

PEDESTRIAN STUDY
INTERSECTION OF STATE ROUTE 76 & MELROSE DRIVE
MISSION VISTA HIGH SCHOOL
OCEANSIDE

Prepared for
VISTA UNIFIED SCHOOL DISTRICT
&
THE PLANNING CENTER

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I. INTRODUCTION AND STUDY OBJECTIVES

Mission Vista High School is a relatively new school located on the northeast corner of the intersection of State Route 76 (SR 76) and Melrose Drive in Oceanside. All vehicular and pedestrian traffic must use the segment of Melrose Drive north of SR 76 as the access route to and from the school. The school's access driveways are located on the east side of Melrose Drive north of SR 76.

As Melrose Drive is the sole access route to the school site, virtually all of the school-related traffic passes through the intersection of Melrose Drive and SR 76 (except for an occasional trip to and from the neighborhood immediately west of the school site on the west side of Melrose Drive north of SR 76). This scenario results in a heavy concentration of traffic at this intersection at the beginning and ending of each school session. In addition to the vehicular traffic that passes through the intersection, pedestrians that originate from the area south of SR 76 must cross the street at this intersection while walking to and from the school. The objective of the study was to monitor the pedestrian activity at the intersection and evaluate the current traffic and pedestrian conditions relative to operations and safety.

To establish the existing conditions at the intersection of Melrose Drive and SR 76, traffic and pedestrian counts were taken during the morning and afternoon peak periods for the school. This information was used to determine the levels of service at the intersection. In addition, staff representatives at the City of Oceanside and Caltrans were contacted to obtain information regarding the operation of the intersection and the pedestrian-related safety issues.

II.
OBSERVED TRAFFIC AND PEDESTRIAN CONDITIONS

Pedestrian Counts

Pedestrian counts were taken at the intersection of SR 76 and Melrose Drive to quantify the number of pedestrians that currently walk to and from the school at the beginning and ending of a typical school day. The morning pedestrian counts were taken from 6:30 to 8:00 a.m. and the afternoon pedestrian counts were taken from 2:15 to 3:30 p.m. on Thursday, January 24, 2013. The school start time on the day of the pedestrian counts was 7:30 a.m. and the school dismissal time was 2:43 p.m. The results of the pedestrian counts are shown in Table 1.

Table 1					
Pedestrian Counts – Intersection of SR 76 & Melrose Drive					
Time of Day	East Leg	West Leg	South Leg	North Leg	Total
AM PEAK HOUR					
6:30 – 6:45	0	0	0	0	0
6:45 – 7:00	1	2	0	1	4
7:00 – 7:15	10	2	2	1	15
7:15 – 7:30	11	2	0	0	13
7:30 – 7:45	0	0	1	0	1
7:45 – 8:00	0	0	0	0	0
Total	22	6	3	2	33
PM PEAK HOUR					
2:15 – 2:30	0	0	0	0	0
2:30 - 2:45	0	0	1	0	1
2:45 - 3:00	6	30	2	1	39
3:00 - 3:15	2	7	0	0	9
3:15 - 3:30	2	0	2	0	4
Total	10	37	5	1	53

Table 1 indicates that there were 33 pedestrian crossings during the morning peak period and 53 pedestrian crossings during the afternoon peak period. Some of the individual pedestrians were counted twice in this tally if they crossed SR 76 in the north-south direction and also crossed Melrose Drive in the east-west direction. Most of the pedestrian crossings occurred between 7:00 and 7:30 a.m. and between 2:45 and 3:15 p.m.

Traffic Counts

Traffic counts were taken at the intersection of SR 76 and Melrose Drive to quantify the number of vehicles that currently pass through the intersection at the beginning and ending of a typical school day. The morning traffic counts were taken from 6:30 to 8:00 a.m. and the afternoon pedestrian counts were taken from 2:15 to 3:30 p.m. on Thursday, January 24, 2013. The peak hour traffic counts are shown in Table 2. The numbers shown in the table represent the peak one-hour interval of traffic flow within each data collection period.

Table 2												
Traffic Counts – Intersection of SR 76 & Melrose Drive												
Time of Day	Northbound			Southbound			Eastbound			Westbound		
	Lft	Thru	Rt	Lft	Thru	Rt	Lft	Thru	Rt	Lft	Thru	Rt
AM PEAK HOUR												
6:45-7:45	391	78	109	130	53	321	651	576	236	114	1027	150
PM PEAK HOUR												
2:30-3:30	289	19	49	126	32	349	303	987	281	90	540	64

The traffic volumes shown in Table 2 indicate that there is a heavy traffic flow to and from the west on SR 76, as indicated by an eastbound left turn volume of 651 vehicles during the morning peak hour and a southbound right turn volume of 349 vehicles during the afternoon peak hour.

Level of Service Analysis

A level of service analysis was conducted to establish the existing conditions at the intersection of SR 76 and Melrose Drive. Level of service (LOS) is a representation of the traffic conditions at an intersection as determined by the average amount of delay per vehicle that passes through the intersection. Level of service is measured from LOS A, which is characteristic of low traffic volumes and no delays, through LOS F, which is characteristic of heavy traffic volumes and extreme delays. The levels of service at the intersection of SR 76 and Melrose Drive are shown in Table 3.

