Initial Study / Mitigated Negative Declaration

St. Mary and St. Mina's
Coptic Orthodox Church
Hillside Development Plan

City File: HDP 1-00

Prepared for
City of Concord Planning Department

Prepared by
Mills Associates
Orinda, California

September 10, 2012

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EXECUTIVE SUMMARY

INTRODUCTION

The purpose of this Initial Study/Mitigated Negative Declaration is to evaluate the environmental consequences resulting from the development of a church facility on a 3.39-acre parcel, located in the City of Concord, California, at 930 San Miguel Road, in the city's southwest quadrant.

The California Environmental Quality Act (CEQA) requires a lead agency to prepare an environmental document if it is determined that a proposed project may cause a significant environmental impact. The City of Concord, the designated lead agency, has determined that the proposed church facility would be analyzed through the Initial Study process to determine whether the project creates significant impacts to the environment. The Initial Study process provides the Lead Agency with information to use as the basis for determining whether to prepare an Environmental Impact Report (EIR), Negative Declaration or Mitigated Negative Declaration (CEQA Guidelines 15063 and 15070). Although the church currently has a maximum attendance of approximately 150 people, the proposed sanctuary is designed to accommodate 297 people. Therefore, the analysis considers a 297 person maximum occupancy.

As the first step of the Initial Study process, a CEQA checklist (included as Chapter 3) was prepared to determine the significant effect on the environment from the proposed hillside development plan. For each environmental issue (aesthetics, soils, water quality, utilities, traffic, etc.), it was determined whether or not the proposed project could cause a significant environmental impact. The discussion, which follows each component in the checklist, supports the determination made for the following categories: "potentially significant impact," less than significant with mitigation incorporated," "less than significant impact," or "no impact." It was determined that the project would create impacts in the following environmental topics: aesthetics, biological resources, soils/slope stability, drainage facilities, land use/planning, public services, recreation and transportation. Appropriate mitigation measures have been recommended (refer to Chapter 3). If approved, these mitigation measures become conditions of project approval.

A summary table (Table S-1) of significant impacts and mitigation measures as a result of this analysis is found at the end of this chapter.

PROJECT DESCRIPTION

The project being evaluated by this Initial Study is the development of a church facility within an area zoned for residential development. The applicant is requesting the following approvals from the City of Concord: Hillside Development Plan, Use Permit, Variance, Design Review and Heritage Tree Removal for the purpose of constructing a portion of the project site for a sanctuary, classroom building, multi-use building, and a chapel to serve members of the St. Mary and St. Mina's Coptic Orthodox Church. The structures would be built in the flatter portions of the property and set back approximately 110 to 170 feet from the westerly property line. The parking area and landscaping

would be located between the structures and the westerly property line. The remaining one-quarter of the property would be left as open space. The sanctuary would contain 13,020 square feet, the classroom building 2,840 square feet; the multi-use building 6,280 square feet, and the chapel 1,140 square feet. All structures would be one story. The maximum height of the sanctuary at the dome is 42 feet. The structure's roof ridge height is 30 feet. The height of the multi-use building is 30 feet and the classroom building height is 17 feet. The chapel height to the top of the cross is 33 feet 11 inches. Access to the site would be located approximately 240 feet south of the Lane Drive/Lanway Court intersection via an existing driveway/access road and bridge over the Contra Costa Canal and East Bay Regional Park District (EBRPD) Canal Trail that extends approximately 340 feet east from San Miguel Road to the project site.

It is intended that the bridge crossing the Contra Costa Canal would be improved to accommodate the increased traffic as well as heavy construction equipment and emergency vehicles. Plans indicate that the existing wooden planks would be replaced with a steel pan deck and asphalt surface. The bridge would accommodate two-way traffic. Improvements to the bridge would require an encroachment permit from the Contra Costa Water District's Watershed and Lands Department and a license from the U.S. Bureau of Reclamation (USBR).

USE OF THIS INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Upon adoption of the Mitigated Negative Declaration, the City of Concord Planning Commission will use this document to review and act upon the Hillside Development Plan, Use Permit, Variance, Design Review and Heritage Tree removal permit. The City's Design Review Board will also use the document when reviewing the architectural and landscape plans.

SOURCES OF INFORMATION

Humann Company, Inc., 2012. Tentative Site, Grading, Drainage and Utility Plan, January 27.

LCA Architects, 2012. Conceptual Sections, January 31.

State of California Governor's Office of Planning and Research, California Environmental Quality Act (CEQA) Guidelines 2011.

Table S-1
SUMMARY OF POTENTIALLY SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
AESTHETICS		
I -1: Visual impacts will occur for trail users until such time the landscaping reaches maturity.	**I-1A:** The landscaping shall be installed as soon as the church structure has been erected and parking lot improvements completed. This should occur prior to completion of church interior. **I-1B:** The applicant shall post a security bond to assure protection of existing and newly planted trees that are located on the property. The term of the bond shall extend at least two years beyond completion of all construction. **I-1C:** Newly planted trees and shrubs shall be monitored for a period of five years from the date of installation. Any trees lost during this period shall be replaced and monitored by the applicant for the same length of time.	Yes
	I-1D: The tree screen along the southwest façade of the chapel shall be supplemented with additional trees to further screen the chapel from trail users.	
I-2: Project plans do not provide information regarding shut off times for exterior lights	**I-2:** All exterior lights, as well as the dome light, shall have automatic timers to shut off at 10:30 PM, with the exception of security lighting (e.g. single lights located over doorways).	Yes
BIOLOGICAL RESOURCES		
IV-1: Tree-nesting or ground-nesting bird species could be adversely affected if trees proposed for removal or retention, or grass areas proposed for grading or construction provided nesting or roosting habitat for these species.	**IV-1:** A pre-construction survey shall be implemented to determine the presence of newly established or actively used nest structures in trees and grassy areas and incorporate nest protective procedures if such nests occur.	Yes

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	If proposed site clearing, grading, or noise-generating construction occurs during the period of September through January, no pre-construction survey for nesting birds would be required. If grading or construction occurs during the February through August breeding season, however, a biologist should conduct a pre-construction survey to determine if special-status birds are nesting in or near trees or grass areas within the grading zone or within trees proposed for removal. The biologist should conduct the survey no more than 30 days prior to initiation of grading, site preparation, or construction. If no nesting activity is observed, site preparation, grading and construction could proceed. If a nesting activity is observed, the nest structure should be monitored for bird egg-incubation, including: • Incubation behavior (e.g., regular periods of "disappearance" into the same location followed by short, secretive flights to forage). • extreme distress and alarm calls when in close vicinity of the nest, and. • observation of food carried in the beak or claws to the nest. If the biologist observes incubation behavior, incorporating the following measures should protect the nest location. • Establishment of a buffer using orange construction fencing around the nest in accordance with California Department of Fish and Game (CDFG) recommendations until the young have fledged. A no-disturbance zone of a width needed to adequately protect nests during construction shall protect all active nests. For most songbirds, a 50-foot diameter zone is recommended; for raptors, a 200-foot diameter zone is recommended.	

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	• Monitor the nest a minimum of once per week to confirm that the young have fledged and that no new nesting pairs are present before the buffer is removed. After the biologist has determined that all young have fledged, construction may proceed within the protected zone. If it is not feasible to delay or modify construction activities around the nest, the biologist should contact the CDFG to discuss alternative buffer options.	
IV–2: Removal of trees could result in direct mortality of special status bats. In addition, construction noise and human disturbance could cause roost abandonment and death of young.	**IV-2:** The project applicant shall avoid disturbance to the potential roosts of special-status bats during the removal of trees through a Pre-Construction Special Status Bat Species Survey. If construction activities (i.e., ground clearing and grading, including removal of trees) occur during the non-breeding season of bats (September 1 through February 28), no pre-construction survey and no other mitigation is required. If construction occurs during the breeding season (March 1 through August 31), the applicant shall perform a pre-construction special status bat species survey with the following components to avoid impacts to special-status bats. • Prior to grading or tree removal, a biologist shall inspect each group of trees to determine bat presence and use. The biologist will conduct the assessment through appropriate combination of inspection, sampling, exit counts, and acoustic surveys. As appropriate, bat exit or emergence counts will be made at dusk to determine bat activity. In addition, an acoustic detector may also be used to determine such activity. • If pre-construction surveys indicate that roosts are inactive or potential habitat is unoccupied during the constriction period, no further mitigation is required. Trees that have been determined to be unoccupied by special-status bats may be removed.	Yes

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	• If, however, individuals or colonies were present during proposed tree removal, and the tree removal can reasonably be expected to result in harm, then bats shall be excluded from their roost locations during the appropriate time of the year using humane methods. Such methods will be selected in consultation between the biologist and the CDFG. Whatever method is selected it must follow CDFG protocols. If there is potential for adverse effects on bat habitat, then measures developed under the direction of the biologist shall be implemented to reduce the effect on the bat colony to a negligible level. Measures may include improvement of off-site colony roosts, installation of artificial "bat boxes," or improvement of species management sufficient to offset impacts from the loss of a colony. Such measures will be implemented in consultation between the biologist and the CDFG. Whatever method is selected it must follow CDFG protocols.	
IV-3: The proposed project could result in the placement of fill into approximately 0.168-acre seasonal and emergent wetlands, and ephemeral channel habitat regulated by the Corps pursuant to Section 404 of the Clean Water Act, or the RWQCB pursuant to Section 401 of the Act.	**IV-3:** The project applicant shall obtain a Section 404 Permit from the U.S. Army Corps of Engineers and, as required, a Section 401 Water Quality Certification from the Regional Water Quality Control Board and a Section 1600 Streambed Alteration Agreement with the California Department of Fish and Game prior to the placement of fill or construction of structures and access roads over jurisdictional wetlands. The applicant shall also, implement appropriate compensation measures for the loss of wetland values and acreage, and implement best management practices (BMPs) to reduce potential impairment to the Pine Creek tributary's water quality.	Yes

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	Impacts to regulated "waters of the U.S." or state-regulated "waters of the State" shall not occur without first obtaining an authorization to use the Nationwide Permit(s) or an Individual Permit from the Corps and a Section 401 Regional Water Quality Control Board permit. Such permit conditions may include compensation for wetland values lost through site construction-related fill by creating replacement, mitigation wetlands or enhancing existing wetlands. If possible, mitigation wetlands shall be created on-site and will resemble those wetlands affected by the project (known as in-kind replacement). If wetlands cannot be created "in-kind" and "on-site," other alternatives shall be explored with the Corps and RWQCB for creating compensation wetlands at an off-site location. Some requirements for mitigating impacts to wetlands, to be determined by permit conditions, could include: • Replacement of impacted wetlands at a 2:1 ratio. For permanent wetland impacts, depending on assessed habitat values, wetlands may be replaced at a minimum ratio of two acres created for each acre, or fraction thereof, permanently impacted. • Creation of in-perpetuity preservation. The Corps and other regulatory agencies may require that wetlands not impacted by the proposed project and any new wetlands created to mitigate project impacts be set aside in perpetuity, either through a perpetual deed restrictions or a conservation easement.	

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	• Establishment of a five-year monitoring program to monitor the progress of the wetland mitigation toward an established goal. At the end of each monitoring year, an annual report would be submitted to the Corps, RWQCB and other resource agencies that permitted the project. This report would document the hydrological and vegetative condition of the mitigation wetlands, and would recommend remedial measures as necessary to correct deficiencies. Adequate compensation could also include creating wetlands at a suitable location that: • remain inundated or saturated for sufficient duration to support hydrophytic vegetation, and • exhibit plant and invertebrate species richness comparable to existing wetlands. In lieu of creating compensation wetlands, as approved by the Corps and RWQCB, the applicant may purchase mitigation credits from an approved mitigation bank. Depending upon the location of the rock rip-rap energy dissipater as indicated on the Tentative Map, the project applicant may also be required to prepare an application to the CDFG for a California Fish and Game Code Section 1600 Streambed Alteration Agreement, and to implement appropriate BMPs to reduce adverse impacts to Pine Creek water quality.	
V-1: The potential exists during site preparation that prehistoric, or historic cultural resources or human remains could be uncovered.	**V-1A:** If historic or prehistoric artifacts, features or cultural resources are encountered during construction of the proposed project, all work shall be halted in the immediate vicinity of the find for purposes of evaluation by a qualified professional archaeologist approved by the City of Concord Planning Department.	Yes
	V-1B: The County Coroner shall be notified if human remains are uncovered during construction. If it is determined that the remains are Native American, a representative of the Native American Heritage Council (NAHC) shall be consulted.	

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
GEOLOGY AND SOILS		
VI-1: Liquefaction of soils beneath building foundations has the potential to cause significant damage to foundations. This hazard is to be avoided and/or controlled through the use of a subdrain; however, foundation plans showing the details of the location, depth and outfall of the subdrain have not yet been prepared	**VI-1:** Construction drawings shall be reviewed by the City of Concord prior to the issuance of the grading permit or building permits to ensure the design provides a subdrain adequate to prevent accumulation of ground water in the alluvial deposit beneath proposed buildings.	Yes
VI-2 Several constraints are evident on the site including: a relatively steep upland property, located within the Alquist-Priolo Zone, native soils that may have a high liquefaction potential, and bedrock that is described as friable (loose) sands, which will require monitoring during construction.	**VI-2A:** The project geotechnical engineer and engineering geologist shall monitor project implementation to ensure that construction complies with the recommendations in the approved geotechnical report and that supplemental recommendations are provided if unexpected conditions are encountered during construction.	Yes
	VI-2B: During grading, the project geotechnical engineer/engineering geologist shall observe and approve all excavations in foundation areas of buildings and monitor placement of fill and installation of subdrains.	
	VI-2C: Cut slopes and cuts made for retaining walls shall be observed and mapped by the project engineering geologist, who will provide any required slope modification recommendations based on the actual geologic conditions encountered during grading. Prior to any modification, the applicant shall obtain the City's approval.	
	VI-2D: Placement of all fill shall be observed and tested by the project geotechnical engineer.	
	VI-2E: Prior to requesting final inspection, the project geotechnical engineer shall submit a grading completion report that presents the following: • results of compaction testing; • a detailed original geologic map of the site based on observations of the project engineering geologist during construction;	

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	• a map showing location and approximate depth of all installed subdrains, including cleanouts and outfalls; • results of the soil corrosivity of soils on each graded building pad, and • comments on the consistency of the construction with the recommendations in the geotechnical reports that were the basis of issuance of the construction permits.	
	VI-2F: Gradient criteria for engineered slopes as recommended by Kleinfelder shall be required for development of the project site. Any conflicts between the future grading plans and these criteria should be interpreted as evidence that special engineering is required (e.g., retaining walls, geogrid reinforcement). Those standards call for use of 3:1 fill slopes as a general standard for the project, with the exception that competent bedrock may be constructed with a 2:1 gradient.	
	VI-2G: All recommendations of the City's peer geologist (presented in Table 3-5) shall be implemented during the processing of construction permits and/or during construction as appropriate. With regard to the grading and drainage plans, the following changes are recommended by the City's peer reviewer prior to issuance of building permits. Appropriately licensed professionals shall prepare the plans. • Page 15 of the 2001 KI report provides recommendations for paved interceptor drains and paved terraces. These recommendations for surface drainage facilities appear to apply to the proposed cut slope in the eastern portion of the property. It is recommended that the grading and drainage plans be modified to be in conformance with the recommendations of the KI report.	

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	• It is recommended that consideration be given to adding a legend to the grading and drainage plan which provides a key to the symbols used on the plan sheets. It is also recommended that the KI reports be referenced on the grading and drainage plans and be considered part of the plans. • It is recommended that the cut/fill transition line be added to the plans.	
	VI-3H: Unstable soils shall be removed within graded areas.	
	VI-2I: During grading, the project engineering geologist shall observe and approve all excavations in foundation areas of buildings down to stable bedrock that is not subject to soil creep or liquefaction. Cut slopes shall be observed and mapped by the project engineering geologist, who will provide any required slope modification recommendations based on the actual geologic conditions encountered during grading. Written approval from the City's representatives shall be obtained prior to any modification. Placement of all fill shall be observed and tested by the project geotechnical engineer, and the density test results and reports shall be submitted to the City to be kept on file.	
VI-4: The proposed project involves earthwork in an area of moderately steep terrain with a potential to cause significant erosion of unprotected slopes and downslope sedimentation, both on- and off-site.	**VI-3A:** Grading activities shall be restricted to the summer construction season (15 April through 15 October). Any earthwork done after 15 October shall be limited to activities directly related to erosion control, unless additional work is authorized in writing by the City of Concord.	Yes
	VI-3B: The applicant shall provide an Erosion Control Plan prior to approval of the grading plan. The following interim control measures shall be employed based on site-specific needs in the project areas. • Grading to minimize areas of exposed, erodible material, and to avoid over-concentration of rapidly flowing runoff in unprotected, erodible areas.	

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	• Include water bars, temporary culverts and swales, mulch and jute netting blanks on exposed slopes, hydroseeding, silt fences, and sediment traps/basins. • Place stripped topsoil on graded 3:1 (or flatter) slopes prior to the onset of winter rains. • Include a comprehensive program for inspection and maintenance during the winter rainy season, including provisions for documenting maintenance activities. • Direct runoff to ungraded areas, thereby simplifying erosion control and sediment control measures within the graded area. • Monitor the effectiveness of the erosion control measures throughout the duration of construction.	
VI-5: Although the liquefaction potential of alluvial soils is considered to be relatively low, saturated sandy soils beneath building foundations have at least a risk of liquefying, depending on the clay content of the soils and the severity of the earthquake ground shaking.	**VI-4:** Same measure as Mitigation Measure VI-2.	Yes
VI-6: The previous soils report is deficient in identifying the expansivity of the on-site soils.	**VI-5**: An amended soils report shall be submitted to the City of Concord confirming the absence or presence of expansive soils prior to issuance of construction permits. It may be necessary to alter foundation plans depending upon the results contained in the final soils report.	Yes
HYDROLOGY/WATER QUALITY		
IX-1: Site grading could result in erosion that would cause siltation off site including into the Contra Costa Canal on the west side of the site.	**IX-1:** A seasonally appropriate Storm Water Pollution Prevention Plan for the proposed project shall be prepared for approval by the City of Concord and the RWQCB before issuance of a grading permit. This plan shall include erosion control measures (such as extensive use of fabric rolls or straw bales) that can be relocated as grading of the site progresses to prevent off-site siltation, especially along the Contra Costa Canal.	Yes

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
LAND USE AND PLANNING		
X-1: Project plans are inconsistent with some of the Hillside Development Ordinance criteria and the zoning code pertaining to grading, amount of impervious surface, and overall visibility of the facilities from public right of ways.	**X-1**: The applicant shall revise the plans to include the following measures: • provide additional trees and landscaping along the southwest façade of the chapel, and; • use an acceptable pervious surface for paved areas where practical.	Yes
NOISE		
XII-1: The proposed project could potentially create nuisance noise for adjoining residents, resulting in neighborhood complaints.	**XII-1**: The following measures shall be applied to the project: • all church activities shall be held indoors , including the annual festival, • all evening activities shall be finished by 10:00 p.m., including cleanup detail; and • parking area lights shall be turned off by 10:30 p.m., excluding security lighting, which can consist of single lights placed over doorways.	Yes
XII-2: Noise levels generated by the operation of the project may exceed the standards established in the Concord General Plan and Municipal Code.	**XII-2:** Locate the heating, ventilating, and air conditioning (HVAC) equipment away from sensitive receivers. Shield rooftop mechanical equipment with rooftop screens or perimeter parapet walls and employ noise control baffles, sound attenuators, or enclosures where required. The goal of this mitigation is to reduce noise levels to 60 dBA or less at the boundaries of the site and 55 dBA or less at adjacent residential properties. HVAC noise controls shall be analyzed and reviewed by a qualified acoustical consultant prior to issuance of a building permit**.**	Yes
XII-3: Residences in the vicinity of the site would be exposed to relatively high noise levels over the duration of project construction activities.	**XII-3:** Develop a construction mitigation plan for each phase of the project in close coordination with adjacent noise-sensitive land uses so that construction activities can be scheduled to minimize noise disturbance. The construction mitigation plan shall consider the following available controls to reduce construction noise levels as low as practical:	Yes

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	• Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 8:00 a.m. and 5:00 p.m., Monday through Friday. Construction equipment shall not be started prior to 8:00 a.m. Construction shall be prohibited on weekends and city-observed holidays. • Construction workers and deliveries shall not arrive on the project site until 8 a.m., Monday through Friday. • Erect temporary noise barriers (e.g., solid plywood fences [minimum 8 feet in height] and/or acoustical blankets) along the access roadway. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling. Noise control blanket barriers can be rented and quickly erected. • Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment. • Prohibit all unnecessary idling of internal combustion engines. • Route construction related traffic to and from the site via designated truck routes and avoid residential streets where possible. • Utilize "quiet" models of air compressors and other stationary noise sources where technology exists. • Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses. • Shield adjacent sensitive uses from stationary equipment with individual noise barriers or partial acoustical enclosures. • Locate staging areas and construction material storage areas as far away as possible from adjacent land uses.	

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
	• Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures to correct the problem be implemented. • Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule. • Hold a pre-construction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are implemented.	
PUBLIC SERVICES		
XIV-1: Reconstruction of the access roadway and bridge could affect vehicular access for residents and emergency vehicles along the roadway during construction.	**XIV-1:** The applicant shall prepare and submit a traffic control plan to the City of Concord, the Contra Costa Water District and the Contra Costa County Fire Protection District that adequately explains how vehicle access would be maintained on the access roadway and bridge at all times during construction.	Yes
RECREATION		
XV-1: Drivers entering or leaving the proposed project site would cross the EBRPD Canal Trail and could endanger pedestrians using the trail.	**XV-1**: The access roadway to the church shall be provided with the following features: • slow speed limit (e.g., 15 miles per hour) signs in both directions; • striping where the access roadway crosses the EBRPD Canal Trail; • signs warning drivers that they are approaching the trail crosswalk; and • pruning of trees and plants to provide adequate lines of sight along the trail, which will require ongoing maintenance.	Yes

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
TRANSPORTATION/TRAFFIC		
XVI-1: The church would periodically create high traffic volumes. During these times, the potential for vehicle conflicts could be greater at project study intersections/streets.	**XVI-1A:** To reduce vehicle conflicts and enhance pedestrian safety, install All-Way Stop Sign control at the joint intersection of San Miguel Road and the project access roadway/adjacent private driveway to the north. Additionally, install advance stop warning devices on San Miguel Road as directed and approved by the City of Concord.	Yes
	XVI-1B: Eliminate 30 feet of an existing tree-bush screen (closest to San Miguel Road) between the project access roadway and the adjacent private driveway to the north and relocate existing mailboxes in coordination with the adjacent property owners.	
XVI-2: If all vehicles arrive/depart within a short time period, whether attending church services or the annual special event, vehicle queuing could occur on the access roadway. This is considered a significant impact if it blocks the trail crossing or access for residents and emergency vehicles.	**XVI-2A:** To ensure that extensive vehicle queuing does not occur, the following measures shall be implemented as needed if attendance growth results in extensive queuing: • provide two Sunday masses (instead of one) that are scheduled so vehicles from the first service exit before vehicles arrive for the second service; • schedule class sizes and times to minimize the number of simultaneous trips, and • use traffic control personnel to facilitate traffic flow in and out of the parking lot and at the trail crossing during the busiest time periods.	Yes
	XVI-2B: "Trail Crossing" signs shall be installed at the trail crossing to alert approaching drivers. In addition, "Keep Clear" pavement markings shall be installed instructing motorists to not stop within the trail crossing. (Also refer to XV. Recreation, Mitigation Measure XV-1.)	
XVI-3: The entrance driveway into the church parking is not wide enough to accommodate two-way traffic.	**XVI-3:** To facilitate traffic flow, the entrance driveway shall be widened to 24 feet from the project site entrance to the first handicap stall.	

