

Appendix

Appendix C Traffic/Transportation Impact Analysis

Appendix

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TRAFFIC/TRANSPORTATION IMPACT ANALYSIS
FOR THE PROPOSED
MARK TWAIN SCHOOL EXPANSION
FOR THE ADULT TRANSITION PROGRAM
GARDEN GROVE UNIFIED SCHOOL DISTRICT

Prepared for
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&
PLACEWORKS

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I. INTRODUCTION AND STUDY METHODOLOGY

This report summarizes the results of a traffic/transportation impact analysis that was conducted for the Mark Twain School expansion project proposed by Garden Grove Unified School District. The primary objective of the expansion is to relocate the existing Adult Transition Program (ATP) from the Jordan Intermediate School campus to the Mark Twain School campus at 11802 S. Loara Street in Garden Grove. The school site is located on the east side of Loara Street between Chapman Avenue and Orangewood Avenue. The project location is shown on Figure 1 and the proposed site plan is shown on Figure 2.

The project includes the installation of two new buildings that will accommodate 11 classrooms, office space, a staff lounge, and a conference room. The project also includes hardcourts, an expanded parking lot, and new drop-off/pick-up zones along the perimeter of the parking lot. The existing school site has one driveway for the main parking lot. The project includes the construction of an additional driveway near the southwest corner of the new parking lot. Mark Twain School currently houses 89 students and the project would add 105 ATP students to the campus.

An analysis has been prepared to evaluate the traffic/transportation impacts of the proposed school expansion project. The methodology for the traffic study, in general, was to address the transportation issue areas of the CEQA environmental checklist, which includes an evaluation of the project's impacts on 1) transit, roadway, bicycle, and pedestrian facilities, 2) vehicle miles traveled (VMT), 3) increased hazards or incompatible uses, and 4) emergency access. An inventory was taken of the streets, sidewalks, bike lanes, and public transit routes in the vicinity of the school site, which included physical features such as the number of lanes, types of traffic control devices, and crosswalk locations. Safety and operational characteristics of the school's driveways, parking areas, and drop-off/pick-up areas were also addressed. The increased volumes of traffic that would be generated by the expanded school were also quantified.

