TRIP GENERATION, TRAFFIC CIRCULATION, AND PARKING ANALYSIS FOR THE

PROPOSED PLAN CHANGES At The VALLEY CHRISTIAN CENTER In DUBLIN, CA

Prepared For
THE CITY OF DUBLIN

FINAL REPORT
November 17, 2015

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INTRODUCTION / SUMMARY

The following report outlines the findings of a focused traffic analysis prepared for the City of Dublin regarding the proposed plan changes at the Valley Christian Center located at 7500 Inspiration Drive in the City of Dublin, CA. The Valley Christian Center comprises church and school facilities consisting of existing worship space, classrooms (K-12th grades), preschool/daycare service, administrative offices, and sports fields, as well as yet un-built components of the facilities approved in 2002. The applicant is seeking to amend the approved Master Plan that would change some aspects of the approved facilities.

In order to identify likely vehicle traffic changes that would be associated with the proposed plan change, this study has compared the approved expansion with the proposed expansion in terms of trip generation and parking demand. Traffic circulation regarding possible intrusion into neighborhood streets and regional trip distribution were also evaluated.

The proposed plan changes would primarily consist of reducing the approved sanctuary size, increasing the school size by a corresponding amount, and construction of a sports field. The net change in total building square footage between the currently approved plan and the proposed plan is approximately 1,300 additional square feet. Current published vehicle trip rates and surveyed rates of the existing school and Sunday service were compared to the trip rates used in the 2002 EIR. The calculated peak hour trip generation for the proposed plan is equal to or lower than the trips calculated for the approved plan. Therefore, the level of service analysis conducted for the 2002 report also addresses the proposed plan. The number of school driveways would decrease from three to two with the proposed plan. The school trips were reallocated to two driveways and evaluated. Level of service and queuing conditions would remain acceptable (LOS C or better).

The school proposes to build a recreational sports field capable of hosting football games with spectator seating. Although infrequent, football games would temporarily generate up to 451 new trips before and after games based on maximum seating capacity of 1,100 persons. These trips would occur during off-peak hours when background traffic volumes are low and the volumes would remain within the carrying capacity of nearby roadways.

The proposed plan would be constructed in a series of four Development Phases. Phase 1 would consist of the football stadium, while Phases 2-4 would consist of the school and sanctuary facilities. The supply of parking spaces will also vary with each Development Phase. The existing parking supply of 510 spaces will be reduced to 395 spaces for Phases 1 and 2. The supply will increase to 530 spaces in Phase 3 and to 600 spaces in Phase 4.

Based on the City parking ordinances, adequate parking supply would be provided for the school and sanctuary facilities. Our surveys found a slightly higher parking demand rate for the Sanctuary worship service than the city code, but the demand would still be accommodated by the proposed total of 600 spaces since the Sanctuary would not be expanded until Phase 4.

For the football games, the parking demand is calculated to be 506 vehicles based on a seating capacity of 1,100 persons. This would exceed the parking supply of 395 spaces in Phases 1 and 2 by 111 spaces. Although school personnel anticipate attendance of only 500-600 people during the first two Development Phases, in order to ensure adequate supply is provided the project should be conditioned to match parking supply to seating capacity by increasing the parking supply and/or reducing the number of seats in Phases 1 and 2.

The regional distribution of trips based on zip codes of students indicates 73% are regional trips likely coming from I-580 via San Ramon Road and Dublin Boulevard and 275 are locally distributed trips. This distribution corresponds almost identically with the previous study which found 74% of trips were regional trips likely traveling to/from I-580.

In order to minimize vehicle cut-through traffic in the neighborhood north of the school, turning restrictions are in place at two of the school's three driveways. Surveys conducted in 2001 and again for this study identified approximately 4½ % of school trips (29 existing a.m. peak hour trips) travel through the neighborhood. The volumes are low, and it is likely some of the trips originate in the neighborhood, but future student population growth could increase the possibility of greater cut-through traffic. Therefore it has been recommended that the school provide an informational letter to parents at least once per year advising them to avoid using cut-through routes, and for the school to re-monitor cut-through traffic after completion of Phases 2, 3, and 4. Similar measures have also been recommended to address potential cut-through traffic during football games.

Based on the findings of the traffic analysis, the proposed plan would not significantly impact traffic operating conditions with implementation of the recommended mitigation measures.

