

between Bellefontaine Street and California Boulevard and for California Boulevard between Grand Avenue and Orange Grove Boulevard were derived from the previous traffic counts at adjacent intersections. Like the development of existing turning movement volumes at the analyzed intersection, previous traffic count data collected in year 2003 and 2004 were factored upward by 1% per year to represent existing 2006 conditions and were adjusted to reflect change in school traffic pattern due to the school access control program at the school driveway in Bellefontaine Street. The daily traffic volumes on the seven study street segments under existing conditions are shown in Table 9 and illustrated in Figure 4.

Future daily traffic volumes for the seven street segments under the cumulative base conditions (without project) were developed by adjusting the existing daily traffic volumes upward by 1% per year to reflect the ambient growth and related development projects on the street system within the study area. These future daily traffic volumes without the proposed project are shown in Table 9. Similar to the intersection volume forecasts, future daily traffic volumes for the seven street segments under the cumulative plus project conditions (with project) developed for the proposed project are shown in Table 8 and illustrated in Figures 8.

STREET SEGMENT IMPACT SIGNIFICANCE CRITERIA

Based on the City of Pasadena requirements, a conservative approach is taken when calculating the traffic growth by basing the calculation on the increase relative to existing traffic volumes as follows:

$$\text{Percentage of Increase} = \text{Net New Project Trips} / \text{Existing Daily Traffic}$$

The City of Pasadena has established criteria for determining significant impacts on street segments. A street segment is deemed to be significantly impacted based on an increase in the projected daily traffic volumes as follows:

TABLE 8
STREET SEGMENT IMPACT ANALYSIS

Segment	Location	Weekday Two-Way Daily Volumes										Street Segment Analysis			
		Development of Existing Segment Volume					Development of Net Project-Only Traffic Volume					Street Segment Analysis			
		Year 2004 Then-Existing Segment Volume	Year 2004 Then-Existing School-Only Volume [a]	Year 2004 Then-Existing who school traffic Volume	Year 2006 Existing School-Only Volume	Year 2006 Existing Segment Volume	Removal of Existing School-Only Volume	Proposed School-Only Volume	Removal of Existing Single Family House Volume [b]	Net Project only Volume	Existing Plus Project Volume	Percent Increase [%] [c]	Soft Mitigation Required? (e.g., TDM)	Physical Mitigation Required?	
1	Dw Bellionlane S1 & Existing school entrance driveway	1,617	738	879	18	574	1,471	(574)	600	0	26	1,497	1.77%	NO	NO
2	Dw Grand Av. & Existing school entrance driveway	1,423	424	959	20	766	1,785	(766)	632	0	(134)	1,651	-7.51%	NO	NO
3	Dw Existing school entrance driveway & Arroyo Bl	1,777	281	1,496	30	240	1,766	(240)	273	0	33	1,799	1.87%	NO	NO
4	Dw Bellionlane S1 & Existing school entrance driveway	1,784	573	1,211	24	624	1,859	(624)	401	0	(223)	1,636	-11.98%	NO	NO
5	Dw Bellionlane S1 & California Bl	1,965	318	1,647	33	523	2,203	(523)	600	0	77	2,280	3.50%	YES	NO
6	Dw Grand Av. & Orange Grove Bl	3,790	160	3,630	75	252	3,957	(252)	412	0	160	4,117	4.04%	YES	NO
7	Orange Grove Circle West of Orange Grove Bl	n/a	0	n/a	n/a	0	461 [c]	0	0	(10)	(10)	451	-2.17%	NO	NO

n/a = not available

[a] The then-existing school only daily traffic volume in year 2004 was obtained from Final Traffic Study for the Mayfield Senior High School Master Plan. Kaku Associates, Inc. April 2006.

[b] Daily traffic volume for the single family home was developed based on ITE 7th Edition (Land Use Code 210 Detached Single Family Housing).

[c] Daily traffic volume on Orange Grove Circle west of Orange Grove Boulevard was obtained from new 24-hour machine counts at this location on Tuesday, May 16, 2006.

[d] Percentage of Increase = Net New Project Traffic/Existing Daily Traffic (Source: Transportation Impact Review - Current Practices & Guidelines, City of Pasadena Department of Transportation, Transportation Planning & Development Division - August 24, 2005)

Traffic Growth on Street Segment	Required Traffic Mitigation
<u>0.0% - 2.4% Daily Traffic Growth</u>	Staff review and conditions
<u>2.5% - 4.9% Daily Traffic Growth</u>	Soft mitigation required TDM, rideshare, etc.
<u>5.0% - 7.4% Daily Traffic Growth</u>	Soft mitigation required Physical mitigation may be required
<u>7.5% + Daily Traffic Growth</u>	Soft mitigation required Extensive physical mitigation may be required Project alternatives may be considered

