TRAFFIC IMPACT ANALYSIS

FOR THE PROPOSED RELOCATION OF

RICHMOND ELEMENTARY SCHOOL

WEST SIDE OF RICHMOND ROAD NORTH OF RIDGECREST BOULEVARD

RIDGECREST

Prepared for

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&
PLACE WORKS

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I.
INTRODUCTION AND PROJECT DESCRIPTION

This report summarizes the results of a traffic impact analysis that was conducted for the relocation of the Richmond Elementary School that is proposed by the Sierra Sands Unified School District. The new school site is on the west side of Richmond Road north of Ridgecrest Boulevard and south of Gold Canyon Street in Ridgecrest. The existing elementary school is located at 1206 Kearsarge Avenue on the China Lake Naval Air Weapons Station (CLNAWS) base. The proposed school site is approximately two miles south of the existing school site. Figure 1 in the Appendix is a vicinity map that shows the location of the proposed school.

Project Description

The new elementary school would initially have the same number of students as the existing school (460 students) plus an additional 109 special education students. The total capacity of the school, however, would be 822 students. The traffic analysis is based on the assumption that the school would operate at a capacity level of 822 students to ensure that the analysis is conservative (worst case). The school can accommodate up to 822 students in grades TK to 6.

The school campus would consist of classroom buildings, an administration building, sports fields, hardcourts, parking lots, a student drop-off/pick-up area, and a bus loading/unloading zone. The site plan for the school is shown on Figure 2.

Access to the school site would be provided by two driveways on Richmond Road. The north driveway is an entry-only driveway for bus access only. The south driveway serves as an entry/exit for parent drop-off, the bus exit, and access to the school's parking lots. Nine buses would be used to transport students to and from the school, comprised of 7 special needs buses (for 69 students), 2 general education buses (for 130 students), and 2 buses from the base (for 70 students).

Analysis Methodology

An analysis has been prepared to evaluate the traffic impacts of the proposed elementary school relocation. The objective of the analysis was to quantify the impacts of the relocated school on traffic conditions on the streets and intersections in the vicinity of the project site. The methodology for the traffic study, in general, was to:

1. Establish the existing baseline traffic conditions on the streets and intersections that provide access to the school site,
2. Project the future baseline traffic conditions for the target year of full operation for the completed school (year 2024),
3. Estimate the levels of traffic that would be generated by the school on a typical day of operation and geographically distribute this project-generated traffic onto the study area roadway network,
4. Conduct a comparative analysis of traffic conditions with and without the new school,
5. Evaluate access, circulation, and safety issues, and
6. Identify recommended mitigation measures/street improvements.

The traffic analysis is based on the morning (AM) peak hour traffic volumes on the streets and intersections in the vicinity of the project site. The following analysis scenarios were addressed:

- Existing (year 2020) conditions
- Existing plus project conditions
- Future (year 2024) conditions without the school
- Future conditions with the school.

The analysis was conducted by calculating the levels of service (LOS) at the study area intersections for each analysis scenario. The levels of service were calculated by using the Highway Capacity Manual (HCM) methodology, which uses average vehicular delay to determine the levels of service.

Only the morning peak hour was addressed in the intersection analysis because an elementary school would typically have negligible impacts during the late afternoon commuter peak period. The school-generated traffic at the beginning of the school day would coincide with the morning commuter peak hour; therefore, the impacts on the morning peak hour have been evaluated in this study. The school traffic at the end of the school day would typically occur during the early afternoon generally between 2:00 and 3:00 p.m. when traffic volumes on the roadways are relatively light (as compared to the peak periods). The school would not typically have an impact on the late afternoon commuter peak hour, which occurs generally from 5:00 to 6:00 p.m. The afternoon peak period has not, therefore, been evaluated. It should be noted that the AM peak hour for the base is earlier and does not coincide with the school traffic.

The traffic analysis addresses the impacts at eight intersections in the vicinity of the school site as well as the school's access driveways. The study area intersections, the type of traffic control at each intersection, and the government agency that has jurisdictional responsibility for each intersection are listed below in Table 1.