WEEKDAY TRIP GENERATION

Comparison of Trip Generation Rates for Approved Plan

Trip generation associated with the approved expansion was previously calculated in the traffic section of the Valley Christian Center Expansion Program (PA #00-017) Draft EIR.[1] The trip generation table from the EIR is provided in Table A-1 attached. The EIR was prepared in 2002 and utilized the 6th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual, which was current at the time of the report.[2] The 9th Edition of the Trip Generation Manual now reflects the most up to date information.[3] In order to evenly compare the original expansion plan to the proposed plan, the original plan trip generation has been recalculated using the ITE 9th Edition trip rates. The change in trips for the approved plan between the 6th Edition and 9th Edition is shown in Table 1. The 6th Edition rates resulted in 139 a.m. and 78 p.m. peak hour new trips. Based on current 9th Edition ITE trip rates, the originally approved expansion would generate 128 a.m. and 72 p.m. peak hour new trips, or 11 fewer am trips and 6 fewer pm trips. Therefore, the trip generation rate used in the 2002 EIR based on 6th Edition ITE rates remains the most conservative.

Proposed Master Plan Changes from Approved Plan

A table comparing the square footages associated with the existing facility, approved plan, and the proposed plan is provided in Table A-2 attached. (The proposed plan change would also include construction of a new multi-purpose sports field, which is evaluated in the following section.) In parcel 1, the proposed changes would result in a net increase of 1,300 square feet between the approved total of 305,300 square feet and the proposed total of 306,600 square feet.

Overall, the proposed change would reduce the approved sanctuary size of 90,000 sq. ft. to 41,700 sq. ft. (a reduction of 32,600 sq. ft.) and increase the approved size of school and fellowship hall buildings by 33,900 sq. ft., for a net increase of 1,300 sq. ft. However, there would be no change in the anticipated student population (1,300 students) between the approved plan and proposed plan.

The proposed master plan would be developed in four Development Phases. Phase 1 would consist of the football field. Phase 2 would consist of 41,000 sq. ft. of building space (Buildings C, A1, and D2). Phase 3 would consist of 29,200 sq. ft., (Building B South and B1). And Phase 4 would finish the plan with 96,975 sq. ft. (Building A, A2, E, B, & F).

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[1] *City of Dublin, Valley Christian Center Expansion Program Draft EIR, October 2, 2002.*
[2] *Institute of Transportation Engineers, Trip Generation Manual, 6th Edition, 1997.*
[3] *Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012.*

Trip Generation for Approved Plan and Proposed Plan

The 2002 EIR utilized ITE 6th Edition trip rates (the most current at the time) to generate vehicle trips for the school expansion. The ITE rates were selected after comparing them to a surveyed trip rate based on traffic counts conducted in 2001 at the Valley Christian Center school. The 2001 counts identified an a.m. peak hour trip rate of 0.83 trips per student. The EIR compared their surveyed rate to the ITE 6th Edition rate for a private K-12th grade school, which was 0.92 trips per student for the a.m. peak hour. The 2002 EIR used the ITE rates since they were higher in order to be conservative. The EIR applied the ITE rate for a High School land use since the school expansion would add only junior and senior high students.

To identify the existing school trip rates, vehicle counts were conducted again for this study at the Valley Christian Center.[4] The weekday morning surveys identified a total of 652 a.m. peak hour trips generated by the facility. At the time of the counts, the existing school population consisted of 792 students. The surveyed rate equates to 0.82 a.m. peak hour trips per student. The existing school trip rate is less than the previous surveyed rate, as well as the ITE rate used for the 2002 EIR traffic analysis.

Since the 2002 EIR trip rate remains the most conservative rate, and the future student population is to remain unchanged from the 2002 EIR, the proposed plan is calculated to generate the same number of school trips as the approved plan. The school population and vehicle trips have decreased since the 2002 EIR, therefore the proposed plan change would increase trips compared to existing volumes, but would remain equal to the buildout trips calculated and evaluated for the level-of-service analysis in the 2002 EIR. The approved plan trips compared to the proposed plan trips are shown in Table 2.

With the proposed plan, the north school driveway would be eliminated as a result of the new sports field. The driveway vehicle trips from this driveway were redistributed to the two remaining driveways and the operating conditions were evaluated. Levels of service would continue to operate acceptably (LOS C or better) and vehicle queues would continue to be accommodated within available lane storage lengths.

It is noted that several components of the approved plan have been removed from the proposed plan, therefore the proposed plan will likely generate fewer trips than the approved plan. The 2002 EIR calculated 10 peak hour trips based on 10 additional administrative employees associated with the expansion. School personnel no longer anticipate an increase in administration employees above the 35 employees. Therefore, this component of the proposed plan would have 10 fewer peak hour trips compared to the 2002 EIR.