ASSESSMENT OF SIGNIFICANT TRAFFIC IMPACT

Table 8 summarizes the street segment impact analysis using the threshold criteria established by the City of Pasadena for the proposed project. As shown in Table 8, the proposed Mayfield Master Plan project scenario would alter existing traffic pattern and result in a daily traffic growth of more than 2.5% (the City's significant impact threshold requiring for soft mitigation) on two of the seven study segments, including: Grand Boulevard between Bellefontaine Street and California Boulevard and California Boulevard between Grand Avenue and Orange Grove Boulevard. School traffic would increase on the above-mentioned segments of Grand Avenue and California Boulevard due to the combined effect of the proposed student enrollment increase, the shifted drop-off traffic exiting from the new driveway at the Bellefontaine Street, and the detoured inbound or outbound traffic due to the limited right turn in and right turn out access at the Bellefontaine driveways. Meanwhile, the change in driveway operations would reduce traffic on three of the remaining five study segments by moving the pick-up and drop-off traffic currently exiting the school driveways on Grand Avenue. The daily traffic decrease on Orange Grove Circle west of the Orange Grove Boulevard is due to the construction of the new Educational Center and the resulting removal of one single-family home.

MITIGATION MEASURES

The street segment analysis determined that development of the proposed project is projected to cause significant impacts (more than 2.5% daily traffic growth) at two of the seven neighborhood street segments. To alleviate traffic volumes on the adjacent neighborhood street segments, the school should continue encouraging carpooling of siblings, distributing specific schedules and procedures for drop-off and pick-up activities and maps showing the location of Mayfield Senior School families to facilitate carpool formation throughout each school year. In addition, the pick-up and drop-off analysis in Chapter VI indicates the operations of school traffic on Bellefontaine Street during the dismissal hour could be improved by prohibition curb parking on the south side of Bellefontaine Street west of school entrance driveway from 2:30 to 3:30 p.m. on school days to make a temporary waiting area for school vehicles. It is expected that as the school driveway begins to clear of waiting vehicles, queued vehicles on Bellefontaine Street would be allowed to enter and exit the Bellefontaine circular drive area. Off-campus queue would disappear within 10 to 20 minutes. In addition, a traffic monitor has been recommended at the school pick-up and drop-off area to facilitate the loading/unloading of students to/from vehicles. This monitor would keep the inbound line of cars moving all the way forward in the queue. The monitor should alleviate the peak period congestion on campus with minimal impact on the neighborhood street system and safely and adequately facilitate future pick-up and drop-off procedures.

A series of meetings were held with the neighborhood to discuss the project. The neighbors suggested that the intersection of Grand and Bellefontaine be controlled by a four-way STOP sign instead of the current two-way STOP control. The City of Pasadena warrants for four-way STOP control on residential streets were tested and it was found that the projected traffic levels, even after the increased student enrollment, were not high enough to meet the City's criteria for the installation of the four-way STOP control. It is suggested that the warrants be reviewed again after the increase in enrollment to 310 students and again when the maximum enrollment is reached. If the warrants were met at either of these times, the school would pay the installation costs of the signs.