TABLE 1
STUDY AREA INTERSECTIONS

Intersection	***Traffic Control***	***Jurisdiction***
SIGNALIZED INTERSECTIONS		
China Lake Boulevard/Drummond Avenue	Traffic Signal	Caltrans
China Lake Boulevard/Las Flores Avenue	Traffic Signal	Caltrans
China Lake Boulevard/French Avenue	Traffic Signal	Caltrans
China Lake Boulevard/Ridgecrest Boulevard	Traffic Signal	Caltrans
Ridgecrest Boulevard/Richmond Road	Traffic Signal	Caltrans
UNSIGNALIZED INTERSECTION		
Ridgecrest Boulevard/Sunland Street	4-Way Stop Signs	Caltrans
Ridgecrest Boulevard/Gateway Boulevard	Stop Signs on Gateway	Caltrans
Richmond Road/Gold Canyon Street	Stop Sign on Gold Canyon	CLNAWS
Richmond Road/School Access Driveways (Future Intersections)	Stop Signs on Driveways (Proposed)	CLNAWS

II.
EXISTING AND FUTURE BASELINE TRAFFIC CONDITIONS

The street network in the project vicinity, the existing traffic volumes, and the levels of service (LOS) at the most directly affected study area intersections are described below.

Study Area Street Network

The streets that provide access to the proposed school site include Richmond Road, Ridgecrest Boulevard, Gold Canyon Street, China Lake Boulevard, Drummond Avenue, Las Flores Avenue, French Avenue, Sunland Street, and Gateway Boulevard. These streets are described below and illustrated on Figure 3, which shows the type of traffic control at each intersection (traffic signal or stop signs), the lane configuration at each intersection, the number of lanes on each street segment, and the speed limit on each street.

Richmond Road is a two lane north-south street that abuts the east side of the school site. It is classified as a collector road in the City of Ridgecrest General Plan Circulation Element. Access to the school site would be provided by two driveways on Richmond Road. The speed limit on Richmond Road is 50 miles per hour (mph) north of Ridgecrest Boulevard and 35 mph south of Ridgecrest Boulevard. Richmond Road north of Ridgecrest Boulevard is in the jurisdiction of CLNAWS.

Ridgecrest Boulevard is a two to four lane east-west street located immediately south of the school site. It has two lanes west of China Lake Boulevard, four lanes between China Lake Boulevard and Richmond Road, and two lanes east of Richmond Road. It is classified as an arterial roadway west of China Lake Boulevard and as a State highway east of China Lake Boulevard (State Highway 178). The speed limit on Ridgecrest Boulevard is 25 mph west of China Lake Boulevard, 40 mph between China Lake Boulevard and Sunland Street, 45 mph between Sunland Street and Gateway Boulevard, 50 mph between Gateway Boulevard and Richmond Road, and 55 mph east of Richmond Road.

Gold Canyon Street is a two lane east-west street that abuts the north side of the school site. It is classified as a secondary street. The speed limit on Gold Canyon Street is 35 mph. Gold Canyon Street along the school frontage is in the jurisdiction of CLNAWS.

China Lake Boulevard/US 395 (Business) is a four lane north-south roadway located approximately one mile west of the school site. It is classified as a State highway north of Ridgecrest Boulevard and as an arterial roadway south of Ridgecrest Boulevard. It is designated as State Highway 178 north of Ridgecrest Boulevard and as US 395 (Business) throughout the study area. The speed limit on China Lake Boulevard is 35 mph.

Drummond Avenue is a four lane east-west street that intersects with China Lake Boulevard approximately 1¼ mile northwest of the school site. It is classified as an arterial roadway. The speed limit on Drummond Avenue is 40 mph.

Las Flores Avenue is a four lane east-west street that intersects with China Lake Boulevard approximately one mile west of the school site. It is classified as a secondary street west of China Lake Boulevard and as a collector street east of China Lake Boulevard. The speed limit on Las Flores Avenue is 35 mph east of China Lake Boulevard and 40 mph west of China Lake Boulevard.

