



Memorandum

Date: April 20, 2020
To: Barbara Beard, MIG Inc.
From: Gicela Del Rio, T.E.
Subject: Traffic Circulation Review for the Proposed Almaden Country Day School Facility Master Plan

Introduction

This memorandum presents the results of the traffic circulation and operations analysis conducted for the proposed Almaden Country Day School (ACDS) Facility Master Plan. ACDS is located at 6835 Trinidad Drive, in the Almaden Valley area of San Jose, California. The school campus sits on the former Henderson Elementary School site, a 9.13-acre site owned by the San Jose Unified School District.

The proposed ACDS Master Plan (hereafter also referred to as the project) is proposing improvements to the existing school campus, including the demolition and replacement of existing buildings, relocation of on-site buildings and parking, and construction of new school facilities and parking. The purpose of the proposed improvements is to modernize and enhance existing school elements, such as the campus, academics, and programs, as well as improve other aspects of the existing campus, such as the existing vehicular access and circulation. Student enrollment at the school is not proposed to be increased above historical levels with implementation of the Master Plan.

The proposed project is not anticipated to result in the addition of new school traffic to the school campus. Additionally, the proposed new buildings are not anticipated to generate new traffic during the peak hours of the adjacent street traffic. Therefore, the ACDS Master Plan would not have an effect on traffic conditions on the adjacent roadway network. The proposed improvements, however, would result in changes to the school's parking lot and pick-up/drop-off area, resulting in changes to vehicular access and circulation in the immediate vicinity of the school campus, as well as on-site circulation for both vehicles and pedestrians.

The general school campus location is shown on Figure 1.

Scope of Study

This study was conducted for the purpose of identifying any potential traffic operations issues associated with the ACDS Master Plan, in particular issues related to the operations of the proposed new parking and drop-off areas. The study evaluates the adequacy of site access, on-site circulation, drop-off/pick-up procedures, and any other potential deficiencies along the roadways providing access to the school site. This includes a quantitative analysis of the anticipated traffic volumes at the site's driveways, as well as a qualitative analysis of the drop-off activity procedures and parking layout. The evaluation is based on observations of existing conditions and trip generation counts at ACDS, the proposed new campus layout, access driveway locations, drop-off area and parking lot layout, adjacent roadways and pedestrian facilities, and in accordance with generally accepted traffic engineering standards.

Traffic conditions were evaluated during the school's peak hours, which were observed to be an hour between 7:00 AM and 9:00 AM (and coincides with the morning commute period) and between 2:00 PM and 4:00 PM (prior to the evening commute period, which typically occurs between 4:00 and 6:00 PM). It is during these peak periods that the school experiences the highest traffic volumes on an average day and the impact on the roadway system by school traffic would be greatest.

Figure 1
Project Site Location



Existing Conditions

Almaden Country Day School is an existing kindergarten through 8th-grade school with student enrollment levels varying from a high of 425 students to a low of 335 students over the past 12 years (2008-2020). Staffing has steadily increased over time starting at 59 in 2008 and increasing to 77 in 2020. The school campus is located at the northeast corner of the Trinidad Drive and Akio Way intersection, and is bounded by Trinidad Drive to the west, Akio Way to the south, private residences/Winterset Way to the east, and Greystone Park/Mt. Carmel Drive and Camden Avenue to the north. Regional access to the school is provided via Camden Avenue (via Mt. Carmel Drive and Winterset Way) and Almaden Expressway (via Trinidad Drive and Shadow Brook Drive). Direct access to the school campus is provided via Trinidad Drive and Akio Way. The ACDS campus location and surrounding area are shown on Figure 1.

Parking for the school is currently provided by a 42-space parking lot (both visitor and staff parking) and by an additional 24 staff parking spaces located along the school's south and east site boundaries (along the school's fire lane), for a total of 66 parking spaces on site. Access to the parking lot is provided via two driveways along Trinidad Drive (a two-way and an outbound only access driveway) and one driveway along Akio Way (inbound only access). The fire lane connects to the school parking lot at the Akio Way driveway. The existing school campus is shown on Figure 2.

Existing Transportation Network

Both Trinidad Drive and Akio Way are undivided two-lane residential roadways with on-street parking along both sides of the street, with the exception of the segments along the project site frontage on Akio Way (north side of the street) where parking is prohibited during the hours of 8:00 AM and 4:00 PM and along the ACDS parking lot on Trinidad Drive (east side of the street) where the curb is marked red. Both streets have posted speed limits of 25 miles per hour (mph). Although no stop signs are found at the intersections of Akio Way with Trinidad Drive and Winterset Way, both of these T-intersections operate as one-way stop-controlled intersections, with vehicles on Akio Way yielding to vehicles on Trinidad Drive and Winterset Way.

Various school area signs and pavement markings are currently located along roadways providing access to ACDS. These include the following:

- High visibility crosswalks (yellow crosswalk with longitudinal lines) at the intersection of Trinidad Drive/Akio Way (north and east legs)
- Yellow crosswalks at the intersections of Trinidad Drive/Mt. Carmel Drive (south and east legs of the intersection) and Winterset Way/Akio Way (north and west legs)
- SLOW SCHOOL XING pavement markings on the approaches to the high visibility and yellow crosswalks
- California Manual on Uniform Traffic Control Devices (CA MUTCD) school zone sign assemblies S1-1 and W16-9P (school crossing ahead sign), S1-1 and S4-3P (school zone sign), and S1-1 and W16-7P (school crossing sign) along Trinidad Drive, Akio Way, Winterset Way, and Mt. Carmel Drive.

The existing school signage and pavement markings in the project area satisfy the CA MUTCD recommended signage and crosswalk/pavement markings for school zones. The locations of the existing school signs and pavement markings are shown on Figure 3.