Significant Impact	Mitigation Measures	Does Implementation of the Mitigation Measure(s) Reduce the Impact to Less-Than-Significant Level?
XVI-4: A future growth in church attendance could result in a parking demand of 140 spaces during the Sunday service, exceeding the number of spaces proposed for the project or required by the City.	**XVI-4:** If needed, provide two Sunday masses (instead of one) that are scheduled so that vehicles from the first service exit before vehicles arrive for the second service (also included as part of Mitigation Measures XVI-2A.)	Yes
XVI-5: A future increase in the number of persons attending the annual special event could result in a parking demand that exceeds the proposed number of parking spaces.	**XVI-5:** The project applicant shall prepare and submit a parking management plan to the City of Concord to address parking demand on site for the annual special event with increased (full) participation. Such a plan could include options such as a ride-sharing program; walking to the site for local residents; securing acceptable off-site parking; shuttle service to/from a satellite parking area; etc. The annual special event shall be held offsite if the parking management plan does not demonstrate to the satisfaction of the City that parking can be accommodated adequately on site.	Yes
XVI-6: Reconstruction of the project access roadway and bridge could affect vehicular access for residents and emergency vehicles along the roadway during construction.	**XVI-6:** The applicant shall prepare and submit a traffic control plan to the City of Concord, Contra Costa Water District and the Contra Costa County Fire Protection District that adequately explains how vehicle access would be maintained on the access roadway and bridge at all times during construction.	Yes
XVI-7: Vehicle volumes to the site would increase during construction of the project.	**XVI-7:** A construction traffic management plan shall be prepared to include the following: • A description of how residential/emergency vehicle access shall be maintained orderly and safely at all times; • An oversight plan for the dirt-removal truck trips, including hours of operation, maximum load/truck size, number of loads per hour, and traffic routing map. The plan shall be developed to minimize disruption of adjacent residents as much as possible; and • A plan that illustrates how parking for construction employees shall be accommodated on site.	Yes
XVI-8: Project plans do not include bicycle racks for church members who may utilize the trail to access the project site.	**XVI-8:** To accommodate bicyclists, the project applicant shall provide bicycle racks as directed and approved by the City of Concord.	Yes

1.0 INTRODUCTION

1.1 PROPOSED ACTIONS

This Initial Study has been prepared in connection with the proposed development of the St. Mary and St. Mina's Coptic Orthodox Church. This document will be used during the planning review process for a Hillside Development Plan, Use Permit, Variance, Heritage Tree Removal permit and Design Review.

The approximate 3.39-acre project site is located at 930 San Miguel Road in Concord, California. Access to the project site is via a 340-foot easement that provides ingress/egress to the project site and three other properties. The entrance road crosses the Contra Costa Canal as well as the East Bay Regional Park District (EBRPD) Canal Trail. The parcel is identified as APN: 130-261-002.

Included in this document are a project description, Initial Study checklist, mitigation monitoring program and appendices that expand upon the text within the checklist.

1.2 PROCEDURES

This Initial Study/Mitigated Negative Declaration has been prepared pursuant to the California Environmental Quality Act (CEQA) and Guidelines for CEQA Implementation as set forth in the California Administrative Code, Title 14, Chapter 3 (referred to as the CEQA Guidelines). The City of Concord is the lead agency. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement) include: U.S. Bureau of Reclamation, U.S. Corps of Engineers, California Department of Fish and Game, the Regional Water Quality Control Board (RWQCB) and the Contra Costa Water District.

CEQA applies to all discretionary projects. CEQA Guidelines Section 15357 defines a discretionary project as one that requires the public agency that would approve or deny the project to exercise judgment. A "project" is an action that has the potential for resulting in a physical change in the environment (CEQA Guidelines Section 15378).

The CEQA process requires that the Lead Agency consider input from other interested agencies, citizen groups, and individuals. CEQA provides for a public process requiring full public disclosure of the expected environmental consequences of the proposed action. The public must be given a meaningful opportunity to comment. CEQA also requires monitoring of the mitigation measures that have been identified in the Initial Study/Mitigated Negative Declaration to ensure that they are carried out. (Refer to the mitigation monitoring program table in Appendix A.)

The City of Concord Planning Department, in their application review process, solicited comments from City departments as well as outside agencies whose jurisdiction includes this project site. Agencies contacted include: Contra Costa Water District; Contra Costa County Fire Protection

District, East Bay Regional Park District, and the Contra Costa County Flood Control and Water Conservation District. In addition, the City conducted a public scoping meeting on December 10, 2007, to provide residents an opportunity to give their input on the issues to be discussed in the environmental document.

The project applicant has undertaken a redesign of the church project as initially presented at the 2007 public scoping meeting. This redesign was in response to concerns raised by the public and in a preliminary review of the environmental impacts. The City's Design Review Board has reviewed the design and, after several public meetings, the project was accepted for its design. This revised design is now the subject of this Initial Study/Mitigated Negative Declaration.

CEQA requires a public review period for commenting on the Initial Study/Mitigated Negative Declaration (IS/MND). Under Section 15105 of the State Guidelines, the public review period must be no less than 20 days (30 days when the document is submitted to the State Clearinghouse for review by State agencies). A 30-day review period has been established for this Initial Study/Mitigated Negative Declaration. During the review period, any agency, group or individual may comment in writing on the IS/MND. All comments are considered by the decision-making body of the lead agency prior to approving the project (CEQA Guidelines 15074).

Written comments regarding this IS/MND should be received by **October 10, 2012**, and addressed as follows:

G. Ryan Lenhardt, Senior Planner
City of Concord
1950 Parkside Drive, MS/53
Concord, CA 94519

Or via e-mail at: ryan.lenhardt@ci.concord.ca.us

1.3 ORGANIZATION OF THE IS/MND

Chapter 2 of this Draft IS/MND describes the proposed project in greater detail and summarizes the general characteristics of the project site.

Chapter 3 is the Environmental Checklist, which identifies the numerous environmental issues that may be affected by a proposed project. The Checklist topics include: Aesthetics, Agriculture Resources, Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation/Traffic, Utilities and Service Systems, and Mandatory Findings of Significance. A discussion is provided under each topic and impacts and mitigation measures have been identified where relevant to the proposed project.

Appendices are found at the back of the report, which provide additional technical information as they relate to biological resources, geology and grading, noise and traffic. Also, the mitigation monitoring program table is included in the appendices.

1.4 REPORT PREPARATION

This document was prepared by Mills Associates for the City of Concord Planning Department. In conformance with Sections 15050 and 15367 of the CEQA Guidelines, the City is the "lead agency" for this project. Lead agency is defined as the "public agency, which has the principal responsibility for carrying out or approving the project."

Lead Agency

City of Concord
Planning Department
1950 Parkside Drive, MS/53
Concord, CA 94519

Contact: G. Ryan Lenhardt, Senior Planner
(925) 671-3162

Applicant

Saint Mary & Saint Mina's Coptic Orthodox Church
5194 Keller Ridge Drive
Clayton, CA 94517

Contact: Father Anthony Hanna
(925) 673-3601

Consultant

Mills Associates
36 Crest View Drive
Orinda, California 94563

Contact: Carolyn Mills, Principal

Subconsultants to Mills Associates

Environmental Service by Papineau – Air Quality/Greenhouse Gas
Contact: Marc Papineau

Illingworth and Rodkin – Noise Analysis
Contact: Michael Thill

Omni Means – Traffic and Circulation
Contact: George Nickelson

Darwin Myers Associates – Geology and Soils
Contact: Darwin Myers

TOVA Applied Science and Technology – Biological Resources
Contact: Dr. Booker Holton

Robert Mills – Drainage and Public Utilities
Contact: Mills Associates

Tom Camara – Graphics

Persons Consulted

Nick Adler, Concord Disposal Service.

Anonymous firefighter, Contra Costa County Fire Protection District Station No. 10.

Sidi Cruz, City of Concord.

Norm Dyer, LCA Architects

Elly; _____ (no last name given per company policy), Pacific Gas and Electric Company.

George Guorgui, St. Mary and St. Mina's Orthodox Coptic Church.

Jorge Hernandez, Contra Costa County Flood Control and Water Conservation District.

Frank Kennedy, City of Concord.

Ray Kuzbari, City of Concord.

Russell Leavitt, Central Contra Costa Sanitary District.

Ivan Menchaca, Sergeant, Concord Police Department.

Hany Naoom, Humann Company.

Dan Owre, Contra Costa Water District

Kevin Vanisco, Bowman Water Treatment Plant, Contra Costa Water District.

Cathy Woofter, Fire Protection Technician, Contra Costa County Fire Protection District.

2.0 PROJECT DESCRIPTION

PHYSICAL LOCATION

The project site is located in Concord, California, at 930 San Miguel Road, in the city's southwest quadrant. The site is located approximately one-half mile from Treat Boulevard directly north of the Lime Ridge Open Space. Access to the property is via an easement that crosses the Contra Costa Canal and the East Bay Regional Park District (EBRPD) Canal Trail. In addition to the church property, this easement serves two other properties located northwest of the project site. (Refer to Figure 2-1, Project Site Location and Figure 2-2, Aerial Photo.)

The 3.39-acre parcel (excluding the .33-acre roadway easement) is currently vacant grassland with numerous non-native trees located in the northern half of the property. A 340-foot-long roadway easement provides access to the project site. The site slopes in a northwest to southeast direction, with elevations ranging from 101± feet at the northwest corner of the property near the site entrance, to 158± feet at the southeast corner of the property.

As shown on Figure 2-2, the project site is located in a neighborhood of single-family houses. Directly north of the project site are a horticulture business and two single-family houses; directly east and above the property are single-family residences; and south of the property is the Lime Ridge Open Space. The Contra Costa Canal and the EBRPD Canal Trail border the westerly property boundary. Two single-family houses front along the 340-foot easement located between San Miguel Road and the Contra Costa Canal.

The assessor's parcel number for the property is 130-261-002.

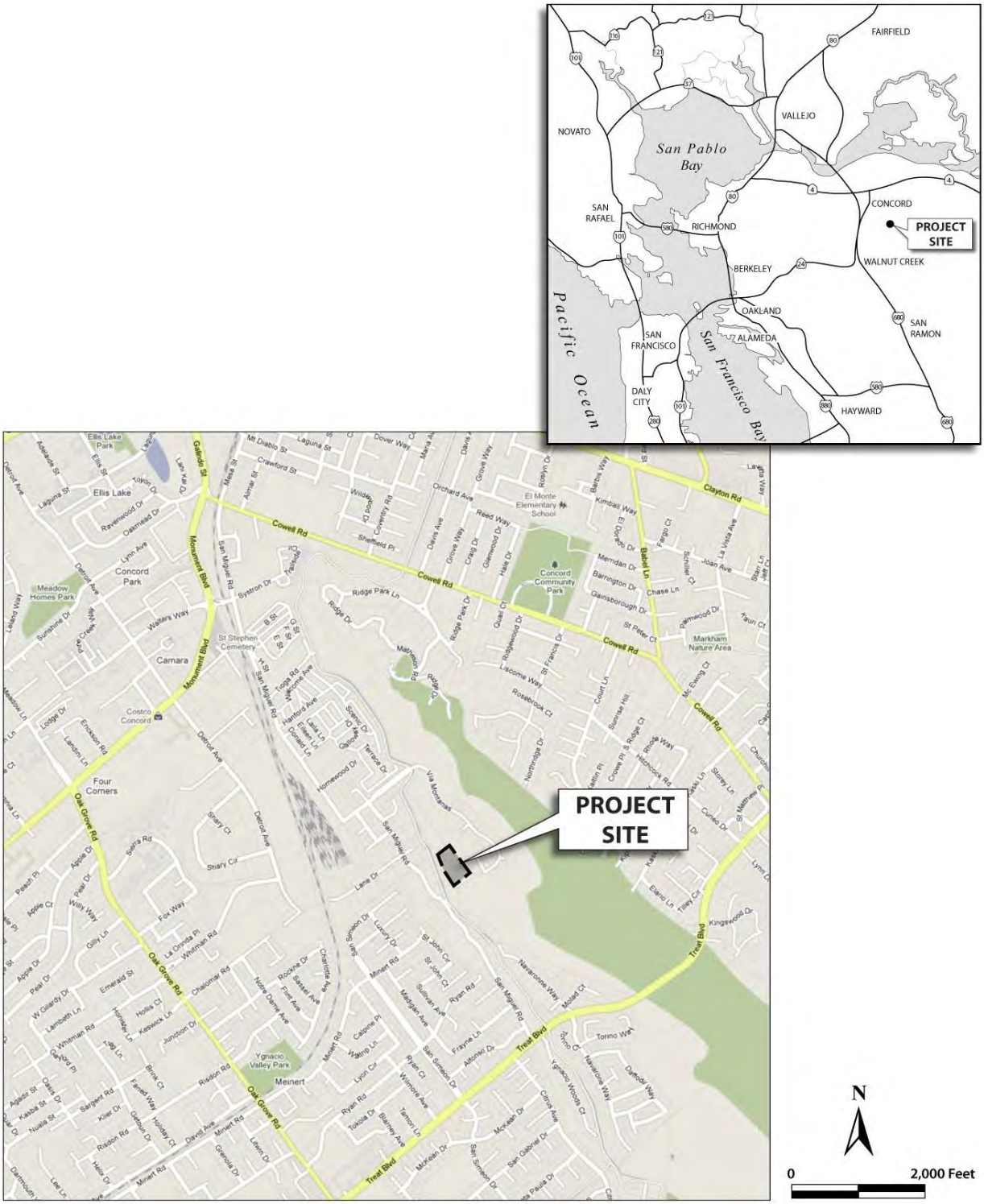
General Plan and Zoning

The property is designated on the City's General Plan map as RR (Rural Residential) and zoned R20 (Single-Family Residential, 20,000-sq.ft. minimum lot size). Refer to the General Plan and Zoning Maps on Figures 2-3 and 2-4. The applicant is requesting approval of a Hillside Development Plan, Use Permit, Variance, Design Review and Heritage Tree Removal.

PROJECT DETAILS

Land Use

The proposed project consists of developing a portion of the property for a sanctuary, a classroom building, a multi-use building and a small chapel. The site plan depicts a "campus-style" layout with the structures interconnected via walkways. Three of the structures are grouped around a landscaped courtyard. The chapel is located at the southern end of the main parking lot. The classroom and multi-use buildings would be used for other church-related activities not typically held in the sanctuary. The sanctuary and classroom building would be built in the flatter portions of the property



Source: Google Maps, 2011

Figure 2-1 Local and Regional Setting

Source: Google Maps, 2011

Figure 2-2 Aerial Photograph of Site

LEGEND

Planning General Plan GP 2030

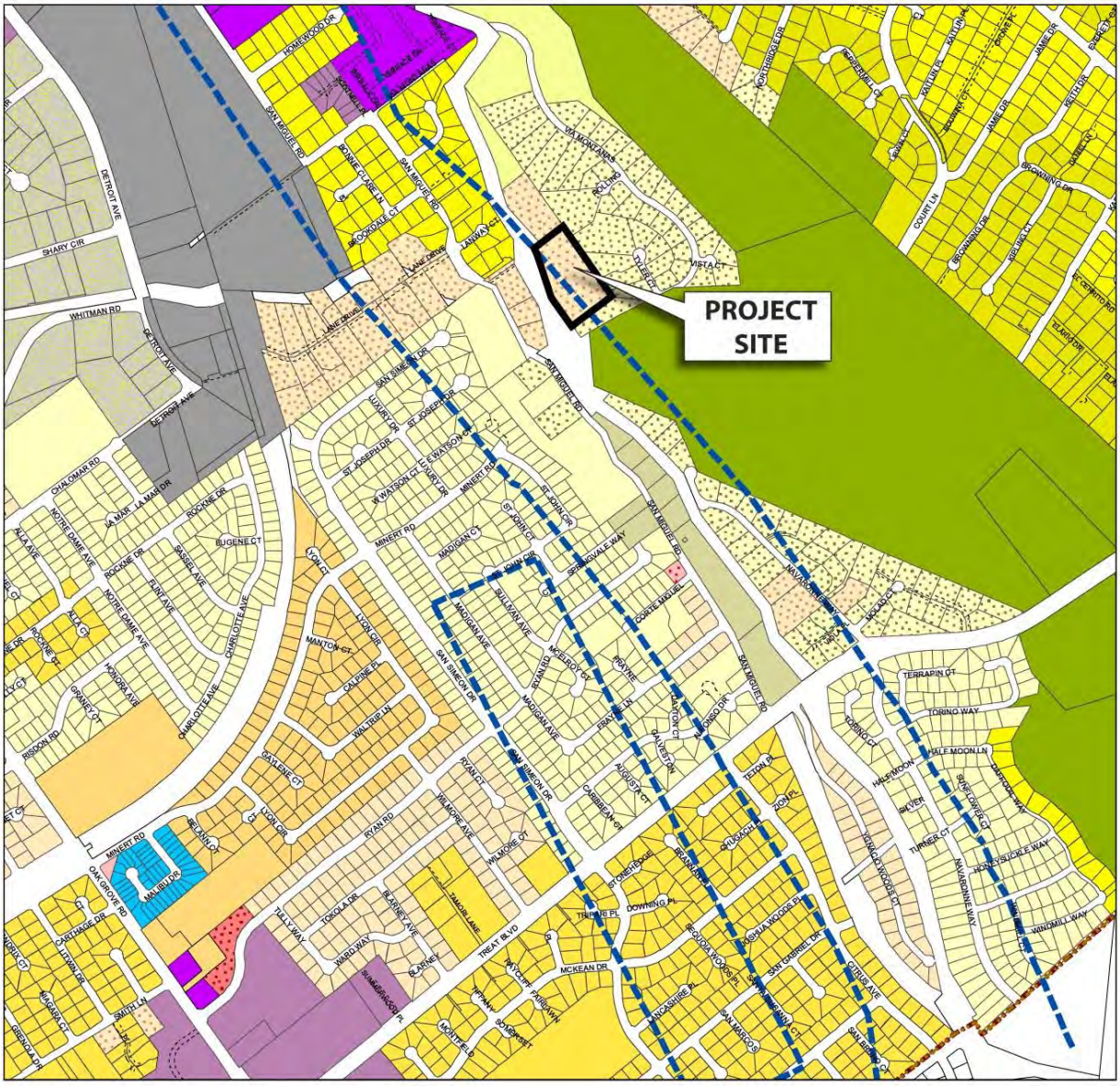
- Fault Lines
- Concord City Limit
- Sphere of Influence
- Business Park (Max 0.8 FAR)
- Community Office (Max 1.0 FAR)
- Industrial Mixed Use (Max 1.0 FAR)
- Low Density Residential (2.5-10 du/acre)
- Medium Density Residential (11-32 du/acre)
- Open Space
- Parks
- Public/Quasi Public (Max 1.5 FAR)
- Hospital/Medical Center (Max 1.5 FAR)
- Regional Commercial (Max 0.5 FAR)
- Rural Residential (<2.5 du/acre)
- Service Commercial (Max 0.8 FAR)

N

0 700 Feet

Source: City of Concord

Figure 2-3 General Plan Map



LEGEND

- Fault Lines
- Concord City Limit
- Sphere of Influence

N

0 700 Feet

Planning Land Use Zones

- Single Family Residential (R6)
- Single Family Residential (R7)
- Single Family Residential (R7.5)
- Single Family Residential (R8)
- Single Family Residential (R10)
- Single Family Residential (R12)
- Single Family Residential (R15)
- Single Family Residential (R20)
- Floor Area Ration (FAR .2)
- Floor Area Ration (FAR .2 to .4)
- Apt. & Professional Office (APO)
- Duplex Residential (D3)
- Med. Density Apts. M 1.8 (M1.8)
- Planned District (PD)
- Planned Industrial (PI)
- Light Industrial (LI)
- Special Light Industrial (SLI)
- Study District (S)
- Permanent Open Space (POS)
- Open Space Reserve (OS)

Source: City of Concord

Figure 2-4 Zoning Map

and set back approximately 110 to 170 feet, respectively, from the westerly property line, while the multi-use building and chapel extend into the hillside. These two latter structures are set back 165 feet and 22.5 feet, respectively, from the westerly property line. Entrance to the property is in the northwest corner of the property through a wrought-iron double swing gate mounted between two stucco columns. The parking areas extend along the northerly and westerly property boundary. Landscaping is located along the property boundaries as well as interspersed throughout the site and within the parking areas. A main entry plaza is created in front of the sanctuary entrance. The remaining one-quarter of the property would be left vacant. (Refer to the Tentative Site, Grading, Drainage and Utility Plan on Figure 2-5 and the Master Plan in Figure 2-6.)

The sanctuary would contain 13,020 square feet; the classroom building 2,840 square feet; the multi-use building 6,280 square feet and the chapel 1,140 square feet totaling 23,280 square feet within the development footprint. All of the structures would be single story. The sanctuary is sized to hold up to 297 persons. The maximum height of the sanctuary at the top of the dome is 42 feet, with the remainder of the structure's height ranging from 23 feet 9.5 inches to 30 feet. The height of the classroom building is 17 feet and the height of the multi-use building is 30 feet. The height of the chapel is 22 feet 6 inches to the top of the dome.