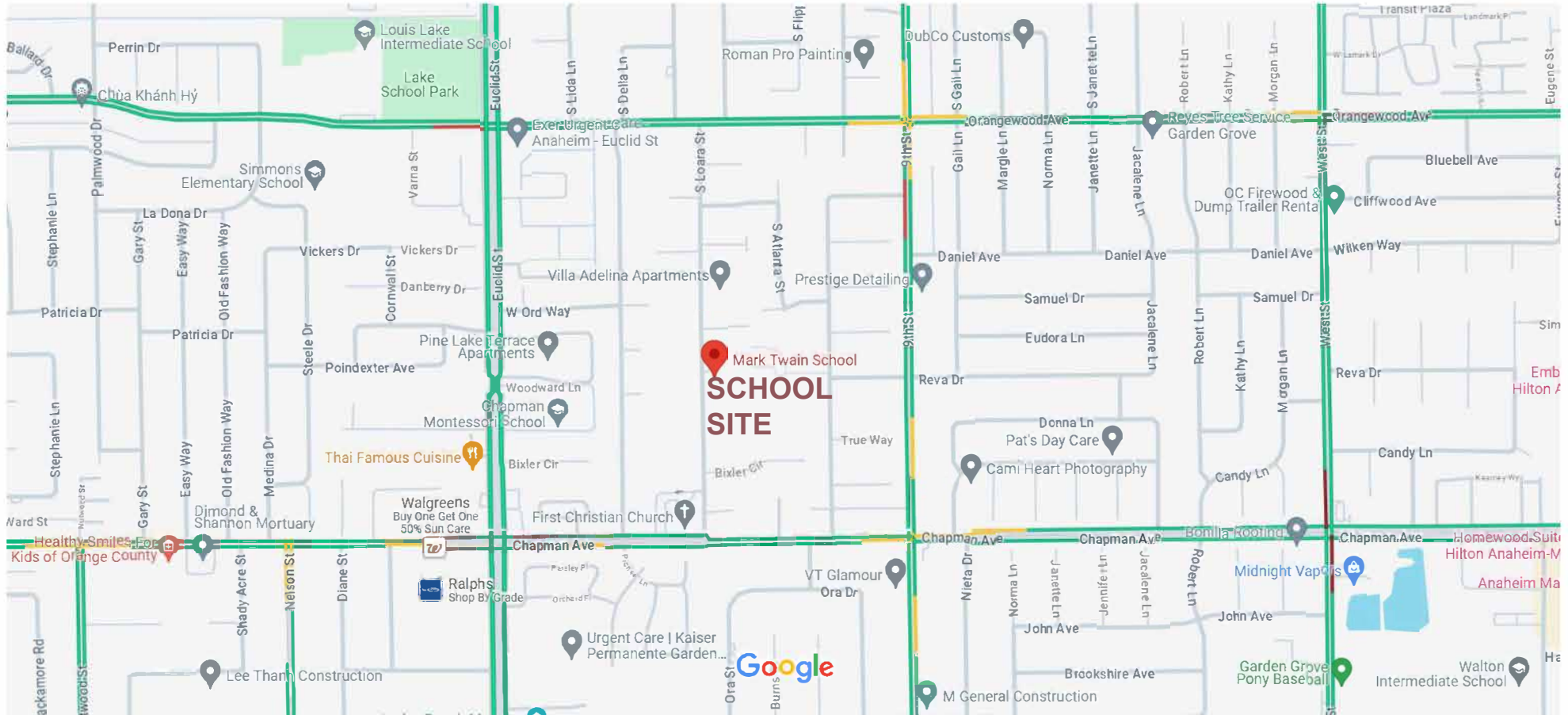
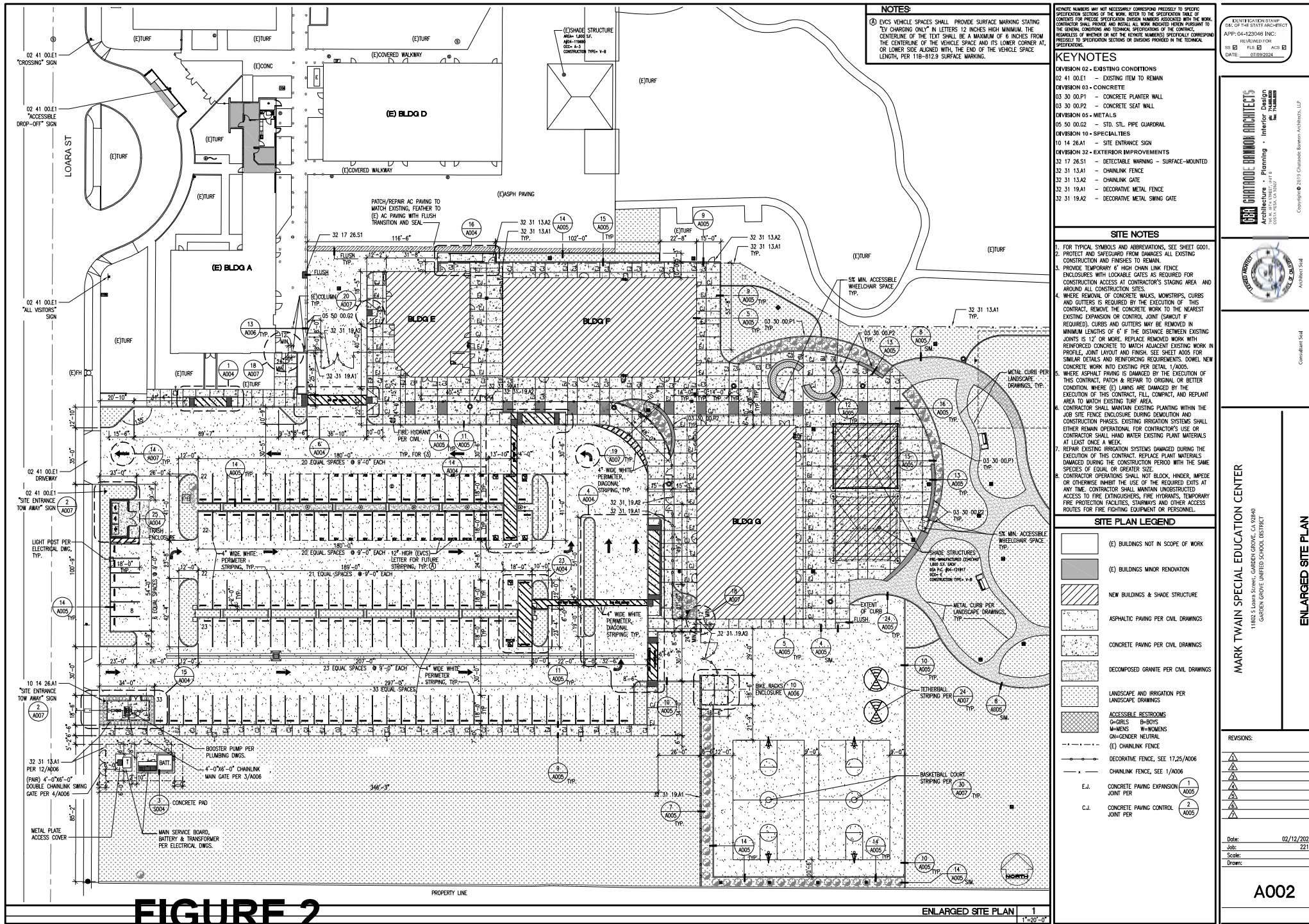