The 2002 EIR also included trip generation for 30 apartment units intended for church staff housing in Parcel 2. The apartments were eventually withdrawn from the 2002 plan change request, but the apartment trips were included in the traffic study. The apartments were calculated to generate 15 a.m. peak hour trips and 19 p.m. peak hour trips. Since development of Parcel 2 is not included in the proposed plan, the proposed plan trips would be reduced by 15 a.m. peak hour trips and 19 p.m. peak hour trips than evaluated in the 2002 EIR.

The trip generation findings are based on a student population of 1,300 students. Population levels above 1,300 students could generate higher trips than evaluated in the 2002 EIR traffic analysis.

- **If the population increases above 1,300 students, the number of vehicle trips could exceed the level evaluated in the 2002 EIR, therefore additional traffic impact analyses could be required.**

[4] *Omni-Means, Surveys of existing Valley Christian Center AM, Afternoon, and Sunday site trips, May 12, 13,17, 2015.*

TABLE 1
COMPARISON OF APPROVED PLAN'S WEEKDAY TRIP GENERATION BASED ON 6TH EDITION ITE RATES (USED IN 2002 EIR) AND CURRENT 9TH EDITION ITE RATES

Description	Total Size	New A.M. Peak Hour	New P.M. Peak Hour
2002 Approved Plan New Trips Based on ITE 6th Edition Rates (Used in 2002 EIR):			
Parcel 1:	325,300 sf	124 (86 in, 38 out)	59 (22 in, 37 out)
Parcel 2:	30 units	15 (2 in, 13 out)	19 (13 in, 6 out)
Total New Trips		**139 (88 in, 51 out)***	**78 (35 in, 43 out)***
2002 Approved Plan New Trips Based on ITE 9th Edition Rates (Current):			
Parcel 1:	325,300 sf	113 (79 in, 34 out)	53 (20 in, 33 out)
Parcel 2:	30 units	15 (3 in, 12 out)	19 (12 in, 7 out)
Total		128 (82 in, 46 out)	72 (32 in, 40 out)
***ITE 6th Edition Rates Remain Most Conservative**			
2002 Approved Plan Total Trips:			
Existing 2001 Volumes:		1,063 (637 in, 426 out)	347 (208 in, 139 out)
Parcel 1 Approved Trips (ITE 6th Edition):		124 (86 in, 38 out)	59 (22 in, 37 out)
Parcel 2 Approved Trips (ITE 6th Edition):		15 (2 in, 13 out)	19 (13 in, 6 out)
Total 2002 EIR Approved Plan Trips:		**1,202 (725 in, 477 out)**	**425 (243 in, 182 out)**

TABLE 2
COMPARISON OF APPROVED PLAN TO PROPOSED PLAN WEEKDAY TRIP GENERATION BASED ON ITE RATES AND SURVEYED RATE

TRIP GENERATION	A.M. Peak Hour	P.M. Peak Hour
Approved Plan:		
Existing 2001 Volumes:	1,063 (637 in, 426 out)	347 (208 in, 139 out)
Parcel 1 Approved Trips (ITE 6th Edition):	124 (86 in, 38 out)	59 (22 in, 37 out)
Parcel 2 Approved Trips (ITE 6th Edition):	15 (2 in, 13 out)	19 (13 in, 6 out)
2002 EIR Approved Plan Trips:*	**1,202 (725 in, 477 out)**	**425 (243 in, 182 out)**
Proposed Plan Based on ITE Rates: No change in population from Approved Plan (1,300 students); ITE 6th Edition more conservative than ITE 9th Edition; Therefore no change in trips from Approved Plan for Parcel 1. Parcel 2 withdrawn from Proposed Plan request.		
Existing 2001 Volumes:	1,063 (637 in, 426 out)	347 (208 in, 139 out)
Parcel 1 Approved Trips (ITE 6th Edition):	124 (86 in, 38 out)	59 (22 in, 37 out)
Proposed Plan Trips Based on the Most Conservative ITE Rates:	**1,187 (723 in, 464 out)**	**406 (267 in, 176)**
Total Proposed Plan Trips Based on Surveyed Rates: 0.82 A.M. & 0.27 P.M. trips/student x 1,300 students		
Proposed Plan Trips Based on Surveyed Rates	**1,066 (647 in, 419 out)**	**351 (211 in, 140 out)**

***2002 EIR Trips Remain Most Conservative**

SANCTUARY TRIP GENERATION

The 2002 approved plan's sanctuary size was 90,000 square feet with 2,000 seats. The proposed plan's sanctuary size has been reduced to 57,400 square feet with 1,500 seats.