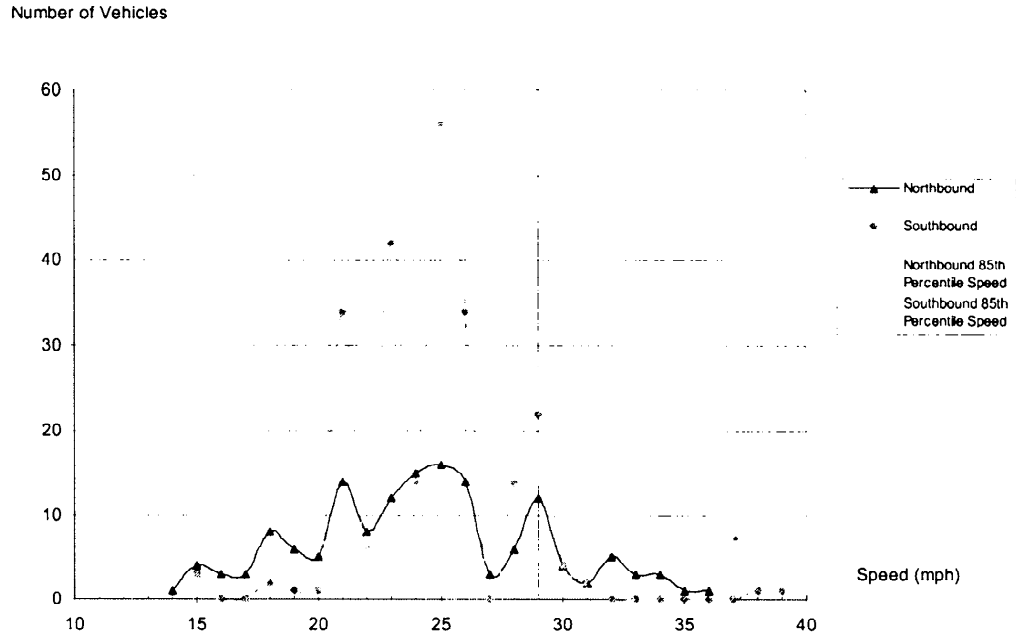
ASSESSMENT OF SPEED SURVEY

This section presents an earlier study of the traffic speeds on the local street system in the study area. It is assumed that the driving behaviors of those motorists traveling through the neighborhood (primarily Mayfield Senior School traffic and resident traffic) would be similar to those that were observed in the previous speed surveys. Traffic speed surveys were conducted in April 2004 from 7 to 9 a.m. and from 2 to 5 p.m. on four study street segments on Bellefontaine Street and Grand Avenue in the vicinity of the school. Detailed survey results are included in Appendix F. As indicated in the speed surveys, the average speed of traffic on Bellefontaine Street between Orange Grove Boulevard and the existing school driveway was observed to be approximately 25 mph for both directions during the peak periods, with an 85th percentile speed of 29.5 mph. In other words, the majority of the traffic on Bellefontaine Street was currently driving at the limit and no significant speeding conditions were observed during the peak hours. The average speed of the traffic on Grand Avenue was approximately 24.7 mph, with an 85th percentile speed of 28.7 mph. The data shows that nearly all vehicles, including school-related vehicles, are currently driving at the limit and no significant speeding problem exists during the peak hours.

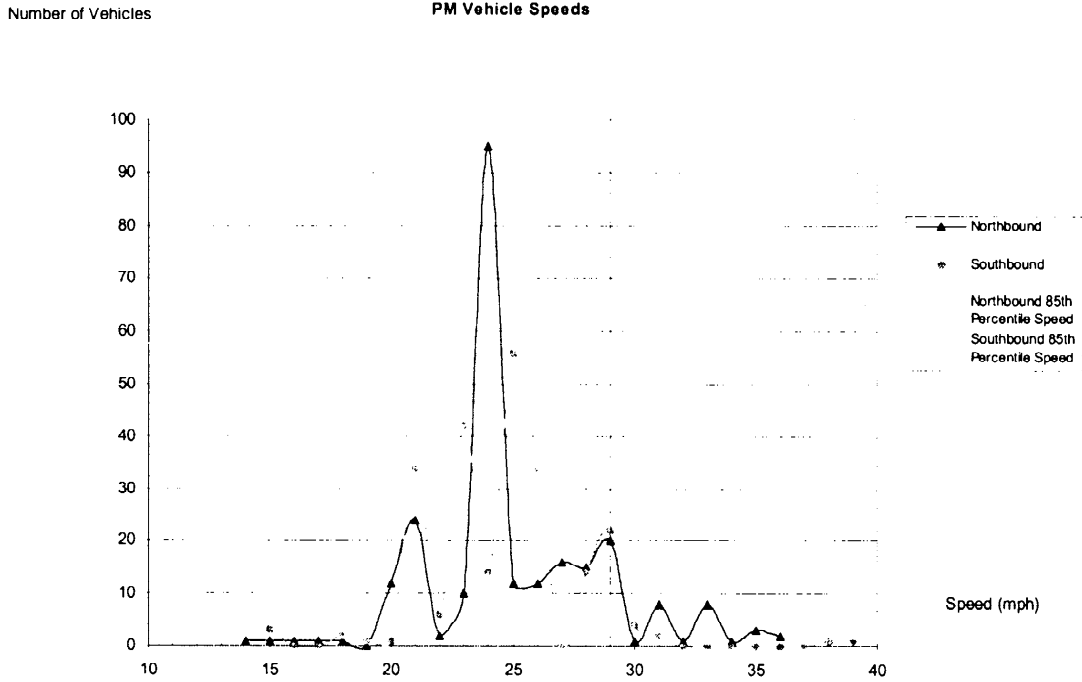
The neighbors on Bellefontaine Street have asked the city to install speed humps along the street to reduce the speed of vehicles traveling along the street. The city has refused to install the humps because of the geometry of the street. Bellefontaine Street has a severe downgrade as vehicles travel westbound from Orange Grove Boulevard toward Grand Avenue. The downgrade exceeds the city's maximum allowable grade for speed hump installation. The concern is that speed humps installed in deep downgrades could cause a vehicle to become airborne, resulting in loss of control, with the possibility of a serious accident.

While the speed data shown in Figures 9A and 9B reveal an average speed near the speed limit, the 85th percentile speed on the street is near 30 mph. The 85th percentile speed is typically used to establish speed limits. While the speed limit on both of these streets should not be raised to 30 mph because of the presence of the school and the geometries of the streets, the high 30 mph 85th percentile speed is a concern.