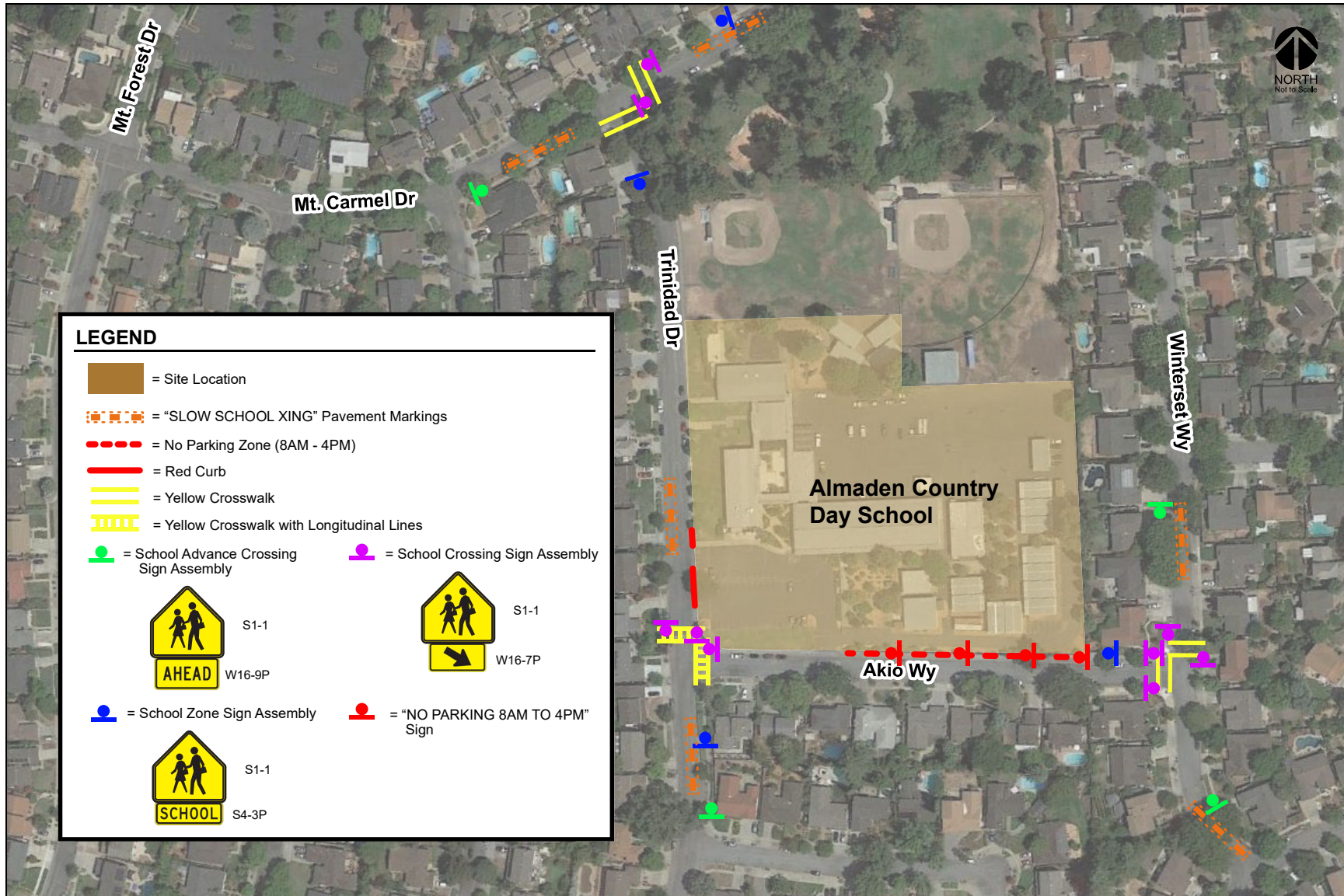
Pedestrian facilities in the vicinity of the school site include continuous sidewalks along both Trinidad Drive and Akio Way, the aforementioned marked crosswalks, and curb ramps. At the time field observations were conducted for this project (March 2019), although the surrounding intersections include curb (wheelchair) ramps, American with Disabilities Act (ADA) compatible curb ramps were observed at the intersection of Winterset Way and Akio Way only. In November 2019, ADA compatible curb ramps were being installed at the intersection of Trinidad Drive and Akio Way by the City of San Jose.

Pedestrian destinations in the vicinity of ACDS include Greystone Park, located just north of the ACDS campus, Bret Harte Middle School and Leland High School, both located east of the ACDS campus, and Los Alamitos Creek Trail, located along the north side of Camden Avenue, north of the ACDS campus (see Figure 1).

Figure 2
Existing ACDS Campus



Figure 3
Existing School Signs and Pavement Markings



Observed Existing Deficiencies. The existing curb ramps at the intersection of Trinidad Drive and Mt. Carmel Drive include non-ADA compatible ramps.

Existing Site Access and Circulation Procedures

ACDS currently implements pick-up and drop-off procedures which emphasize in the safety of children and the consideration of and politeness towards the adjacent residential neighborhoods (pick-up/drop-off procedures are available at the school website under parents/resources/for new ACDS families). The procedures include the following:

- Students should not arrive at the school prior to 7:50 AM.
- Drop-off lane should be used for all children in grades 1 through 8.
- Parents must place an ACDS name card on the passenger side visor showing the last name and grade level of the child being picked-up.
- The drop-off/pick-up area must be access by making a right-turn in only at the Akio Way driveway. No left-turn in movements are allowed at the Akio Way driveway during the school peak hours (signs instructing of this are posted at the Akio Way driveway).
- School traffic should not make a right-turn onto Akio Way from Trinidad Drive.
- School traffic should not make a U-turn at the intersection of Winterset Way/Akio Way.
- Parents must use marked crosswalks to bring children into the school campus when walking or parking on the street.
- Parents must use the Trinidad Drive inbound driveway if you must park within the parking lot during pick-up/drop-off times, and use the same driveway to exit the site.

Existing Traffic Volumes and School Trip Generation

Turning-movement counts at the intersection of Trinidad Drive and Akio Way and trip generation counts at ACDS were conducted on Thursday February 28, 2019 during the school peak hours.

The traffic counts were utilized to quantify the amount of vehicular and pedestrian traffic on the adjacent roadways during the school's peak hours, the amount of traffic that is currently generated by the school, and the observed travel patterns of the existing school traffic. The collected count data revealed the following information:

- The school AM peak hour occurs between 7:15 and 8:15 AM, and the after school peak-hour occurs between 2:30 and 3:30 PM.
- A total of 65 and 99 pedestrians were observed crossing the intersection of Trinidad Drive and Akio Way during the AM and after school peak hours, respectively.
- The peak 15-minute periods for both vehicular and pedestrian traffic at the Trinidad Drive/Akio Way intersection occurred between 7:45-8:00 AM and between 3:00-3:15 PM, with traffic volumes during these 15-minute periods representing approximately half of the total peak-hour traffic.
- Traffic volumes on the adjacent roadways were measured to be larger during the AM peak-hour than the after school peak-hour.
- The existing school currently generates approximately 414 AM peak-hour trips (225 inbound and 189 outbound trips) and 245 after school peak-hour trips (105 inbound and 140 outbound trips).
- Approximately 64% of the drop-offs in the morning occurred within the school site while the remaining 36% of the parents parked on the adjacent streets and walked their children to school. After school, approximately 57% of the total student pick-ups occurred on site while approximately 43% of the parents parked on the street.

- The peak student drop-off and pick-up activities occurred between 7:45 and 8:00 AM and between 3:00 and 3:15 PM, respectively, when more than half of the total drop-offs/pick-ups occurred. These 15-minute peak periods also coincide with the observed peak 15-minute intersection counts.
- The traffic counts at the Akio Way driveway show that one and three vehicles during the AM and after school peak hours, respectively, were observed to exit the school site via the Akio Way driveway. However, it should be noted that although this occur during the school peak hours, it occurred during the last 15 minutes of the one-hour peak-period (8:15-8:30 AM and 3:15-3:30 PM periods) when drop-off/pick-up activities were concluding.