FIGURE 1
LOCATION MAP



II. EXISTING TRAFFIC/TRANSPORTATION CONDITIONS

The street network in the vicinity of the project site, which includes sidewalks and bike lanes, an inventory of the types of traffic control devices and crosswalk locations, and the nearby bus transit routes are described below.

Street Network

The streets that provide access to the proposed project area include Loara Street, Chapman Avenue, and Orangewood Avenue. The following paragraphs provide a brief description of the characteristics of these streets.

Loara Street

Loara Street is a two lane north-south street that abuts the west side of the school campus. Parking is provided along both sides of the street, sidewalks are in place on both sides of the street, and there are no bike lanes. The speed limit on Loara Street is 25 miles per hour (mph).

There are three driveways on the east side of Loara Street that provide access to the school. One is the entry/exit driveway to the main parking lot. The other two driveways are the entry and exit driveways for a short one-way semi-circular drop-off/pick-up zone in front of the school's main entrance.

Chapman Avenue

Chapman Avenue is a four lane east-west street located approximately 650 feet south of the school campus. It has bike lanes, sidewalks, and parking on both sides of the street. The speed limit on Chapman Avenue is 40 mph.

Orangewood Avenue

Orangewood Avenue is a two lane east-west street located approximately one-quarter mile north of the school site. It has bike lanes, sidewalks, and parking on both sides of the street except for a two-block segment west of Loara Street where parking is prohibited on the north side of the street. The speed limit on Orangewood Avenue is 40 mph.

Traffic Control and Crosswalks

The existing traffic control devices at the intersections in the vicinity of the school are shown in Table 1. As shown, there is a yellow school zone crosswalk across Orangewood Avenue at Loara Street on the east leg of the intersection and there is a yellow school zone crosswalk across Loara Street on the north side of the exit driveway from the small drop-off/pick-up zone.

TABLE 1 EXISTING TRAFFIC CONTROL DEVICES & CROSSWALKS		
<i>Intersection</i>	<i>Traffic Control</i>	<i>Crosswalks</i>
Loara Street / Orangewood Avenue	3-Way Stop Signs	On East Leg
Loara Street / Drop-Off/Pick-up Exit Driveway	None	On North Leg
Loara Street / Chapman Avenue	Stop Sign on Loara Street	None

Bus Transit Service

Orange County Transportation Authority (OCTA) operates several bus routes in the vicinity of the school site. The nearest one is Route 54, which runs along Chapman Avenue and has bus stops at the Loara Street intersection. In addition, Routes 43 and 543 run along Harbor Boulevard approximately 1¼ mile east of the school site and Route 50 runs along Katella Avenue approximately three-quarters of a mile north of the school site.