French Avenue is a four lane street that intersects with China Lake Boulevard approximately one mile west of the school site. It intersects with China Lake Boulevard in an east-west direction then curves in a northeasterly direction to provide access to a City park and to Murray Middle School and Burroughs High School. French Avenue is classified as a secondary street east of China Lake Boulevard and as a local street west of China Lake Boulevard. The speed limit on French Avenue is 40 mph east of China Lake Boulevard and 25 mph west of China Lake Boulevard.

Sunland Street is a two to four lane north-south street that intersects with Ridgecrest Boulevard approximately ½ mile west of the school site. It has two lanes north of Ridgecrest Boulevard and four lanes south of Ridgecrest Boulevard and is classified as a secondary street. The speed limit on Sunland Street is 25 mph.

Gateway Boulevard is a two lane north-south street that intersects with Ridgecrest Boulevard near the southwest corner of the school site. It is classified as a secondary street north of Ridgecrest Boulevard and as an arterial roadway south of Ridgecrest Boulevard. The speed limit on Gateway Boulevard is 25 mph.

Existing Transit Service

The City of Ridgecrest operates three Ridgerunner Transit bus routes in the project area. The Coyote L1 line runs along China Lake Boulevard south of Ridgecrest Boulevard, along Ridgecrest Boulevard between China Lake Boulevard and Gateway Boulevard, and along Gateway Boulevard south of Ridgecrest Boulevard. The Roadrunner L2 line runs along China Lake Boulevard and parts of Drummond Avenue, French Avenue, Gold Canyon Street, and Ridgecrest Boulevard east of the China Lake Boulevard corridor. The Rattlesnake L3 line runs along China Lake Boulevard and on parts of Drummond Avenue, Las Flores Avenue, French Avenue, and Ridgecrest Boulevard west of China Lake Boulevard. In addition, the Mid-Day Express line runs along the China Lake Boulevard corridor. None of these bus lines runs adjacent to the school site and the nearest bus stop is a Coyote L1 stop at the corner of Ridgecrest Boulevard and Gateway Boulevard.

Existing Traffic Volumes

Manual traffic counts were taken at the study area intersections during the morning peak period in August 2020. However, since the schools in the Sierra Sands Unified School District were operating remotely and the overall traffic volumes were lower than normal because of the COVID-19 pandemic, previous traffic reports were researched to document historic traffic volumes at the study area intersections. The reports that were primarily sourced were the traffic reports for the relocation of Murray Middle School (2013) and the expansion of Burroughs High School (2014), both of which were prepared for the Sierra Sands Unified School District.

The traffic volumes and projections from these reports were quantified and those values were expanded by a growth factor of 4.1 percent (0.5 percent per year for 8 years) to estimate the existing traffic volumes at each intersection for normal non-pandemic conditions. In addition, traffic volumes provided by Caltrans were used to document the historical traffic volume trends on the State highways in Ridgecrest; i.e., China Lake Boulevard and Ridgecrest Boulevard.

The existing peak hour traffic volumes at each intersection are shown on Figure 4 in the Appendix. The figure shows the morning peak hour traffic volumes and turning movements. The morning peak hour represents the time when the street network's commuter traffic and the school's arrival traffic coincide, which typically occurs between 7:00 and 8:00 AM.

Intersection Levels of Service

To quantify the existing baseline traffic conditions, the study area intersections were analyzed to determine their operating conditions during the AM peak hour. The traffic conditions were quantified by calculating the levels of service at each intersection. Level of service (LOS) is an industry standard by which the operating conditions of a roadway segment or an intersection are measured.

LOS is defined on a scale of A through F with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS A is characterized as having free flowing traffic conditions with minimal vehicle delay and no restrictions on maneuvering or operating speeds, where traffic volumes are low and travel speeds are high. LOS F is characterized as having forced flow with many stoppages, high levels of delay, and low operating speeds.