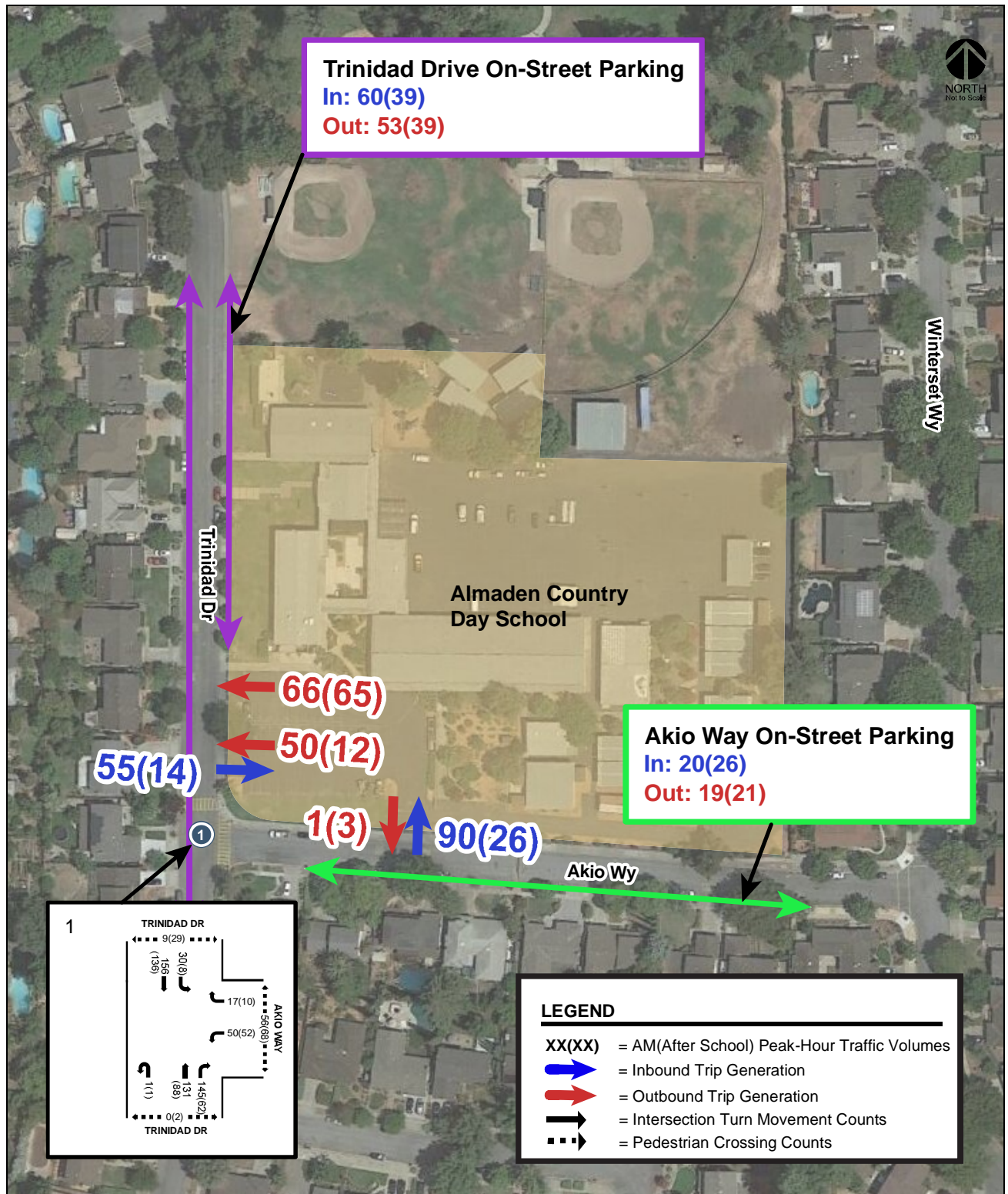
Figure 4 shows the total peak-hour intersection turn-movement counts and the peak-hour school-generated traffic currently accessing the school site driveways and those parking on the adjacent streets.

Existing Traffic Conditions

Field observations were conducted during the school peak hours on March 7, 2019. Traffic conditions were observed at the school site and along the surrounding roadway network to identify any existing traffic issues. The following conditions were observed during the school peak hours:

- ACDS traffic accessing the drop-off area made a right-turn into the Akio Way driveway and exited the site via the Trinidad Drive outbound driveway. (ACDS recommended procedures)
- ACDS traffic entering the site via the Trinidad Drive two-way driveway were observed to park, walk their children to school, and exit the site via the same driveway. (ACDS recommended procedures)
- During the peak-hour, a minimum of two parking spots were observed to be available within the school parking lot as parents were continuously entering, parking, and exiting the site.
- The majority of ACDS traffic accessing the school site via Trinidad Drive parked along Trinidad Drive and walked to the school. However, a few parents traveling northbound on Trinidad Drive were observed to complete a U-turn midblock along the school frontage to park on the west side of the street when no on-street parking was available on the east side of the street.
- A few vehicles were observed to turn onto Akio Way from Trinidad Drive, travel eastbound to the Winterset Way/Akio Way intersection, complete a U-turn and travel back to enter the school site via the Akio Way driveway, despite ACDS recommended procedures.
- The maximum inbound queue length at the Akio Way driveway was observed to extend for approximately 275 feet beyond the driveway, in the westbound direction along Akio Way, during the AM peak-hour. Assuming the average length of a vehicle to be 25 feet, this represents approximately 11 vehicles. The maximum vehicle queue length was observed to occur once and it lasted no more than 2-3 minutes.
- A 2 to 3 vehicle queue was observed to extend beyond the Akio Way driveway two to three times during the peak-hour. The average drop-off/pick-up queue length was observed to accommodate within the school parking lot.
- It was observed that during the peak-hours, it takes a vehicle approximately 1 minute and 15 seconds to travel from the Akio Way driveway, access the drop-off area, and exit the site via the Trinidad Drive outbound driveway. The distance, along the drop-off lane, between the Akio Way driveway and the Trinidad Drive outbound driveway is approximately 300 feet (12 vehicles).
- The total maximum observed vehicle queue length during the school peak hours is approximately 575 feet, or 23 vehicles, extending from the first position in the drop-off area (near the Trinidad Drive driveway) to the end of the queue on Akio Way.
- No inbound queues were observed extending beyond the Trinidad Drive two-way driveway.
- Simultaneously, a relatively large number of vehicles (non-project traffic) were observed to travel from Trinidad Drive to Akio Way, Winterset Way, and Summerleaf Drive to drop-off Leland High School students along Bret Harte Drive, near Camden Avenue. Conflict between ACDS traffic and Leland High traffic was minimal due to the opposing travel patterns.

Figure 4
Existing Peak-Hour Intersection Turn-Movement Counts and ACDS Trip Generation



With the exception of a few U-turn movements that were observed to be made by school traffic at the Winterset Way/Akio Way intersection and along Trinidad Drive, no other traffic access and circulation issues were observed during the school peak hours. Fifteen to 20 minutes prior to the beginning of the school day, Trinidad Drive was observed to have most of its on-street parking available, which was all occupied by the time school started. A few ACDS vehicles were observed to park as far as Mt. Carmel Drive, along the south side of the street and just east of Trinidad Drive, and walk to the school. The drop-off/pick-up area was observed to operate efficiently with multiple vehicles being loaded/unloaded simultaneously and the children being ready for pick-up by the time their vehicle arrived at the pick-up lane as a result of the family's last name being displayed on the vehicle. School staff was observed at the drop-off area helping load/unload students into/from their vehicles. One staff member was positioned at the Akio Way driveway supervising site access and the implementation of ACDS recommended procedures.

Overall, field observations revealed that the current ACDS-recommended school access and circulation procedures are followed by the majority of the school traffic. With the existing complete adjacent roadway network (including existing school signage, pavement markings, marked crosswalks, ADA-compatible curb ramps, and continuous sidewalks), along with the implementation of the recommended school access procedures, it can be concluded that the existing vehicular school access and circulation operations are adequate.

Pedestrian Access

The surrounding pedestrian facilities, including sidewalks, marked crosswalks, and curb ramps, provide a continuous pedestrian network between the school and the surrounding neighborhood. No ACDS students were observed riding their bikes to school, and the observed walking students were students whose parents parked on the street and walk their students to school. Under the existing layout of the parking lot and school campus entrance, students that are not dropped-off at the drop-off area have to navigate through the parking lot and cross the vehicles lined up within the drop-off lane to enter the school. However, the parking lot includes marked pedestrian pathways connecting the sidewalks on Trinidad Drive to the parking lot and across the drop-off lane to the school entrance. In addition, during our field observations, a staff member equipped with an orange safety vest and a stop sign was located at the pedestrian pathway across the drop-off lane assisting pedestrian crossing between the parking lot and the school entrance. Although it is less than ideal to have pedestrians cross the drop-off lane, the marked pedestrian pathway and assigned staff member facilitate pedestrian access to the school by alerting drivers and providing a single defined crossing point between the parking lot and the school entrance.

