						
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		2
4) Sight Distance			<u>design stopping distance</u>			
available sight distance: <u>300 feet</u> eastbound			<u>85th %ile speed</u>	<u>feet</u>		
			25 - 30 mph	200		
<u>1,100 feet +</u> westbound			31 - 35 mph	240		
			36 - 40 mph	275		
			41 - 45 mph	310		
			46 + mph	350		
ratio: available sight distance / design stopping distance			<u>ratio</u>	<u>points</u>		
<u>1.25</u> eastbound			2.1 +	0		
			1.5 - 2.0	1		
<u>4.6 minimum</u> westbound			1.0 - 1.5	5	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		
<u>0</u> reported crashes			1	5		
			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>0</u> reported crashes. Type: _____				0 - 5	0	0
_____ reported crashes. Type: _____				0 - 5		
_____ reported crashes. Type: _____				0 - 5		
6) Other Factors				<u>points</u>		
Foreign traffic route.				0 to +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. - - ASCG 400 feet west in front of school				-10	-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					37	25

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

Morning count notes

- All but 6 (16 of 22) of the students crossing Post Road in the morning were accompanied by an adult
- 2 of the 3 students crossing Leopold Way were accompanied by an adult
- Many of the adults crossed back to cars parked either on Leopold Way or on the south side of Post Road west of Leopold Way after going into the school/school grounds with their children.

Afternoon count notes

- All but 2 of the students crossing Post Road in the afternoon were accompanied by an adult.
- At least 9 of the 16 students accompanied by an adult in the afternoon walked to a car parked either on Leopold Way or on the south side of Post Road west of Leopold Way.
- 4 of the additional 11 students who crossed Leopold Way westbound in the afternoon were accompanied by an adult

Sight distance notes

- Speed Study done 3/21/2011 on the 2600 block between Traceway and Leopold Way.
- Posted Speed is 30 MPH or 20 MPH when children present in the school zone.
- 85th percentile speed was 33 mph. Average speed was 28 mph. Sample size was 5,878 vehicles.

Recommendation

No Change is recommended. Recommend that all Leopold Elementary school students, and their parents, cross Post Road with the existing Adult School Crossing Guard assigned 400 feet east of Leopold Way at the front of the school. This is consistent with the school's published Traffic Safety Plan, see attached.

by Arthur Ross, Pedestrian-Bicycle Coordinator

Date 10/17/2011