III. TRAFFIC IMPACT ANALYSIS

This section summarizes the analysis of the project's impacts on traffic/transportation conditions. First is a discussion of the significance standards followed by a discussion of project generated traffic volumes and the impact on daily traffic volumes. This is followed by a discussion of access, circulation, and safety; an analysis of the impacts associated with non-motorized transportation (pedestrians and bicycles); and the findings relative to the CEQA transportation issues.

Standards of Significance

With regard to the CEQA thresholds of significance, Appendix G of the CEQA Guidelines states that a project would normally have a significant effect on the environment if the project could:

- a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities,
- b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT),
- c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), or
- d) Result in inadequate emergency access.

Project Generated Traffic

The volumes of traffic that would be generated by the existing and expanded school were determined in order to estimate the impacts of the proposed project. The trip generation rates and the anticipated volumes of traffic that would be generated by the expanded school are shown in Table 2.

TABLE 2 PROJECT GENERATED TRAFFIC							
School Scenario	Daily Traffic	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
TRIP GENERATION RATES (trips per student)							
Jordan ATP/Mark Twain	3.61	1.01	68%	32%	0.89	39%	61%
GENERATED TRAFFIC VOLUMES							
Existing Mark Twain School (89 students)	320	90	61	29	79	31	48
Proposed Jordan ATP at Mark Twain School (105 students)	380	106	72	34	93	36	57
Total (Both Schools)	700	196	133	63	172	67	105

The trip generation rates shown in Table 2 are based on traffic counts that were taken at the schools. The rates are substantially higher than the rates in the Institute of Transportation Engineers *Trip Generation Manual* for the elementary, middle, and high school land use categories. These observed rates were used because they are more representative of the types of schools that will be housed at the Mark Twain School site. Although the trip generation rates and traffic volumes shown in Table 2 for the schools are based on the number of students, the data represent the total number of vehicle trips generated by the schools, including staff/faculty vehicles, drop-off/pick-up activities, visitors, and deliveries.

Table 2 indicates that the proposed ATP facility would generate a net increase of 380 vehicle trips per day, 106 vehicle trips during the morning peak hour (72 inbound and 34 outbound), and 93 trips during the afternoon peak hour (36 inbound and 57 outbound).

It should be noted that the traffic volumes shown in Table 2 do not necessarily introduce new traffic to the overall street network but instead represent the traffic that would be re-directed to the Mark Twain School site from Jordan Intermediate School where the students currently attend. Most of the school-related traffic would be traveling on the street network regardless of the status of the proposed project. The traffic volumes in Table 2 represent the increase in traffic that would occur on Loara Street.

Impacts on Daily Traffic Volumes

The impacts of the project on daily traffic volumes are shown in Table 3 for Loara Street. The existing conditions scenario and the year 2025 baseline scenario are shown. The daily traffic volume on Loara Street north of the school site, for example, would increase from 1,690 vehicles per day (vpd) to 1,770 vpd for the existing conditions scenario, which is an increase of 80 vehicles per day. The year 2025 was used for the future baseline scenario because it is anticipated to be the first year that the expanded school would be occupied.

TABLE 3 PROJECT IMPACT ON DAILY TRAFFIC VOLUMES			
<i>Street/Location</i>	<i>Without Project</i>	<i>Project Traffic</i>	<i>With Project</i>
EXISTING CONDITIONS AS BASELINE			
Loara Street – North of School Site	1,690	80	1,770
Loara Street – South of School Site	1,870	300	2,170
YEAR 2025 AS BASELINE			
Loara Street – North of School Site	1,720	80	1,800
Loara Street – South of School Site	1,910	300	2,210

Access, Circulation, and Safety

Mark Twain School currently has a parking lot with 80 spaces. It is accessed via a single driveway south of the school buildings. The school also has a short semi-circular drop-off/pick-up area at the main entrance to the school, which has an entry and an exit driveway. The proposed school project would substantially increase the size of the parking lot to 130 spaces and a new driveway would be provided so that the expanded parking lot would have two access driveways. Student drop-off/pick-up zones as well as a bus loading/unloading zone would be provided along the perimeter of the expanded parking lot adjacent to the school buildings. This would substantially improve the drop-off/pick-up situation at the school because those activities are currently accommodated in the short semi-circular area (which will remain) and along the street.