No crossing guards were observed at the intersection of Trinidad Drive and Akio Way. The intersection count data shows that approximately 65 to 99 pedestrians cross the intersection of Trinidad Drive and Akio Way during the school peak hours, including the south leg of the intersection (two crossings observed during the after school peak-hour), where no marked crosswalks are found.

Observed Existing Deficiencies. A few parents traveling northbound on Trinidad Drive were observed to complete a U-turn midblock along the school frontage to park on the west side of Trinidad Drive. A few vehicles also were observed to complete a U-turn at the Winterset Way/Akio Way intersection to enter the school site via the Akio Way driveway. This is contradictory to the site access procedures recommended by ACDS.

No crossing guards were observed at any of the surrounding intersections.

Project Conditions

The Almaden Country Day School Facility Master Plan consists of improvements to the existing school campus. Student enrollment at the school is not proposed to be increased above historical levels with implementation of the Master Plan, resulting in no additional school traffic. The proposed improvements, however, would result in changes to the school's parking lot and pick-up/drop-off area, resulting in changes to vehicular access and circulation in the immediate vicinity of the school campus, as well as on-site circulation for both vehicles and pedestrians.

Proposed Almaden Country Day School Master Plan

The ACDS Master Plan is proposed to be completed in phases over a 15-year period. Most of the construction would include improvements to the school on-site facilities and not affect site access and circulation. Changes to the school parking areas (and access/circulation) would occur during the first phase of development and at buildout of the Master Plan. The main components of the Master Plan include the following:

Phase 1 of Master Plan

The existing portable classrooms located along the south project site boundary would be relocated to the north side of the campus. In their place, a new future Event Center building would be constructed. The existing school parking lot would remain unchanged under this phase, however, the existing inbound access driveway along Akio Way would be closed off during the school's drop-off/pick-up times and access to the drop-off area would be provided via a new driveway along Akio Way, at the southeast corner of the school site. The new driveway would connect to the existing fire lane that runs along the site's southern and eastern boundaries, providing access to both the drop-off area and the parking spaces located along the eastern fire lane. An additional 10 parking spaces also are being proposed along the fire lane and one additional space within the parking lot under this development phase, for a total of 77 parking spaces provided within the school site (43 within the parking lot and 34 along the fire lane).

The layout of Phase 1 of the ACDS Master Plan is shown on Figure 5.

Buildout of the Master Plan

At the completion of the ACDS Master Plan, classrooms, administration buildings, and other school facilities within the site would have to be replaced and/or relocated. New school facilities would include an amphitheater, a library, an auditorium, a garden, and an event center. In addition, at buildout of the Master Plan, two separate parking areas (and drop-off areas) would serve the school: one located along Trinidad Drive (**west parking lot**) and a second one located at the southeast corner of the project site (**east parking lot**). Two driveways each along Trinidad Drive and Akio Way would provide access to the new parking lots.

Once both parking lots are completed, the Trinidad Drive drop-off area would be designated for kindergarten and elementary grades while the Akio Way drop-off area would be designated for the middle school grades. Seventeen parking spaces are proposed within the Trinidad Drive parking lot and would be designated for staff and visitors. Within the Akio Way parking lot, 78 staff parking spaces are being proposed. A total of 95 parking spaces would be provided to serve the school within both parking lots at buildout of the Master Plan.

The ACDS Master Plan is shown graphically on Figure 6.

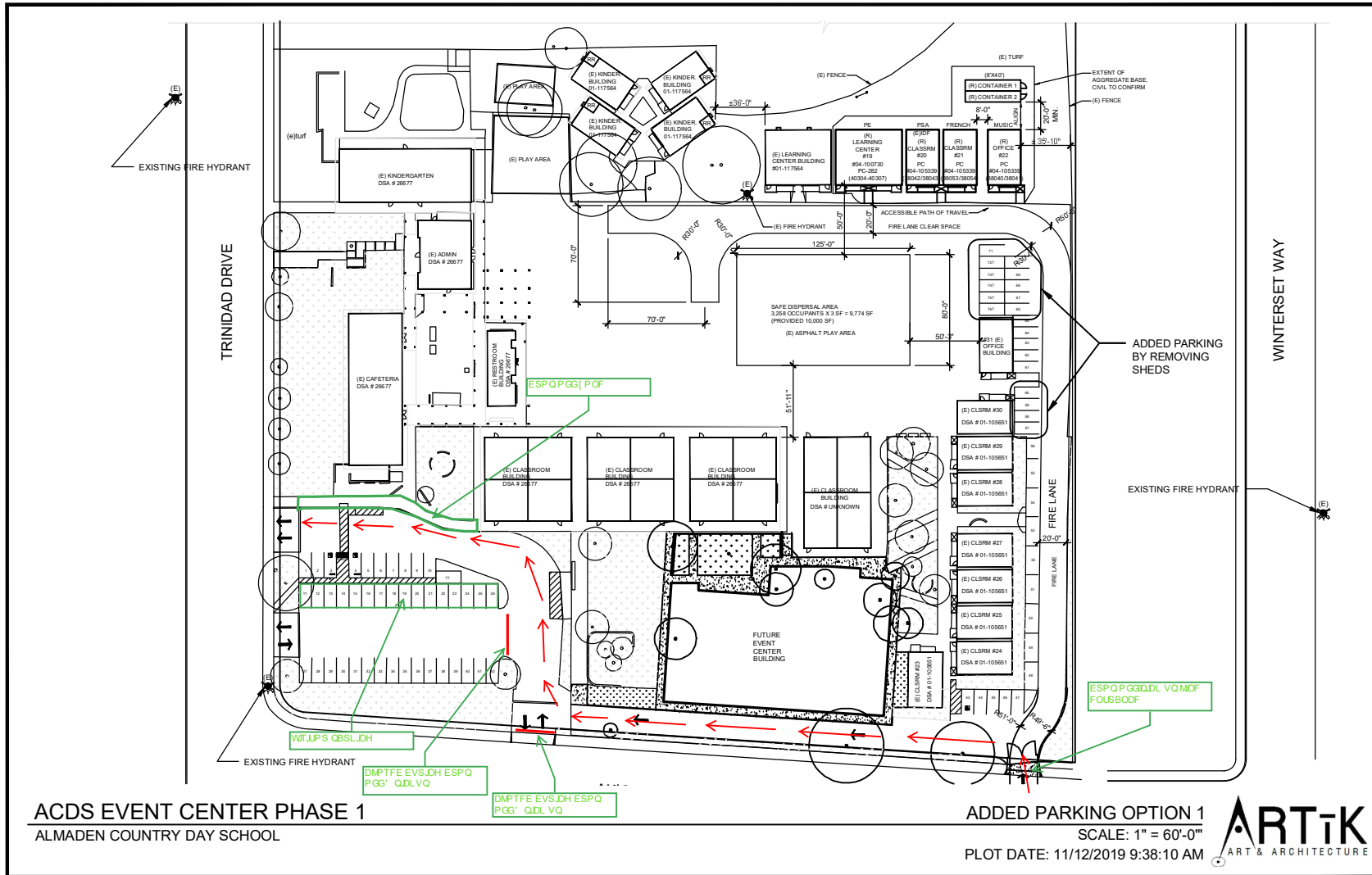
Project Transportation Network

No off-site improvements are being proposed as part of the ACDS Master Plan. Therefore, the surrounding transportation network would be the same as described under existing conditions.