Levels of service are based on the average amount of vehicular delay that occurs at an intersection. The average levels of vehicle delay at each intersection and the resulting levels of service were determined using the Highway Capacity Software (HCS). This software is a representation of the level of service calculation guidelines of the Highway Capacity Manual (HCM). The relationship between delay values and the corresponding levels of service is shown in Table 2.

TABLE 2
RELATIONSHIP BETWEEN DELAY VALUES & LEVELS OF SERVICE

Level of Service	Delay Value (seconds per vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	0.0 to 10.0	0.0 to 10.0
B	> 10.0 to 20.0	> 10.0 to 15.0
C	> 20.0 to 35.0	> 15.0 to 25.0
D	> 35.0 to 55.0	> 25.0 to 35.0
E	> 55.0 to 80.0	> 35.0 to 50.0
F	> 80.0	> 50.0

To quantify the existing baseline traffic conditions, the study area intersections were analyzed to determine their operating conditions during the morning peak hour. Based on the peak hour traffic volumes, the turning movement counts, and the existing number of lanes at each intersection, the average vehicle delay values at the eight intersections in the study area were calculated and the corresponding levels of service were determined at each intersection, as summarized in Table 3.

According to the City of Ridgecrest General Plan Circulation Element and Caltrans, LOS A through C represents acceptable traffic conditions. Table 3 indicates that one of the study area

intersections currently operates at LOS A, four intersections operate at LOS B, and three intersections operate at LOS C during the morning peak hour. The delay values and levels of service for the signalized intersections and the intersection with 4-way stop signs represent the average values for the entire intersection, i.e., for vehicles on all approaches to the intersection. The delay values and levels of service for the intersections with stop signs on the side streets represent the average values for the vehicles that are stopped at the stop signs.

TABLE 3
EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Delay Value (seconds) & Level of Service
SIGNALIZED INTERSECTIONS	
China Lake Boulevard/Drummond Avenue	18.4 – B
China Lake Boulevard/Las Flores Avenue	13.7 – B
China Lake Boulevard/French Avenue	23.3 – C
China Lake Boulevard/Ridgecrest Boulevard	25.3 – C
Ridgecrest Boulevard/Richmond Road	12.1 – B
UNSIGNALIZED INTERSECTIONS	
Ridgecrest Boulevard/Sunland Street	10.7 – B
Ridgecrest Boulevard/Gateway Boulevard	16.4 – C
Richmond Road/Gold Canyon Street	8.6 – A

Future Baseline Traffic Conditions

As the new school is expected to be completed and occupied in the fall of 2023, the target year for the traffic analysis is 2024 because that would be the first full year of operation for the relocated school. To estimate the traffic volumes for the year 2024, the existing traffic volumes were expanded by a growth factor of two percent (0.05 percent per year for four years). This growth factor accounts for general regional growth and the cumulative impacts of traffic associated with other development projects in the area. The projected future baseline traffic volumes without the project are shown on Figure 5 for the morning peak hour.

Based on the projected peak hour traffic volumes, the turning movement counts, and the existing lane configuration, the future baseline levels of service were calculated for each study area intersection, as summarized in Table 4.

For the target year of 2024, all eight of the study area intersections are projected to operate at acceptable levels of service (LOS A through C) during the AM peak period. Table 4 indicates that one of the study area intersections is projected to operate at LOS A, four intersections would operate at LOS B, and three intersections would operate at LOS C during the morning peak hour.

TABLE 4
2024 INTERSECTION LEVELS OF SERVICE WITHOUT PROJECT

Intersection	Delay Value (seconds) & Level of Service
SIGNALIZED INTERSECTIONS	
China Lake Boulevard/Drummond Avenue	18.8 – B
China Lake Boulevard/Las Flores Avenue	13.7 – B
China Lake Boulevard/French Avenue	24.3 – C
China Lake Boulevard/Ridgecrest Boulevard	26.4 – C
Ridgecrest Boulevard/Richmond Road	12.1 – B
UNSIGNALIZED INTERSECTIONS	
Ridgecrest Boulevard/Sunland Street	10.9 – B
Ridgecrest Boulevard/Gateway Boulevard	16.6 – C
Richmond Road/Gold Canyon Street	8.6 – A

III.
TRAFFIC IMPACT ANALYSIS

The following sections summarize the analysis of the proposed school's impacts on the study area traffic conditions. First is a discussion of the significance criteria and the project generated traffic volumes. This is followed by an analysis of the impacts of the proposed school on traffic volumes and intersection levels of service. Then the issues associated with site access and pedestrian safety are presented.