Sunday trips were generated for the approved sanctuary size based on the ITE 6th Edition rates, then compared to the proposed plan using current ITE rates and surveyed rates.

ITE 6th Edition rates for Sunday service were only available based on gross floor area. Applying the ITE 6th Edition rate of 9.49 trips per 1,000 square feet gross floor area (ksf gfa) to 90,000 square feet results in 854 Sunday peak hour trips for the approved sanctuary size. The current ITE 9th Edition trip rate is 12.04 trips per ksf gfa. Based on the change in ITE trip rates, the approved sanctuary size would generate 1,084 peak hour trips, or 230 additional trips compared to the old rate.

The current ITE manual also now provides a rate based on the number of seats, which is 0.61 trips per seat. With an approved capacity of 2,000 seats, the approved sanctuary would be calculated to generate 1,220 trips based on the number of seats.

With the proposed plan sanctuary size decreasing to 57,400 square feet and 1,500 seats, trip generation will be lower than the approved sanctuary size. Based on the current ITE rate per square foot, the proposed sanctuary size of 57,400 square feet would generate 691 trips, or 393 fewer trips than the approved sanctuary size. Based on the current ITE rate per seat, the proposed sanctuary size of 1,500 seats would generate 915 trips, for a decrease of 305 trips compared to the approved sanctuary size.

Trip generation surveys we conducted of the Valley Christian Sunday service identified a substantially lower trip rate than the ITE rates. Our field surveys observed that the church trips tend to be spread over time beyond one hour. It is also likely that some of the ITE data reflects trip generation occurring between two services, when outbound and inbound trips for each service are creating a higher trip rate. Our surveys identified 196 Sunday peak hour trips with existing church attendance of 560 people. Therefore, the service has a surveyed trip rate of 0.35 peak hour trips per person, which is approximately one-half of the ITE rate per seat.

Applying the surveyed rate to the approved plans' 2,000 seat maximum results in 700 Sunday peak hour trips. Applying the surveyed rate to the proposed plans' 1,500 seat maximum equates to 525 peak hour church trips, or 175 fewer trips with the proposed plan compared to the approved plan. The Sunday trip generation is shown in Table 3.

- **The proposed plan sanctuary size of 57,400 square feet and 1,500 seats is lower than the approved plan's size of 90,000 square feet and 2,000 seats. Based on ITE rates and surveyed rates, the proposed sanctuary size will generate fewer trips than the approved sanctuary size, therefore no impacts would be associated with the sanctuary trip generation.**

TABLE 3
SUNDAY CHANGE IN TRIPS FOR PROPOSED PLAN FROM APPROVED PLAN

Description	Size	Sunday Peak Hour Trip Rate	Trips
Approved Sanctuary (per ksf gfa)			
ITE 6th Edition Rate:	90,000 sf	9.49 trips/ksf	854 (435 in, 419 out)
ITE 9th Edition Rate:	90,000 sf	12.04 trips/ksf	1,084 (531 in, 553 out)
Proposed Sanctuary (per ksf gfa)			
ITE 9th Edition Rate:	57,400 sf	12.04 trips/ksf	**691 (339 in, 352 out)**
Change from Approved:	-32,600 sf		-393 (-192 in, -201 out)
Approved Sanctuary (per seat)			
ITE 9th Edition Rate:	2,000 seats	0.61 trips/seat	1,220 (610 in, 610 out)
Proposed Sanctuary (per seat)			
ITE 9th Edition Rate per seat:	1,500 seats	0.61 trips/seat	**915 (458 in, 457 out)**
Change from Approved:			-305 (-152 in, -153 out)
Approved Sanctuary (Surveyed Rate)			
Surveyed Rate:	2,000 persons	0.35 trips/person	700 (50 in, 650 out)
Proposed Sanctuary (Surveyed Rate)			
Surveyed Rate:	1,500 persons	0.35 trips/person	**525 (38 in, 487 out)**
Change from Approved:			-175 (-12 in, -163 out)

Proposed Sanctuary Size Reduction Results In Lower Trip Generation with Proposed Plan Than 2002 EIR Approved Plan.