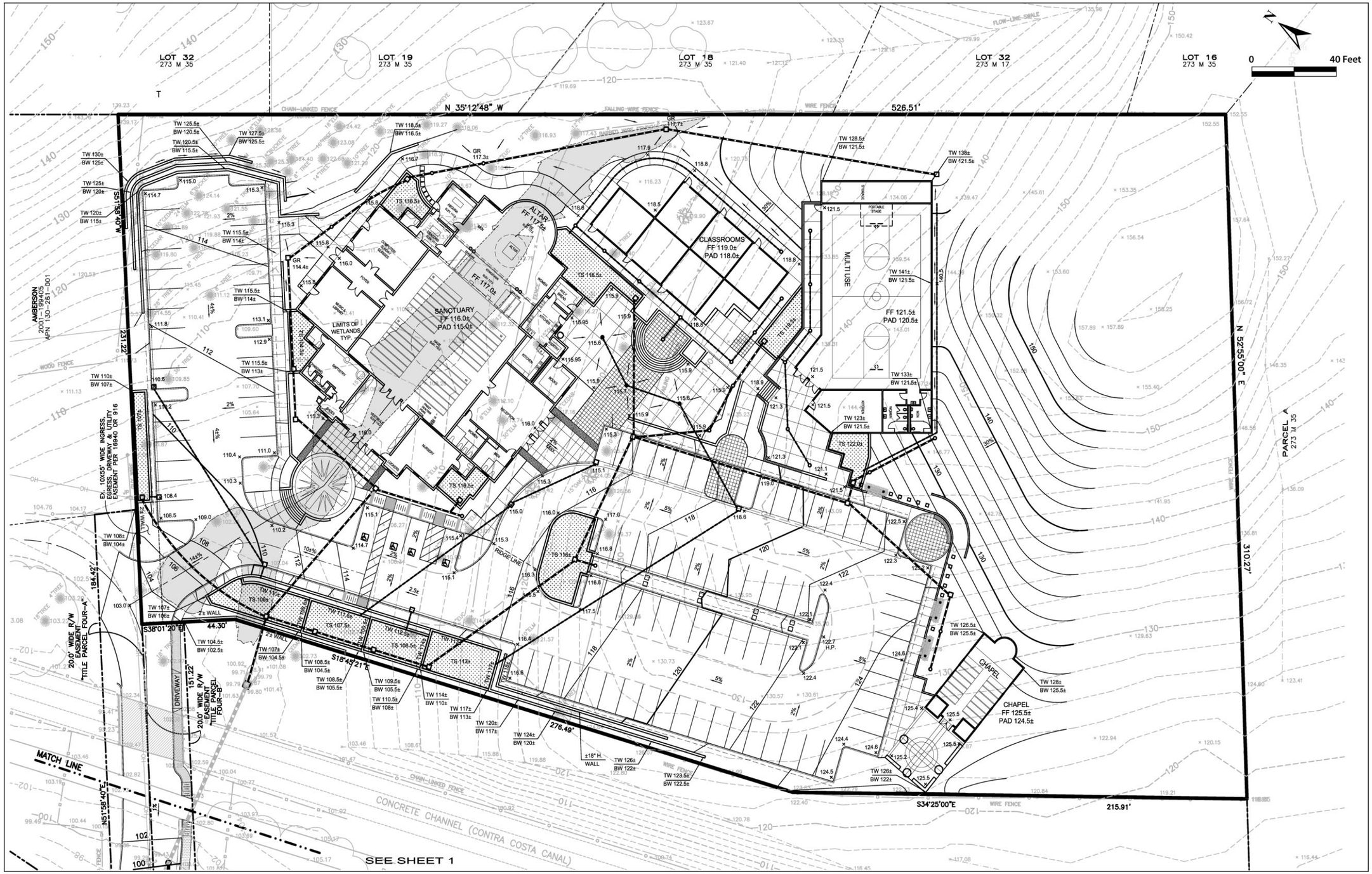
Access and Circulation

Site access is from San Miguel Road, approximately 240 feet south of the Lane Drive/Lanway Court intersection via an existing access road and bridge over the canal (refer to Figure 2-5). The private roadway easement extends approximately 340 feet from San Miguel Road to the project site. Currently the 37-foot-wide easement contains two lanes separated by a tree/brush screen. The southerly gravel driveway provides access to the two properties on the south side of the easement. The northerly asphalt roadway provides access to the project site and the two properties north of the site. This roadway extends across the Contra Costa Canal and the East Bay Regional Park District (EBRPD) Canal Trail. Three residential driveways enter the easement between San Miguel Road and the Contra Costa Canal along the southern gravel driveway. Project plans indicate that the tree screen will be eliminated and the roadway paved to accommodate two-lane traffic within a 24- to 28-foot road width. A typical roadway section shows that a 4.5-foot-wide sidewalk would extend along the southerly side of the roadway in addition to the curb and gutter. The private roadway would be 28 feet wide with the exception of where the private driveways enter the roadway. At these points, the roadway narrows to 24 feet to allow the sidewalk to go around the private driveways.

Although the bridge crossing the Contra Costa Canal was recently upgraded to accommodate a maximum weight of 16 ton as required by the Contra Costa Water District (Guorgui, 2012), the applicant proposes that the bridge be improved to accommodate increased traffic as well as heavy construction equipment and emergency vehicles. Plans indicate that the existing wood planks would be replaced with a steel pan deck and asphalt (Dyer, 2012). The project will be accomplished in phases by allowing one lane to remain open and passable at all times. It is anticipated that the resurfacing project will take 5-7 days. The bridge would accommodate two-way traffic upon completion of the resurfacing project. These bridge improvements will require an encroachment permit from the Contra Costa Water District's Watershed and Lands Department and a license from the U.S. Bureau of Reclamation (USBR).

Source: Humann Company, Inc.

Figure 2-5 Tentative Site, Grading, Drainage and Utility Plan (Sheet 1)



Source: Humann Company, Inc.

Figure 2-5 (con't.) Tentative Site, Grading, Drainage and Utility Plan (Sheet 2)

Source: LCA Architects

Figure 2-6 Site Master Plan

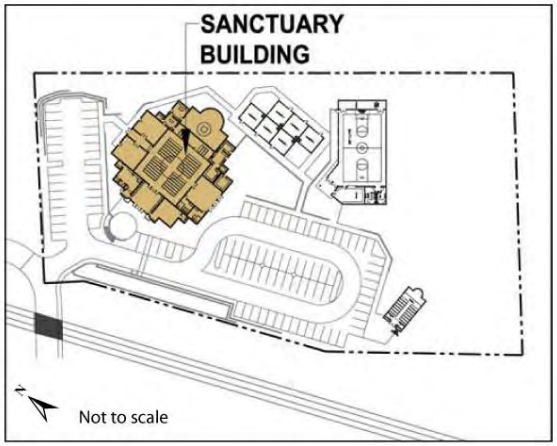
Architectural Details

Figures 2-7 through Figure 2-9 illustrate the architectural design of the church structure. Architectural elements of the sanctuary include a mix of heights, curved and flat roofs, and articulation of the facades. The curved roofs are designed to reflect the hillside behind the project site and of the hillside south of the developed area. The sanctuary is 13,020 square feet and contains the primary features of a church facility including a vestibule, baptistery, nave, altar and apse. In addition, the church facility also has classrooms along the north side and a kitchen and reception area on the south side. These elements extend out on each side of the main church area and are 21 feet high at their highest point. The entrance to the church is along the west elevation. This part of the structure has a curved roof that extends 30 feet above ground at its highest point. The roof slopes downward to its lowest height of 17 feet above ground. As depicted in the elevations, the front entrance is identified with its large, arched stained glass window situated above a double set of doors. On each side of the doorway and recessed two feet from the front façade, are two linear windows that each includes a cross that extends the length and width of the window. Arched windows are located four feet above ground and directly above the concrete masonry unit (CMU) veneer that outlines the base of the entire structure. Clerestory window panels are located under the curved roof that covers the north and south wings of the sanctuary. With the exception of the dome, the overall roof height over the center of the structure is 30 feet above ground level. The dome is located above the nave in the sanctuary and extends 10 feet above the roof for an overall height of 42 feet. A cross will be placed at the center of the dome, extending the height 5 feet 9 inches, for an overall total height of 47 feet 9 inches, The dome is copper clad.

The arched windows are located along the sides and the rear of the sanctuary, excluding the apse. The rear elevation bows out to incorporate the apse. Clerestory windows are located above the doorways along the two sides of the structure. A standing seam roof will be used throughout with the exception of the dome and the roof of the apse area. The exterior of the structure will be painted cement plaster above the CMU veneer. Color tones shown in the architectural plans are a palette of beige/brown variations.

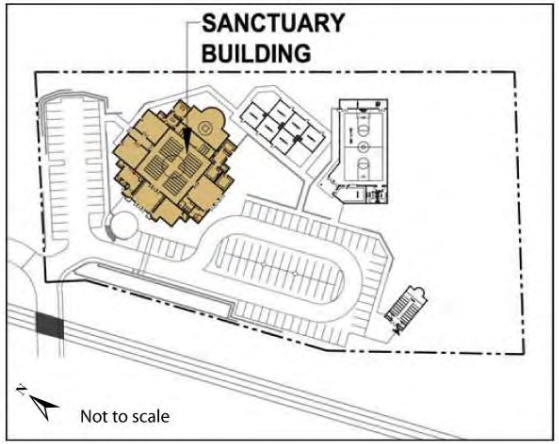
Figures 2-10 through 2-12 illustrate the architectural design of the classroom, multi-use and chapel buildings. The design of the classroom and multi-use buildings reflects similar architecture of the sanctuary. Both designs incorporate the curved roof line, standing seam metal roof, clerestory windows, as well as the CMU veneer and painted cement plaster. Many of the taller windows in both buildings incorporate the cross. The height of the classroom building is 17 feet at its highest point and the multi-use building is 30 feet high. The multi-use building has a recessed entry along its north elevation. This building will provide for recreational and social needs of the church community and includes a basketball court, a portable stage and kitchen facility.

The chapel is located at the southern end of the main parking lot. It measures 1,140 square feet and can accommodate 50 persons. The structure has curved roof but above the dormers the dormer frame is pitched, but roof is curved. The rear of the building has a curvature, which contains the apse or altar. The height along the front elevation is 18 feet 4 inches to the top of the roof and in the rear the height is 24 feet from the ground to the top of the copper clad dome. A cross will be placed on top of the dome, which measures 7 feet 3 inches tall, bringing the total height at the rear of the building to 34 feet 11 inches from the lowest ground elevation. Exterior materials and colors are the same as the other structures.



Source: LCA Architects

Figure 2-7 Front Sanctuary Elevation (westerly view)



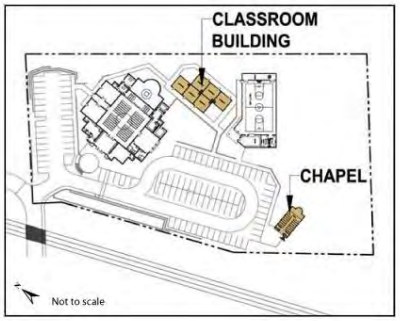
Source: LCA Architects

Figure 2-8 Rear Sanctuary Elevation (easterly view)

Source: LCA Architects

Figure 2-9 Side Sanctuary Elevations (northerly and southerly views)

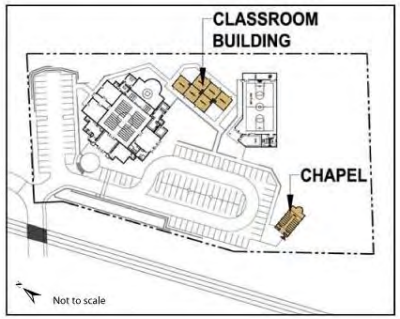
0 24 Feet



Source: LCA Architects

Figure 2-10 Classroom Building Elevations

0 24 Feet



Source: LCA Architects

Figure 2-11 Chapel Building Elevations

Source: LCA Architects

Figure 2-12 Multi-Use Building Elevations

Infrastructure

The proposed project would be served by the Contra Costa Water District and Central Contra Costa Sanitary District for water and sewer service, respectively. An existing corrugated metal pipe currently conveys drainage from the project site west to where it empties into a tributary to Pine Creek. This pipe would be replaced with a new 15-inch-diameter storm drain that will terminate at the tributary. The outfall will contain rock riprap to avoid erosion at the point of discharge into the creek. The project would comply with the stormwater quality requirements of the Contra Costa Clean Water Program as promulgated in the latest edition of the Stormwater C.3 Guidebook (2011).

Other Services

The Contra Costa County Fire Protection District, Concord Disposal Services, City of Concord Police Department, Mt. Diablo Recycling, and Pacific Gas and Electric Company would serve the development.

SCHEDULE OF CHURCH ACTIVITIES

Church representatives provided a list of weekly activities that would occur at the facility along with the projected number of attendees and the time period for the activities. Additionally, the table includes projected attendance based upon the maximum capacity of the four buildings. The list of activities and projected number of those attending is shown in Table 2-1.

PROJECT PHASING AND SCHEDULE

Upon receiving all necessary approvals, Church representatives estimate that the project will occur in four phases over a period of 5 years. The phasing is shown in Table 2-2. (Guorgui, 2012)

PROJECT APPROVALS

The proposed project will require approval of a Hillside Development Plan, Use Permit, Variance, Design Review and Heritage Tree Removal from the City of Concord. Additionally, the project will require an encroachment permit from the Contra Costa Water District, a license from the U.S. Bureau of Reclamation, a Section 404 Permit from the U.S. Corps of Engineers, a Regional Water Quality Control Board Section 401 Water Quality Certification, and a Streambed Alteration Permit from California Department of Fish and Game. The City of Concord Planning Commission will hear the application prior to making a decision on the project.

Table 2-1

CHURCH ACTIVITY SCHEDULE

Day	Use/Activity	Time Period	Existing Attendance (Persons)	Projected Capacity (Persons) [1]
Sunday	Mass Service / Sunday School	8:00 a.m. – 2:00 p.m. Peak vehicle activity: 10:00 – 11:00 a.m. & 1:00 – 2:00 p.m.	100 – 150	297
Monday	Mass Service	6:30 – 8:00 a.m.	10 – 15	30
Tuesday	Women's Meeting (every other Tues.) Youth Club (Summer)	7:30 – 9:30 p.m. 6:30 – 8:30 p.m.	5 – 10 20 – 25	50 50
Wednesday	Mass Service Bible Study Youth Club (Summer)	9:00 – 10:00 a.m. 7:30 – 9:30 p.m. 6:30 – 8:30 p.m.	10 – 15 10 – 25 20 – 25	30 50 50
Thursday	Youth Club (Summer)	6:30 – 8:30 p.m.	20 – 25	50
Friday	Youth Club (Winter)	7:30 – 9:30 p.m.	20 – 25	50
Once per Year (October)	Annual Festival (3 days)	9:00 a.m. – 6:30 p.m.	200 – 600	200 – 600

Note:

[1] Projected attendance is based upon square footage of the proposed sanctuary and multi-use building with a percentage increase applied to each of the activities cited.

Source: St. Mary & St. Mina's Coptic Orthodox Church, George Guorgui.

Table 2-2

ESTIMATED PROJECT PHASING AND CONSTRUCTION SCHEDULE

Construction Phase	Construction Activity	Estimated Duration
1	Bridge Improvement, site grading and erosion control, underground utilities (water, sewer, storm drain, electricity, cable etc.), temporary site fencing.	3 to 6 months
	Bridge Replacement Project	3 weeks
2	Construction of the church: foundation, structure, interior and exterior finishing, other miscellaneous (fire alarms, etc.) and chapel.	1 years
3	Surrounding area of the sanctuary; parking lot improvements; light poles, landscaping; traffic improvements.	Included with church construction
4	Classroom and multi-use buildings – could occur right after completion of the church depending upon available funding.	Future

Source: St. Mary & St. Mina's Coptic Orthodox Church; George Guorgui.

Sources

LCA Architects, 2012. Conceptual Elevations, January 31

Norm Dyer, 2012, correspondence with Ted Leach, Contra Costa County Fire Protection District, March 20.

George Guorgui, 2012. St. Mary & St. Mina's Coptic Orthodox Church, e-mail correspondence with Carolyn Mills, April 10 and May 23; telephone conversation March 13 and personal communication July 28.

Humann Company, Inc., 2012. Vesting Tentative Site, Grading, Drainage and Utility Plan, January 27.

3.0 ENVIRONMENTAL CHECKLIST

1.	Project title:	St. Mary and St. Mina's Coptic Orthodox Church
2.	Lead agency name and address:	City of Concord Planning Department 1950 Parkside Drive MS/53 Concord, CA 94519
3.	Contact person and phone number:	G. Ryan Lenhardt, Senior Planner (925) 671-3162
4.	Project location:	930 San Miguel Road, Concord, California
5.	Project sponsor's name and address:	St. Mary and St. Mina's Coptic Orthodox Church P. O. Box 271295 Concord, CA 94527
6.	General plan designation:	RR (Rural Residential)
7.	Zoning:	R20 (Single Family Residential, 20,000 sq. ft. minimum)

8. Description of project: The applicant is requesting the following approvals from the City of Concord: Hillside Development Plan, Use Permit, Variance, Design Review and Heritage Tree Removal for the purpose of constructing on a portion of the project site, a sanctuary, classroom building, multi-use building and chapel to serve members of the St. Mary and St. Mina's Coptic Orthodox Church. The classroom and multi-use buildings would be used for other church-related activities not typically held in the sanctuary. The sanctuary and classroom building would be built on the flatter portions of the property, while the multi-use building and chapel would be built into the hillside. The parking area and landscaping would be located between the structures and the westerly property line, as well as throughout the developed portions of the project site. The remaining one-quarter of the property would be left vacant. The sanctuary would contain 13,020 square feet; the classroom building 2,840 square feet; the multi-use building 6,280 square feet and the chapel 1,140 square feet. All of the structures are single story. The maximum height of the sanctuary at the dome is 42 feet. The height varies for the rest of the structure; ranging in height from 23 feet 9 ½ inches at its lowest point to 30 feet at its highest. The height of the multi-use building is 30 feet; the height of the classroom building is 17 feet and the chapel height is 22 ½ feet. Site access is from San Miguel Road, approximately 240 feet south of the Lane Drive/Lanway Court intersection via an existing access roadway/bridge over the Contra Costa Canal and East Bay Regional Park District (EBRPD) Canal Trail.

   The private access roadway easement extends approximately 340 feet from San Miguel Road to the project site. Currently the 37-foot-wide easement contains two lanes separated by a tree/brush screen. The southerly gravel lane provides access to the two properties on the south side of the easement. The northerly asphalt lane provides access to the project site and three properties north of the project site. This access roadway extends across the Contra Costa Canal and EBRPD Canal Trail. Project plans indicate that the trees would be eliminated and the roadway paved to accommodate two-lane traffic within a 24- to 28-foot road width. A

typical roadway cross section shows that a 4.5-foot-wide sidewalk would extend along the southerly side of the roadway in addition to the curb and gutter. The private roadway would be 28 feet wide with the exception of where the private access roadways enter the roadway. At these points, the roadway narrows to 24 feet to allow for the sidewalk to go around the private driveways. The Contra Costa County Fire Protection District requires a minimum unobstructed width of 20 feet. Although the bridge crossing the Contra Costa Canal was recently upgraded to accommodate a maximum weight of 16 ton as required by the Contra Costa Water District (Guorgui, 2012), the applicant proposes that the bridge be improved to accommodate increased traffic as well as heavy construction equipment and emergency vehicles. Plans indicate that the existing wooden planks would be replaced with steel and asphalt. The bridge would accommodate two-way traffic. Improvements to the bridge would require an encroachment permit from the Contra Costa Water District's Watershed and Lands Department and a license from the U.S. Bureau of Reclamation (USBR).

9. Surrounding land uses and setting: North of the site, a nursery and two single-family houses; east and above the property, single-family residences; south of the property, Lime Ridge Open Space; and west, the Contra Costa Canal and EBRPD Canal Trail. Five single-family houses front along the 340-foot easement located between San Miguel Road and the Contra Costa Canal. The two southerly houses have access to the easement.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.): Contra Costa Water District, U.S. Bureau of Reclamation, U.S. Corps of Engineers, California Department of Fish and Game and the Regional Water Quality Control Board (RWQCB).

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

√	Aesthetics		Agriculture & Forest Resources		Air Quality
√	Biological Resources	√	Cultural Resources	√	Geology / Soils
	Greenhouse Gas Emissions		Hazards & Hazardous Materials	√	Hydrology / Water Quality
√	Land Use / Planning		Mineral Resources	√	Noise
	Population / Housing	√	Public Services	√	Recreation
√	Transportation / Traffic		Utilities / Service Systems		Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

___ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

√ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

___ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

___ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

___ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

September 9, 2012
Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. **AESTHETICS** — Would the project:				
a) Have a substantial adverse effect on a scenic vista?			√	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			√	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?		√		
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		√		

Setting:

The project site is located in the city's southwest quadrant approximately one-half mile north of Treat Boulevard. It is accessed by a private access roadway easement that requires crossing the Contra Costa Canal. The site is located in an area of lower density residential development and abuts the northwest portion of the Lime Ridge Open Space. The parcel is vacant, covered in annual grasses with numerous domestic trees that include evergreens, eucalyptus, pepper and palms located in the northern portion of the project site. The East Bay Regional Park District (EBRPD) Canal Trail extends along the western property boundary. Directly east and above the project site is the Lime Ridge Subdivision. These are large lot homes of which many have backyard gardens that abut the easterly property line as shown in the following two photos.

Discussion:

The northerly portion of the property is relatively flat, gradually rising 35 feet toward the northeast corner. The site slopes to the south, rising from an elevation of 101 feet at the project entrance to 158 feet in the southeast corner. This hill partially blocks the view of a portion of the site when walking in a northerly direction along the Canal Trail. The following photographs depict the views from the Canal Trail.

Photo A

Photo B

Photo C

Photo D

Proceeding north along the EBRPD Canal Trail starting at the southern project boundary (Photo A), the developable portion of the site can be seen in Photo D.

Approaching the site from the north, a tree screen buffers the property as shown in Photo E. At a point approximately 75 feet from the site entrance, a portion of the project site can be seen as shown

in Photo F. The flatter portion of the project site comes into view at the canal bridge crossing and immediately south of the bridge crossing; the site's interior is directly visible to users of the trail as shown in Photos G and H, respectively. This view can be seen for approximately 120 feet before the hill begins to block the view.

Photo E

Photo F

Photo G

Photo H

Currently, the project site is not visible from San Miguel Road due to the tree/brush screen that divides the two private access roadways within the easement. This could change when the tree screen is removed to improve access.

Discussion:

a) Have a substantial adverse effect on a scenic vista?

The project site is not located in an area where a scenic vista could be impacted. The site sits back from San Miguel Road approximately 340 feet and cannot be readily seen from the roadway. However, residents located above the site have views of scenic vistas to the west. Neither the sanctuary nor the ancillary structures would block the westerly view from these residences. The applicant's architect, LCA prepared an exhibit showing elevations to illustrate this point. The top of the sanctuary dome is 42 feet high, its highest point. A five foot, nine inch tall metal cross would sit atop the dome. The elevation at the top of the dome is 158 feet. The nearest residence at 945 Tyler Court has a finished floor elevation of 166.5 feet, an elevation difference of 8 feet above the church. The sanctuary is located 270 feet from the rear of the residence. At this distance and angle, the church would not impede the view for the residents at this address. The residence at 3331 Rolling Meadow Court sits back 310 feet from the back of the church with a finished floor elevation of 214.5 feet. The church also would not impact the views from this residence.

The classroom building has a height of 17 feet and the multi-use building has a height of 30 feet. The top of the classroom building would be at elevation 136 and the multi-use building at elevation 151 ½ feet. Residences that would be most directly affected are located at 933 through 941 Tyler Court, directly above the project site. These three houses are located between elevation 161 ½ feet and 166 ½ feet and sit back 160 to 210 feet from the rear of these two church structures, therefore they would not block views from the houses on Tyler Court.