Significance Criteria

According to the City of Ridgecrest and Caltrans standards, an intersection would be significantly impacted if the project would result in a change in the level of service from an acceptable LOS A, B, or C to an unacceptable LOS D, E, or F. The impacts would not be significant at locations that are projected to operate at LOS A, B, or C after project completion.

Project Generated Traffic

The relocated elementary school would result in an increase in traffic volumes on the streets that serve as access routes to the school site because students would be transported to and from the school by their parents or guardians and the faculty/staff would be driving to and from the school. The trip generation rates and the anticipated volumes of traffic that would be generated by the proposed school are shown in Table 5.

The trip rates for the school represent values from the *Trip Generation Manual* (10th Edition, 2017) for the elementary school land use category (trips per student). Although the trip generation rates and traffic volumes shown in the table are based on the number of students, the data represent the total number of vehicle trips generated at the school, including staff/faculty vehicles, drop-off/pick-up activities, visitors, and deliveries.

TABLE 5
PROJECT GENERATED TRAFFIC

Land Use	*AM Peak Hour*			*PM Peak Hour*			*Daily Traffic*
	Total Traffic	*Trips In*	*Trips Out*	*Total Traffic*	*Trips In*	*Trips Out*	
TRIP GENERATION RATES							
Elementary School (trips per student)	0.67	54%	46%	0.34	45%	55%	1.89
GENERATED TRAFFIC VOLUMES							
Elementary School (822 students)	551	298	253	279	126	153	1,550

Table 5 indicates that the school would generate an estimated 551 vehicle trips during the morning peak hour (298 inbound and 253 outbound), 279 trips during the afternoon peak hour (126 inbound and 153 outbound), and 1,550 trips per day. It should be noted that these volumes of project generated traffic do not necessarily represent new traffic on the overall street network, but instead represent the volumes of traffic that would be re-directed to this school site from the existing Richmond Elementary School site. The number of students attending school in the area

is a function of the school-age population rather than the number of schools or classrooms. However, for the traffic impact analysis, it has been assumed that the site-generated traffic represents new traffic.

To quantify the increase in traffic at each intersection resulting from the proposed project, the traffic that would be generated by the school during the morning peak hour was geographically distributed onto the roadway network based on the student boundaries and the observed traffic patterns on the study area roadway network. Figure 6 shows the assumed geographic distribution of project generated traffic. Although most of the students would reside in the student area for the existing Richmond Elementary School, which is located in the north part of the study area, the revised student boundaries would also include the residential neighborhood located on the north side of Ridgecrest Boulevard between Sunland Street and Gateway Boulevard. In addition, the school would have a special education magnet component that would draw students from throughout the District area.

Using the generated traffic volumes shown in Table 5 and the geographical distribution assumptions outlined above, the volumes of project traffic on each roadway and at each study area intersection were determined for the traffic impact analysis. The volumes of project generated traffic at each study area intersection are shown on Figure 6 for the AM peak hour.

Projected Traffic Volumes

For purposes of evaluating the impacts of the relocated school, the traffic analysis considers two baseline scenarios. One is the project's impacts on existing conditions and the other is the project's impacts on the projected year 2024 conditions. To quantify the impacts on existing conditions, the project generated traffic volumes shown on Figure 6 were added to the existing traffic volumes. The resulting "existing plus project" traffic volumes are shown on Figure 7.

The total volumes of traffic projected for the year 2024 traffic conditions for the "with project" scenario were determined by adding the project generated traffic to the future year 2024 baseline traffic volumes. The "2024 with project" traffic volumes are shown on Figure 8.