TRIP GENERATION FOR SPORTS FIELD COMPONENT OF PROPOSED PLAN

The proposed plan includes construction of a multi-sports playing field capable of hosting football games as well as track and field events that would provide seating for spectators. Information regarding the sports activities was provided by school personnel. Organized football games would include 1 scrimmage and up to 6 regular season home games with the potential for an additional 3 playoff games between August and November. The field is proposed to be lighted for night games. If lighted, games would be played on Friday, with a junior varsity game beginning at 4:00 p.m. and a varsity game at 7:00 p.m.. Without lights, school personnel have indicated games would be played on a Saturday afternoon (junior varsity 11:00 a.m. and varsity 1:00 p.m.).[5]

The proposed stadium capacity is 1,100 seats. Based on trip generation surveys we have conducted for high school football stadiums, attendance of 1,100 people would generate the following trips before and after a game:[6]

1,100 attendees: 451 trips (pregame = 316 in, 135 out); (post-game = 75 in, 340 out).

The outbound trips before games and inbound trips after games reflect dropping off and picking up of persons who attend the game.

It is noted that the survey data is based on counts conducted at the highest attended games of the season (Homecoming) with about 1,500 persons. The counts therefore represent "worst case" maximum estimates for night football games. Also, the counts were conducted at high schools with established football programs. Valley Christian school personnel expect regular attendance to be considerably less due to the fact that they are part of a much smaller private league. Currently games are played offsite and draw approximately 200-500 attendees. Homecoming currently attracts 600 attendees. Attendance is expected to remain 500-600 persons for several years, then possibly increase to 600-1,000 persons in the future.

Trip generation for night football games would occur during off-peak hours (6-7 p.m. and 9-10 p.m.). During these hours, volume increases would be noticeable to residents living on access roads, but background volumes are low at these times and the total volumes would remain within the capacity of the streets. Two intersections evaluated in the 2002 EIR that were not signalized (Dublin Bl./Silvergate Dr. and Dublin Bl./Inspiration Dr.) are now signalized and operating at optimal level of service conditions. As noted, football games would be limited to 7-10 evenings per year.

Although limited in number, night games would occur when the turn restrictions intended to minimize cut-through traffic through the neighborhood to the north are not active (M-F 7 a.m. to 5 p.m.). Existing school cut-through traffic appears to be fairly low (refer to section below). However, it is possible some cut-through traffic could occur in the neighborhood before and after games.

- **In order to minimize the potential for cut-through traffic during football games, any of the following options could be implemented:**

  Provide an informational letter to parents before the football season advising them to avoid using cut-through routes.

  Install temporary signing on football game days at the school driveways which activate the turn restrictions during football game times.

  Provide traffic control personnel at the school driveways to direct traffic toward the south on Inspiration Drive.

[5] *Valley Christian Center, Meeting with school personnel and athletic director, May 6, 2015.*
[6] *George W. Nickelson, P.E., Concord High School Stadium Project, November 2005.*
Mills Associates, Clayton Valley High School Stadium Lighting Project Final Environmental Impact Report, April 2003.

Sports events other than organized football games would generate a lower number of vehicle trips than football games. The field would be used for soccer matches and track & field events which currently use the school's existing play fields. The men's soccer season (November-February) and women's soccer season (February-May) host approximately 12 varsity matches and 5 junior varsity matches per season.[7] The matches are played in the afternoon/evening (3:00-5:00 p.m.). School personnel indicate soccer matches have historically drawn up to 60 offsite attendees.

The track & field season (February- May) hosts approximately 1 meet per month (4 total), consisting of up to 60 athletes and 60 non-students in attendance. Regular track meets are usually held 2:00-6:00 p.m. The proposed sports field's 8-lane track would allow the school to host an Invitational track meet (one per season). These consist of up to 200 athletes and up to 200 attendees (400 total) and are held on a Saturday (9:00 a.m. - 7:00 p.m.).

The sports field would be used for practices for football (fall), soccer (winter/spring), and track & field (spring). All practices are held in the afternoon/evening (approximately 3:00-5:30 p.m.). These would not be expected to generate any new trips, since these activities already occur on existing fields.

Only the football games and Invitational track meets (if held) would generate new sports activity related vehicle trips. It is possible there would be one or two special event occasions per year, such as a graduation ceremony, which would draw high attendance. However, these would be very infrequent.

[7] *Valley Christian Center, email correspondence describing sports activities, May 28, 2015.*

EVALUATION OF TRAFFIC INTRUSION ONTO NEIGHBORHOOD STREETS

In order to minimize school traffic from intruding on the local neighborhood streets north of the school as much as possible, vehicle turn restrictions are in place at two of the school's three driveways (the north and middle driveways). Specifically, signs are posted prohibiting right turns in and left turns out on school days from 7:00 am to 5:00 pm. There are no turn restrictions at the school's south driveway. Observations of vehicle turning movements during the a.m. peak hour were conducted in 2001 for the 2002 draft EIR. The observed trips were 50 turns to/from the north (20 illegal turns from the north and middle driveways plus 30 legal turns from the south driveway).