Project Traffic Volumes

No additional traffic is projected to be generated with implementation of the proposed ACDS Master Plan. Student enrollment would remain unchanged and the proposed new auditorium/theater is unlikely to generate traffic during the peak hours because new events taking place at the auditorium are anticipated to occur after 6:00 PM. School-related events planned to take place in the proposed auditorium and gymnasium during the day are currently taking place elsewhere within the school campus. Therefore, with implementation of the proposed project, the school peak-hour traffic is projected to remain the same as presented under existing conditions.

Figure 5
Almaden Country Day School Master Plan – Phase 1



ACDS Master Plan Conditions

Phases 1 and buildout of the ACDS Master Plan include changes to the existing school parking areas which would result in changes to the existing site access and on-site circulation. The proposed construction and relocation of other school facilities within the site would not have an effect on traffic operations on-site or along the surrounding roadway network. For this reason, the evaluation of the ACDS Master Plan focuses on Phases 1 and buildout of the Master Plan (shown on Figures 5 and 6, respectively).

Phase 1 Evaluation

Phase 1 of the Master Plan would change the access to the drop-off area from the existing Akio Way inbound driveway (which would be closed off during the school's drop-off/pick-up times) to a new access driveway along Akio Way, at the southeast corner of the school site. However, drop-off/pick-up procedures would remain unchanged. Phase 1 would result in minimal disruption to the existing drop-off and pick-up activities on-site. As mentioned previously, 11 additional parking spaces (for a total of 77 parking spaces) would be provided after completion of Phase 1.

Site Access

With the completion of Phase 1, vehicular access to the school site would be very similar to the existing access. Inbound access to the drop-off lane would continue to be provided via Akio Way (new driveway), and outbound access via Trinidad Drive (existing driveway). The existing driveways and access on Trinidad Drive would remain unchanged. During the off-peak hours, the existing Akio Way driveway would be open. All current ACDS recommended access and circulation procedures would continue to apply to the site access under Phase 1.

Both the existing driveways on Trinidad Drive and Akio Way are approximately 32 feet wide, satisfying City of San Jose driveway design guidelines that require commercial driveways to be 16 to 32 feet wide. The proposed new driveway on Akio Way must be designed adhering to City of San Jose design guidelines.

Pedestrian Access

Pedestrian traffic would continue to use the existing sidewalks and crosswalks to access the school campus. With installation of the new ADA compatible curb ramps at the intersection of Trinidad Drive/Akio Way and the continuous sidewalks available connecting the school site to the adjacent neighborhoods, adequate pedestrian access from the adjacent neighborhoods would be provided under Phase 1. Additionally, the site plan also shows the existing pedestrian pathway that connects the school parking lot with the school entrance would remain under Phase 1.

With implementation of Phase 1, some school pedestrian traffic may continue to cross the Trinidad Drive/Akio Way intersection to access the school campus. Both local and State guidelines include pedestrian and vehicular volume thresholds that identify the potential need for an adult crossing guard at intersections (minimum local and State pedestrian volume thresholds are 20 and 40 children crossing the intersection during one hour, respectively). Other factors that are considered in determining the need for an adult crossing guard include the width of the roadway, age of school children, existing traffic controls, distance of crossing from the school's main entrance, speed of traffic, and walking speed. Ultimately, the City determines the need for and feasibility of an adult crossing guard at an intersection.

It should be noted that, according to ACDS administration, the school has previously tried to work with the City of San Jose to implement crossing guards at the Trinidad Drive/Akio Way intersection. However, their attempts have been unsuccessful since a potential crossing guard must be employed by the School District in order to be trained and certified as a crossing guard by the San Jose Police Department. Therefore, it is recommended that if determined feasible to train and certify a crossing guard for this location, the school should work with the City of San Jose and the Police Department to provide a crossing guard at this location.

Existing School Access Measures that Need to Continue under Phase 1

The following are existing ACDS recommended school access and circulation measures/procedures that must continue to be implemented during the school's peak hours in order to continue to provide adequate site access/circulation operations. The drop-off area refers to the area adjacent to the school campus where

student loading/unloading takes place, while the drop-off lane refers to the drive aisle that connects the Akio Way driveway to the drop-off area. These measures are illustrated on Figure 7 and some are also shown on the site plan as planned measures.

- Continue to implement existing site access procedures, with the required modifications as a result of the proposed new access driveway on Akio Way. This includes providing inbound access to the drop-off area via Akio Way and outbound access via Trinidad Drive. (Shown on the site plan)
- Continue the use of name cards displayed on the passenger side visor to help expedite pick-up procedures.
- Continue to prohibit left-turns into the Akio Way driveway. This avoids conflicting movements at the Akio Driveway and prevents vehicular queues from forming along the eastbound direction of Akio Way.
- Continue to provide all access to the parking area via the Trinidad Drive two-way driveway. (Shown on the site plan)
- Continue to prohibit vehicular access between the parking lot and the drop-off lane. (Shown on the site plan)
- All parents/students walking or parking on the street must continue to access the school campus via the marked crosswalks and pathways, avoiding crossing mid-block or at unmarked locations.
- Continue to emphasize that no U-turns should be completed mid-block or at the intersection of Winterset Way/Akio Way.