**Grand Av between Bellefontaine St and School Driveway
AM Vehicle Speeds**

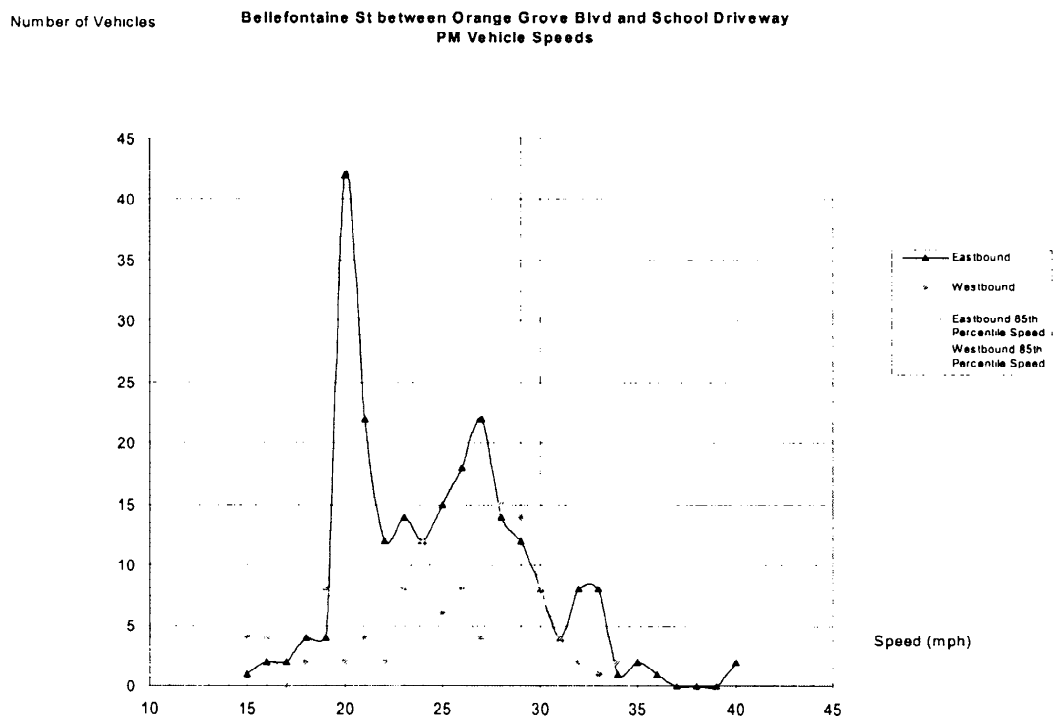
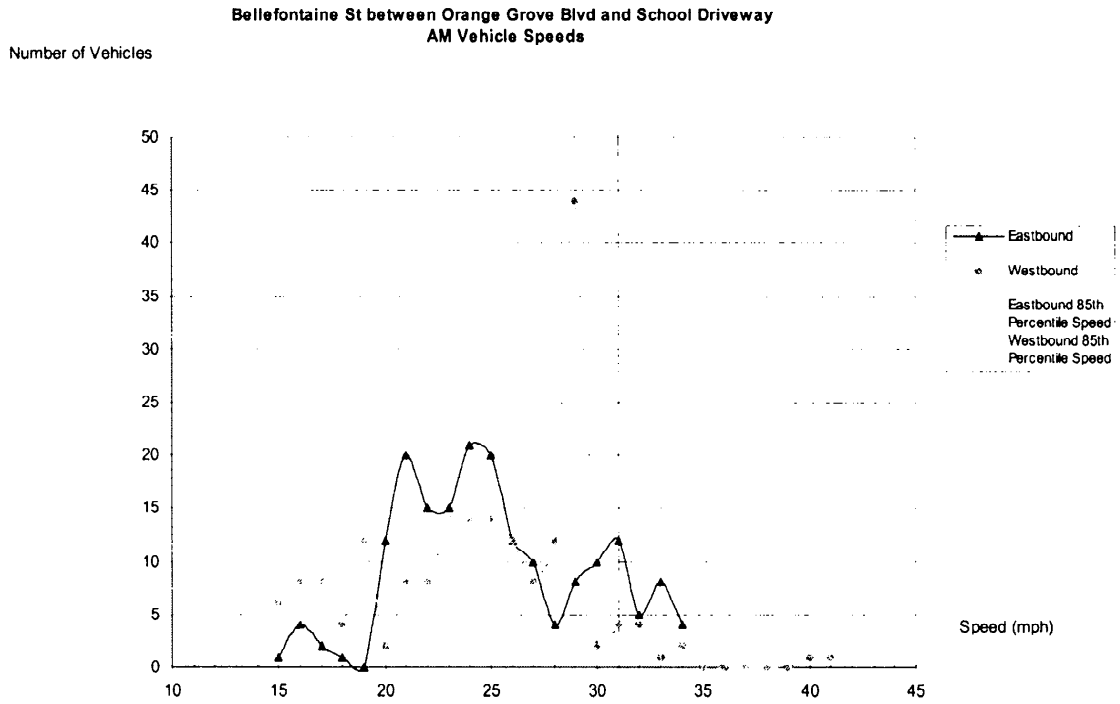


**Grand Av between Bellefontaine St and School Driveway
PM Vehicle Speeds**



KAKU ASSOCIATES

**FIGURE 9A
EXISTING WEEKDAY VEHICLE SPEEDS - GRAND AVENUE**



KAKU ASSOCIATES

FIGURE 9B
EXISTING WEEKDAY VEHICLE SPEEDS - BELLEFONTAINE STREET

To address the neighbors' concerns about the speed of traffic on Bellefontaine Street, Mayfield Senior High School should cooperate with the city to institute the following traffic monitoring programs:

- 1) Send a letter to the parents of every student advising them of the new traffic patterns and reminding them of the 25 mph speed limits along Bellefontaine Street and Grand Avenue.
- 2) Deploy a portable radar speed trailer along Bellefontaine Street and Grand Avenue during school pick-up and drop-off hours. The trailer measures the speed of oncoming traffic and advises motorists of their speeds. The deployment cost of this portable speed trailer will be the responsibility of the school.