Our recent counts observed 29 turns to/from the north (14 illegal plus 15 legal) during the a.m. peak hour. The current volume is lower than 2001, but accounting for a lower existing school population compared to the 2001 population, the percentage of trips to/from the north is nearly equal for both surveys: approximately 4½ % of the total peak hour trips. This indicates the cut-through rate has not been increasing. It would also appear to reflect a fairly low cut-through rate, given that some of the trips are likely from residents of the neighborhood. However, future student population growth could increase the possibility of greater cut-through traffic. In order to maintain as low a cut-through rate as possible, a combination of notification and monitoring procedures is recommended.

- **It is recommended that the school provide an informational letter to parents at least once per year advising them to avoid using cut-through routes.**

- **The 2002 EIR recommended monitoring of the peak hour turning movements at the project driveways every six months (Mitigation Measure 4.10-2 (local streets)). Based on our recent surveys, the cut through rate does not appear to be increasing. However, it is recommended that the conditions be monitored again after the completion of Phases 2, 3, and 4.**

- **If the cut-through rate goes up, increased enforcement of the illegal turns and/or prohibiting turns to/from the north at the southern driveway could be considered.**

REGIONAL TRIP DISTRIBUTION COMPARISON BETWEEN APPROVED & PROPOSED PLANS

The regional distribution of vehicle trips evaluated in the 2002 EIR was based in part on church member and student residence locations provided by Valley Christian personnel. For comparison, student residence locations based on recent information were evaluated.

The trip distribution based on the 2002 demographic data resulted in 28% to/from the north via I-680, 13% to/from the south via I-680, 25% to/from the east via I-580, and 8% to/from the west via I-580. There were 26% from within the City of Dublin. The total equates to 74% of the school traffic traveling to/from I-580 and likely traveling on San Ramon Road (between I-580 and Dublin Boulevard) and on Dublin Boulevard (between San Ramon Road and Inspiration Drive).

Our evaluation of the recent zip code data indicates a nearly identical distribution of Valley Christian members. Approximately 28% of trips are via I-680 to/from the north, 12% via I-680 to/from the south, 24% are via I-580 to/from the east, and 9% are via I-580 to/from the west, and 27% are from within the City of Dublin. The total regional trips equates to 73% of the school trips traveling between I-580 and the school via San Ramon Road and Dublin Boulevard west of San Ramon Road. With the remaining 27% constituting local traffic distributed throughout the area. Although the percentage of trips to/from the freeway is high (73%) compared to local trips (27%), the distribution with the proposed plan would be similar to the approved expansion. Therefore, the level of service conditions evaluated in the 2002 EIR would also remain valid.

PARKING ANALYSIS

The proposed plan would consist of three separate parking generating components: the sanctuary, the school facilities, and the new sports field activities. The parking requirements for each component have been calculated independently. It is assumed the church, school, and sports field games will not be in use concurrently.

The 2002 EIR for the approved expansion evaluated parking based on the City of Dublin Zoning Ordinance. The parking requirements were evaluated for the Sunday worship space and for the weekday school uses. The highest parking space requirement was associated with the Sunday worship service. The required parking was calculated to be 667 spaces for the worship service based on 2,000 seats (at 1 required space per 3 seats).

The existing parking supply consists of 510 striped spaces and the approved plan was to add 250 new paved and 100 unpaved overflow spaces for a total of 860 spaces. Therefore the parking supply met the zoning ordinance requirement, with a surplus of 193 spaces.

For the proposed plan, the supply of parking spaces will vary with each phase of development. The existing parking supply of 510 spaces will be reduced to 395 spaces for Phases 1 and 2. The supply will increase to 530 spaces in Phase 3 and to 600 spaces in Phase 4.[8]

City of Dublin Planning Staff have calculated the required number of parking spaces based on the current zoning ordinance (see Table A-3 attached). The parking ordinance for sanctuary facilities requires 1 space per 3 seats plus 1 space per Sunday service classroom. The existing sanctuary containing 763 seats requires 258 parking spaces, which is met with the current supply of 510 spaces as well as the reduced supply of 395 spaces during Phases 1 and 2.