The applicant's landscape plan (Camp and Camp, January 2012) depicts a tree screen around the three property lines and along the southern edge of the development area. In particular, a fairly dense tree screen consisting of the existing tree grove, coast live oaks, coast redwoods, California bays and valley oaks is proposed along the eastern boundary to screen the buildings from the views of the residents above the project site. These trees, when fully grown, will provide a visual amenity to the residents above as well as help to screen views of the structures for the residents. However, until the trees reach maturity, portions of the buildings would be visible to residents above the site when using their rear yards. However, this is considered a less-than-significant impact because the structures do not block the westerly views for the residents above the project site.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Development would be limited to the northern three-quarters of the site with the remainder left vacant. Development will necessitate the removal of some existing trees, which primarily consist of evergreen, eucalyptus, pepper and palm trees, all of which are non-native species. A tree grove located in the northeast corner of the project site will remain. The applicant will be required to apply for a tree removal permit from the City. There are no historic buildings on the site nor is the site located along a state scenic highway. The site represents an undeveloped piece of land located between residential development to the north, east and west, prior to approaching the Lime Ridge Open Space. Leaving some of the hill in the southern portion of the site in its natural condition provides a visual transition from the developed area to the open space when using the EBRPD Canal Trail. Therefore, this is considered a less-than-significant impact.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

The proposed project would alter the view of the site as seen from the EBRPD Canal Trail. Users of the trail would be very much aware of the development for approximately 200 feet until such time that the landscaping reaches maturity to help screen the views. The landscape plan reflects a row of trees consisting of a mix of locust, tupelo and coast redwoods, supplemented with a mix of shrubs and groundcovers to screen the structures. Figures 3-1 through 3-4 show views of the project site from both directions along the canal trail prior to development and after construction, with and without landscaping. As shown in Figure 3-2 the entrance to the church property and the front of the sanctuary would be visible when approaching the site from the north, passing the entrance and just south of the entrance for approximately 90 feet. As noted on Figure 3-2, the landscaping partially screens the sanctuary and parking area. Figure 3-4 represents the northerly view when walking along the trail. Without landscaping, the chapel and the roof/dome of the sanctuary are visible along the western boundary the project site. Landscaping screens the buildings with the exception of a portion of the chapel along the southerly façade. The landscape plan includes a plant palette of coast live oaks, California bay trees, valley oaks, pear and redwoods, supplemented with shrubs and groundcover.

Trail users will be aware of the grading and construction activities at the project site, however this is considered a temporary impact due to the duration of the construction period and is considered a less-than-significant impact. However, until the landscaping reaches maturity, the church buildings and parking lot would be visible for trail users.

Impact I-1: Visual impacts will occur for trail users until such time the landscaping reaches maturity.

Mitigation Measure I-1A: The landscaping shall be installed as soon as the church structure has been erected and parking lot improvements completed. This should occur prior to completion of church interior.

Mitigation Measure I-1B: The applicant shall post a security bond to assure protection of existing and newly planted trees that are located on the property. The term of the bond shall extend at least two years beyond completion of all construction.

Mitigation Measure I-1C: Newly planted trees and shrubs shall be monitored for a period of five years from the date of installation. Any trees lost during this period shall be replaced and monitored by the applicant for the same length of time.

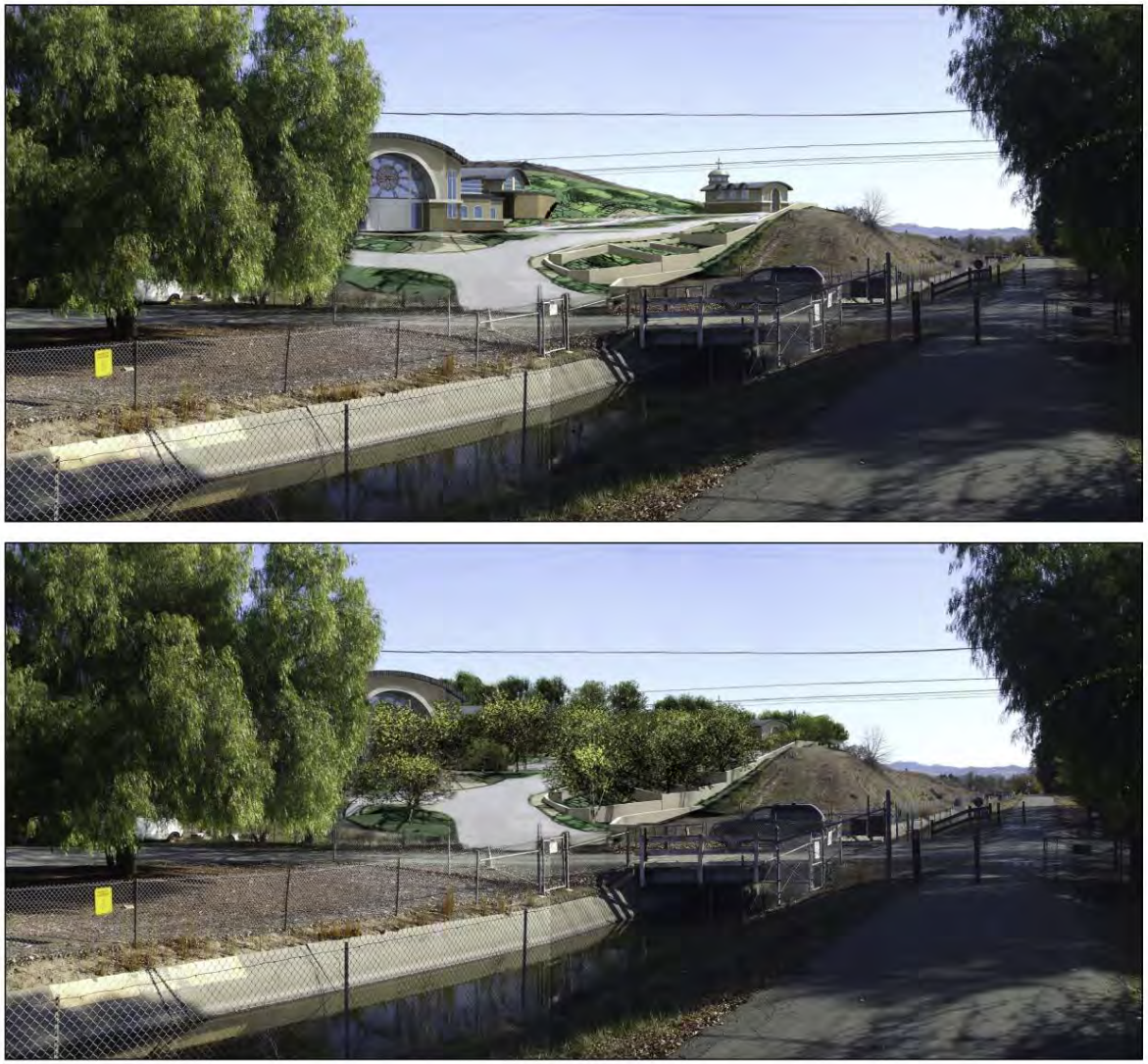
Mitigation Measure I-1D: The tree screen along the southwest façade of the chapel shall be supplemented with additional trees to further screen the chapel from trail users.

With implementation of Mitigation Measures I-1A through I-1C, the impact would be less than significant.

d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

Source: LCA Architects

Figure 3-1 Southeasterly View of Project Site From the Canal Trail



Source: LCA Architects

Figure 3-2 Proposed Project With and Without Landscaping (Viewing Southeast from Canal Trail)

Source: LCA Architects

Figure 3-3 Northeasterly view of Project Site from Canal Trail

Source: LCA Architects

Figure 3-4 Proposed Project With and Without Landscaping (Viewing Northeast from Canal Trail)

Exterior lighting would be placed throughout the parking lots, pathways and on the exterior building facades. The applicant submitted a lighting plan depicting the location and types of light fixtures that would be used throughout the building site. Included with the lighting plan was a photometric analysis, which shows the level of footcandles projected by the light fixtures. The further away from a light source, the lower the footcandle. The lighting plan only shows the location of the light standards that will be located throughout the parking lots and along the pedestrian paths. Plans call for two fixture types: a 22-foot high box style used in the two parking lots and a 14-foot high round style located in the plazas and walkways. There will be exterior lights located on the building facades at the various entrances, but the church does not intend to use any accent lighting. The dome will be lighted from within, reflecting out from the upper windows (Figure 2-8).

The potential environmental impacts of outdoor lighting are generally evaluated as "light trespass." Light trespass is defined as light spilling onto adjacent properties. Visual characteristics of outdoor lighting may be considered as being objectionable to some if: 1) the nighttime glow of the lights presents a visual intrusion for residents with views of the site; 2) the light standards either individually or cumulatively block a major view corridor; or 3) the light poles create an intrusion within the visual framework as seen by residents.

Light trespass as a result of the 17 light fixtures would not occur to adjoining residences. The photometric analysis completed for the proposed project indicates footcandles of zero to .87. A footcandle of .2 is equivalent to bright moonlight. The higher number footcandle is located along the northeast property line, a considerable distance from the nearest residence. Mature trees located on the adjoining property north of the project site will help to screen any glare in the vicinity of the nearest light fixture on the northern property line. The nighttime glow would not create a visual intrusion given the location of the residences in relation to the project site, as well as intervening trees and solid wooden backyard fences. Neither the light standards nor the light poles would create a visual intrusion.

Although the exterior lighting does not create a significant impact on adjoining properties, nonetheless the applicant should provide for automatic shut off timers for the exterior lights and the sanctuary dome light.

> **IMPACT I-2:** Project plans do not provide information regarding shut off times for exterior lights
>
> **Mitigation Measure I-2:** All exterior lights, as well as the dome light, shall have automatic timers to shut off at 10:30 PM, with the exception of security lighting (e.g. single lights located over doorways).

With implementation of Mitigation Measure I-2, the impact would be less than significant.

SOURCES OF INFORMATION

LCA Architects, 2012. Elevations and Cross Sections, January 31

Camp & Camp, 2012. Landscape Master Plan, January 18.

Applications Engineering 2012. Site Lighting Plan and Photometric Analysis, January 30.

Humann Company, Inc., 2007 and 2012. Site Cross Sections, May 15 and January 27.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
II. **AGRICULTURE AND FOREST RESOURCES**: Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				√
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				√
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526)?				√
d) Result in the loss of forest land or conversion of forest land to non-forest use?				√
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				√

Setting:

The hilly project site is currently undeveloped and covered with wild grasses, weeds and several eucalyptus and palm trees. There is existing residential development and a nursery on the north and east sides of the site. The Lime Ridge Open Space borders the south side of the site. The Contra Costa Canal, a domestic water supply canal, separates the site from residential development on the west side of the site.

Discussion:

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The California Department of Conservation Farmland Mapping and Monitoring Program shows that the project site is in an area categorized as Urban and Built-up Land. There would be no impact, and no mitigation would be necessary.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project site is currently zoned R-20 Single Family Residential (20,000 sq. ft. minimum lot size). The Concord General Plan land use designation is Rural Residential. The project site is not under a Williamson Act contract. There is no agricultural land use in the immediate vicinity of the project site. There would be no impact, and no mitigation is necessary.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526)?

Although there are trees on the site, it does not contain a forest, nor is there forested or timberland land in close proximity to the project site. There would be no impact, and no mitigation is necessary.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

Refer to c) above.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Single-family residences and open space surround the proposed project site. The proposed project would not result in the conversion of existing farmland or forestland to non-agricultural land uses. There would be no impact, and no mitigation is necessary.

SOURCE OF INFORMATION

City of Concord. 2007. *Concord 2030: Urban Area General Plan*, October 2.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
III. **AIR QUALITY** — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			√	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			√	

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			√	
d) Expose sensitive receptors to substantial pollutant concentrations?			√	
e) Create objectionable odors affecting a substantial number of people?				√

Setting:

The proposed project site is located in the eastern portion of the nine-county San Francisco Bay Area Air Basin in the City of Concord. This city has a relatively low potential for air pollution given the predominance of westerly winds. These winds dilute pollutants and transport them away from the area. There are, however, several major stationary sources in upwind cities that can adversely influence local air quality.

Both the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. Ambient standards include criteria pollutants and toxic air contaminants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The federal and California standards differ in some cases. In general, the California standards are more stringent, particularly for ozone and particulate matter (PM_{10} and $PM_{2.5}$). Pursuant to the California Clean Air Act, the CARB designates areas of the state as attainment, non-attainment, or unclassified with respect to applicable standards.

Despite progress in attaining the ozone standards, the San Francisco Bay Area (SFBA) remains classified as a probable non-attainment area for federal 8-hour ozone standard and a non-attainment area by US EPA rule-making for the federal 24-hour $PM_{2.5}$ (see Table 3-1). California's more stringent 1-hour and 8-hour ozone standards, annual PM_{10} and $PM_{2.5}$ standards, and 24-hour PM_{10} standards also have not been attained. Air basins downwind of the SFBA import ozone and ozone precursors emitted in the SFBA. The SFBA's most recently adopted Clean Air Plan (CAP) and ozone plan, the *Bay Area 2005 Ozone Strategy*, were adopted in 2010 (BAAQMD, 2010).

TABLE 3-1

San Francisco Bay Area Attainment Status

Criteria Pollutant	Federal Attainment Status
Ozone (O_3), 8-hour (1997)	Non-attainment[1,2]
Ozone (O_3), 8-hour (2008)	Non-attainment[3]
Nitrogen Dioxide (NO_2)	Attainment-Unclassified

Carbon Monoxide (CO), 8-hour	Attainment—Maintenance
Particulate Matter (PM_{10})	Attainment—Unclassified
Particulate Matter (2006 $PM_{2.5}$)	Non-attainment[4,5]

NOTES:

National Ambient Air Quality Standard (NAAQS promulgated under the federal Clean Air Act.

[1] Previous 1-hour ozone NAAQS non-attainment areas are no longer subject to the revoked 1-hour NAAQS as of June 15, 2005.

[2] Effective June 2004, the SFBA was designated as a marginal non-attainment area for the 8-hour 1997 ozone NAAQS. http://www.epa.gov/oaqps001/greenbk/ca8.html

[3] In 2008, USEPA revised the 8-hour ozone standard to 0.075 parts per million (ppm) from 0.080 ppm. The SFBA's design values of 0.081 (2006-2008) and 0.078 ppm (2007-2009) do not meet the 2008 ozone NAAQS. On April 30, 2012, USEPA issued final area designations and classifications for the 2008 (0.075 ppm) 8-hour ozone standard. The non-attainment area designations include Contra Costa County and several other SFBA counties. The area designations and classifications will be effective July 20, 2012.

[4] California ARB recommended non-attainment status for $PM_{2.5}$ to USEPA on December 17, 2007.

[5] On December 14, 2009, USEPA designated the San Francisco Bay Area as non-attainment for the 24-hour 2006 $PM_{2.5}$ NAAQS based upon violations of the standard over the three years 2006-2008. http://www.epa.gov/oaqps001/greenbk/ca25b.html

2010 Clean Air Plan

The 2010 CAP was adopted in September 2010. The 2010 CAP is intended to: 1) reduce emissions of multiple pollutants including NOx (Nitrous Oxides), ROG (Reactive Organic Gasses), $PM_{2.5}$, (Particulate Matter) and Diesel Particulate Matter (DPM), as well as CO_2 (Carbon Dioxide); 2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities already affected by air pollution; and 3) reduce greenhouse gas (GHG) emissions to protect the climate.

The proposed project would not conflict with the adopted 2010 CAP or measures to reduce emissions of multiple pollutants (NOx, ROG, $PM_{2.5}$, DPM, and CO_2) and safeguard public health by reducing exposures to toxic air contaminants (TACs). The California Air Resources Board and BAAQMD have adopted or established additional programs and controls to identify and mitigate key sources of TACs. In the SFBA, the key community-level Mitigation Action Plan for priority TAC-affected areas is BAAQMD's Community Air Risk Evaluation (CARE) program. This program's mission is to evaluate and reduce health risks related to exposures to outdoor TACs in the San Francisco Bay Area. The Project Site is located in one of the six priority communities identified by the BAAQMD. TAC emissions may originate from industrial sources called "point sources," area sources and on-road and off-road mobile sources. A focus of CARE is diesel exhaust, which is a major contributor to health risk posed by outdoor TACs in California. The nearest TAC source, the BART Concord Train Yard (BAAQMD ID 2351), is located about 1,140 feet from project site at the point of closest approach. Because the project site is located beyond 1,000 feet from the nearest TAC, no further analysis or consultation with BAAQMD is required.

Under the California Clean Air Act, Contra Costa County is a non-attainment area for ozone and particulate matter (PM_{10} and $PM_{2.5}$.) Contra Costa County is either an attainment or unclassified area for other pollutants. The California Clean Air Act requires local air pollution control districts to

prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or provide for adoption of "all feasible source control measures on an expeditious schedule."

The project site is located within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD) whose various plans, guidelines and regulations would apply to the project. The BAAQMD has a multi-pollutant monitoring site on Treat Boulevard in Concord. Table 3-2 shows historical occurrences of pollutant levels exceeding the California and federal ambient air quality standards from 2008 through 2011. The number of days that each standard was exceeded is shown. As shown in the table, all federal ambient air quality standards are met in the area with the exception of ozone and $PM_{2.5}$. Additionally, the California ambient standards for ozone and PM_{10} are regularly exceeded.

Table 3-2

AIR QUALITY DATA SUMMARY FOR CONCORD 2008- 2011

Pollutant	Standard	Days Exceeding Standard In Given Year			
		2008	2009	2010	2011
Ozone	State 8-Hour	8	5	4	5
Ozone	Federal 8-Hour	6	2	1	2
PM_{10}	Federal 24-Hour	0	0	0	0
PM_{10}	State 24-Hour	6.0	0	0	6.1
$PM_{2.5}$	Federal 24-Hour	7.0	1.0	1.0	2.1
Carbon Monoxide (CO)	Federal 8-Hour	0	0	0	0
Carbon Monoxide (CO)	State 8-Hour	0	0	0	0
Nitrogen Dioxide (NO_X)	State 1-Hour	0	0	0	0
Sulfur Dioxide (SO_2)	State 1-Hour	0	0	0	0

Sources: Air Resources Board, 2009 and 2012, Aerometric Data Analysis and Management (ADAM).
Air Resources Board, 2012. Ambient Air Quality Standards

Discussion:

a) Conflict with or obstruct implementation of the applicable air quality plan?

A project would be judged to conflict with or obstruct implementation of the regional air quality plan if it would be inconsistent with the growth assumptions, in terms of population, employment or regional growth in Vehicle Miles Traveled. This could occur if a project required a general plan amendment or rezoning, which the proposed project does not. St. Mary and St. Mina's Coptic Orthodox Church is an existing church in the City of Concord. The miles traveled by the parishioners are transferred from the existing Clayton Road site to the proposed project site. Furthermore, the BAAQMD considers a daily auto vehicle trip generation of 2,000 to be the threshold of significance requiring project review for air quality mitigation (BAAQMD CEQA Guidelines, 2011). The proposed project would generate approximately 280 vehicle trips for Sunday

services and would not increase pollutants to levels exceeding BAAQMD air quality standards. Therefore, the impact is considered less than significant.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Separate screening criteria are presented in the BAAQMD CEQA Guidelines for operations-related emission of ozone precursors and criteria air pollutants except carbon monoxide (CO). As shown in Table 3-3, the project's operations-phase emissions are projected to be less than the thresholds of significant air quality effect for ozone precursors, PM_{10} and $PM_{2.5}$.

CO has its own screening procedure related to traffic and CO levels contributed by project-related and cumulative travel on local streets. The estimated maximum project traffic of 300 trips per day (Sunday only) is so low that it would add less than 0.1 ppm to the local microscale CO levels. Based on ambient air monitoring data for the Treat Boulevard monitoring station, the maximum 8-hour CO concentrations each year are zero. The sate and federal ambient air quality standard for CO is 9 ppm during 8 hours. The CO effect of the project, therefore, would be less-than-significant individually and cumulatively.

TABLE 3-3

Project Operations Emissions and Thresholds of Significant Effect

Air Pollutant	Operations Emissions (tons/year)	Construction Emissions		Thresholds	
		Total (tons)	Daily Maximum (pounds)	Annual (tons)	Daily Maximum (pounds)
ROG	0.29	0.42	27.4	10	54
NOx	0.38	1.24	53.3	10	54
CO	3.10	0.82	31.5	N/A	N/A
PM_{10} exhaust	--	0.07	2.8	15	82
PM_{10} total	0.55	0.33	19.9	N/A	N/A
$PM_{2.5}$ exhaust	--	0.06	2.6	10	54
$PM_{2.5}$ total	0.10	0.12	6.2	N/A	N/A

NOTES:

1. N/A means not applicable.
2. Project emissions were modeled using URBEMIS2007 model for about 300 trips/day.
3. Operational emissions include vehicle exhaust for project-related travel, natural gas combustion for space and water heaters, and building maintenance (*e.g.*, paint). Operations emissions exclude indirect emissions for electrical power generation.

SOURCES: BAAQMD, 2010b. URBEMIS2007 versions 9.2.4.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

The San Francisco Bay Area is a non-attainment area for 8-hour ozone levels. However, since the proposed project is a move from one location to another within the City of Concord, the project

would not result in a cumulative net increase of criteria pollutants. This is considered a less-than-significant impact.

d) Expose sensitive receptors to substantial pollutant concentrations?

Construction Phase Emissions

Separate screening criteria for construction-phase emissions of criteria air pollutants and ozone precursors are presented in Table 3-1 of the BAAQMD CEQA Guidelines. The construction-phase thresholds of significant effect are the same as operations-related thresholds of significant effect.

In view of the proposed soil hauling, and rather than rely on the BAAQMD's screening criteria in their Table 3-1, the project's construction-phase emissions were estimated using the URBEMIS2007 (Urban emissions) model. Soil hauling of 19,000 cubic yards was included as were grading the site, paving, building shell construction, and painting. Construction-phase emissions estimated using URBEMIS2007 were lower than the thresholds of significant effect; therefore, the proposed project could not have a significant effect on construction-phase emission of criteria air pollutants (PM_{10} and $PM_{2.5}$) or ozone precursors (ROGs and NOx).

Offsite Hauling

The earthwork quantity (19,000 cubic yards of cut and soil off-haul) is outside the URBEMIS 2007-default value, which is zero cubic yards of soil hauling. Off-haul of 19,000 cubic yards, therefore, was added to an URBEMIS model calculation. With earthwork and soil hauling included, as estimated using URBEMIS 2007, maximum construction-phase emission is estimated 53.3 lbs. NOx/day, 27.4 lbs. ROGs/day, 2.8 lbs. PM_{10}/day (exhaust only), 19.9 lbs. PM_{10}/day (total fugitive and exhaust) and 2.6 lbs. $PM_{2.5}$/day (exhaust only). These emissions rates are all lower than the BAAQMD thresholds of significant effect, therefore, the proposed project could not have a significant effect on the construction-phase emission of criteria air pollutants (PM_{10} and $PM_{2.5}$) or ozone precursors (ROGs and NOx). Therefore, this is considered to be a less-than-significant impact.

BAAQMD considers the PM_{10} and $PM_{2.5}$ emissions during construction to be a less-than-significant effect subject to implementation of its standard recommended construction-phase best management practices (see Table 3-4).

TABLE 3-4

Best Management Practices Construction Mitigation Measures

ID	Description of Standard Construction-Phase Air Quality Mitigation Measure
A1	All exposed surfaces (*e.g.*, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
A2	All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
A3	All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
A4	All vehicle speeds on unpaved roads shall be limited to 15 mph.

A5	All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
A6	Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
A7	All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
A8	Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

SOURCE: BAAQMD, 2011. *CEQA Air Quality Guidelines*, May 2011, Table 8-1, p. 8-3.

e) Create objectionable odors affecting a substantial number of people?

The majority of the church activities would occur within the structures and are not anticipated to create objectionable odors affecting residential properties in the vicinity. Therefore, there would be no impact.

SOURCES OF INFORMATION

Bay Area Air Quality Management District, 2010. *Bay Area 2010 Clean Air Plan*.