VI. PARKING ANALYSIS AND PICK-UP/DROP-OFF PROCEDURES

This chapter presents an analysis of the adequacy of the parking plan associated with the Mayfield Senior High School Master Plan. The goal of the analysis is to ensure that the proposed Master Plan provides sufficient parking supply to satisfy the City's parking code requirement as well as accommodate projected needs. Future student pick-up/drop-off procedures for the school were also evaluated at the Bellefontaine driveways.

PARKING SUPPLY AND DEMAND ANALYSIS

Existing Parking Supply/Demand Rates

According to the City of Pasadena Municipal Code (Section 17.46.320, Table 4-16) for high school use, the school would need to provide one space for every five students and one space for every two employees and members of the faculty. As indicated, a total of 94 spaces is required for the Mayfield School given the existing school population of 300 students and 68 staff members. The existing parking supply on the Mayfield Senior High School campus is 141 spaces. The existing school site plan, shown in Figure 2, provides one 22-space parking area for visitors/pick ups/drop offs near the Bellefontaine entrance driveway, one 30-space parking area for staff and faculty members at the southeast corner of the campus, and three additional parking lots totaling 89 spaces near the Grand Avenue exit driveway. Therefore, the existing school supply of 141 spaces provides a surplus of 41 spaces when compared to the Code requirement. To identify the existing parking demand, parking utilization surveys were conducted on Wednesday, September 17, 2003 to assess the existing use of the various parking facilities. Occupied spaces were recorded once every hour from 8:30 a.m. to 1:30 p.m. and additional counts were conducted at 4 p.m. Table 9 summarizes the results of the existing parking utilization survey. As shown in Table 9, the observed peak parking demand occurred at 10:30 a.m. with 128 spaces occupied, resulting in a peak occupancy rate of 91%.

**TABLE 9
PARKING UTILIZATION ANALYSIS**

Time Occupied Spaces	Then-Existing Conditions [a] (with Total 141 on-site parking spaces)							Future Conditions (2013)	
	Type of Parking Facilities							Proposed Site Plan Scenario w/ 127 spaces	
	Lower surface parking 1 (10 spaces)	Lower Surface parking 2 (28 spaces)	Student Lot 3 (51 spaces)	Staff/Faculty Lot (30 spaces)	Upper surface parking (22 spaces)	Total # of Occupied Spaces	% Occupied	Estimated # of Occupied Spaces	% Occupied
8:30:00 A.M.	3	22	52	26	12	115	82%	127	100%
9:30:00 A.M.	3	22	52	29	13	119	84%	131	103%
10:30:00 A.M.	3	22	52	33	18	128	91%	141	111%
11:30:00 A.M.	3	21	52	31	20	127	90%	140	110%
12:30:00 P.M.	3	20	47	28	19	117	83%	129	101%
1:30:00 P.M.	3	21	45	28	15	112	79%	123	97%
4:00:00 P.M.	2	8	27	16	12	65	46%	72	56%

Note:

[a] Then-existing parking demand and parking utilization surveys were conducted on Wednesday, September 17, 2003.

Future Parking Supply and Demand Analysis

As shown in Figure 3, existing parking facilities on campus would be reconfigured to provide 127 spaces, so that the Grand Avenue driveway would provide access to 98 spaces in the future, while the Bellefontaine Street entrance would provide access to 29 spaces. Since the proposed Master Plan for the high school envisions a 10% increase in student enrollment by year 2013, the future parking demand at the school would also increase by 10%, resulting in an increase of the current 128-space peak demand to a buildout peak demand of 141 cars (full occupancy), as shown in Table 9. The 127-space proposed supply could nearly meet the existing parking demand for 300 students, but would be short of four spaces to accommodate parking demand for the 310-student enrollment level in 2008.

A total of 100 spaces would be required by the City's parking code for the Mayfield School given the proposed school population of 330 students and 68 staff members. Future parking supply for Mayfield Senior High School (127 spaces) would, therefore, satisfy the City's Code requirement. However, to accommodate the projected peak parking demand of 141 cars by the year 2013, the school would be required to either increase the on-site parking supply by 14 spaces or to institute a car pool plan to reduce the parking demand and to prevent any spillover to neighborhood streets.

PICK-UP AND DROP-OFF PROCEDURE ANALYSIS

Existing Conditions

Pick-up and drop-off maneuvers currently take place within the school campus. The following describes the existing pick-up and drop-off operations during the peak morning school traffic hour (7:15 to 8:15 a.m.) and the midday school dismissal hour (2:45 to 3:45 p.m.) based on field observations on May 24, 2006.

- **Bellefontaine Street.** During the morning peak hour, almost all of the drop offs occur on campus. Of the 225 vehicles entering from Bellefontaine Street, approximately 144 drop off students on campus, continue through the one-way circulation road and exit at the Grand Avenue exit. 81 students or staff/faculty vehicles park on campus. Based on the traffic counts and turning movement counts, the majority of the school vehicles (64%) entering the campus are making eastbound right turns into the entrance driveway

on Bellefontaine Street. The remaining 36% are making westbound left turns for access. A maximum queue length of five vehicles was observed on Bellefontaine Street waiting to make eastbound right turns on Bellefontaine Street during the heaviest time period from 7:30 to 7:45 a.m. Meanwhile, a maximum queue length of three vehicles was observed on Bellefontaine Street waiting to make westbound left turns into the driveway. While no congestion or backup was observed on campus, these vehicles were queued temporarily on Bellefontaine Street because the parents stopped early along the drop off curb length blocking the inbound traffic flow or because they yielded to pedestrians who crossed Bellefontaine Street to enter the school at the direction of the security guard. Once the parents pulled forward or the pedestrians enter the school safely, the queue on Bellefontaine Street was discharged.