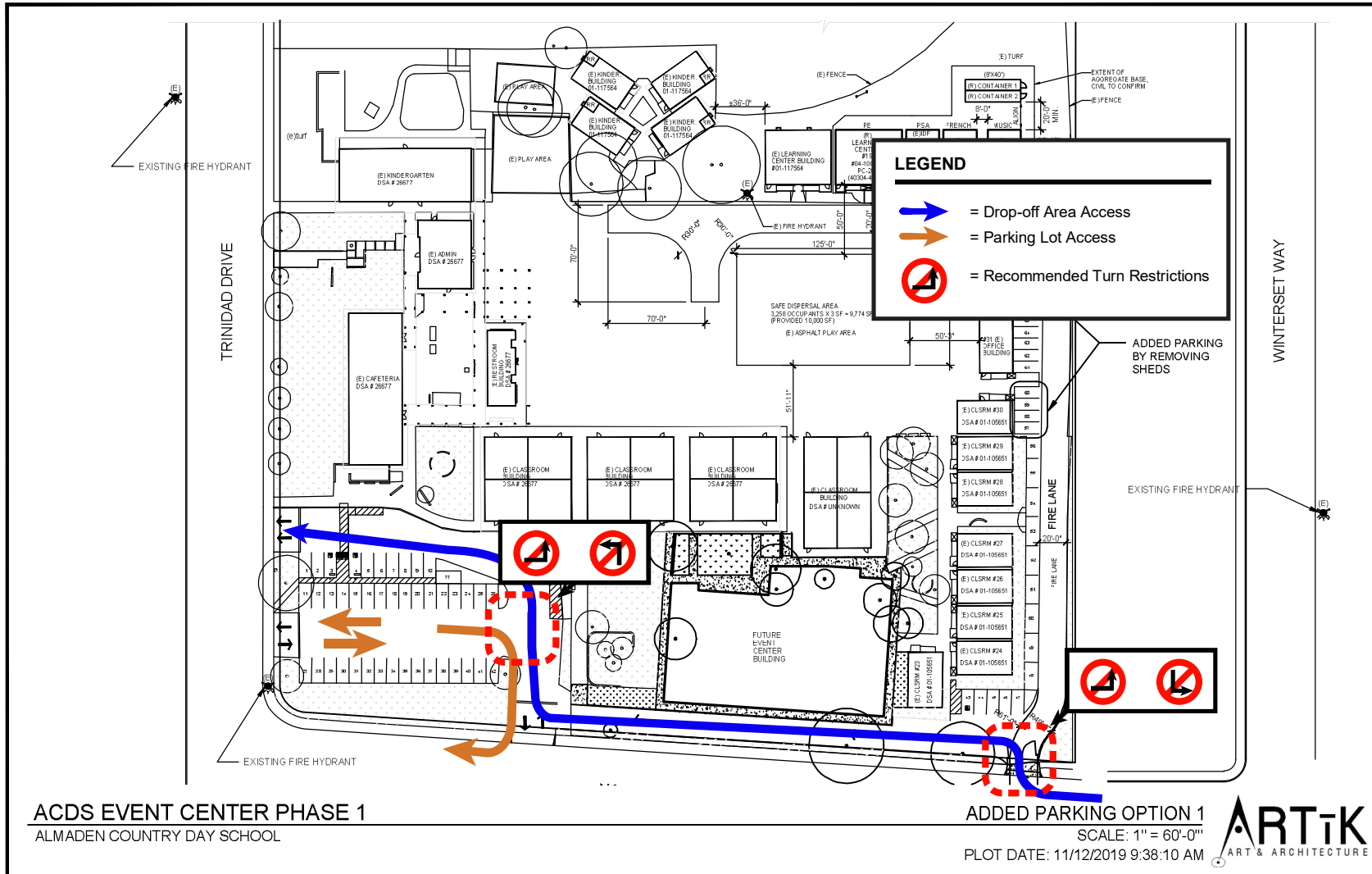
On-Site Circulation

With the proposed parking and drop-off area layout at the completion of Phase 1, the on-site circulation would be relatively the same as under existing conditions. School traffic would enter the site via the new proposed driveway on Akio Way, travel westbound along the existing fire lane to the parking lot and drop-off area, then exit the site via the existing outbound driveway on Trinidad Drive. With the exception of ten parking spaces located across from the drop-off area, no parking would be provided along the drop-off lane, eliminating the conflict between parking vehicles and drop-off traffic and allowing for a continuous flow of traffic through the drop-off lane. At the parking spaces located across from the drop-off area, minimal activity is anticipated during the drop-off/pick-up periods since eight of the ten parking spaces would be assigned as staff parking and the other two would be accessible parking spaces. The access lane providing access between the new Akio Way driveway and the parking area is approximately 18 feet wide, adequate width for one-way access.

The site plan shows the existing pedestrian pathway in the parking lot to continue to provide a connection between the existing sidewalks along Trinidad Drive, the parking lot, and the school campus. This pedestrian connection, in conjunction with the staff member assisting pedestrian crossing of the drop-off lane (existing condition), would continue to concentrate pedestrian crossing of the drop-off lane to a single point and minimize pedestrian/vehicle conflict within the parking lot.

Overall, school staff/parent volunteers should continue to be present within the parking and drop-off areas to help direct traffic, assist students in and out of their vehicles, and prevent drivers and pedestrians from completing movements that would jeopardize their safety.

Figure 7
Existing Access and On-Site Circulation Procedures to Remain Under Phase 1



Truck Access and Circulation

The proposed new site layout must continue to provide adequate access to larger vehicles, such as garbage trucks and emergency trucks. Trash collection most likely would occur on-site. The existing driveways on Trinidad Drive and Akio Way are both 32 feet wide, providing adequate width for larger vehicle access.

Emergency vehicles could enter the site via the Trinidad Drive or the Akio Way driveways to access the parking lot, drop-off area, and the school campus. The proposed new driveway on Akio Way, which also would provide direct access to the fire lane, must be designed to accommodate larger vehicle traffic access and circulation, including adequate width and turn radii.

Recommendations

- All site driveways and drive aisles must be designed to the satisfaction of City of San Jose design guidelines, including the minimum required width for adequate emergency vehicle access.
- It is recommended that the east side of the fire lane (north of the proposed new Akio Way driveway) include red-curb markings and signage prohibiting the parking/stopping of vehicles along this side of the fire lane (parking spaces are located along the west side of the fire lane).

Vehicle Queue Length

The maximum vehicle queue observed at the school site during the school peak hours was approximately 575 feet, or 23 vehicles.

Under the proposed parking lot/drop-off area layout at the completion of Phase 1, the distance between the first position in the drop-off area and the new Akio Way driveway would be approximately 600 feet, or 24 vehicles. Based on the observed existing queue length, after the completion of Phase 1, the maximum vehicle queue from the drop-off area would be able to store within the school site.

The construction of the new site access on Akio Way is projected to improve operating conditions along Akio Way by providing additional queue storage capacity on site, resulting in the elimination of standing vehicular queues along westbound Akio Way.

Parking

At the completion of Phase 1, an additional 11 parking spaces would be provided on site, for a total of 77 spaces serving the school.

The City of San Jose Zoning Code (Section 20.90.060) indicates that the number of required parking spaces for elementary schools (K-8), both private and public, is 1 parking space per teacher plus 1 per employee. ACDS currently has 77 faculty and staff members, requiring a total of 77 parking spaces. Therefore, after completion of Phase 1, ACDS would provide adequate parking, based on the City of San Jose parking requirements.

ADA Compliance

Per the 2016 California Building Code (CBC) Table 11B-208.2, four ADA compliance accessible parking spaces are required for projects providing 76 to 100 parking spaces. Of the required accessible parking spaces, one van accessible spaces is required.

The Phase 1 site plan shows a total of three accessible parking spaces on site, two located adjacent to the pedestrian pathway, across from the drop-off area, and a third located north of the new Akio Way driveway. The accessible parking spaces are located within what appears to be the shortest distance between the parking areas and the school campus. However, the proposed number of accessible parking spaces would be one accessible parking space less than the ADA requirements.

Recommendations

- Designate one additional parking space as an accessible parking space in order to satisfy ADA requirements.

Phase 2 Evaluation

Buildout of the Master Plan would include two separate parking areas serving the school: one located along Trinidad Drive (west parking lot) and a second one located at the southeast corner of the project site (east parking lot).

Site Access

With the completion of the Master Plan, vehicular access to the school site during the school's peak hours would be split between two parking lots/drop-off areas: the Trinidad Drive/west parking lot/drop-off area and the Akio Way/east parking lot/drop-off area. The Trinidad Drive drop off area would be designated for kindergarten and elementary grades while the Akio Way drop-off area would be designated for the middle school grades. In addition, the parking spaces located within the Trinidad Drive parking lot would be designated for staff and visitors.

Two one-way driveways (one inbound and one outbound) along each Trinidad Drive and Akio Way would provide access to the drop-off areas and parking lots. The inbound access along Trinidad Drive would be located near Akio Way while the outbound driveway would be located approximately 300 feet north of Akio Way. The inbound access along Akio Way would be located at the southeast corner of the project site and the outbound driveway would be located near Trinidad Drive (see Figure 6).

The number of vehicles entering and exiting each of the site driveways was estimated based on the existing trip generation, assuming an equal number of students per grade level, and conservatively assuming that all student drop-offs/pick-ups would occur within the drop-off areas. Based on these assumptions, it is estimated that approximately 151 and 70 vehicles would access the Trinidad Drive drop-off area during the AM and after school peak hours, respectively, while 74 and 35 vehicles would access the Akio Way drop-off area during the AM and after school peak hours, respectively (see Figure 8). The number of inbound vehicles at the Trinidad Drive driveway is a conservative estimate since it assumes all parents would utilize the drop-off lane. However, some parents may wish to walk their lower-grade students to class requiring them to park on site or on the adjacent streets.