Table 3	
Levels of Service - Intersection of SR 76 & Melrose Drive	
Scenario	Average Vehicle Delay & LOS
AM PEAK HOUR	
Current Conditions with School Pedestrians	31.7 – C
Theoretical Conditions without Pedestrians	31.5 – C
PM PEAK HOUR	
Current Conditions with School Pedestrians	22.3 – C
Theoretical Conditions without Pedestrians	21.8 – C

Table 3 indicates that the intersection operates at LOS C during the morning and afternoon peak periods for the current conditions where pedestrians are crossing the street while walking to and from the school. Level of service C represents acceptable traffic conditions. The levels of service were also calculated for a theoretical scenario where there would be no pedestrians crossing the street at this intersection. For the morning peak hour, the average vehicle delay level would decrease from 31.7 seconds to 31.5 seconds, which is a decrease of 0.2 seconds per vehicle. For the afternoon peak hour, the average delay level would decrease from 22.3 seconds

to 21.8 seconds, which is a decrease of 0.5 seconds per vehicle. The levels of service would remain at LOS C for all scenarios.

The conclusion of the level of service analysis is that the school-related pedestrians do not significantly impact the operation of the intersection because they result in a minor increase in average vehicular delay at the intersection during the peak hours; i.e., an increase of 0.2 seconds per vehicle during the morning peak hour and 0.5 seconds per vehicle during the afternoon peak hour.

Pedestrian Waiting Locations

It was observed that pedestrians waiting to cross SR 76 typically congregated at the southeast and southwest corners of the intersection during the morning arrival periods and at the northeast and northwest corners of the intersection during the afternoon departure periods. As the majority of the students crossed SR 76 on the east side of the intersection during the morning peak period, the largest concentration of pedestrians was on the southeast corner of the intersection during the morning. As the majority of the students crossed SR 76 on the west side of the intersection during the afternoon peak period, the largest concentration of pedestrians was on the northwest corner of the intersection during the afternoon.

During the times that were monitored, the maximum number of pedestrians assembled at the corner of the intersection waiting to cross the street was 10 people during the morning peak hour and 12 people during the afternoon peak hour. As the sidewalk and landing areas at each corner are sufficiently sized to accommodate the waiting pedestrians, no capacity deficiencies or safety issues were observed relative to the pedestrian crossing activities.

III. DISCUSSIONS WITH PUBLIC AGENCIES

Staff representatives at the City of Oceanside and Caltrans were contacted to obtain information regarding the operation of the intersection and the pedestrian-related safety issues. The City of Oceanside representative (Teala Cotter – Public Works Department, Engineering) provided the following information.

- When the school first opened, the vehicular traffic access patterns were unorganized and inefficient during the peak arrival and departure times. A one-way in and one-way out system was subsequently established, which greatly improved the flow of traffic and facilitated traffic circulation at the school during peak periods.
- The pedestrians that cross SR 76 on the west leg of the intersection conflict with the vehicular traffic that is turning right (west) from southbound Melrose Drive while exiting the school site. These conflicts result in safety risks and reduce the capacity of the right-turning movement, which is the primary movement for vehicles exiting the school site.
- The City would like to discourage or eliminate pedestrian crossings on the west leg of the intersection to alleviate the vehicular-pedestrian conflicts at this location.
- The City would like to re-stripe the southbound approach of Melrose Drive to provide two right-turn lanes and thereby increase the capacity of this major turning movement. Currently, there is one right-turn lane at this location. If two right-turn lanes are provided, it might be necessary to eliminate the pedestrian crosswalk and pedestrian signal on the west leg of SR 76.
- City staff recently met with Caltrans to discuss the above issues and the possibility of modifying the lane configuration and pedestrian crossing features at the intersection.
- Collision statistics for the years 2009 through 2013 indicate that there was one reported collision. It did not involve a pedestrian.

The Caltrans representatives that were contacted did not provide any information.

IV. FINDINGS AND RECOMMENDATIONS

The key findings of the pedestrian study at the intersection of SR 76 and Melrose Drive are as follows.

- Pedestrian counts indicated that there were 33 pedestrian crossings at this intersection during the morning peak period, 28 of which crossed SR 76. During the afternoon peak period, there were 53 pedestrian crossings at the intersection, 47 of which crossed SR 76.
- Vehicle counts indicated that the majority of the traffic generated by the school travelled to and from the west on SR 76, which results in heavy left-turn volumes from eastbound SR 76 onto northbound Melrose Drive and heavy right-turn volumes from southbound Melrose Drive onto westbound SR 76.
- The pedestrian crossings generated by the school do not result in any significant operational or safety impacts because the levels of service are at an acceptable LOS C during the peak hours, the pedestrians do not substantially increase the average delay for vehicles passing through the intersection, and there have been no reported accidents at the intersection involving pedestrians.
- The City of Oceanside would like to re-stripe the southbound approach of Melrose Drive to provide two right-turn lanes and thereby increase the capacity of this major turning movement. This modification might necessitate the elimination of the pedestrian crosswalk and pedestrian signal on the west leg of SR 76.

If the City and/or Caltrans re-stripe Melrose Drive to provide two right-turn lanes and eliminate the pedestrian crossing on the west leg of SR 76, it is recommended that the school and District provide information to students, parents, and faculty to direct pedestrians to cross SR 76 on the east leg of the intersection and discontinue crossing on the west leg of the intersection.

With regard to the current pedestrian crossing activities at the intersection, no action is recommended for the school and/or District because no significant adverse pedestrian conditions were observed at the intersection.