Intersection Impact Analysis

An analysis of traffic impacts was conducted by quantifying the before-and-after traffic volumes, then determining the average delay values and levels of service at the study area intersections for the "without project" and "with project" scenarios. Two scenarios were used as the baseline conditions for the intersection impact analysis: existing year 2020 conditions and the projected year 2024 conditions. The year 2024 was used as the target year for future conditions as that is the first full year that the relocated elementary school would be operational. The impact analysis, therefore, addresses the following four scenarios.

- Existing Traffic Conditions
- Existing plus Project Traffic Conditions
- Year 2024 without Project
- Year 2024 with Project.

The before-and-after delay values and levels of service at each of the study area intersections are summarized in Table 6 for the existing conditions baseline scenario. The table shows the

existing traffic conditions, the traffic conditions with the addition of the school-generated traffic, and the increase in delay values associated with the project. The final column in the table indicates if the intersection would be significantly impacted by the school traffic according to the significance criteria outlined above.

TABLE 6
PROJECT IMPACT ON INTERSECTION LEVELS OF SERVICE
EXISTING CONDITIONS AS BASELINE

Intersection	*Delay Value & Level of Service*		*Increase In Delay Value*	*Significant Impact?*
	Existing Conditions	*Existing Plus Project*		
SIGNALIZED INTERSECTIONS				
China Lake Blvd/Drummond Avenue	18.4 – B	19.8 – B	1.4	No
China Lake Blvd/Las Flores Avenue	13.7 – B	14.1 – B	0.4	No
China Lake Blvd/French Avenue	23.3 – C	27.9 – C	4.6	No
China Lake Blvd/Ridgecrest Blvd	25.3 – C	33.0 – C	7.7	No
Ridgecrest Blvd/Richmond Road	12.1 – B	15.8 – B	3.7	No
UNSIGNALIZED INTERSECTIONS				
Ridgecrest Blvd/Sunland Street	10.7 – B	13.4 – B	2.7	No
Ridgecrest Blvd/Gateway Blvd	16.4 – C	24.2 – C	7.8	No
Richmond Road/Gold Canyon Street	8.6 – A	9.0 – A	0.4	No
Richmond Road/School Access Driveways	-	11.4 – B	11.4	No

The intersection of China Lake Boulevard and Drummond Avenue, for example, operates with an average delay value of 18.4 seconds and LOS B for existing conditions and with a delay value of 19.8 seconds and LOS B for the existing scenario plus the proposed school traffic. The additional traffic generated by the school would increase the average delay at the intersection by 1.4 seconds and the intersection would not be significantly impacted based on the criteria outlined previously.

Table 6 indicates that the proposed school relocation would not have a significant impact at any of the study area intersections for the existing conditions baseline scenario based on the City of Ridgecrest and Caltrans significance criteria as all of the intersections would continue to operate at acceptable levels of service.

For the intersection of Richmond Road at the school access driveways, it was assumed for the analysis that there would be only one driveway and that the driveway would have a stop sign and two exit lanes; i.e., a left turn lane and a right turn lane. This represents a worst-case analysis scenario because the school would have two driveways on Richmond Road according to the proposed site plan.

The comparative delay values and levels of service for the year 2024 analysis scenario are shown in Table 7. As shown, none of the study area intersections would be significantly impacted by the proposed school project.

TABLE 7
PROJECT IMPACT ON INTERSECTION LEVELS OF SERVICE
YEAR 2024 AS BASELINE

Intersection	*Delay Value & Level of Service*		*Increase In Delay Value*	*Significant Impact?*
	2024 Without Project	*2024 With Project*		
SIGNALIZED INTERSECTIONS				
China Lake Blvd/Drummond Avenue	18.8 – B	20.2 – C	1.4	No
China Lake Blvd/Las Flores Avenue	13.7 – B	14.1 – B	0.4	No
China Lake Blvd/French Avenue	24.3 – C	29.9 – C	5.6	No
China Lake Blvd/Ridgecrest Blvd	26.4 – C	34.7 – C	8.3	No
Ridgecrest Blvd/Richmond Road	12.1 – B	15.9 – B	3.8	No
UNSIGNALIZED INTERSECTIONS				
Ridgecrest Blvd/Sunland Street	10.9 – B	13.7 – B	2.8	No
Ridgecrest Blvd/Gateway Blvd	16.6 – C	24.5 – C	7.9	No
Richmond Road/Gold Canyon Street	8.6 – A	9.0 – A	0.4	No
Richmond Road/School Access Driveways	-	11.4 – B	11.4	No