Pedestrian traffic would continue to use the existing sidewalks and crosswalks to access the school campus. The new main school entrance would be located at the southwest corner of the site providing a direct connection between the school campus and the adjacent sidewalks/crosswalks, eliminating the need for students to walk through the parking lot.

Existing School Access Measures that Need to Continue under Buildout Conditions

The following are existing ACDS recommended school access and circulation measures/procedures that must continue to be implemented during the school's peak hours in order to continue to provide adequate site access/circulation operations at the completion of the Master Plan.

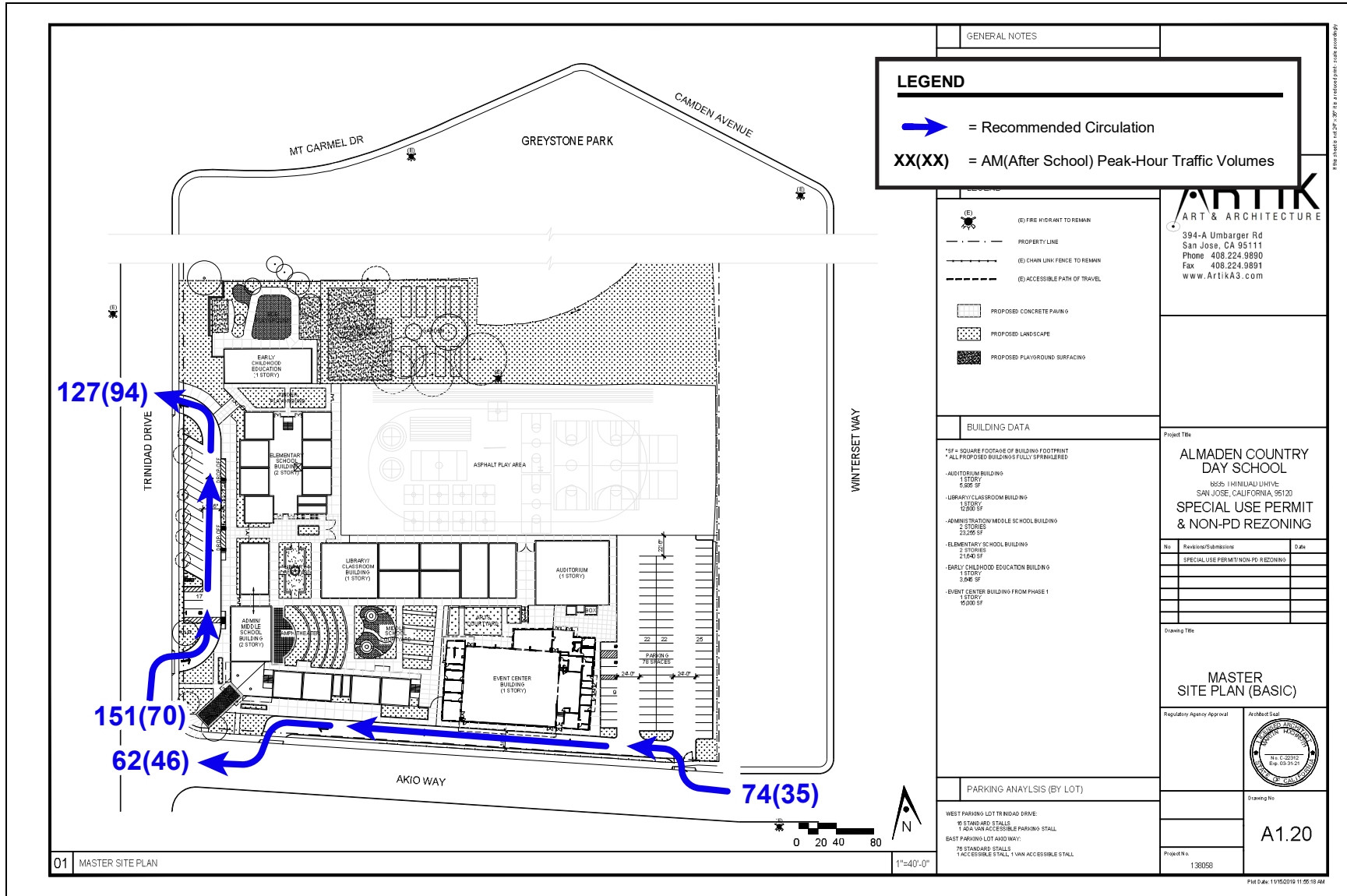
- Continue to access the Akio Way drop-off area by making a right-turn only. Left-turn inbound access at the Akio Way driveway should continue to be prohibited during the school's peak hours.
- Exit the Akio Way driveway by making a right-turn only.
- Parking restrictions along the project site frontage on Akio Way should remain to be able to store the potential inbound vehicle queue length from the Trinidad Drive parking lot.

Recommendations

The following are recommendations to be implemented during the school's peak hours.

- Continue to access the Trinidad Drive drop-off area by making a right-turn only. This would avoid queue lengths from forming along the southbound direction on Trinidad Drive.
- Consider balancing the amount of traffic utilizing each of the drop-off areas. Based on the proposed drop-off area designation, the Trinidad Drive drop-off area would serve a larger number of students; however, the Akio Way drop-off area would include larger queue storage capacity.

Figure 8
Recommended Access and On-Site Circulation Procedures – Master Plan Buildout



On-Site Circulation

With the proposed parking and drop-off area layouts at the completion of Master Plan, the on-site circulation would be relatively simple: a single one-way drop-off lane would provide access to each drop-off area. At the Trinidad Drive parking lot, parents would enter the drop-off lane, access the drop-off area (east side of the drop-off lane), and exit the site. At the Akio Way driveway, parents would enter the drop-off lane, access the drop-off area (north of the drop-off lane), and exit the site.

Minimal parking activity is anticipated at the Trinidad Drive parking lot during the drop-off/pick-up periods since these parking spaces would be assigned as staff/visitor parking. Vehicles parking within the Akio Way parking lot would be separated from drop-off traffic as soon as they entered the site.

Pedestrian traffic from the Trinidad Drive parking lot would access the school campus via a marked pedestrian pathway located prior to the drop-off area and connecting the parking lot to the school campus. However, pedestrians would have to cross the line of inbound vehicles within the drop-off lane, similar to the existing procedures. Students from the Akio Way drop-off area would be dropped-off directly onto the school campus. Pedestrians walking to the school campus would access the school's main entrance from the adjacent existing sidewalks and marked crosswalks.

Recommendations

The following are recommendations to enhance on-site circulation and safety for both drivers and pedestrians as they circulate the school site during the school peak hours.

- It is recommended that a minimum of five drop-off positions continue to be provided at the drop-off areas to be able to load/unload various students simultaneously and expedite drop-off/pick-up procedures.
- All crossing of the drop-off lane within the Trinidad Drive parking lot by pedestrians should continue to be done at the marked pedestrian pathway only. Although pedestrian volumes within the Trinidad Drive parking lot are anticipated to be minimal (walking pedestrians would no longer need to cross this parking lot to access the school), it is also recommended that a staff member continues to assist pedestrian crossing at the marked pathway, as it is currently done.