Bay Area Air Quality Management District, 2010. *California Environmental Quality Act Air Quality Guidelines*, as updated May 2011.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IV. **BIOLOGICAL RESOURCES** — Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		√		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?				√

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		√		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				√
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				√
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				√

Setting:

The southern half of the 3.39-acre project site is characterized as non-native grassland. Horticultural and native trees characterize the northern half of the site, in addition to a small seasonal and emergent wetland. The wetland drains into a culvert near the northwest corner of the site and empties into a small channel along the main access roadway to the project site from San Miguel Road.

Biological surveys conducted in 2006, 2009 and 2010 identified mostly birds and deer, with signs (scat, odor, etc.) of skunk, and perhaps coyote. Birds observed to use the grassland and scattered shrub habitat include scrub jay, mourning dove, and black phoebe. Several raptors (birds of prey) may occasionally forage through the area, and those observed include red-tailed hawk and turkey vulture. Based on the paucity of small mammal burrows on the site, it appears that a low prey base limits the likelihood that the site provides an important source of prey for these species. There was no evidence of large mammal denning activity such as den openings, signs of scat (other than deer), or sign of extensive small mammal burrows observed on the site during the field surveys. There were no observations of special-status plants or animals on the project site as identified in Appendix B Tables B-1 and B-2. A complete biological resources analysis is found in Appendix B.

Discussion:

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Most of the 56 special-status plants and the 36 special-status species recorded to occur within the geographic region of the project site are not expected to occur on the site due to the absence of suitable habitat. For example, woodland, chaparral, coastal scrub, dune, vernal pool, alkali sink, serpentine or alkali soil habitats, salt and fresh-water marshes and swamp habitat, or open water bodies, do not occur in the project study area or within the hydrological or topographic influence of the project site. (Refer to survey results in Appendix B.)

The disturbed, annual grassland habitat on the site, however, may provide potential habitat at some time during the life-cycle of the California tiger salamander, California red-legged frog, migratory birds or birds of prey (short-eared owl, burrowing owl, northern harrier, and California horned lark), and some potentially rare annual and perennial plants.

IMPACT IV-1: Tree-nesting or ground-nesting bird species could be adversely affected if trees proposed for removal or retention, or grass areas proposed for grading or construction provided nesting or roosting habitat for these species.

The proposed project would result in the removal of some existing trees and disturbance to areas of non-native grasslands. Tree removal or site grading and construction disturbance adjacent to trees and grass areas may result in the direct removal of a nest structure or disturbance to reproductive behavior of sensitive bird species, such as migratory birds or raptors, if active nest structures or active nesting activity occurs in such trees or grassy areas. Implementation of the following mitigation measure would avoid impacting such established nests, if they occur on the project site.

Mitigation Measure IV-1: A pre-construction survey shall be implemented to determine the presence of newly established or actively used nest structures in trees and grassy areas and incorporate nest protective procedures if such nests occur.

If proposed site clearing, grading, or noise-generating construction occurs during the period of September through January, no pre-construction survey for nesting birds would be required. If grading or construction occurs during the February through August breeding season, however, a biologist should conduct a pre-construction survey to determine if special-status birds are nesting in or near trees or grass areas within the grading zone or within trees proposed for removal. The biologist should conduct the survey no more than 30 days prior to initiation of grading, site preparation, or construction. If no nesting activity is observed, site preparation, grading and construction could proceed.

If a nesting activity is observed, the nest structure should be monitored for bird egg-incubation, including:

- Incubation behavior (e.g., regular periods of "disappearance" into the same location followed by short, secretive flights to forage).
- Extreme distress and alarm calls when in close vicinity of the nest.

- Observation of food carried in the beak or claws to the nest.

If the biologist observes incubation behavior, incorporating the following measures should protect the nest location.

- Establishment of a buffer using orange construction fencing around the nest in accordance with California Department of Fish and Game (CDFG) recommendations until the young have fledged. A no-disturbance zone of a width needed to adequately protect nests during construction shall protect all active nests. For most songbirds, a 50-foot diameter zone is recommended; for raptors, a 200-foot diameter zone is recommended.
- Monitor the nest a minimum of once per week to confirm that the young have fledged and that no new nesting pairs are present before the buffer is removed. After the biologist has determined that all young have fledged, construction may proceed within the protected zone.

If it is not feasible to delay or modify construction activities around the nest, the biologist should contact the CDFG to discuss alternative buffer options.

IMPACT IV–2: Removal of trees could result in direct mortality of special status bats. In addition, construction noise and human disturbance could cause roost abandonment and death of young bats.

Some special-status bat species, such as the pallid bat (*Antrozous pallidus*), are recorded to occur roosting in tree crevices or cavities 8 to 10 miles from the project site. No evidence of pallid bat or other special-status bat roosting activity was observed on the project site during the field surveys; however, there is a remote possibility that new roosts could be established prior to the removal of trees. An adverse impact to special-status bats could occur if trees scheduled for removal were occupied in the future, prior to tree removal. Therefore, removal of large trees could permanently remove roosting habitat or disturb individual bats. Some of these bat species could possibly use crevices in exfoliating bark and/or hollow cores in trees.

Mitigation Measure IV-2: The project applicant shall avoid disturbance to the potential roosts of special-status bats during the removal of trees through a Pre-Construction Special Status Bat Species Survey.

If construction activities (i.e., ground clearing and grading, including removal of trees) occur during the non-breeding season of bats (September 1 through February 28), no pre-construction survey and no other mitigation is required.

If construction occurs during the breeding season (March 1 through August 31), the applicant shall perform a pre-construction special status bat species survey with the following components to avoid impacts to special-status bats.

- Prior to grading or tree removal, a biologist shall inspect each group of trees to determine bat presence and use. The biologist will conduct the assessment through appropriate combination of inspection, sampling, exit counts, and acoustic surveys. As appropriate,

bat exit or emergence counts will be made at dusk to determine bat activity. In addition, an acoustic detector may also be used to determine such activity.

- If pre-construction surveys indicate that roosts are inactive or potential habitat is unoccupied during the constriction period, no further mitigation is required. Trees that have been determined to be unoccupied by special-status bats may be removed.
- If, however, individuals or colonies were present during proposed tree removal, and the tree removal can reasonably be expected to result in harm, then bats shall be excluded from their roost locations during the appropriate time of the year using humane methods. Such methods will be selected in consultation between the biologist and the CDFG. Whatever method is selected it must follow CDFG protocols.
- If there is potential for adverse effects on bat habitat, then measures developed under the direction of the biologist shall be implemented to reduce the effect on the bat colony to a negligible level. Measures may include improvement of off-site colony roosts, installation of artificial "bat boxes," or improvement of species management sufficient to offset impacts from the loss of a colony. Such measures will be implemented in consultation between the biologist and the CDFG. Whatever measure is implemented it must follow CDFG protocols.

With implementation of Mitigation Measures IV-1 and IV-2, the impact would be less-than-significant.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The project site contains no streams, creeks, or other riparian habitat. The only "blue-line" feature mapped by the U.S. Geological Survey in the immediate area is the Contra Costa Canal. The canal is not jurisdictional under the Clean Water Act, which is implemented by the California Department of Fish and Game (CDFG), U.S. Army Corps of Engineers (Corps) and the Regional Water Quality Control Board (RWQCB). The canal is a non-tidal ditch excavated on dry land and conveys water 48 miles from Rock Slough in East Contra Costa County to the Terminal Reservoir in Martinez (CCWD, 2010).

Sensitive natural communities are those that are considered rare in the region, support special-status plant or wildlife species, or receive regulatory protection (i.e., §404 of the Clean Water Act and/or the § 1600 et seq. of the California Fish and Game Code). In addition, the California Natural Diversity Data Base (CNDDB) has designated a number of communities as rare; these communities are given the highest inventory priority (Holland 1986 and CDFG 2003). Sensitive natural communities do not occur on the St. Mary and St. Mina's Coptic Orthodox Church property; thus, there would be no impact. The site, however, contains small areas of wetlands, whose impacts and mitigation measures are discussed in the following section.

c) Would the project have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetland, etc.), through direct removal, filling, hydrological interruption or other means?

The wetland assessment conducted by Sycamore Environmental Consultants in 2006 determined that wetlands defined by Section 404 of the Clean Water Act occur on the St. Mary and St. Mina's Coptic Orthodox Church project site. The Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (USEPA) regulate the discharge of dredge and fill material into "waters of the United States" under Section 404 of the Act. Because of site topography and geographic location, the limits of regulatory jurisdiction applicable to the site would be related to that of the category refered to as "non-tidal waters of the United States." The limits of jurisdiction in non-tidal waters are:

- In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
- When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
- When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetland.

Wetlands, as defined by the Corps for regulatory purposes, are identified using a three-parameter test that considers whether hydrophytic vegetation, hydric soils, and hydrology are present (Corps 1987). Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands also include less conspicuous wetland types such as vernal pools and other seasonal wetlands.

In addition to Corps jurisdiction, the RWQCB under the Porter-Cologne Act could be concerned about the direct removal, filling, or hydrological interruption of the site wetlands, and may regulate construction activities on the site because of potential impacts to "waters of the State." If such were the case, the project would come under the authority of Section 401 of the Clean Water Act (CWA). The 2006 wetland assessment reported the presence of 0.168 acre of wetlands (seasonal and emergent wetlands) and other waters of the U.S, and 180 feet (0.004 acre) of ephemeral channel, as summarized below.

Wetland Feature and Type	Length (ft.)	Average Width (ft.)	Area (ac.)
Waters of the U.S. (Seasonal Wetland)	--	--	0.152
Waters of the U.S. (Emergent Wetland)	--	--	0.012
Channel (Ephemeral)	180	1	0.004
TOTALS:	180	--	0.168

Note: after, Sycamore Environmental Consultants, Inc. 2006. *Preliminary Jurisdictional Delineation Report for St. Mary and St. Mina's Coptic Orthodox Church*.

The seasonal wetland is located in the northwestern portion of the project site. The area is disturbed, with evidence of plowing and motor vehicle access. It drains into a culvert that runs under the Contra Costa Canal and "daylights" in a channel parallel to the roadway access to the site. Hydrophytic vegetation observed in the seasonal wetland includes Italian ryegrass (*Lolium multiorum*), Bermuda grass (*Cynodon dactylon*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), beard grass (*Polypogon* sp.), and California blackberry (*Rubus ursinus*).

The emergent wetland is located in the northeastern portion of the site. It drains into the seasonal wetland. Hydrophytic vegetation observed include narrow leaf cattail (*Typha angustifolia*), Johnson grass (*Sorghum halepense*), Italian ryegrass (*Lolium multiflorum*), Bermuda grass (*Cynodon dacrylon*), beard grass (*Polypogon* sp.), and lamb's quarters (*Chenopodium album*). The wetland is located within a topographic draw, which appears to have been filled in the past. Water apparently seeps out of an adjacent culvert to create the wetland. The watershed for the draw is small and is unlikely to contain surface water in late spring and summer without irrigation runoff from the homes east of the project site (Sycamore Environmental Consultants, 2006b).

The site's ephemeral channel, defined as having water flowing only for a short duration after precipitation events, drains in an easterly-westerly direction parallel to the main roadway access to the site from San Miguel Road. As indicated previously, water flow in the "day-lighted" portion of the channel apparently is conveyed from the seasonal wetland by way of the culvert under the Contra Costa Canal. The day-light portion of the channel empties into another culvert that extends under San Miguel Road. In addition to the occasional drainage from the seasonal wetland, water may be leaking into the culvert from the Contra Costa Canal. There is no riparian vegetation around the channel.

IMPACT IV-3: The proposed project could result in the placement of fill into approximately 0.168-acres of seasonal and emergent wetlands, and ephemeral channel habitat regulated by the Corps pursuant to Section 404 of the Clean Water Act, or the RWQCB pursuant to Section 401 of the Act.

As planned, the proposed project's construction of the sanctuary building, entry plaza, parking lots, and driveways could impact 0.012 acre of emergent wetlands and 0.152 acre of seasonal wetlands. In addition, 0.004 acre of ephemeral channel may be impacted by new access road construction and utility improvements along the access road to the project site from San Miguel Road. An additional impact to the off-site tributary to Pine Creek could occur from construction/installation of a (6- × 6-foot) rock rip-rap energy dissipater at the creek bank. The tributary is on the southwest side of San Miguel Road. The energy dissipater is associated with the construction of a 15-inch-diameter storm drain to replace an existing 12-inch-diameter corrugated metal pipe.

Mitigation Measure IV-3: The project applicant shall obtain a Section 404 Permit from the U.S. Army Corps of Engineers and, as required, a Section 401 Water Quality Certification from the Regional Water Quality Control Board and a Section 1600 Streambed Alteration Agreement with the California Department of Fish and Game prior to the placement of fill or construction of structures and access roads over jurisdictional wetlands, implement appropriate compensation measures for the loss of wetland values and acreage, and implement best management practices (BMPs) to reduce potential impairment to the Pine Creek tributary's water quality.

Impacts to regulated "waters of the U.S." or state-regulated "waters of the State" shall not occur without first obtaining an authorization to use the Nationwide Permit(s) or an Individual Permit from the Corps and a Section 401 Regional Water Quality Control Board permit. Such permit conditions may include compensation for wetland values lost through site construction-related fill by creating replacement, mitigation wetlands or enhancing existing wetlands. If possible, mitigation wetlands shall be created on-site and will resemble those wetlands affected by the project (known as in-kind replacement). If wetlands cannot be created "in-kind" and "on-site," other alternatives shall be explored with the Corps and RWQCB for creating compensation wetlands at an off-site location.

Some requirements for mitigating impacts to wetlands, to be determined by permit conditions, could include:

- Replacement of impacted wetlands at a 2:1 ratio. For permanent wetland impacts, depending on assessed habitat values, wetlands may be replaced at a minimum ratio of two acres created for each acre, or fraction thereof, permanently impacted.
- Creation of in-perpetuity preservation. The Corps and other regulatory agencies may require that wetlands not impacted by the proposed project and any new wetlands created to mitigate project impacts be set aside in perpetuity, either through a perpetual deed restrictions or a conservation easement.
- Establishment of a five-year monitoring program to monitor the progress of the wetland mitigation toward an established goal. At the end of each monitoring year, an annual report would be submitted to the Corps, RWQCB and other resource agencies that permitted the project. This report would document the hydrological and vegetative condition of the mitigation wetlands, and would recommend remedial measures as necessary to correct deficiencies.

Adequate compensation could also include creating wetlands at a suitable location that:

- remain inundated or saturated for sufficient duration to support hydrophytic vegetation, and
- exhibit plant and invertebrate species richness comparable to existing wetlands.

In lieu of creating compensation wetlands, as approved by the Corps and RWQCB, the applicant may purchase mitigation credits from an approved mitigation bank.

Depending upon the location of the rock rip-rap energy dissipater as indicated on the Tentative Map, the project applicant may also be required to prepare an application to the CDFG for a California Fish and Game Code Section 1600 Streambed Alteration Agreement, and to implement appropriate BMPs to reduce adverse impacts to Pine Creek water quality.

With implementation of Mitigation Measure IV-3, this impact would be less than significant.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, by areas of human disturbance, or urban development. Topography and other natural factors in combination with urbanization have fragmented or separated large open-space areas.

The project site is within an urbanized portion of the City of Concord. The site is bound on the east by single-family residences, a small nursery on the north, the Lime Ridge Open Space to the south, and the fenced Contra Costa Canal, footpath, and additional single-family residence to the west. Expected wildlife movement would be from the Lime Ridge area down to the project site where further movement would be impeded by exiting residential development, fences, the Contra Costa Canal, and San Miguel Road. The proposed project is planned over approximately 3.6 acres of horticultural trees, a few isolated native trees, disturbed annual grassland, and approximately 0.168 acre of seasonal and emergent wetlands. Because of the existing surrounding land uses, physical barriers, structures, human activity and intrusion, site development is not expected to contribute to significant habitat fragmentation or impede wildlife movement to any greater degree than existing conditions. Therefore, there would be no impact.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The City of Concord Municipal Code, Section 114-32 protects Heritage Trees, defined as:

> *"(1) Any tree in the city… which is at least 72 inches in circumference (approximately 24 inches in diameter) measured 4.5 feet above natural or established grade; (2) a multi-stemmed tree, which has one stem of at least 24 inches or more in circumference; or (3)any tree or group of trees, which has a relationship to an event of historical significance, or is of public interest and which has been designated by action of the Planning Commission as a heritage tree."*

Code Section 114-66 requires a permit for removal of a Heritage Tree as follows:

> *"It shall be unlawful for any person to remove, or cause to be removed, any heritage tree from any parcel of property in the city without first obtaining a permit to do so; provided, however, that in cases of emergency when a tree is hazardous or dangerous to life or property, it may be removed by order of the Chief of Police, by the Chief of the Contra Costa County Consolidated Fire District, or by the Director of Parks and Leisure Services. Provided, further, in emergency situations only where the public health and safety is affected, any duly authorized representative of any public utility or of the city may remove trees which interfere with the safe and efficient operation of the public service for which they are responsible. Trees not covered by this article may be removed without a permit."*

A tree assessment of the church property was initially conducted in 2002 (Levison, 2002) and updated in 2012 (Traverso 2012). Ten "heritage" trees protected by City of Concord's tree ordinance occur on the project site. All of these trees are horticultural species and not native to California. The trees include two Peruvian pepper trees (30 and 35 inches diameter), one Siberian elm (28 inches diameter), three dollar-gum eucalyptus (25, 27 and 32 inches diameter), three manna gum eucalyptus trees (24, 46,and 50 inches diameter), and one Deodar cedar (24 inches diameter). Based on the most recent arborist report, these trees have a condition rating of generally fair to good. Of the ten trees, however, the Siberian elm is in poor condition and uprooted, with the remaining nine trees still standing. The trees are all non-natives, and most of them have less than desirable structures and may have higher-than-average potential hazard liability. The report recommends removal of all ten trees, with appropriate mitigation as determined as a condition of the tree removal permit. Since the removal of the ten heritage trees would be accomplished in compliance with the City's protective tree ordinance and Municipal Code, the project would not conflict with local policies or ordinances protecting biological resources, such as trees, and there would be no impact.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?

The project site is near, but not within the area covered by the East Contra Costa County Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP). The HCP/NCCP covers 173,680 acres within the cities of Brentwood, Clayton, Oakley, Pittsburg and the unincorporated areas of the eastern portion of Contra Costa County. The church property is not within the eastern Contra Costa County planning area covered by the HCP/NCCP and; therefore, would not be in conflict with the plans.

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
V. **CULTURAL RESOURCES** — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?		√		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		√		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				√
d) Disturb any human remains, including those interred outside of formal cemeteries?		√		

Setting:

To date, the project applicant has not conducted a Phase I Cultural Resources Evaluation of the proposed project site, and no formal request has been made to the Native American Heritage Commission to search its "Sacred Lands" file. The site is in an area of the Contra Costa County that is considered "largely urbanized" relative to archeological sensitivity (CCCCDD, 1996, Figure 9-2). There is no clear evidence that prehistoric or historic cultural materials of significance exist within the project site, although the project site is in an environment that could have been hospitable for aboriginal occupation.

Discussion:

a) & b) Cause a substantial adverse change in the significance of a historical or archaeological resource as defined in §15064.5?

As stated above, there are no known historical or archeological resources on the project site. However, because no studies were undertaken, the potential exists to encounter historic or prehistoric artifacts, features or cultural resources during site preparation and constriction activities; e.g., grading, trenching, etc.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

There are no known paleontological or geologic features at the proposed project site. (Refer to Section VI. Geology and Soils, for more information.) There would be no impact.

d) Disturb any human remains, including those interred outside of formal cemeteries?

There are no known human remains at the project site. However, California Health and Safety Code 7050.5 states that if human remains are discovered during construction, no further disturbance shall occur until the county coroner has made findings as to the origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. If the coroner determines that the remains may be Native American, a representative of the Native American Heritage Commission (NAHC) would be consulted as to which tribe has jurisdiction and what the disposition of the remains should be.

IMPACT V-1: The potential exists during site preparation that prehistoric, or historic cultural resources or human remains could be uncovered.

Mitigation Measure V-1A: If historic or prehistoric artifacts, features or cultural resources are encountered during construction of the proposed project, all work shall be halted in the immediate vicinity of the find for purposes of evaluation by a qualified professional archaeologist approved by the City of Concord Planning Department.

Mitigation Measure V-1B: The County Coroner shall be notified if human remains are uncovered during construction. If it is determined that the remains are Native American, a representative of the Native American Heritage Council shall be consulted.

With implementation of Mitigation Measures V-1A and V-1B, the impact would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VI. **GEOLOGY AND SOILS** — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			√	
ii) Strong seismic ground shaking?			√	
iii) Seismic-related ground failure, including liquefaction?		√		
iv) Landslides?				√
b) Result in substantial soil erosion or the loss of topsoil?		√		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?		√		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?		√		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				√

Setting:

The project site is located within an area of faulted and tightly folded bedrock formations near then the Lime Ridge area. These formations consist chiefly of marine sedimentary rocks of Eocene age. The project site is located within the outcrop belt of the Domingene Formation (Td), with Nortonville Shale (Tnv) mapped in the east corner of the property (USGS, Graymer, et.al., 1994). The major structural feature on the site is a northeast trending bedrock fault, which has a mapped length of one-half mile. This is a thrust fault that dips to the south-southeast and is located in the axis of the drainage swale on the project site. This fault bisects the site and extends approximately one-quarter mile west of the property where it intersects the Concord fault. The Concord fault is considered to be active by both the USGS and the California Geological Survey (CGS). The southwest portion of the project site is located within the Alquist-Priolo Earthquake Fault Zone (A-P Zone). According to the State Geologist, the A-P Zone encompasses recently active and potentially active traces of the Concord fault. The reader is directed to Appendix C for a complete geologic and grading analysis.

Discussion:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

The Alquist-Priolo Fault Zoning Act was passed by the State Legislature in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this Act, the State Geologist (i.e., the head of the California Geological Survey) established regulatory zones, called "Earthquake Fault Zones" that are around the surface trace(s) of active faults (i.e., there is potential for active traces anywhere in the A-P Zone). The applicant has submitted a fault investigation report that relied on exploratory trenching to evaluate fault hazards. The trench fully "shadows" the portion of the site that is within the A-P Zone. However, the exploratory trenches were relatively shallow and information of the details of the weathering profile does not appear to be well defined. The fault

hazard report has been peer reviewed by Cal Engineering & Geology (CEG) (2012) in behalf of the City of Concord. That review is required by a provision of the State Law. Its purpose is to independently evaluate the investigation of Kleinfelder and the evaluation of the data gathered. CEG also reviewed the geotechnical recommendations of Kleinfelder and the grading and drainage plans for the project. The evaluation of potential hazards and recommendations of CEG are presented in Table 3-5.