The sanctuary expansion to 1,500 seats would occur in Development Phase 4. The Zoning Ordinance requires 504 spaces for the proposed sanctuary. The parking supply would increase from 530 spaces in Phase 3 to 600 spaces in Phase 4. Therefore, the parking requirement would be met, with a surplus of 96 spaces.

The sanctuary parking requirement per the Dublin Zoning Ordinance equates to 0.33 parked vehicles per seat. It is noted, however, that our parking surveys of the church identified a higher demand of 0.40 vehicles per person (220 vehicles for 560 people). Applying the surveyed rate to the proposed 1,500 seats equates to a parking demand of 600 vehicles if the church is fully occupied. With 600 spaces provided in Phase 4, demand based on the surveyed rate would be accommodated with maximum attendance.

For the weekday school related parking demand, the proposed plan after buildout would require 395 parking spaces to satisfy the weekday school parking requirement. The proposed plan would provide a minimum of 395 spaces (Phases 1 and 2) and up to 600 spaces (Phase 4). Therefore, the proposed plan would meet the weekday parking requirement during all of the Development Phases.

[8] *Goring & Straja Architects, Modification of Planned Development Valley Christian Center, Conceptual Phasing Plan, Sheet No. A1.4, 6/16/2015.*

TABLE 4
PARKING SUPPLY AND ZONING REQUIREMENTS FOR APPROVED & PROPOSED PLANS

PARKING SUPPLY AND REQUIREMENTS

Existing Supply: 510

Approved Plan Supply:		Proposed Plan Supply:	
Existing	510	Existing	510
New Paved	250	Phases 1 & 2	395
Overflow	100	Phase 3	530
Total	860	Phase 4	600

Proposed Plan Parking Requirements:

	Zoning Ordinance	Required Spaces	Supply
Sanctuary (Developed in Phase 4)			
1,500 seats	1 space/seat	= 500 spaces	
4 Sunday Service Classrooms	1 space/classroom	= 4 spaces	
		= 504 spaces	600 spaces
Surveyed Parking Rate			
1,500 seats (people)	0.4 spaces/person	= 600 spaces	600 spaces
School (At buildout in Phase 4):		= 395 spaces	395 spaces (Phase 1 &2) 600 spaces (Phase 4)
Sports Field Football Games (Developed in Phase 1)			
No City Ordinance; parking rate is based on our surveys of football games at other schools.			
1,100 seats	0.46 spaces/seat	= 506 spaces	***395 spaces Phases 1 & 2** 530 spaces Phase 3 600 spaces Phase 4

***Parking space deficit of 111 spaces in Phases 1 & 2. See mitigation measures in report.**

Source: Goring & Straja Architects, Modification of Planned Development Valley Christian Center, Conceptual Phasing Plan, Sheet No. A1.4, 6/16/2015.

PARKING DEMAND FOR SPORTS FIELD COMPONENT OF THE PROPOSED PLAN

Parking demand associated with night football games has been evaluated based on parking surveys we have conducted in conjunction with other high school stadium projects. The surveys found a peak parking demand of 0.46 vehicles per attendee for football games. The stadium capacity is currently designed to be 1,100 seats. This results in a parking demand of 506 spaces based on maximum capacity.

The sports field would be built in Phase 1 of the proposed plan, when the parking supply would consist of 395 spaces. The supply would not increase until Phase 3 (Year 2025) when 530 spaces would be provided. The total supply of 600 spaces would not be available until Phase 4 (Year 2030). Therefore a parking deficit of 111 spaces (506 – 395 = 111) would occur during Phases 1 & 2 based on maximum occupancy.

Football games are currently played offsite. Valley Christian personnel state existing football games draw approximately 200-500 attendees for regular games and up to 600 attendees for special games such as Homecoming. Valley Christian personnel expect attendance to remain approximately 500-600 persons for several years, then possibly increase to 600-1,000 persons in the future.

Although attendance is expected to be less than the stadium capacity of 1,100 seats for some time, football games would nevertheless be under parked based on the number of seats and the supply of 395 spaces through Phase 2 of the proposed plan.

- **In order to match the seating capacity parking demand with the parking supply, three alternative options are presented which would mitigate the stadium parking deficit:**

  Construct the needed additional parking spaces in Phase 1 instead of later Phases. For example, building the parking lot adjacent to Building E would yield 53 spaces. Constructing an additional 58 spaces elsewhere would provide 506 spaces (395 Phase 2 spaces + 53 Building E spaces + 58 other spaces = 506 spaces).