Truck Access and Circulation

The proposed new site layout must provide adequate access to larger vehicles, such as garbage trucks and emergency trucks. All site driveways and internal drive aisles, both existing and proposed, must be designed to accommodate larger vehicle traffic access and circulation, including adequate width and turn radii.

Recommendations

- All site driveways, drive aisles, and drop-off lanes must be designed to the satisfaction of City of San Jose design guidelines, including the minimum required width for adequate emergency vehicle access.

Vehicle Queue Length

The maximum vehicle queue observed at the school site during the school peak hours was approximately 575 feet, or 23 vehicles. This queue length corresponds to the peak traffic conditions that occurred during the AM peak-hour, or more specifically, during the school's peak 15-minute period. The peak 15-minute period in the morning included a total of 70 inbound vehicles at the Akio Way driveway. This equates to a maximum queue length of approximately 3 to 4 vehicles per every 10 vehicles entering the site during the peak 15 minutes.

Under the proposed parking lot/drop-off area layout at the completion of the Master Plan, it is conservatively assumed that all school traffic would enter the site to drop-off/pick-up students. A total of 151 and 74 vehicles are estimated to enter the site via the Trinidad Drive and Akio Way driveways, respectively, during the AM peak-hour. During the peak 15-minute period, approximately 103 vehicles are estimated to access the Trinidad Drive drop-off area and 51 vehicles the Akio Way drop-off area. Based on the observed existing queue length and the estimated number of vehicles accessing each of the drop-off areas, it is estimated that

the maximum queue length at the Trinidad Drive drop-off area would extend approximate 30 vehicles, or 750 feet, extending from the first drop-off position past the Trinidad Drive/Akio Way intersection. This queue length could be shorter, depending on the number of parents that would continue to park and walk their students to class. If it is assumed that the same number of parents that currently park on the street would continue to do so under the Master Plan Buildout conditions, the number of vehicles entering the Trinidad Drive drop-off area during the peak 15-minute period would be 66 vehicles, translating into a 22-vehicle (550-foot) maximum queue length. A queue of this length would continue to extend beyond the Trinidad Drive/Akio Way intersection.

The maximum queue length at the Akio Way drop-off area would extend approximately 17 vehicles, or 425 feet, extending from the first drop-off position to the inbound driveway.

Although the implementation of two drop-off areas and parking lots would eliminate vehicles queues spilling onto Akio Way from the Akio Way driveway, the maximum queue length from the Trinidad Drive parking lot could extend back past the Trinidad Drive/Akio Way intersection, potentially affecting operations at the intersection and conflicting with the outbound traffic from the Akio Way drop-off area.

Recommendations

The following are recommendations to help enhance drop-off/pick-up procedures, improve circulation, and minimize queue lengths from extending onto the adjacent streets at the completion of the Master Plan.

- Continue to provide a minimum of five drop-off positions at each of the drop-off areas, in particular at the Trinidad Drive drop-off area, which is estimated to serve a larger number of students.
- Consider assigning some of the elementary grade students to the Akio Way drop-off area, since this drop-off area would provide a longer drop-off lane for queue storage.
- Consider providing a two-lane drop-off area, in particular at the Trinidad Drive parking lot. This would expedite drop-off procedures and reduce vehicle queue lengths. However, two drop-off lanes would require extensive monitoring of the drop-off area by staff/parents since children would have to cross one line of vehicles. Procedures for a two-lane drop-off area could include lining up five vehicles per lane, loading/unloading students into/out of the vehicles, and staff directing vehicles to exit the site once all 10 vehicles have completed their drop-off/pick-up.

Parking

At the completion of the Master Plan, 17 parking spaces would be provided within the new Trinidad Drive parking lot and 78 spaces within the Akio Way parking lot, for a total of 95 spaces.

Based on the City of San Jose Zoning Code parking requirements (Section 20.90.060), ACDS is required to provide a total of 77 parking spaces. Therefore, after completion of the Master Plan, the total number of proposed parking spaces would satisfy City of San Jose parking requirements.

ADA Compliance

Per the 2016 California Building Code (CBC) Table 11B-208.2, after completion of the Master Plan, the school would be required to provide four ADA compliance accessible parking spaces. Of the required accessible parking spaces, one van accessible spaces is required.

The Master Plan site plan shows a total of three accessible parking space provided on site, one within the Trinidad Drive parking lot and two within the Akio Way parking lot. The proposed number of accessible parking spaces would be one accessible parking space less that the ADA requirements.

Recommendations

- Designate one additional parking space as an accessible parking space in order to satisfy ADA requirements.

Conclusions

This study was conducted for the purpose of identifying any potential traffic operations issues associated with the ACDS Master Plan, in particular issues related to the operations of the proposed new parking and drop-off areas.

The traffic circulation review study concluded the following:

- The existing school signage and pavement markings satisfy the CA MUTCD recommended signage and crosswalk/pavement markings for school zones.
- Overall, the current ACDS-recommended school access and circulation procedures are followed by the majority of the school traffic. With the existing complete adjacent roadway network (including existing school signage, pavement markings, marked crosswalks, ADA-compatible curb ramps, and continuous sidewalks), along with the implementation of the recommended school access procedures, it can be concluded that the existing vehicular school access and circulation operations are adequate.

Based on the school's trip generation and proposed improvements, the following recommendations were made:

Phase 1 Recommendations

On-Site Circulation

- Overall, school staff/parent volunteers should continue to be present within the parking and drop-off areas to help direct traffic, assist students in and out of their vehicles, and prevent drivers and pedestrians from completing movements that would jeopardize their safety.

Truck Access and Circulation

- All site driveways and drive aisles must be designed to the satisfaction of City of San Jose design guidelines, including the minimum required width for adequate emergency vehicle access.
- It is recommended that the east side of the fire lane (north of the proposed new Akio Way driveway) include red-curb markings and signage prohibiting the parking/stopping of vehicles along this side of the fire lane (parking spaces are located along the west side of the fire lane).

Parking

- Designate one additional parking space as an accessible parking space in order to satisfy ADA requirements.

Other Recommended Off-Site Improvements

- Based on the assumption that all student drop-off/pick-up activity would occur on site with implementation of the proposed project, the existing number of pedestrians crossing the Trinidad Drive/Akio Way intersection would be reduced significantly, also reducing the potential need for a crossing guard at this location. Therefore, at the completion of Phase 1 of the proposed project, it is recommended that if determined feasible to train and certify a crossing guard for this location, the school should work with the City of San Jose and the Police Department to provide a crossing guard at this location.

Master Plan Buildout Recommendations

These recommendations are in addition to the recommendations made for Phase 1.

Site Access

- Continue to access the Trinidad Drive drop-off area by making a right-turn only.
- Consider balancing the amount of traffic utilizing each of the drop-off areas.

On-Site Circulation

- It is recommended that a minimum of five drop-off positions continue to be provided at the drop-off areas to be able to load/unload various students simultaneously and expedite drop-off/pick-up procedures.
- All crossing of the drop-off lane within the Trinidad Drive parking lot by pedestrians should continue to be done at the marked pedestrian pathway only. A staff member should continue to assist pedestrian crossing at the marked pathway, as it is currently done.

Vehicle Queue Length

- Continue to provide a minimum of five drop-off positions at each of the drop-off areas, in particular at the Trinidad Drive drop-off area, which is estimated to serve a larger number of students.
- Consider assigning some of the elementary grade students to the Akio Way drop-off area, since this drop-off area would provide a longer drop-off lane for queue storage. Consider providing a two-lane drop-off area, in particular at the Trinidad Drive parking lot.