TABLE 3-5
EVALUATION AND RECOMMENDATIONS OF
CAL ENGINEERING AND GEOLOGY

Item	Recommendations
1	Kleinfelder (KI) completed a subsurface fault investigation. The fault investigation was required because a portion of the property is located within the Earthquake Fault Zone (EFZ) for the active Concord-Green Valley fault system. The KI fault investigation included two rounds of fault trenching, one in 2002 and a second in 2012. Review of the data currently available leads CEG to conclude that it is unlikely that the secondary dormant bedrock fault is present within the portion of the drainage swale trenched by KI. However, this does not preclude the possibility that a secondary bedrock fault may be present to the north or south of the areas explored by KI. Additional evaluation by KI would be required north and south of the areas previously explored to more fully evaluate the possible presence of a secondary bedrock fault at the property. As this fault is not considered to be capable of generating an earthquake, it is CEG's opinion that further evaluation of the possible presence of the dormant fault is not warranted at this time and could be completed during the mass grading operation.
2	The 2001 KI report provides preliminary pavement design specifications for two soil types for variety of traffic indices. It is CEG's opinion that these pavement specifications should be considered to be preliminary and the final pavement designs be based on actual samples of the subgrade materials exposed at the completion of the site grading.
3	It is our opinion that KI should be required to map and evaluate the relative stability of the proposed cut slope along the east side of the property as recommended on page 15 of the 2001 report. This would include evaluation of the possible presence of adverse bedding conditions, zones of weak soil and/or bedrock materials, etc. which could impact the long term stability of the cut slope the materials.
4	It is recommended that KI review the geologic and geotechnical aspects of the grading and drainage plans, retaining walls plans, and the foundation plans for conformance with the recommendations in their geologic and geotechnical reports. These reviews should be documented in writing.
5	It is recommended that KI prepare a corrective grading plan for the project. The corrective grading plan should show the approximate locations of the keyways, benches, and subdrain in the areas to receive engineered fill. The corrective grading plan should also show the approximate locations of the areas of recommended over-excavation which would be required to limit the differential thickness of the fill materials as discussed on page 16 of the 2001 KI report. The localized areas of creep-prone soils discussed on page 13 of the 2002 report should also be shown on the map.
6	The KI reports refer to specific stations along the lengths of the exploratory fault trenches, however the stationing is not depicted on the trench location maps. It is recommended that consideration be given to showing the stationing on the trench location maps.
7	It appears the mechanically stabilized embankment (MSE) retaining walls may be utilized as part of this project. However, the KI reports do not provide specific design parameters for this type of retaining wall system. If these types of walls are utilized, then KI should provide the appropriate geotechnical design parameters.
8	Page 21 of 2001 KI report provides recommendation for the types backfill materials to be used as backfill behind retaining walls constructed at the site. It is recommended that the plans for the retaining walls reflect these recommendations.

Consequently, there is an unknown, but possibly significant risk of surface fault rupture to the only planned structure for human occupancy on the site that is in the A-P Zone. Therefore, the reports that were submitted by the project proponent can only be considered a preliminary assessment. It should also be recognized that published maps show a north-northeast trending fault in the axis of the drainage swale on site. Although this fault is relatively short (mapped length one-half mile), it is within the A-P Zone and is mapped by the USGS to intersect the inferred main trace of the Concord fault. In that sense, it might be considered a fault that is mechanically related to the Concord fault and as such should be included within the scope of the peer review. In summary, the risks of fault hazard investigation of KI has been peer reviewed by the City of Concord and found to be adequate for the purpose of deeming the application complete, preparation of the CEQA document and taking the application to hearing. Nevertheless, during grading the peer review recommends detailed geologic mapping of exposures to confirm/refine the findings of KI. Based on the preponderance of the evidence, the risk of damage from fault rupture is considered to be a less-than-significant impact of the project, provided CEG's recommendation #1 is implemented during grading. Normally the detailed mapping of cut slopes is performed by the project proponent's geologist and peer reviewed by the City's consulting geologist.

ii) Strong seismic ground shaking?

A preliminary geotechnical assessment was conducted by a registered geotechnical engineer for the project (Kleinfelder, Inc., 2001). That assessment was based on a review of pertinent literature, geologic maps, and the findings of the subsurface investigation. The Kleinfelder report concluded that an earthquake of a moderate to high magnitude (ranging up to magnitude 7.1) was a foreseeable event during the useful life of the proposed project. Typically, the greater the earthquake magnitude and the closer the fault rupture is to the site, the greater the intensity of ground shaking. The risk of structural damage from ground shaking is regulated by the building codes and the grading regulations administered by the City of Concord. The California Building Code requires use of seismic parameters which allow the structural engineering analysis for buildings to be based on soil profile types as well as taking into account the type of construction and the seismic environment of the building site. The project geotechnical engineer provided seismic parameters for the project in their 2001 report, but the code was subsequently modified. The 2012 Kleinfelder report provides seismic parameters for the project that are based on the current provisions of the California Building Code (CBC). The intent of the CBC seismic provisions is not to prevent damage, but to control structural damage and protect persons from injury and death. A building that is conservatively designed and constructed in accordance with code provisions can be considered to reduce risks from earthquake ground shaking to a less-than significant impact

iii) Seismic-related ground failure, including liquefaction?

Liquefaction is a phenomenon in which saturated, cohesionless soils are subject to a temporary loss of strength because of pore pressure buildup under the cyclic shear stress associated with earthquake shaking. During the subsurface investigation performed by Kleinfelder, the colluvial deposits and soils on the site were found to consist of loose, relatively clay-free sands. Typically, 15 percent clay content by weight will yield a cohesive soil that is not a candidate for liquefaction; and stiff/dense soils are able to withstand even violent ground shaking without liquefaction. However, loose to medium dense sands that are relatively "clean" of clay content can be susceptible to liquefaction. The borings of Kleinfelder were logged in October 2001, just prior to the onset of the winter rainy

season. At the time of the Kleinfelder investigation, the colluvial deposits were not saturated. However groundwater conditions vary seasonally, and land development projects can substantially influence groundwater conditions (e.g., irrigation of landscape plantings, leaking pipes). The 2001 geotechnical investigation, while providing borehole data on subsurface conditions, did not provide quantitative evaluation of liquefaction potential. The 2012 report included logging of an exploratory trench in the drainage swale and laboratory testing of a representative soil sample. The laboratory test data is not provided, but the findings of the study are summarized in the report. As reported, the bedrock in the swale is overlain by alluvial soils that are sandy silt, but which are reported to contain sufficient clay binder to be considered too cohesive to liquefy. However, the report does not present the results of size gradation test data. The 2012 Kleinfelder report also indicated that the geotechnical design recommendations call for installation of a subdrain in the axis of the swale to collect and remove any subsurface water in the alluvial deposits. (Removal of water from the alluvial deposits would preclude the risk of liquefaction.) However, foundation plans showing the details of the location, depth and outfall of the subdrain have not yet been prepared.

IMPACT VI-1: Liquefaction of soils beneath building foundations has the potential to cause significant damage to foundations. This hazard is to be avoided and/or controlled through the use of a subdrain; however, foundation plans showing the details of the location, depth and outfall of the subdrain have not yet been prepared.

Mitigation Measure VI-1: Construction drawings shall be reviewed by the City of Concord prior to the issuance of the grading permit or building permits to ensure the design provides a subdrain adequate to prevent accumulation of ground water in the alluvial deposit beneath proposed buildings.

IMPACT VI-2: Several constraints are evident on the site including: a relatively steep upland property, located within the Alquist-Priolo Zone, native soils that may have a high liquefaction potential and much of the bedrock is described as friable (loose) sands, which will require monitoring during construction.

Mitigation Measure VI-2A: The project geotechnical engineer and engineering geologist shall monitor project implementation to ensure that construction complies with the recommendations in the approved geotechnical report and that supplemental recommendations are provided if unexpected conditions are encountered during construction.

Mitigation Measure VI-2B: During grading, the project geotechnical engineer/engineering geologist shall observe and approve all excavations in foundation areas of buildings, and monitor placement of fill and installation of subdrains.

Mitigation Measure VI-2C: Cut slopes and cuts made for retaining walls shall be observed and mapped by the project engineering geologist, who will provide any required slope modification recommendations based on the actual geologic conditions encountered during grading. Prior to any modification, the applicant shall obtain the City's approval.

Mitigation Measure VI-2D: Placement of all fill shall be observed and tested by the project geotechnical engineer.

Mitigation Measure VI-2E: Prior to requesting final inspection, the project geotechnical engineer shall submit a grading completion report that presents the following:

- results of compaction testing;
- a detailed original geologic map of the site based on observations of the project engineering geologist during construction;
- a map showing location and approximate depth of all installed subdrains, including cleanouts and outfalls;
- results of the soil corrosivity tests of soils on each graded building pad, and
- comments on the consistency of the construction with the recommendations in the geotechnical reports that were the basis of issuance of the construction permits.

Mitigation Measure VI-2F: Gradient criteria for engineered slopes as recommended by Kleinfelder shall be required for development of the project site. Any conflicts between the future grading plans and these criteria should be interpreted as evidence that special engineering is required (e.g., retaining walls, geogrid reinforcement). Those standards call for use of 3:1 fill slopes as a general standard for the project, with the exception that competent bedrock may be constructed with a 2:1 gradient.

Mitigation Measure VI-2G: All recommendations of the City's peer geologist (presented in Table 3-5) shall be implemented during the processing of construction permits and/or during construction as appropriate. With regard to the grading and drainage plans, the following changes are recommended by the City's peer reviewer prior to issuance of building permits. Appropriately licensed professionals shall prepare the plans.

- Page 15 of the 2001 KI report provides recommendations for paved interceptor drains and paved terraces. These recommendations for surface drainage facilities appear to apply to the proposed cut slope in the eastern portion of the property. It is recommended that the grading and drainage plans be modified to be in conformance with the recommendations of the KI report.
- It is recommended that consideration be given to adding a legend to the grading and drainage plan which provides a key to the symbols used on the plan sheets. It is also recommended that the KI reports be referenced on the grading and drainage plans and be considered part of the plans.
- It is recommended that the cut/fill transition line be added to the plans.

Mitigation Measure VI-2H: Unstable soils shall be removed within graded areas.

Mitigation Measure VI-2I: During grading, the project engineering geologist shall observe and approve all excavations in foundation areas of buildings down to stable bedrock that is not subject to soil creep or liquefaction. Cut slopes shall be observed and mapped by the project engineering geologist, who will provide any required slope modification recommendations based on the actual geologic conditions encountered during grading. Written approval from the City's representatives shall be obtained prior to any modification.

Placement of all fill shall be observed and tested by the project geotechnical engineer, and the density test results and reports shall be submitted to the City to be kept on file.

With implementation of Mitigation Measures VI-1 and Mitigation Measures VI-2A-I, the impact would be less than significant.

iv) Landslides?

With regard to landslide hazards, no slides are shown in the site vicinity on mapping published by the U.S. Geological Survey (Nilsen, 1975). Based on field reconnaissance mapping of the site by the project engineering geologist along with subsurface exploration, the Kleinfelder report concludes that the site is underlain by bedrock of the Domingene Sandstone. The trench logs provide data on the depth to bedrock, as well as geologic structure and engineering geologic properties of the sandstone bedrock. No evidence of landsliding is reported, thus there is no impact.

b) Result in substantial soil erosion or the loss of topsoil?

According to the Soil Survey of Contra Costa County, the erosion hazard is high. A Stormwater Pollution Prevention Plan (SWPPP) and Erosion Control Plan are a routine requirement of projects requiring grading permits. The SWPPP identifies the best management practices that are most appropriate for the site, and the Erosion Control Plan, which is required for the grading permit, provides the details of the erosion control measures to be applied on the site and maintained throughout the first winter rainy season.

IMPACT VI-3: The proposed project involves earthwork in an area of moderately steep terrain, with a potential to cause significant erosion of unprotected slopes, and downslope sedimentation both on- and off-site.

Mitigation Measure VI-3A: Grading activities shall be restricted to the summer construction season (15 April through 15 October). Any earthwork done after 15 October shall be limited to activities directly related to erosion control, unless additional work is authorized in writing by the City of Concord.

Mitigation Measure VI-3B: The applicant shall provide an Erosion Control Plan prior to approval of the grading plan. The following interim control measures shall be employed based on site-specific needs in the project areas:

- Grading to minimize areas of exposed, erodible material, and to avoid over-concentration of rapidly flowing runoff in unprotected, erodible areas.
- Include water bars, temporary culverts and swales, mulch and jute netting blanks on exposed slopes, hydroseeding, silt fences, and sediment traps/basins.
- Place stripped topsoil on graded 3:1 (or flatter) slopes prior to the onset of winter rains.
- Include a comprehensive program for inspection and maintenance during the winter rainy season, including provisions for documenting maintenance activities.
- Direct runoff to ungraded areas wherever feasible, thereby simplifying erosion control and sediment control measures within the graded area.

- Monitor the effectiveness of the erosion control measures throughout the duration of construction.

With implementation of Mitigation Measure VI-3, the impacts would be less than significant.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

A U.S. Geological Survey report (Ellen & Wentworth, 1995) indicates that as the rock unit on the site is subject to deep weathering, and there is substantial loss of strength associated with weathering. Sandstone on the site can be inferred to be weathered to depths of 30 feet below the ground surface, and this preliminary assessment was confirmed by Kleinfelder. Specifically, Kleinfelder observed evidence of soil creep features in bedrock that was 5 to 7 feet below the ground surface, and evidence of weathering effects was observed in borings that were drilled to depths of up to 31.5 feet below the ground surface.

The approach to corrective grading of the property proposed by Kleinfelder is to over-excavate colluvium and soils within the areas being planned for development, as well as rock that shows evidence of soil creep within the footprint of the proposed buildings. The depth of over-excavation is to be determined in the field by the project engineering geologist, based on exposed conditions during grading. Kleinfelder also recommended that slope gradients be restricted so that use of 2:1 (horizontal to vertical) slopes be limited to competent bedrock; all other slopes are to have gradients of 3:1 (or flatter).

IMPACT VI-4: Although the liquefaction potential of alluvial soils is considered to be relatively low, saturated sandy soils beneath building foundations have at least a risk of liquefying, depending on the clay content of the soils and the severity of the earthquake ground shaking.

Mitigation Measure VI-4: Same measure as Mitigation Measure VI-1.

With implementation of Mitigation Measure VI-4, the impact would be less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Expansive soils shrink and swell as a result of moisture changes that can cause heaving and cracking of slabs-on-grade, pavements and structures founded on shallow foundations. Building damage due to volume changes associated with expansive soils can be reduced by use of pier-and-grade beam foundations; placing slabs on select, granular fill; and/or use of rigid mat or post-tensioned slabs. The Kleinfelder report issued in 2001 did not evaluate the expansivity of the soils because the soils were very sandy and were considered unexpansive. This preliminary assessment should be confirmed/refined prior to the issuance of construction permits by providing laboratory test data.

IMPACT VI-5: The previous soils report is deficient in identifying the expansivity of the on-site soils.

Mitigation Measure VI-5: An amended soils report shall be submitted to the City of Concord confirming the absence or presence of expansive soils prior to issuance of construction permits. It may be necessary to alter foundation plans depending upon the results contained in the final soils report.

With implementation of Mitigation Measure VI-5, the impact would be less than significant.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

A public sewer would serve the project; there would be no impact.

SOURCES OF INFORMATION

Bryant, W.A. and E.W. Hart. 2007. Fault Rupture Zones in California, California Geological Survey, Special Publication 42; and Earthquake Fault Zone Map, Walnut Creek Quadrangle, Revised 1993.

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Ellen, S.D. and C.M. Wentworth. 1995. Hillside Materials and Slopes of the San Francisco Bay Region, California. U.S. Geological Survey Professional Paper 1357.

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Kleinfelder, Inc., 2012. Response to Environmental Impact Report Review Comments and a Limited Geologic and Geotechnical Update for the Planned St. Mary and St. Mina Coptic Orthodox Church, 930 San Miguel Road, Concord, California. Kleinfelder Job #126408, May 2.

Nilsen, T.H. 1975. Preliminary Photointerpretation Map of Landslide and Other Surficial Deposits of the Walnut Creek 7.5 minute Quadrangle, Contra Costa County, California. U.S. Geological Survey, Open File Map 75-277-54.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. **GREENHOUSE GAS EMISSIONS** — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?				√
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?				√

Setting:

Screening criteria were developed by the Bay Area Air Quality Management District (BAAQMD) as shown in Table 3-1 of the District's CEQA Air Quality Guidelines. These criteria were developed by applying the URBEMIS 2007 (version 9.2.4), an emission model that can be applied subject to the following conditions:

- The project is similar in land use to one of the land uses listed in Table 3-1 of BAAQMD's CEQA Air Quality Guidelines.
- The project does not have any special or additional sources of air pollution that could make it different from the general land use category or default URBEMIS2007 model assumptions.
- The project has a single use as opposed to multiple land uses or "mixed" uses.
- The project is less 61,000 square feet in size.

If a project meets the above-listed conditions and the Green House Gas (GHG) screening criteria in Table 3-1 of BAAQMD's CEQA Air Quality Guidelines, the project would not result in the generation of operational-related GHG emission that exceeds the Threshold of Significant Effect (1,100 metric tons CO_2/year).

Discussion:

a *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment and,*

b *Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?*

The proposed project meets the BAAQMD criteria listed above. The total square footage of all buildings is 23,280 square feet; the project has a single use –church related activities; the project does not have an additional source of air pollution, and the project is consistent with those listed in the BAAQMD Table 3-1 of the District's CEQA Air Quality Guidelines. Therefore, the proposed project would not have a significant effect on GHG emissions.

SOURCE OF INFORMATION

Bay Area Air Quality Management District. 2010. CEQA Air Quality Guidelines.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VIII.	**HAZARDS AND HAZARDOUS MATERIALS** — Would the project:				
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			√	
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			√	
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				√
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				√
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			√	
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				√
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				√
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			√	

Setting:

The 3.39-acre project site is undeveloped and surrounded by existing residential neighborhoods, a nursery and open space. The site is covered with wild grasses and weeds and several domestic trees. The site is not located near a hazardous land use as shown on Figure 10-9a of the Contra Costa County General Plan (CCCCDD, 1996). There are no known underground storage tanks on the site. There are no known petroleum or high-pressure natural gas pipelines on site, and no pipelines appear near the site on Figure 10-9b of the Contra Costa County General Plan (CCCCDD, 1996). Pacific Gas and Electric Company (PG&E) serves the City of Concord (PG&E, 2011), so there is a low-pressure PG&E gas main along San Miguel Road at the entrance to the project site with service pipelines extending to developed residential and commercial properties near the project site.

No known crops requiring use of herbicides and/or pesticides have been grown on the site. Cattle grazing may have occurred in the past when the property was part of a larger land tract. A Phase I Environmental Assessment for hazardous materials on the site has not been prepared.

Discussion:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No hazardous materials would be routinely used at the proposed project other than common household hazardous wastes (aerosol sprays, paint, oil, solvents, pesticides, weed killers, etc.) that would be used at a church. The Central Contra Costa Solid Waste Authority has established a Household Hazardous Waste Collection Facility in Martinez where people can dispose of their household hazardous wastes.

Drop inlets for the storm drain system would be labeled with "Do Not Dump – Drains to Creek" signs to discourage people from dumping household hazardous wastes into the drop inlets. The proposed project would not create a significant hazard to the public or the environment, and the impacts would be less than significant. No additional mitigation is necessary.

During construction of the church, hazardous materials would be transported to the project site. Construction activities typically involve the use of potentially toxic substances such as paints, fuels, and solvents. People living near the project site could be exposed to these materials as they are used during construction of the proposed project. Construction activities would be subject to federal, state, and local laws and requirements designed to minimize and avoid the potential health and safety risks associated with hazardous materials. Furthermore, a Storm Water Pollution Prevention Plan (SWPPP) would be required that would describe methods to protect against the accidental release of construction-related chemicals into runoff from the site. Given these controls, impacts related to the transport, use, or storage of hazardous materials are considered to be less than significant. No additional mitigation is necessary.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Refer to the discussion of Item a) above.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

There are no schools within one-quarter mile of the project site; thus, there is no impact.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The proposed project site is not included on lists of hazardous materials sites compiled pursuant to any government code; thus, there is no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The project site is not located within the boundaries of an airport land use plan. The nearest airport is Buchanan Field, which is located approximately 2.5 miles northwest of the project site. The air traffic hazard to people visiting the church would be less than significant. No mitigation is necessary.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The proposed project is not located within the vicinity of a private airstrip; thus there is no impact.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The site is not located on a major arterial street that would be used as a major evacuation route. Therefore, the proposed project would not impair or interfere with an adopted emergency response or evacuation plan. There is no impact.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The project site is in a hilly, semi-rural residential area with residential development on the west, north and east sides of the site. The south side of the site adjoins the Lime Ridge Open Space. Upon completion of construction, a 30 percent maximum slope would exist on the south side of the site that would support wild grass and weed growth. There would be ample fuel for wildfires to occur in the area.

The project site is in a Local Response Area and not in a designated wildland–urban interface fire area (Wooster, 2011). Nevertheless, the proposed sanctuary and multi-purpose buildings should be constructed with Class A roofs with eave and vent openings protected with fire-resistant screening.

Contra Costa County Fire Protection District's (CCCFPD) Fire Station No. 10, the closest station to the project site, would provide initial response to any wildfire in the area. Station No. 10 has a Type III engine that is designed for fighting wild fires and can travel cross-country. The station also has a

Type I engine that can travel along paved roadways to help in fighting wildland fires. (Refer to Section XIV. Public Services.) With these defensive measures, the chance of wildfires in the vicinity of the project site would be reduced, and the impact is considered less than significant. No additional mitigation is necessary.

SOURCES OF INFORMATION

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Woofter, Cathy, Fire Protection Technician, Contra Costa County Fire Protection District. 2011. Personal communication with Carolyn Mills, Mills Associates, February 23.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IX. **HYDROLOGY AND WATER QUALITY** — Would the project:				
a) Violate any water quality standards or waste discharge requirements?				√
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			√	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?		√		
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			√	

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			√	
f) Otherwise substantially degrade water quality?			√	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				√
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				√
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				√
j) Inundation by seiche, tsunami, or mudflow?			√	

Setting:

The project site slopes down from a hilltop at elevation 158± near the southeast corner of the property to elevation 101± where the access roadway enters the property at the northwest corner. The site is currently undeveloped and covered with wild grasses, weeds and several eucalyptus, evergreen and palm trees. The average slope of the property is approximately 17 percent. The average annual rainfall is approximately 17 inches. Existing site drainage primarily consists of sheet flow across the vacant land toward neighboring properties and the Contra Costa Canal on the west side of the project site. There is an existing headwall and 24-inch-diameter storm drain near the northwest corner of the site that receives some of the storm runoff from the project site. The storm drain extends under the Contra Costa Canal and discharges through a 12-inch-diameter corrugated metal pipe into a local creek on the west side of San Miguel Road. This local creek was Pine Creek before the large channel to the west was constructed to increase flow capacity of Pine Creek. The local creek now discharges into the larger Pine Creek channel which has sufficient capacity for a 100-year storm flow of any duration (Hernandez, 2011). A 100-year storm has a one-percent chance of occurring each year.

Discussion:

a) Violate any water quality standards or waste discharge requirements?

The wastewater (i.e., sewage) from the proposed project would be conveyed through a pipeline to an existing 8-inch-diameter sanitary sewer under San Miguel Road. From there, the wastewater would be conveyed through pipelines to the Central Contra Costa Sanitary District (CCCSD) Wastewater Treatment Plant in Martinez for treatment and disposal into Suisun Bay. The CCCSD plant operates under a National Pollutant Discharge Elimination System (NPDES) permit issued by the San

Francisco Bay Regional Water Quality Control Board (RWQCB) that establishes discharge requirements that reduce pollutants in the plant's effluent to acceptable levels. CCCSD must satisfy these requirements. If not, the RWQCB has the authority to levy penalties, impose cease and desist orders, and issue moratoriums for new sewer service connections if waste discharge requirements are violated. The proposed project would not cause CCCSD to exceed wastewater treatment requirements; thus, no impact would occur.