The proposed project would improve vehicular and pedestrian operations and safety because it would provide enhanced opportunities for student drop-offs and pick-ups adjacent to the school buildings as opposed to occurring on the street. This would minimize vehicular-pedestrian conflicts because the students using these facilities would not have to cross the path of moving vehicles while walking to and from the school buildings.

Non-Motorized Transportation and Transit

The proposed project would generate a minor increase in demand for non-motorized travel as some students and employees may elect to travel to and from the school site as pedestrians or on bicycles. All of the streets in the school vicinity have sidewalks and there are yellow school crosswalks on Loara Street and Orangewood Avenue. These features facilitate pedestrian travel to and from the school and would not be noticeably impacted by the increased number of students at the school.

Bike lanes are provided on Chapman Avenue and Orangewood Avenue near the school site. In addition, bike racks will be provided on the school campus. These bike facilities would not be adversely impacted by the increased number of students at the school.

With regard to public transit, it is not anticipated that ridership on the bus routes cited previously would be noticeably affected by the school expansion project.

Findings Relative to CEQA Transportation Issues

The proposed project involves the expansion of the existing Mark Twain School to increase the number of students from 89 existing students to 194 students, which is an increase of 105 students. For the transportation analysis, Appendix G of the CEQA Guidelines states that a proposed project could have a significant effect on the environment if the project would:

- a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities,
- b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT),

- c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), or
- d) Result in inadequate emergency access.

The findings regarding each of these issues are presented in the following sections.

Issue: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

CEQA Finding: No Impact

The Circulation Element of the City of Garden Grove General Plan includes various goals and policies that govern the system of roadways, intersections, bicycle paths, pedestrian ways, and other components of the circulation system, which collectively provide for the movement of people and goods throughout the City. The proposed school expansion project is consistent with the goals and policies presented in the Circulation Element. The project would not conflict with any objectives, policies, or programs of the General Plan and it would not adversely affect the performance of any roadway, transit, or non-motorized (pedestrian and bicycle) transportation facilities.

Based on the traffic analysis, the discussion of non-motorized transportation and transit, and a review of the Circulation Element of the City's General Plan, the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Issue: Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT).

CEQA Finding: Less Than Significant Impact

Vehicle delays and levels of service (LOS) have historically been used as the basis for determining the significance of traffic impacts as standard practice in California Environmental Quality Act (CEQA) documents. On September 27, 2013, SB 743 was signed into law, starting a process that fundamentally changed transportation impact analyses as part of CEQA compliance. SB 743 eliminated auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as the sole basis for determining significant impacts under CEQA. As part of the current CEQA Guidelines, the criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099(b)(1)). Pursuant to SB 743, the California Natural Resources Agency adopted revisions to the CEQA Guidelines on December 28, 2018, to implement SB 743. CEQA Guidelines Section 15064.3 describes how transportation impacts are to be analyzed after SB 743. Under the Guidelines, metrics related to "vehicle miles traveled" (VMT) were required beginning July 1, 2020, to evaluate the significance of transportation impacts under CEQA for development projects, land use plans, and transportation infrastructure projects. State courts ruled that under the Public Resources Code Section 21099, subdivision (b)(2), "automobile delay, as described solely by level

of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment” under CEQA, except for roadway capacity projects.

The City of Garden Grove “Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment” (May 2020) lists the land use types that are considered local-serving and are exempt from VMT analysis. It states that uses in the local-serving category would have a less than significant transportation impact and can be screened from requiring a detailed VMT analysis. As schools are included in the list of local-serving land uses, this school expansion project would have a less than significant transportation impact.

Also, the project does not represent new traffic on the roadway network because the ATP students that would attend Mark Twain School as a result of the project would have attended the ATP at Jordan School if the project were not implemented. So there would be little or no net increase in VMT associated with the project. The proposed project would, therefore, have a less than significant impact on VMT according to the guidelines.