For the midday pick up, parent vehicles began entering the school driveway at about 2:30 p.m., pulling forward on the driveway, parking on either side of the driveway, and waiting for students while keeping the center of the driveway passable. The driveway accommodates approximately 25 vehicles. At 3:00 p.m., immediately before the school dismissal time, the driveway was full and queues were observed on Bellefontaine Street, primarily in the eastbound direction. A maximum queue of 20 vehicles was observed to wait on Bellefontaine Street west of the school entrance against the south curb of Bellefontaine Street at 3:05 p.m. As this queue of school traffic backed up, the non-school through traffic in both directions attempted to go around the queued vehicles, and the school's security guard began to direct traffic. From 3 to 3:20 p.m. the school's security guard prohibited westbound left turns at the driveway. As the driveway began to clear of waiting vehicles, queued vehicles on Bellefontaine Street were allowed to enter the school driveway. Once the vehicles on the driveway begin to pull forward, conditions on Bellefontaine Street improved. By 3:15 p.m., Bellefontaine Street was clear.

On-street parking and pick ups/drop offs were minimal during both the morning peak hour and midday peak hour.

- **Grand Avenue.** After dropping off students, parent vehicles traveled through the middle of campus and exited from the driveway onto Grand Avenue. No queues were observed on this school driveway during either the morning or afternoon peak hours. Given the moderate volumes on Grand Avenue, school outbound traffic had no difficulty merging with the northbound traffic flow or making left turns and merging with the southbound flow. No on-street pick ups/drop offs were observed at or near the Grand Avenue driveway because only exiting vehicles can open the automatic gate of this driveway. No students can enter or exit campus on foot from this location.

As indicated, the current operation of picking up and dropping off under the existing circulation pattern creates some congestion at the school driveway, which results in queuing on Bellefontaine Street.

Future Conditions

Future pick-up and drop-off procedures were developed based on the proposed Master Plan. Since all pick up and drop off could only occur on the Bellefontaine circular drive area under the proposed site plan, the following discussions of the pick up and drop off behaviors can be applied to both future project scenarios.

The northern area of the campus would be reconfigured to include a central area designated for pick up and drop off only, and a new exit driveway onto Bellefontaine Street would be developed. Less than a quarter (29 spaces) of the future campus parking spaces would be accessed from this location. With the reconfigured Grand Avenue driveway and the addition of school driveway on Orange Grove Circle under the proposed site plan, approximately 98 of the staff/student vehicles would use the Bellefontaine Street entrance to the Grand Avenue entrance and four staff vehicles would use the entrance on Orange Grove Circle.

As indicated in Chapter III, future pick ups and drop offs would occur at the Bellefontaine driveways, where vehicles would be permitted to make either left turns or right turns to enter or exit the campus driveways. The existing conflict between the westbound left turns of entering vehicles and those that have already made a drop off, exiting on Grand Avenue, proceeding north and then east on Bellefontaine Street would also be eliminated. With the reduced number of vehicles using the Bellefontaine entrance driveway for parking, the number of school vehicles waiting to enter the school and park during the school pick-up and drop-off hours would be significantly reduced.

The centralized pick-up and drop-off area would also ensure that those waiting in the driveway could pull forward with less delay, creating more space in the driveway for other vehicles. All vehicles would be required to drop off or pick up students at the designated southern corner of the central area so that the students would stay in the central area instead of walking across the driveways to waiting vehicles. No pick-ups or drop-offs would be made at the Grand Avenue exit. Therefore, the number of vehicles exiting at Grand Avenue proceeding north and turning right to Bellefontaine Street would be reduced. In addition, the removal of through trips from the Bellefontaine school driveway to the Grand Avenue exit would eliminate vehicular flow through the middle of campus, which would help create a safer campus. Separating the majority of the

pick-up and drop-off vehicles from the staff/student vehicles would reduce delay for staff/student vehicles entering the parking lots.

In addition, the site plan, as shown in Figure 3, provides up to 15 active loading/unloading spaces and sufficient room for a queue of five cars waiting behind the active loading/unloading area. Including both the passenger loading zone and the approach aisle, it is estimated that the Bellefontaine circular drive could accommodate 20 queued vehicles at any time. No significant congestion or backup is expected on or around the campus during the morning peak hour under future conditions.

With the observed queue length of 45 vehicles on and around campus at the existing school site and the proposed enrollment increase, a queue length ranging from 45 to 50 vehicles could potentially occur on and around campus during the afternoon dismissal hour. Since the school could only accommodate 20 vehicles inside the Bellefontaine circular drive, a maximum queue of approximately 25-30 vehicles could potentially wait on Bellefontaine Street west of the school entrance against the south curb of Bellefontaine Street, at times spilling over back into the intersection of Bellefontaine Street/Grand Avenue. Traffic safety concerns arise when non-school through traffic in both directions on Bellefontaine Street attempting to go around the queued vehicles.