Storm water from the project would be treated in conformance with a Storm Water Control Plan (SWCP) prepared by the applicant's civil engineer (Humann Company, 2012c) prior to discharge to Pine Creek as shown in Figure 3-5. This plan was prepared to comply with the C.3 requirements of the Contra Costa Clean Water Program. The C.3 requirements were developed to comply with the mandates of the RWQCB. The SWCP complies with the fifth edition of the C.3 Guidebook (Naoom, 2011). In addition, the applicant's civil engineer submitted a Feasibility Analysis to demonstrate the infeasibility of implementing infiltration, harvest and re-use, and evapo-transpiration on the project site. Therefore, bioretention is used for C.3 compliance (Kennedy, 2012).

Storm water runoff from impervious areas would be collected and treated in Integrated Management Practices (IMPs) to remove pollutants through six bioretention planters and six flow-through planters with a total surface area of 4,887 square feet for all the IMPs. The plants and temporary storage in these facilities would retain the runoff so that the rate, duration and peak flow of discharge to Pine Creek would be no greater than the rate, duration and peak flow from the existing undeveloped site. Since
the SWCP satisfies the C.3 requirements, there would be no violations of water quality standards or waste discharge requirements; thus, no impact would occur.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Since the proposed project would increase the impervious surfaces on site, recharge of the local groundwater table from the site itself may be reduced. The geotechnical engineering investigation for the proposed project (Kleinfelder, 2001) revealed that the soils at the site consist of alluvial deposits underlain by weathered bedrock. No groundwater was encountered in any of the soil borings that extended 5.5 to 13.5 feet below ground.

The storm drain system for the proposed project that collects runoff from the impervious surfaces would convey runoff to the IMP bioretention and flow-through planters prior to discharge to a local creek that flows along the west side of the San Miguel Road. This creek discharges to the channelized Pine Creek further to the west. The bioretention planters are designed to provide infiltration to the ground. The local creek and the Pine Creek channel form concentrated natural recharge features as water percolates down through the creek banks and bottom. Pine Creek is unlined (i.e., it has a natural ground bottom) in the vicinity of the project site except for some gabions to protect the creek banks from erosion. Therefore, it is unlikely that the reduced recharge created by impervious surfaces at the proposed project would significantly deplete local groundwater supplies so that production of existing nearby wells (if any) would be adversely impacted. The impact is considered less than significant, and no additional mitigation would be necessary.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

The proposed project would alter the existing drainage pattern of the site from overland, westerly sheet flow to a concentrated discharge from an on-site storm drain system to the existing pipe under the Contra Costa Canal. The discharge would continue through a new 15-inch-diameter pipe that would replace an existing roadside ditch. The new 15-inch pipe would discharge through an outlet to the creek on the west side of San Miguel Road. This outlet would include riprap that is designed to dissipate energy and prevent increased erosion of the creek banks at the outlet. The outlet may require a Streambed Alteration Agreement pursuant to Section 1600 et seq. of the California Fish and Game Code. It may also require an encroachment permit from the Contra Costa County Flood Control and Water Conservation District (CCCFC&WCD) if the discharge location is in an area where the CCCFC&WCD has a right-of-way. The course of the local creek and the Pine Creek channel would not be altered.

The applicant's SWCP is designed to limit the rate, duration and peak flow of surface runoff to the rate that exists from the undeveloped property. An Erosion Control Plan, that provides details of the erosion control measures to be applied during construction and maintained throughout the first winter rainy season following construction, has been prepared (Humann Company, 2012b). In addition, projects that disturb one or more acres of soil are required to comply with and obtain coverage under the (State Water Resources Control Board's Construction General Permit, 2009-0009 DWQ (Department of Water Quality)). The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). A Storm Water Pollution Prevention Plan (SWPPP), that identifies the best management practices that are most appropriate for the site, should be prepared and approved prior to issuance of a grading permit.

The Erosion Control Plan consists of fabric rolls on the graded slopes on the south side of the construction area and gravel-filled bags around drop inlets of the on-site storm drain system. However, the site would have to be graded essentially to final surface elevations before these erosion control facilities could be installed.

IMPACT IX-1: Site grading could result in erosion that would cause siltation off site including into the Contra Costa Canal on the west side of the site.

Mitigation Measure IX-1: A seasonally-appropriate Storm Water Pollution Prevention Plan for the proposed project shall be prepared for approval by the City of Concord and the RWQCB before issuance of a grading permit. This plan shall include erosion control measures (such as extensive use of fabric rolls or straw bales) that can be relocated as grading of the site progresses to prevent off-site runoff and siltation, especially along the Contra Costa Canal.

With implementation of Mitigation Measure IX-1, the impact would be less than significant.

RES)
A = 0.00 SF
CREATED IMPERVIOUS SURFACE AREA = 74,045 SF
TOTAL IMPERVIOUS SURFACE AREA = 74,045 SF

ESTIMATED LAND DISTURBANCE AREA = 114,500 SF

ON-SITE INTEGRATED MANAGEMENT PRACTICES CALCULATIONS:

RAINFALL ADJUSTMENT:

SITE IS IN NRCS HYDROLOGIC SOIL GROUP C

ADJ. = $\frac{-0.0022X(\text{MAP @ PROJECT SITE}-20.2)+0.06}{0.06}$

FOR (MAP @ PROJECT SITE) = 17 IN, RAINFALL ADJUSTMENT= 1.12

DMA0

TOTAL = 67,472 SF
SELF-TREATING AREAS: NATURAL GROUND AND NEW LANDSCAPED AREAS INCLUDING 2,256 SF OF WALKWAYS CONNECTED DIRECTLY TO THE STORM DRAINAGE SYSTEM.

DMA1

ROOFS 1,140 X 1.0 = 1,140
WALKS 1,217 X 1.0 = 1,217
PAV. 8,380 X 1.0 = 8,380
L.S. 182 X 0.5 = 91

USE BIORETENTION PLANTER,
REQUIRED AREA = 10,828 X 0.06 X 1.12 = 728 SF
DESIGNED IMP1 AREA = 744 SF

TOTAL DMA1 = 11,663 SF

DMA2

WALKS 4,087 X 1.0 = 4,087
PAV. 4,110 X 1.0 = 4,110

USE BIORETENTION PLANTER,
REQUIRED AREA = 8,197 X 0.06 X 1.12 = 551 SF
PROVIDED AREA = 578 SF

TOTAL DMA2 = 8,775 SF

DMA3

PAV. 5,152 X 1.0 = 5,152
L.S. 1,672 X 0.5 = 836

USE BIORETENTION PLANTER,
REQUIRED AREA = 5,988 X 0.06 X 1.12 = 402 SF
DESIGNED IMP3 AREA = 406 SF

TOTAL DMA3 = 7,230 SF

DMA4

WALKS 1,945 X 1.0 = 1,945
PAV. 4,109 X 1.0 = 4,109
L.S. 132 X 0.5 = 66

USE BIORETENTION PLANTER,
REQUIRED AREA = 6,120 X 0.06 X 1.12 = 411 SF
DESIGNED IMP4 AREA = 421 SF

TOTAL DMA4 = 6,607 SF

DMA5

PAV. 6,916 X 1.0 = 6,916
WALKS 894 X 1.0 = 894
L.S. 1,260 X 0.5 = 630

USE BIORETENTION PLANTER,
REQUIRED AREA = 8,440 X 0.06 X 1.12 = 567 SF
DESIGNED IMP5 AREA = 595 SF

TOTAL DMA5 = 9,665 SF

DMA6

WALKS 367X 1.0 = 367
PAV. 3,445 X 1.0 = 3,445
L.S. 273 X 0.5 = 136

USE BIORETENTION PLANTER,
REQUIRED AREA = 3,948 X 0.06 X 1.12 = 265 SF
DESIGNED IMP6 AREA = 265 SF

TOTAL DMA6 = 3,450 SF

DMA7

ROOFS 3,017 X 1.0 = 3,017

USE FLOW-THROUGH PLANTER,
REQUIRED AREA = 3,017 X 0.06 X 1.12 = 203 SF
DESIGNED IMP7 AREA = 234 SF

TOTAL DMA7 = 3,251 SF

DMA8

ROOFS 3,014 X 1.0 = 3,014

USE FLOW-THROUGH PLANTER,
REQUIRED AREA = 3,014 X 0.06 X 1.12 = 203 SF
DESIGNED IMP8 AREA = 218 SF

TOTAL DMA8 = 3,232 SF

DMA9

ROOFS 6,324 X 1.0 = 6,324
WALKS 1,981 X 1.0 = 1,981
L.S. 658 X 0.5 = 329

USE FLOW-THROUGH PLANTER,
REQUIRED AREA = 8,634 X 0.06 X 1.12 = 580 SF
DESIGNED IMP9 AREA = 594 SF

TOTAL DMA9 = 9,557 SF

DMA10

ROOFS 3,504 X 1.0 = 3,504

USE FLOW-THROUGH PLANTER,
REQUIRED AREA = 3,504 X 0.06 X 1.12 = 235 SF
DESIGNED IMP10 AREA = 249 SF

TOTAL DMA10 = 3,753 SF

DMA11

ROOFS 2,246 X 1.0 = 2,246
WALKS 2,013 X 1.0 = 2,013

USE FLOW-THROUGH PLANTER,
REQUIRED AREA = 4,259 X 0.06 X 1.12 = 286 SF
DESIGNED IMP11 AREA = 298 SF

TOTAL DMA11 = 4,557 SF

DMA12

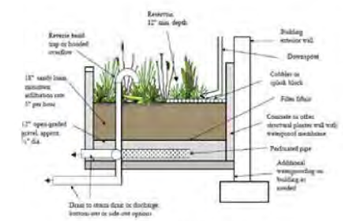
ROOFS 4,033 X 1.0 = 4,033

USE FLOW-THROUGH PLANTER,
REQUIRED AREA = 4,033 X 0.06 X 1.12 = 271 SF
DESIGNED IMP12 AREA = 285 SF

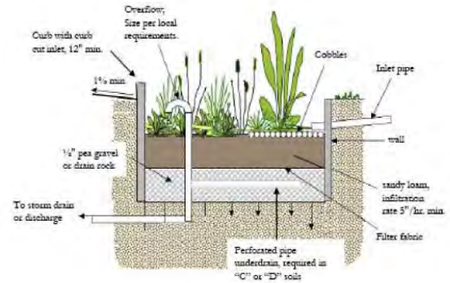
TOTAL DMA12 = 4,318 SF

CONSTRAINT AREA

PAV. & WALKS 4,052 SF
REPRESENTS ENTRY DRIVEWAY AND PORTION OF THE SANCTUARY PLAZA



FLOW THROUGH PLANTER **



BIORETENTION PLANTER **

Adapted from the City of Portland 2004 Stormwater Manual

FIGURES SHOWN HEREON ARE ILLUSTRATIVE AND SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FIFTH EDITION OF THE "STORMWATER C.3 GUIDEBOOK" PREPARED BY CONTRA COSTA CLEAN WATER PROGRAM.

LEGEND

- ROOFS
- WALKWAYS
- PAVEMENT
- LANDSCAPE/ OPEN SPACE
- C.3 PLANTER
- CONSTRAINT AREA
- DMA DRAINAGE MANAGEMENT AREA
- IMP INTEGRATED MANAGEMENT PRACTICE
- L.S. LANDSCAPE AREA

Source: Humann Company, Inc.

Figure 3-5 Tentative Storm Water Control Plan

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?

Refer to discussion of Item c). The proposed project would create impervious surfaces including roofs, parking areas and the driveway. The storm drain system designed for the proposed project would be sized to prevent on-site flooding from a 10-year storm (i.e., a storm that has a 10 percent chance of occurring each year). Storm runoff from the project would drain to a creek on the west side of San Miguel Road. The applicant's SWCP is designed to limit the rate of storm runoff from the proposed project to no more than the rate, duration and peak flow from the undeveloped property.

The applicant's project description states that the storm drain from the project site would connect to an existing 18-inch-diameter storm drain along San Miguel Road. The CCCFC&WCD also requested that the storm drain from the proposed project should connect to this existing storm drain. However, the tentative drainage plan for the proposed project (Humann Company, 2012a) shows that the project storm drain system would discharge to the local creek on the west side of San Miguel Road through a 15-inch-diameter pipe with rock rip-rap at the outlet. This choice was made because the new discharge pipe would replace an existing 12-inch-diameter pipe at the same location with a slightly larger pipe.

The local creek discharges into the channelized Pine Creek, so the storm runoff from the proposed project would ultimately flow to Pine Creek. The Pine Creek detention basin, located approximately 3.3 miles south of the project site, controls the flow in Pine Creek downstream from that point so the rate of flow in the creek will not exceed the creek's capacity during a 100-year storm. The capacity of the downstream storm water drainage system would be able to accommodate storm flow from the proposed project (Hernandez, 2011). Therefore, downstream flooding would not be increased, and the impact of the proposed project is considered less than significant. No additional mitigation is necessary.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Refer to discussion in Items a), c) and d). The impact of the proposed project is considered less than significant, and no additional mitigation is necessary. For further discussion on water quality impacts, refer to Item f).

f) Otherwise substantially degrade water quality?

The SWCP for the proposed project complies with the Contra Costa Clean Water Program Stormwater C.3 Guidebook, 5th Edition. The SWCP proposes bioretention and flow-through planters to provide pollutant removal as the storm water runoff flows through the grasses, soil and rock. Some of the runoff flows through the bioretention planters and percolates into the ground. When the ground under the bioretention planters becomes saturated and cannot accept any more percolation, the runoff would flow through outlet pipes to the project's storm drain system, eventually reaching Pine Creek. Since the IMPs are sized according to the C.3 Guidebook, the proposed project would not substantially degrade water quality, and the impact is considered less than significant. No additional mitigation is necessary.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project is a church facility and no housing would be placed on the project site. Furthermore, Federal Emergency Management Agency Flood Insurance Rate Map Panel Number 065022009B shows that the project site is located within Zone C and not within the Zone A 100-year flood plain or Special Flood Hazard Area. There would be no impact.

h) Place within 100-year flood hazard area structures, which would impede or redirect flood flows?

Refer to discussion in Item g). There would be no impact.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Refer to the discussion in Item g). The project site is not located behind a levee or below a dam; thus, there would be no impact.

j) Inundation by seiche, tsunami, or mudflow?

The project site is not located near a large body of water. Suisun Bay is more than ten miles north of the site. The developed portion of the site would be between 110 and 120 feet above sea level. The proposed project would not be impacted by tsunamis generated by earthquakes.

A seiche is the occasional oscillation of water above and below the mean surface level of a lake or land-locked sea. The project site is not on the shores of a lake or sea.

The site would be graded to provide parking areas and building pads for the sanctuary, a classroom building, a multi-use building and a chapel. With proper construction of the cuts and fills to form the building pads and parking areas, and the installation of the storm drain system to convey runoff to Pine Creek, there would be very little chance of mudflows occurring either on or off the project site. The impacts from a seiche, tsunami, or mudflow are considered less than significant. No further mitigation is necessary.

SOURCES OF INFORMATION

City of Concord. 2002. *Municipal Code, Chapter 86, Stormwater Management and Grading and Erosion Control,* August 22.

Contra Costa Clean Water Program. 2010. *Stormwater C.3 Guidebook, 5th Edition,* October.

Federal Emergency Management Agency. 2009. *Flood Insurance Rate Map Panel Number 065022009B,* June 16.

Hernandez, Jorge, Contra Costa County Flood Control and Water Conservation District. 2011. Personal communications with Robert Mills, Mills Associates, February 24 and 28.

Humann Company, Inc. 2012a. *Saint Mary & Saint Mina Coptic Orthodox Church, Tentative Site, Grading, Drainage and Utility Plan (Sheet C01)*, January 27.

Humann Company, Inc. 2012b. *Saint Mary & Saint Mina Coptic Orthodox Church, Tentative Erosion Control Plan (Sheet C04)*, January 27.

Humann Company, Inc. 2012c. *Saint Mary & Saint Mina Coptic Orthodox Church, Tentative Storm Water Control Plan (Sheet C05)*, January 27.

Kennedy, Frank, City of Concord Civil Engineer, 2012. Memorandum to Ryan Lenhardt, Senior Planner, City of Concord Planning and Community Development Department, March 5.

Kleinfelder. 2001. *Geotechnical Investigation Report. Saint Mary & Saint Mina Coptic Orthodox Church. 930 San Miguel Road. Concord, California*. December 20.

Naoom, Hany, Humann Company. 2011. Personal communication with Robert Mills, Mills Associates, February 25.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
X. **LAND USE AND PLANNING** — Would the project:				
a) Physically divide an established community?				√
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?		√		
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				√

Setting:

The project site is located in an area zoned Single Family Residential (R20) and designated in the General Plan as Rural Residential (<2.5 acres – lot size). The property is surrounded on the north, east and west with single-family residential neighborhoods. The Lime Ridge open space is located directly south of the project site. (Refer to Figures 2-3 and 2-4 in the Project Description.)

Discussion:

a) Physically divide an established community?

The proposed project does not physically divide an established community. The site is served by a private access roadway for which the church and three other properties have easement rights. The project site is surrounded on three sides by residential development and open space to the south. The surrounding developed area is built out. Therefore, there is no impact.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed project will require the following approvals: a Hillside Development Plan, Use Permit to allow a church facility in a residential zone; a Variance from the building height limitations in a residential zone; Design Review and a Heritage Tree permit. The height variance is required to allow the single dome with cross located in the center of the sanctuary roof and the chapel cross. The height to the top of the large dome is 42 feet and the cross sitting on top of the dome extends another 5 feet 9 inches above for an overall height of 47 feet 9 inches. The chapel with the cross extends to 35 feet. Zoning for the site permits a height limit of 30 feet. The structure height for the remaining buildings is under the 30-foot height limit.

Previous project plans were revised to bring the project more into conformance with the criteria of the Hillside Development Ordinance. The structures were moved lower on the site to reduce potential impacts associated with views and grading of steeper slopes. The latest design (2012) reflects a campus-design approach by dispersing the floor area into smaller buildings with interconnecting pedestrian walkways, courtyards and patios. The ancillary buildings are one story and proposed to be partially buried to further reduce bulk and mass. Landscaping provides screening from off-site views. The landscape plan reflects an oak woodland greenbelt designed along the eastern and southern property boundaries that will blend well with the undisturbed knoll and open space beyond. However, potential conflicts may still occur with the Hillside Development Ordinance criteria, by which the project is reviewed prior to approval of a Hillside Development Plan. The project will be evaluated based upon the following criteria:

1.) *In general, the project shall be designed to fit the existing topography; the site shall not be graded to accommodate the project.*

Response: Due to the nature of the project (a church complex) and the undulating and sloping terrain, the proposed project requires grading to create level parking areas and pads for the church and ancillary structures. It is the applicant's intent to concentrate the development in the northern portion of the project site, downslope from the highest elevation on the property. The proposed grading creates slopes of 0 to 15 percent except where the plan lends itself to create design features that emphasize points of entry such as the entrance to the sanctuary. Steps lead up to the sanctuary from the main entry plaza with landscaped mounds on either side of the steps that represent a 20 to 25 percent slope. The steps to the sanctuary and courtyard in the center of the project represent a slope of over 40 percent. Three stepped retaining walls are proposed in the northeast corner of the site above the northerly parking lot. This approach will prevent grading the steep slopes in the northeast corner of the site. Retaining walls are also required along the westerly property line due to the steepness of the slope between the property line and the Contra Costa canal (Humann Company, 2012).

2.) *The proposed density does not exceed the maximum allowed density.*

Response: The proposed project does not exceed the maximum allowed density. This is a church facility and not a residential development.

3.) *All areas with a slope greater than forty (40) percent shall be left undisturbed.*

Response: There is an isolated manmade slope over 40 percent that will be graded to accommodate the northerly parking lot. This occurs in the northeast corner of the property and measures approximately 674 square feet. This slope occurs in the center of the parking lot, therefore, it is not possible to redesign the parking lot to avoid the grading. In the far northeast corner of the northerly parking lot, the applicant is proposing three, stepped retaining walls to avoid grading the steeper slopes.

4.) *Slopes created by grading of the site shall not exceed thirty (30) percent.*

Response: The developable portions of the project site (structures, parking and landscaping) do not exceed 15 percent slope with the exception of the stairs and landscape features as mentioned in 1) above. Along the southern portion of the development area, the slopes will be 30 percent or less.

5.) *Final contours and slopes shall generally reflect existing landforms; in particular, building pads and terraces interspersed with slopes shall not be created and ridgelines, knolls, and significant tree masses shall be maintained.*

Response: The proposed project is generally consistent with this criterion. In order to provide level building pads, parking areas and pedestrian walkways and courtyards, it is necessary to grade the site, which has varying slope percentages. The development is contained to the lower portions of the project site, retaining the knoll as open space. Upon completion of grading, the developed portion of the project site will have zero percent slope with some inconsequential locations where the slope can be over 40 percent (steps leading to the sanctuary). The entrance into the church parking lot has a 10-15 percent slope and two very small areas along the north and west property line have a slope of up to 20 percent.

Most of the trees contained within the developed portions of the property would be eliminated to accommodate the structures, parking and landscaping with the exception of the existing tree grove in the northeast corner of the site. The applicant proposes an oak woodland greenbelt along the eastern and southern property boundaries, as well as a tree screen along the northern and western property lines. The new landscaping greatly exceeds the number of trees to be removed.

6.) *All areas not under structures with a final slope greater than twenty (20) percent shall be left uncovered by impervious surface and may be disturbed only as may be necessary to develop the site.*

Response: With the exception of the entrance to the facility, the developable portions of the site would have a slope of 0 to10 percent. At the project entrance, the slope is 10 to 15 percent. Portions left undeveloped have slopes ranging from 10 to 40 percent. The proposed project complies with this criterion.

7.) *Maximum coverage of a parcel by impervious surfaces shall not exceed forty (40) percent of the gross land area, and such maximum may be reduced by the Planning Commission in areas where the slope exceeds fifteen (15) percent.*

Response: The impervious surface area for the proposed project is 50.14 percent of the gross land area, therefore exceeding the Hillside Development Ordinance requirement of 40 percent maximum coverage. The applicant should consider using acceptable pervious

surfaces where practical, with a goal of reducing the impervious surface area to 40 percent or less.

8.) *The proposed development shall seek to avoid significant intrusion(s) into the views from adjoining up-slope residences.*

Response: The sanctuary structure sits below the line of sight for the residences located above the project site at 945 and 941 Tyler Court and 3331 Rolling Meadow Court. The finished floor elevation for the two homes on Tyler Court are at elevation 168 and 167, respectively. The top of the dome on the sanctuary is at elevation 158. The residence on Rolling Meadow Court is at a higher elevation of 216 feet, 58 feet above the church. Although the structures would not block the westerly views for residents, they will see the roofs and dome as well as the perimeter landscaping. As the trees mature they will provide a screen, although this may take several years.