Issue: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

CEQA Finding: Less Than Significant Impact

The proposed project would not provide any on- or off-site access or circulation features that would create or increase any design hazards or incompatible uses. Access to the school site would be provided by the existing driveways as well as a new driveway on the east side of Loara Street. All street improvements in the public right-of-way would be designed and constructed consistent with the City of Garden Grove standards and all improvements within the project site would be consistent with the criteria of the California Division of the State Architect.

The increased levels of traffic, the increased number of pedestrians, and the increased number of vehicular turning movements that would occur at the driveways and at the nearby intersections would result in an increased number of traffic conflicts and a corresponding increase in the probability of an accident occurring. These impacts would not be significant, however, because the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity. These streets and intersections have historically been accommodating school-related traffic on a daily basis for the existing school. The proposed project would add more vehicles to the streets in the immediate vicinity of the school, but the additional vehicles would be compatible with the design and use of the affected streets. The proposed project would not result in any major safety or operational issues relative to access and circulation.

As the existing street network could readily accommodate the anticipated increase in vehicular, pedestrian, and bicycle activity, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses.

Issue: Result in inadequate emergency access.

CEQA Finding: No Impact

The existing and proposed access and circulation features at the school, including the driveways, on-site roadways, parking lots, and fire lanes, would accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. In addition to the existing access features, a new driveway, an expanded parking lot, and new drop-off/pick-up areas would be provided at the campus. These facilities would provide access to the school grounds, the buildings, and all other areas of the project site, including the playfields and hard courts. The design and any modifications to the access features are subject to and must satisfy the District's requirements and would be subject to approval by the Fire Department and the California Division of the State Architect. The proposed project would not, therefore, result in inadequate emergency access.

IV. SUMMARY OF IMPACTS AND CONCLUSIONS

The key findings of the traffic impact analysis are presented below.

- The proposed school expansion project would generate a net increase of 106 vehicle trips during the morning peak hour (72 inbound and 34 outbound), 93 trips during the afternoon peak hour (36 inbound and 57 outbound), and 380 trips per day.
- The increase in traffic volumes generated by the school expansion would result in a minor increase in traffic volumes on Loara Street.
- CEQA threshold of significance “a” asks if the proposed project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The analysis indicates that there would be no impact because:
 - The proposed project would not adversely affect the performance or safety of any roadway, transit, or non-motorized transportation facilities (pedestrians and bicycles) and would not conflict with any adopted plans, policies, or programs relative to these transportation modes.
 - The Circulation Element of the City of Garden Grove General Plan includes various goals and policies that govern the system of roadways, intersections, bicycle paths, pedestrian ways, and other components of the circulation system. The proposed project is consistent with the goals and policies presented in the Circulation Element and would not conflict with any objectives, policies, or programs of the General Plan.
- CEQA threshold of significance “b” asks if the proposed project would conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT). The analysis indicates that the VMT impact would be less than significant because the proposed project is a local-serving facility. The City of Garden Grove “Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment” lists the land use types that are considered local-serving and are exempt from VMT analysis. It states that uses in the local-serving category, which includes schools, would have a less than significant transportation impact and can be screened from requiring a detailed VMT analysis.
- CEQA threshold of significance “c” asks if the proposed project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). The analysis indicates that the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity and that the streets have historically been accommodating the traffic generated by the existing school. The expanded school would be compatible with the neighborhood and would not result in any major hazards for vehicular traffic, pedestrians, or bicyclists. The proposed project would not, therefore, substantially increase hazards due to a geometric design feature or incompatible uses and the impacts would be less than significant.

- CEQA threshold of significance “d” asks if the proposed project would result in inadequate emergency access. The existing and proposed access and circulation features at the school, including the driveways, on-site roadways, parking lots, and fire lanes, would readily accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. Emergency vehicles would be able to access the school grounds, the buildings, and all other areas of the school, including the play fields and hard courts, via on-site travel corridors. The proposed project would not result in inadequate emergency access and there would be no impact.