To facilitate the traffic operations and conditions on Bellefontaine Street during the school dismissal hour, it is recommended that school seek the City's approval for parking prohibition on the south side of Bellefontaine Street west of school entrance driveway from 2:30 to 3:30 p.m. on school days. The proposed parking prohibition would make the curb lane of Bellefontaine Street against the school property a temporary queuing storage for school traffic. It is expected that as the driveway begins to clear of waiting vehicles, queued vehicles on Bellefontaine Street would be allowed to enter and exit the Bellefontaine circular drive area and off-campus queue would disappear immediately.

In addition, it is recommended that a traffic monitor be implemented to facilitate the loading/unloading of students to/from vehicles. This monitor would keep the inbound line of cars moving all the way forward in the queue. The monitor should alleviate the peak period congestion on campus with minimal impact on the neighborhood street system and safely and adequately facilitate future pick-up and drop-off procedures.

VII. REGIONAL TRANSPORTATION SYSTEM IMPACT ANALYSIS

Additional analyses were conducted to comply with the MTA Congestion Management Program (CMP) requirements. In accordance with CMP Transportation Impact Analysis (TIA) requirements, it is necessary to conduct a regional analysis to quantify potential impacts of the proposed project on the CMP freeway monitoring locations and CMP arterial intersection monitoring stations.

CMP SIGNIFICANT TRAFFIC IMPACT CRITERIA

The CMP TIA guidelines indicate that if a proposed development project would add 150 or more trips in either direction during either the morning or evening peak hour to the mainline freeway monitoring location, then a CMP freeway analysis must be conducted. If a proposed project would add 50 or more peak hour trips to a CMP arterial intersection, then a CMP arterial intersection analysis must be conducted.

For the purpose of a CMP TIA, a project impact is considered to be significant if the proposed project increases traffic demand on a CMP facility by 2% of capacity ($V/C \geq 0.02$), causing or worsening LOS F ($V/C > 1.00$). Under these criteria, a project would not be considered to have a regionally significant impact if the analyzed facility is operating at LOS E or better after the addition of project traffic regardless of the increase in V/C ratio caused by the project. If, however, the facility is operating at LOS F with project traffic and the incremental change in the V/C ratio caused by the project is 0.02 or greater, the project would be considered to have a significant impact.

CMP FREEWAY AND ARTERIAL INTERSECTION ANALYSIS

The CMP freeway monitoring stations closest to the project site are located on the I-210 Freeway at Rosemead Boulevard and west of SR 134, and on the SR 110 Pasadena Freeway at Pasadena Avenue. Based on the project trip generation estimates previously presented and a

review of the project only (net) traffic volumes shown in Figure 8, neither the traffic shifts due to the proposed project nor the growth in project traffic due to the enrollment increase would add more than 150 trips (in either direction) during either the weekday a.m. or p.m. peak hours at the above CMP freeway monitoring stations in the project vicinity and, thus, no further traffic analysis would be required.

The CMP arterial monitoring stations closest to the project site are located at: Pasadena Avenue/St. John Avenue and California Boulevard and at Arroyo Parkway and California Boulevard. Similarly, based on the project trip generation estimates previously presented and a review of the project only (net) traffic volumes shown in Figure 8, the proposed project is not expected to add more than 50 trips to any of the aforementioned arterial monitoring locations and thus, no further arterial CMP analysis is required.

Analysis conducted to satisfy the requirements of the Los Angeles County CMP determined that neither the traffic shifts due to the proposed project nor the growth in project traffic due to the enrollment increase would create a significant impact on the regional transportation system.

VIII. SUMMARY AND CONCLUSIONS

This study was undertaken to analyze the potential traffic and parking impacts of the proposed Mayfield Senior High School Master Plan. The following summarizes the key results of the study.