Congestion Management Program

The Congestion Management Program (CMP) for Kern County is administered by the Kern Council of Governments (Kern COG), which serves as the congestion management agency. The CMP documentation, which is included as a subsection of the Kern County Regional Transportation Plan, indicates that the CMP roadways nearest to the project site are China Lake Boulevard and Ridgecrest Boulevard (State Route 178). According to the CMP, level of service E has been established as the minimum LOS standard for the roadways on the Kern County CMP network. As detailed in the previous section, the study area intersections along the CMP roadways would continue to operate at LOS A, B, and C for the "with project" scenarios, which is better than the minimum CMP standard of LOS E. The proposed school relocation project would not, therefore, exceed a level of service standard established by the county congestion management agency for designated roads or highways, and the project's impacts on the CMP roadways would be less than significant.

Non-Motorized Transportation and Transit

The proposed project would generate a demand for non-motorized travel as some students and staff would travel to and from the school as pedestrians or on bicycles. The streets adjacent to the school site (Richmond Road, Gold Canyon Street, and Ridgecrest Boulevard) do not currently have sidewalks along the sides of the street. The signalized intersection of Ridgecrest Boulevard and Richmond Road is, however, equipped with painted crosswalks, pedestrian signals, and pedestrian push buttons to activate the signals.

As a component of the project development, sidewalks would be provided on the streets that abut the school site and a pedestrian access gate would be provided on Gateway Boulevard to accommodate students and parents who elect to walk to the school from the residential area southwest of the school site. The site plan indicates that an on-site pedestrian path/sidewalk would be provided to connect the Gateway Boulevard access gate to the school campus.

With regard to bicycle travel, bike lanes are currently in place on Richmond Road, Ridgecrest Boulevard, Gateway Boulevard, Sunland Street, and China Lake Boulevard. Bike racks would be provided at the school campus.

With regard to public transit, the City of Ridgecrest's Ridgerunner Transit does not have any bus lines that run adjacent to the school site. The Coyote L1 line runs along Ridgecrest Boulevard and Gateway Boulevard and has a bus stop at the corner of Ridgecrest Boulevard and Gateway Boulevard near the southwest corner of the school site.

The proposed school project would not adversely affect the performance of these transit or non-motorized transportation facilities and would not conflict with any plans or policies relative to these transportation modes.

Traffic Hazards and Incompatible Uses

The increased levels of traffic, the increased number of pedestrians and bicycles in the area, and the increased number of vehicular turning movements at the site access driveways, at the nearby intersections, and in the general vicinity of the school would result in an increased number of traffic conflicts and a corresponding increase in the probability of an accident occurring.

These impacts could potentially be significant; however, they could be mitigated by constructing sidewalks on the west side of Richmond Road and the east side of Gateway Boulevard along the school frontage, by installing school area warning signs with speed limit reductions to notify drivers that they are entering a school zone, and by re-painting the crosswalks at the Ridgecrest Boulevard/Richmond Road intersection with yellow paint or thermoplastic. These features are subject to approval by the City of Ridgecrest, Caltrans, and China Lake Naval Air Weapons Station (CLNAWS). In addition, a "Suggested Route to School" plan should be prepared to provide information to students, parents, and faculty and to be used as a plan for implementing future pedestrian safety improvements.

To improve safety at the school access driveways, Richmond Road should be widened along the school frontage and left turn pockets should be provided on Richmond Road at the two driveways to accommodate the northbound-to-westbound traffic movements into the school site.