  Or, Construct the stadium initially with a lower number of seats that matches the supply of 395 spaces in Phases 1 & 2, then expand the stadium seating to 1,100 seats after the Phase 3 parking supply of 530 spaces is constructed. With 395 spaces, the stadium could be constructed with a seating capacity of 859 seats (395 spaces / 0.46 spaces per seat = 859 seats).

  (Any combination of increased parking supply and fewer seats could be constructed as long as the parking demand rate of 0.46 vehicles per seat is accommodated.)

  Or, Since attendance is expected to be considerably less than 1,100 people initially, the available supply per Development Phase would appear to adequately serve the anticipated attendance growth projections. However, in order to be prepared to provide adequate parking conditions in the event attendance does increase sooner than expected, the school could prepare a Parking Management Plan, subject to City approval, for football games that could be implemented if necessary. Such plans could include providing parking attendants to manage parking in overflow areas to maximize parking efficiency; actively promote carpooling through school literature; altering game times to earlier in the day (when students are still on campus); or monitoring attendance and limiting tickets to the corresponding supply of parking spaces.

Football games would generate the highest parking demand by the stadium on a regular basis. Only a special event, such as graduation, would be expected to draw similar attendance. Graduation ceremonies are currently held off site. School personnel indicate attendance is 600-850 attendees. Football games have a parking rate of 0.46 cars per attendee and the sanctuary has a surveyed parking rate of 0.40 spaces per attendee. Graduation ceremonies would be expected to have a similar parking demand rate. With 850 attendees, the highest parking rate equates to 391 spaces. With a minimum parking supply of 395 spaces (Phases 1 & 2), the expected maximum attendance of 850 attendees would be accommodated during all development phases. Moreover, the mitigation measures recommended above for football games to match the stadium seating capacity with the parking supply would also ensure the parking supply is adequate for graduation ceremonies and similar special events.

FINDINGS

The vehicle trip generation for the proposed plan was compared to the trips calculated in the 2002 EIR. The proposed plan trips were calculated using the 2002 EIR methodology, which was based on earlier ITE published data, as well as current ITE rates. The ITE rates were also compared to surveyed rates of the existing Valley Christian Center conducted for this study. There is no change in the proposed student population with the proposed plan and the 2002 EIR trip rates remain the most conservative, therefore the level of service analysis in the 2002 EIR also applies to the proposed plan.

The proposed plan includes construction of a sports field which would host football games and other sports events. Trip generation for football games, based on survey data of other high schools, indicates the proposed seating capacity of 1,100 seats would generate 451 trips temporarily before and after the games. Football game trips would occur during time periods when background traffic volumes are low and the volumes would remain within the carrying capacity of the street network. Trip generation for non-football sporting events would be low and would not be expected to have a substantial effect on traffic operating conditions.

School related traffic intrusion onto neighborhood streets north of the school was surveyed in the 2002 EIR and also in this study. Both surveys found the number of trips to/from the north to be relatively low (approximately 4½ % of the total school trips). Recommendations have been made to regularly remind parents to avoid cut-through routes. It is also recommended the conditions be monitored after each development phase is completed and, if necessary, implement additional turn restriction and/or enforcement measures. Similarly for football games, it is recommended the school notify parents and, if necessary, provide traffic control personnel to direct traffic away from the neighborhood.

The distribution of vehicle trips was evaluated in the 2002 EIR based on zip code data of Valley Christian member zip codes. The 2002 report found that a majority (74%) of trips were regional trips to/from I-580 and I-680. The member demographics were evaluated again for this study based on zip codes for current members. The current data indicates a nearly identical distribution pattern, with 73% likely traveling to/from I-580 via San Ramon Road and Dublin Boulevard west of San Ramon Road, with the remaining 27% comprised of local trips.

The proposed plan change was evaluated for parking space supply based on the City Zoning Ordinances as well as surveyed parking rates. The proposed plan's parking supply will be different with each phase of development. The existing parking supply of 510 spaces will be reduced to 395 spaces for Phases 1 and 2, then increased to 530 spaces in Phase 3 and 600 spaces in Phase 4.

The parking supply in each development phase would meet the zoning ordinance for the school and sanctuary. However, for football games, the parking demand with a stadium capacity of 1,100 seats is calculated to be 506 spaces. This would not be accommodated during development phases 1 or 2, when only 395 spaces would be provided. Recommendations to increase the parking supply, reduce the seating capacity, or provide a Parking Management Plan for Phases 1 and 2 have been made.

The trip generation and parking demand findings, in conjunction with the recommended improvement measures, would mitigate the proposed plan traffic conditions to less than significant levels.