- The proposed Master Plan involves the reconfiguration (project) of the school circulation pattern and construction of a new Educational Center in the southeast corner of the campus adjacent to Orange Grove Circle. One single-family house on Orange Grove Circle would be demolished for the construction of the proposed Educational Center. As part of the School Master Plan, student enrollments would increase from current 300 students to 310 students by year 2008 and to 330 students with the completion of the Master Plan by year 2013. The Bellefontaine entrance/driveway would be reconfigured to include a centrally located pick-up/drop-off area and a new exit driveway on Bellefontaine Street. Future circulation in this area would be limited to one-way flow. Vehicles would no longer have access to Grand Avenue from the Bellefontaine entrance, removing vehicles from the middle of the campus. Future pick up and drop off would be made only at the south corner of this circular area at the Bellefontaine entrance. The Grand Avenue driveway, which is currently an exit-only driveway, would allow both inbound and outbound flow to access the majority of the campus parking supply. The Bellefontaine Street driveway would provide access to 29 parking spaces and the student loading zone.
- Future operational scenarios were analyzed for the campus: Future school-only traffic patterns were developed for the proposed project scenario. All existing parking lots would be reconfigured and parking spaces would be redistributed under the proposed site plan. Future school traffic pattern was compared with the existing school traffic pattern to obtain the future project-only traffic volumes (the incremental changes in school-only volumes resulting from the proposed student enrollment increases and the proposed driveway reconfiguration and traffic shifts). Future project-only traffic was then added to the cumulative base traffic forecasts. The impacts of the proposed project on future traffic operating conditions were then identified.
- Five intersections were analyzed for this project: the intersections of Orange Grove Boulevard & California Street, Orange Grove Boulevard & Bellefontaine Street, Orange Grove Boulevard & Madeline Drive, Grand Avenue and Bellefontaine Street, and Arroyo Boulevard & Grand Avenue. All study intersections currently operate at LOS D or better during the weekday a.m., midday, and p.m. peak hour periods.
- Future school trip generation for 330 students was developed based on traffic counts of the existing school operations for 300 students. Approximately 406 trips (248 inbound, 158 outbound) during the weekday a.m. peak hour, 261 trips (103 inbound, 158 outbound) during the weekday midday peak hour period, and 66 trips (25 inbound and

41 outbound) during the weekday p.m. peak hour period. As part of the Master Plan, one single-family house on Orange Grove Circle would be demolished for the construction of the proposed Educational Center and was taken into account in the project trip generation estimates. Therefore, the proposed Master Plan would generate 124 net new trips per day, including 36 new morning peak hour trips, 23 new midday peak hour trips, and 5 new afternoon peak hour trips.

- Analysis of projected year 2013 cumulative base conditions, representing future conditions without the proposed project, indicates that three of the five analyzed intersections would continue to operate at LOS D or better during all a.m., midday, and p.m. peak periods.
- Based on City of Pasadena impact criteria, analysis of projected year 2013 cumulative base plus project conditions (after redistribution of school traffic and the presence of additional 30 students) representing future conditions with the proposed project indicates that the proposed project would not create a significant impact at any of the analyzed intersections. Therefore, no project mitigation measures at the study intersections would be required for the proposed project.
- Based on City of Pasadena impact criteria, street segment analysis of projected year 2013 cumulative base plus project conditions (after redistribution of school traffic and the presence of additional 30 students) indicates that development of the proposed project would result in significant impacts (more than 2.5% daily traffic growth) at two of the seven neighborhood street. To alleviate traffic volumes on the adjacent neighborhood street segments, the school should continue encouraging carpooling of siblings, distributing specific schedules and procedures for drop-off and pick-up activities and maps showing the location of Mayfield Senior School families to facilitate carpool formation throughout each school year.
- The pick-up and drop-off analysis indicates the operations of school traffic on Bellefontaine Street during the dismissal hour could be improved by prohibition curb parking on the south side of Bellefontaine Street west of school entrance driveway from 2:30 p.m. and 3:30 p.m. on school days to make a temporary waiting area for school vehicles. It is expected that as the school driveway begins to clear of waiting vehicles, queued vehicles on Bellefontaine Street would be allowed to enter and exit the Bellefontaine circular drive area. The off-campus queue would disappear within 10 to 20 minutes. A traffic monitor has also been recommended at the school pick-up and drop-off area to facilitate the loading/unloading of students to/from vehicles. This monitor would keep the inbound line of cars moving all the way forward in the queue. The monitor should alleviate the peak period congestion on campus with minimal impact on the neighborhood street system and safely and adequately facilitate future pick-up and drop-off procedures.
- The future parking supply would provide a total of 127 spaces. Since the proposed Master Plan for the high school envisions 10% increase in student enrollment by year 2013, the future parking demand at the school would also increase by 10%, resulting in a peak demand of 141 cars (full occupancy). Given the proportional increase in staff/faculty members and a continuation of current level of student drivers, a total of 100 spaces would be required by the City's parking code for the Mayfield School with the proposed school population of 330 students and 68 staff members. Future parking

supply for Mayfield Senior High School (127 spaces) would, therefore, satisfy the City's Code requirement. To accommodate the projected peak parking demand of 141 cars in the year 2013, however, the school would be required to increase the on-site parking supply by 14 spaces or to institute a car pool plan to reduce the parking demand and prevent any spillover to neighborhood streets.

- Analysis of the speed surveys on Bellefontaine Street and Grand Avenue within the study area showed an average speed close to the posted speed limits. The 85th percentile speed was approximately 5 mph above the posted speed limit. To address the vehicular speed concerns of the neighbors, the following mitigation program is recommended:
 - 1) Send a letter to the parents of every student advising them of the new traffic patterns and reminding them of the 25 mph speed limits along Bellefontaine Street and Grand Avenue.
 - 2) Deploy a portable radar speed trailer along Bellefontaine Street and Grand Avenue during school pick-up and drop-off hours. The trailer measures the speed of oncoming traffic and advises motorists of their speeds. The deployment cost of this portable speed trailer will be the responsibility of the school.
- Analysis conducted to satisfy the requirement of the Los Angeles County CMP determined that neither the traffic shifts due to the proposed project nor the growth in project traffic due to the enrollment increase would create a significant impact on the regional transportation system.

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