The recommended improvement/mitigation measures relative to traffic and vehicular safety are outlined below. With the implementation of these measures, the traffic and pedestrian safety impacts would not be significant because the streets, intersections, and driveways are designed and will be designed to accommodate the anticipated levels of vehicular, bicycle, and pedestrian activity and there are no visibility constraints at the school's access driveways associated with curves or hills. The proposed school would, therefore, be a compatible use in the area and would not substantially increase hazards due to a design feature.

Recommended Improvement/Mitigation Measures:

- Construct sidewalks on the west side of Richmond Road and the east side of Gateway Boulevard along the school frontage, subject to approval by the City of Ridgecrest and CLNAWS.
- Install school area warning signs on Ridgecrest Boulevard, Richmond Road, and Gold Canyon Street that state "School – Speed Limit 25 – When Children Are Present" and install a school zone sign on Gateway Boulevard, subject to approval by the City of Ridgecrest, Caltrans, and CLNAWS.
- Re-paint the crosswalks at the Ridgecrest Boulevard/Richmond Road intersection with yellow paint or thermoplastic, subject to approval by the City of Ridgecrest, Caltrans, and CLNAWS.
- Prepare a "Suggested Route to School" plan, as a cooperative effort between the District and the City of Ridgecrest, to be distributed annually to students, parents, and faculty and to be used as a plan for implementing school-related pedestrian improvements in the future.
- Widen Richmond Road along the school frontage and provide left turn pockets on Richmond Road at the two school access driveways to accommodate the northbound-to-westbound traffic movements into the school site, subject to approval by CLNAWS.

Site Access and Circulation

Access to the school site would be provided by two driveways on the west side of Richmond Road between Gold Canyon Street and Ridgecrest Boulevard. The north driveway is an entry-only driveway for bus access only. The south driveway serves as an entry/exit for parent drop-off, the bus exit, and access to the school's parking lots.

The south driveway would have two exit lanes on the approach to its intersection with Richmond Road. One would be a right turn lane and the other would be a left turn lane. The exiting traffic would be controlled with stop signs.

Emergency Access

The proposed access and circulation features at the school, including the on-site roadways, parking lots, and fire lanes, would accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. Site access would be provided via the two driveways on Richmond Road. On-site emergency access lanes would be provided for access to the school buildings and athletic facilities, and all access features will be subject to and must satisfy the design requirements of the District and the California Division of the State Architect. The 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 822-student elementary school would generate an estimated 1,550 vehicle trips per day, 551 trips during the morning peak hour (298 inbound and 253 outbound), and 279 trips during the afternoon peak hour (126 inbound and 153 outbound).
- An analysis of eight intersections in the vicinity of the proposed school site indicates that the traffic generated by the school would not result in a significant impact at any of the intersections according to the City of Ridgecrest and Caltrans significance criteria.
- As there would be no significant traffic impacts, no capacity-related mitigation measures would be necessary.
- The concentration of vehicles, bicycles, and pedestrians at and near the school site would result in an increased number of traffic conflicts and a corresponding increase in the probability of an accident occurring. The following measures are recommended to mitigate the safety impacts.
    - Construct sidewalks on the west side of Richmond Road and the east side of Gateway Boulevard along the school frontage, subject to approval by the City of Ridgecrest and CLNAWS.
    - Install school area warning signs on Ridgecrest Boulevard, Richmond Road, and Gold Canyon Street that state “School – Speed Limit 25 – When Children Are Present” and install a school zone sign on Gateway Boulevard, subject to approval by the City of Ridgecrest, Caltrans, and CLNAWS.
    - Re-paint the crosswalks at the Ridgecrest Boulevard/Richmond Road intersection with yellow paint or thermoplastic, subject to approval by the City of Ridgecrest, Caltrans, and CLNAWS.
    - Prepare a “Suggested Route to School” plan, as a cooperative effort between the District and the City of Ridgecrest, to be distributed annually to students, parents, and faculty and to be used as a plan for implementing school-related pedestrian improvements in the future.
    - Widen Richmond Road along the school frontage and provide left turn pockets on Richmond Road at the two school access driveways to accommodate the northbound-to-westbound traffic movements into the school site, subject to approval by CLNAWS.