9.) *Views from public open space areas, rights-of-way, and other public places and of major public open space areas shall not be significantly affected, although minor intrusions into such views may be permitted.*

Response: The view from the EBRPD Canal Trail is discussed in Section I. Aesthetics. The developable portion of the site would be visible to users of the trail going in either direction for approximately 200 feet. With the exception of the chapel building, the southern portion of the site that will remain in open space would help to block views of the other structures when traveling in a northerly direction. As shown in Figure 3-4, a portion of the chapel and its roof are visible to the trail users. Pepper trees lining the driveway that accesses the property north of the project site provide a partial tree screen when proceeding south along the trail as shown on Figure 3-2. The most intense view of the structures from the Canal Trail is directly in front of the project site. As shown in the Master Plan on Figure 2-6, the entrance into the site would be through a double swing gate that is framed by a mix of trees that include pear, locust, redwoods and tupelo. The two-lane church driveway extends into either parking lot beyond the swing gate. The sanctuary is accessed by a set of steps that lead to the main entry plaza and sanctuary entrance beyond. The height of the sanctuary at the front entrance is less than 30 feet high. As shown on Figure 3-2, the photosimulation is at an angle on the trail whereby the dome cannot be seen. As trail users proceed along the trail, the full front of the sanctuary and the dome would come into view for approximately 60 to 70 feet. The landscaping and retaining walls along the westerly property line would block views of the structure except when crossing in front of the project site entrance. The chapel would also be visible to trail users when traveling in a southerly direction. Without landscaping the entire structure is visible for approximately the same distance as mentioned above. With the maturation of landscaping, only the cross and front portion of the chapel would be visible. Proceeding south along the trail beyond the bridge crossing, the chapel would not be visible due to the changes in elevation and landscaping. The landscape plan reflects extensive plantings of trees, shrubs and various plants and groundcovers, which help to screen the structures from off-site. It is recommended that the tree screen along the southwest side of the chapel be augmented with additional trees to better screen the southwesterly façade from trail users.

10.) *The buildings, parking, carports, and landscaping shall be arranged so that view corridors from downslope lots are created.*

Response: The sanctuary has been set back approximately 70 feet from its nearest point to the front property line; the classroom building is set back 195 feet; the multi-use building set back 165 feet and the chapel set back 30 feet from the front property line. Parking and landscape areas are located between the structures and the western property line. The houses above the project site are set back at a great enough distance that it is unlikely that they can view the parking areas. Additionally, extensive landscaping occurs along the rear property line, which may also help to screen the parking areas. The houses located along the access roadway do not have direct views of the project site, nor do the houses located north of the project site. The only direct view of the project site is from the second floor of the house located at the northwest corner of the access roadway and the canal. This was not considered a significant visual impact since the structures are located approximately 270 feet from this dwelling.

11.) *The highest point of any structure shall not be located within one hundred (100) vertical feet of a ridgeline (i.e., a ground line located at the highest elevation of a connected series of major and minor hills or mountains.*

Response: The ridge located within the Lime Ridge Open Space, east of the project site, appears to have an elevation of 310 feet at its highest point. The highest point of the sanctuary would be approximately more than 150 feet below this elevation. It is noted that single-family housing sits above the project site breaking up the visual verticality of the ridgeline.

IMPACT X-1: Project plans are inconsistent with some of the Hillside Development Ordinance criteria and the zoning code pertaining to grading, amount of impervious surface, and overall visibility of the facilities from public right of ways.

Mitigation Measure X-1: The applicant shall revise the plans to include the following measures:

- provide additional trees and landscaping along the southwest façade of the chapel, and
- use an acceptable pervious surface for paved areas where practical.

It should be noted that the grading of the isolated man-made 40 percent slope located in the proposed parking area (674 square feet), is insignificant.

With implementation of Mitigation Measure X-1, this impact would be less than significant.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

The project site is near, but not within, the area covered by the East Contra Costa County Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP). The church property is not within the eastern Contra Costa County planning area covered by the HCP/NCCP and; therefore, would not be in conflict with the plans. There would be no impact.

SOURCES OF INFORMATION

Humann Company. 2012. Existing Slopes Study Map and Post Development Slopes Study Map (Sheet C-07), January 27.

Humann Company. 2012. Site Sections, January 27

LCA Architects, 2012. Elevations and Site Sections, January 31.

LCA Architect, 2012. Reference Master Plan, January 31.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XI. **MINERAL RESOURCES** — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				√
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				√

Setting:

There are no known mineral resources on or under the proposed project site. According to the Contra Costa County General Plan, the nearest mineral resource of value is a diabase aggregate deposit located approximately 3.6 miles southeast of the project site (Contra Costa County, 1996, Figure 8-4).

Discussion:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The proposed project would not result in loss of a valued mineral resource; thus, no impact would occur.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The availability of locally important mineral recovery sites would not be lost. Therefore, the proposed project would have no impact.

SOURCE OF INFORMATION

Contra Costa County Community Development Department. 1996. *Contra Costa County General Plan, 1995-2010*, July.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XII.	**NOISE** — Would the project:				
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			√	
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			√	
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		√		
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		√		
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				√
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				√

Setting:

A noise monitoring survey was conducted at the site between February 10 and February 14, 2011, to quantify ambient noise levels. This survey consisted of two long-term noise measurements and two short-term noise measurements at locations representative of the proposed sanctuary and adjacent residential land uses. (Refer to Figure C-1 in Appendix D.) Noise levels were monitored using Larson-Davis Laboratories Model 820 integrating sound level meters fitted with precision microphones and windscreens.

The first long-term noise measurement (LT-1) was made adjacent to existing residences along the proposed access roadway to the church property, approximately 240 feet from San Miguel Road. Noise levels were measured in consecutive ten-minute intervals. During each interval, the equivalent level (L_{eq}) and the sound levels exceeded 1, 10, 50, and 90 percent of the time

were measured. The ambient noise levels representing the near maximum levels (L_{01}) and background levels (L_{90}) are shown along with the average noise level (L_{eq}) as summarized in Figures D-2 through D-6 in Appendix D. A review of these data shows that daytime hourly, average noise levels typically ranged from 47 to 58 decibel-A weighted (dBA). The Community Noise Equivalent Level (CNEL) was 56 dBA on Friday, and 54 dBA on Saturday and Sunday.

A second long-term noise measurement (LT-2) was made near the east property line of the site in the area of the proposed sanctuary site. Figures D-7 through D-11 in Appendix D summarize the data collected from this monitoring location. A review of these data shows that daytime hourly average noise levels typically ranged from 39 to 57 dBA. The CNEL was 53 dBA on Friday, 52 dBA on Saturday, and 50 dBA on Sunday.

Two ten-minute noise measurements were conducted to complete the survey. The results of these noise measurements are summarized in Appendix D Table D-5.

Discussion:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Noise levels at the project site are compatible with the proposed land use. Measurements conducted at the site near the proposed sanctuary show that the CNEL is 50 to 53 dBA. A CNEL of 53 dBA is considered by the City of Concord to be a "normally acceptable" noise exposure for a place of worship. Measured noise levels for the proposed sanctuary are shown in Appendix D, Figures D-7 through D-11. A review of these data show that hourly average noise levels are typically 39 to 57 dBA L_{eq} throughout the day and evening when the church would be used. The noise exposure during the times of day when the facility would be used is clearly compatible with the intended use. Noise levels inside the buildings would be below 45 dBA CNEL. This is considered a less-than-significant impact.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction activities would include site preparation work, excavation, foundation work, and new building framing. Impact pile driving, which typically produces the highest vibration levels, is not anticipated to occur due to the type of structure proposed and the location.

For structural damage, the California Department of Transportation uses the following vibration measurements: 1) a vibration limit of 0.5 in/sec, peak particle velocity (PPV) for buildings structurally sound and designed to modern engineering standards, 2) 0.2 in/sec, PPV for buildings that are found to be structurally sound but where structural damage is a major concern, and 3) a conservative limit of 0.08 in/sec, PPV for ancient buildings or buildings that are documented to be structurally weakened.

Table D-4 in Appendix D presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. Project construction activities such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity of their use. Erection of the buildings is not anticipated to be a source of substantial vibration with the

exception of sporadic events such as dropping of heavy objects, which should be avoided to every extent possible. Construction activities may extend over several construction seasons, but construction vibration would not be substantial for most of this time except during vibration generating activities (as discussed above). Jackhammers typically generate vibration levels of 0.035 in/sec PPV and drilling typically generates vibration levels of 0.09 in/sec PPV at a distance of 25 feet. Again, vibration levels would vary depending on soil conditions, construction methods, and equipment used. At a distance of 50 feet, construction activities would not likely generate vibration levels exceeding the 0.20 in/sec PPV threshold. This is considered a less-than-significant impact.

In areas where vibration would not be expected to cause structural damage, vibration levels may still be perceptible. However, as with any type of construction, this would be anticipated and it would not be considered significant given the intermittent and short duration of the phases that have the highest potential of producing vibration (jackhammers and other high power tools). By use of administrative controls such as notifying adjacent land uses of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with least potential to affect nearby residences, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception. This is considered a less-than-significant impact.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project

Project plans identify a courtyard (Refer to Figure 2-6) that is located between the main parking lot and the three buildings. Outdoor events are not included on the list of typical events and this analysis assumes that church activities will occur indoors. The primary exterior noise sources associated with the church would be vehicle circulation on the access roadway and within the parking lot and mechanical heating, ventilation, and air-conditioning equipment as described further below.

Access Roadway and Parking Lots

Automobiles will access the site from San Miguel Road via an access roadway through an existing residential area. The access roadway will pass within approximately 50 to 70 feet of residences located to the north and south, respectively. The access roadway will cross the EBRPD Canal Trail and the Contra Costa Canal prior to entering the church property. Parking lots will be located north and west of the proposed church buildings.

Ambient noise levels, representative of the noise environment at nearby residences, were measured along the access roadway at Site LT-1 (Appendix D Figures D-2 through D-6). Hourly average noise levels during the daytime and evening when the church would be used typically range from 47 to 58 dBA L_{eq}. Background noise levels, represented by the $L_{(90)}$, typically range from 35 to 45 dBA. Traffic data provided by Omni-Means indicates that the Sunday church service would generate the highest number of project trips on a regular basis. On weekdays, vehicle trip activity is primarily generated by classes or meetings at night. The schedule indicates these generally occur between 6:30 and 9:30 p.m., with approximately 25 persons per activity. However, on some evenings two activities occur simultaneously (during summer the youth and adult classes overlap on Tuesdays and Wednesdays), resulting in 35 to 50 attendees. A smaller number of trips are generated on some mornings by the weekday mass services which are attended by 10 to 15 persons. The church also holds an annual festival (special event) which typically occurs in October. Attendance consists of 100 to 200 families (600 people) over a three-day period.

Noise levels generated by vehicles along the access roadway and circulating within the parking lots were calculated at the nearest residences using the Federal Highway Administration's (FHWA's) traffic noise model (TNM). The predicted hourly average noise level during the weekend peak hour (Sunday Church Service) assumes that 140 vehicles would pass along the access roadway at a speed of 15 miles per hour. The calculated hourly average noise level is 50 dBA L_{eq} at the nearest residence to the north and 47 dBA L_{eq} at the nearest residence to the south. The predicted CNEL from the activity along the access roadway and parking lots would be less than 40 dBA. Average noise levels resulting from vehicle circulation would not increase ambient daily average noise levels at the adjacent residences.

The sounds of individual vehicles along the access roadway and in the parking lots would consist of doors closing, engines starting, and motor and tire noise. Maximum noise levels from these individual single events would be expected to range from about 55 to 60 dBA at the nearest residential properties. The noises would be audible above the background noise levels that occur there, which are in the range of 35 to 45 dBA. The access roadway and parking lot would be most heavily used on Sundays before and after church service (140 trips per hour). Monday and Wednesday morning church service (30 trips per hour) and weekday afternoon and evening youth and adult classes (108 trips per hour) would also result in a relatively high volume of vehicle trips along the access roadway. While these are relatively small time periods during the week, they are sensitive time periods when adjacent residents would be expected to be home. Because the sound of automobiles would be audible and exceed ambient background noise levels at adjacent residences, and because of the time period of maximum use, this may be annoying to some neighbors resulting in complaints. However, daily average noise levels resulting from vehicle circulation would not increase ambient noise levels by 4 dBA CNEL or more at the adjacent residences.

Nuisance noise is also expected to generate complaints from neighbors particularly at the end of evening activities. This occurs when people loiter in the parking lot after indoor activities have finished. Because the nighttime ambient noise levels are low, the sound of voices in the parking lot could be heard, thereby creating a nuisance for nearby residents.

IMPACT XII-1: The proposed project could potentially create nuisance noise for adjoining residents, resulting in neighborhood complaints.

Mitigation Measure XII-1: The following measures shall be applied to the project:

- all church activities shall be held indoors, including the annual festival;
- all evening activities shall be finished by 10:00 p.m., including cleanup detail; and
- parking lot lights shall be set to shut off automatically at 10:30 p.m., excluding security lighting, which can consist of single lights placed over doorways.

With implementation of Mitigation Measure XII-1, this impact would be less than significant.

Mechanical Equipment

The operation of the project would introduce new sources of noise that may permanently increase noise levels at noise-sensitive land uses in the site vicinity. Mechanical equipment associated with churches can include heating, ventilation, and air conditioning systems, and boilers, pumps. This type of equipment typically produces fairly steady noise levels while the equipment is in operation.

The City's Municipal Code would regulate noise from such equipment to not exceed 65 dBA beyond the boundaries of the site.

In a meeting with City staff and the CEQA consultant, the applicant's architect indicated that mechanical equipment noise would be mitigated through the use of rooftop wells for the rooftop equipment on the sanctuary. The other buildings mechanical equipment would either be inside the structure on a lower roof level (Dyer, February 7, 2012). It is noted that project plans do not show that level of detail. Therefore, due to the number of variables inherent in the mechanical equipment needs of the project (number and types of equipment, locations, size, specifications, etc.), the impacts of mechanical equipment noise on nearby noise sensitive uses should be assessed during the final project design stage. The design should take into account the noise criteria associated with such equipment and utilize site planning to locate equipment in less noise sensitive areas.

> **IMPACT XII-2: Noise levels generated by the operation of the project may exceed the standards established in the Concord General Plan and Municipal Code.**
>
> **Mitigation Measure XII-2:** Locate the heating, ventilating, and air conditioning (HVAC) equipment away from sensitive receivers. Shield rooftop mechanical equipment with rooftop screens or perimeter parapet walls, and employ noise control baffles, sound attenuators, or enclosures where required. The goal of this mitigation is to reduce noise levels to 60 dBA or less at the boundaries of the site, and 55 dBA or less at adjacent residential properties. HVAC noise controls shall be analyzed and reviewed by a qualified acoustical consultant prior to issuance of a building permit**.**

With implementation of Mitigation Measure XII-2, this impact would be less than significant.

Off-site Traffic Noise

Traffic data provided by the traffic consultant was reviewed to calculate potential project-related traffic noise level increases along San Miguel Road under both existing conditions with the proposed project and under cumulative conditions with the proposed project. These data included hourly traffic volumes north and south of the access roadway for existing and proposed project trips. Traffic volumes under the existing plus proposed project scenario were compared to existing conditions to calculate the noise increase attributable to the proposed project.

Under the existing conditions plus proposed project scenario, the data indicate that traffic volumes in the site vicinity will slightly increase as a result of the proposed project. Traffic noise levels due to the proposed project are calculated to increase existing traffic noise levels by up to 1 dBA L_{eq} during the peak traffic hours along San Miguel Road north of the access roadway that serves the site. The noise increase attributable to the project would be less than 1 dBA CNEL along this segment of San Miguel Road.

Traffic noise levels resulting from project trips are calculated to increase existing traffic noise levels by 1 to 3 dBA L_{eq} during the peak traffic hours along San Miguel Road south of the access roadway. The noise increase attributable to the project along San Miguel Road, south of the access roadway, would also be less than 1 dBA CNEL. Traffic noise increases resulting from the proposed project would not increase ambient noise levels by 4 dBA CNEL or more and would not be considered substantial. This is considered a less-than-significant impact.

Cumulative traffic noise levels in the area of the project site would not increase substantially over the long-term as the area is generally built-out. Future-build traffic noise data (including the proposed project) was compared to existing traffic noise data to determine if the cumulative projects would result in a cumulative traffic noise impact. Cumulative noise levels are not expected to substantially increase (a substantial cumulative noise increase is defined as a 4 dBA CNEL increase above existing conditions). This is a less-than-significant impact.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction of the project would generate noise levels that would exceed 60 dBA L_{eq} and the ambient noise level by 5 dBA L_{eq} or more at nearby residential land uses over several construction seasons. Construction is anticipated to occur in four phases as shown in Chapter 2, Table 2-2.

Construction of the project would involve site improvements, such as the establishment of utilities, site grading and excavation, the construction of foundations, building framing, paving, and landscaping. Approximately 25,000 cubic yards of soil will be cut with approximately 6,000 cubic yards used as fill and 19,000 cubic yards being off-hauled. The hauling of excavated material and import of construction materials would generate a large amount of truck trips on the access roadway and local roadways serving the site.

Noise impacts from construction activities depend on the various pieces of construction equipment, the timing and length of noise generating activities, and the distance between the construction noise sources and noise sensitive receptors. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), when the construction occurs in areas adjoining noise sensitive land uses, or when construction lasts over extended periods of time.

During each stage of construction, there would be a different mix of equipment operating. Construction noise levels would vary by stage and vary within stages based on the amount of equipment in operation and location where the equipment is operating. Typical construction noise levels at a distance of 50 feet are shown in Tables D-6 and D-7 of Appendix D. Table D-6 shows the average noise level ranges by construction phase and Table D-7 shows the maximum noise level ranges for different construction equipment. Most demolition and construction noise is in the range of 80 to 90 dBA at a distance of 50 feet from the source.

The highest noise levels would be generated during demolition, excavation, and foundation construction. Jackhammers typically generate maximum noise levels of 85 dBA at a distance of 50 feet. Large pieces of earth-moving equipment, such as graders, excavators, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet.

Average noise levels at 100 feet from the more typical construction activity at this site would range from 70 to 80 dBA L_{eq} during busy construction periods. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor. For example, noise levels at 200 feet would be expected to range from 64 to 74 dBA L_{eq}; noise levels at 400 feet would be expected to range from 58 to 68 dBA L_{eq}, and so on.

IMPACT XII-3: Residences in the vicinity of the site would be exposed to relatively high noise levels over the duration of project construction activities.

A substantial temporary or periodic" noise increase is construction-generated noise levels that are greater than 60 dBA Leq and at least 5 dBA Leq above the ambient noise levels for a cumulative duration of one construction season (one year). In the Bay Area, construction can normally occur year-round excluding brief periods when weather (i.e., substantial rainstorm) makes construction activities impossible or impractical.

The 60 dBA Leq noise level limit is receiver-based, and this noise level is the level at which speech interference begins to occur outdoors. One construction season is considered a reasonable duration that allows most construction projects to be built, recognizing that noise from construction activities will be short-term and there is a definitive end date to the construction activities.

Implementation of the following mitigation measures would reduce the effects of construction noise upon existing residences in the area.

Mitigation Measure XII-3: Develop a construction mitigation plan for each phase of the project in close coordination with adjacent noise-sensitive land uses so that construction activities can be scheduled to minimize noise disturbance. The construction mitigation plan shall consider the following available controls to reduce construction noise levels as low as practical:

- Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 8:00 a.m. and 5:00 p.m., Monday through Friday. Construction equipment shall not be started prior to 8:00 a.m. Construction shall be prohibited on weekends and city-observed holidays.
- Construction workers and deliveries shall not arrive on the project site until 8:00 a.m., Monday through Friday.
- Erect temporary noise barriers (e.g., solid plywood fences [minimum 8 feet in height] and/or acoustical blankets) along the access roadway. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling. Noise control blanket barriers can be rented and quickly erected.
- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment.
- Prohibit all unnecessary idling of internal combustion engines.
- Route construction related traffic to and from the site via designated truck routes and avoid residential streets where possible.
- Utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses.
- Shield adjacent sensitive uses from stationary equipment with individual noise barriers or partial acoustical enclosures.

- Locate staging areas and construction material storage areas as far away as possible from adjacent land uses.
- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.
- Hold a pre-construction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are implemented.

With implementation of Mitigation Measure X11-3, this impact would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project site is located more than two miles from Buchanan Field, the nearest airport; therefore, the airport land use plan does not apply to the project site. No impact would occur.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project is not located within the vicinity of a private airstrip. No impact would occur.

SOURCES OF INFORMATION

City of Concord, 2007. *Concord 2030 Urban Area General Plan*, October 2

Dyer, Norm, 2012. Meeting with Ryan Lenhardt, City of Concord and Carolyn Mills, Mills Associates, February 7.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIII.	**POPULATION AND HOUSING** — Would the project:				
	a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				√
	b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				√

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				√

Setting:

The 3.9-acre site is vacant and is surrounded by residences, a nursery, open space, a water supply canal and a trail.

Discussion:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project is a church facility, which will attract parishioners on Sundays and holy days throughout the year. This is a temporary population infusion while the church services and classes are being held. Because of the type of use, the proposed project has no impact on population growth.

b & c) Displace substantial numbers of existing housing and people, necessitating the construction of replacement housing elsewhere?

The site is vacant, thus no housing or people would be displaced; therefore, no impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. **PUBLIC SERVICES —**				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?		√		
Police protection?		√		
Schools?				√

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Parks?				√
Other public facilities?				√

Setting:

The proposed project would be served by the following public service agencies:

Fire protection: Contra Costa County Fire Protection District
Police protection: City of Concord Police Department

Discussion:

a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*

Fire Protection

Fire protection would be provided by the Contra Costa County Fire Protection District (CCCFPD). First response would come from Station No. 10 on Treat Boulevard near Oak Grove Road. This station has one Type I engine, one Type III wildfire engine, and one rescue truck equipped with the "jaws of life." The station is manned at all times with a crew of three firefighters, one of whom is a paramedic. Transportation for medical emergencies is provided by a private ambulance service (CCCFPD, 2011).

The travel distance from the fire station to the proposed project site is 1.3 miles, and the response time is estimated to be approximately 5 minutes. The acceptable response time standard is five minutes 90 percent of the time. The CCCFPD could serve the proposed project without increasing staffing, equipment or facilities. The impact of the proposed project on existing fire protection services is considered less than significant. No mitigation is necessary.

The CCCFPD reviewed the proposed project application and issued a letter defining roadway dimension and other requirements (CCCFPD, 2002). CCCFPD requires a water supply that would provide at least 2,000 gallons per minute from no more than two fire hydrants (although at least three hydrants would be provided) and automatic fire sprinkler systems in the buildings. The proposed access roadway would be 24- to 28-feet wide from curb to curb, which exceeds CCCFPD requirements of 20-feet clearance.

Police Protection

The City of Concord Police Department would provide police protection out of its main police station at Galindo and Laguna streets in downtown Concord. Six 24-hour beats are dispatched from the station, with one officer patrolling each beat in a police car. A duty sergeant supervises

operations 24 hours per day. Response time varies from 10 minutes to several hours. More urgent matters have precedence over matters that do not require immediate response. Response time also depends on where the officer on the beat is located when a dispatch order is received, and how far the officer has to travel to respond. In case of emergencies, the Contra Costa County Sheriff's Department, the City of Walnut Creek, and the California Highway Patrol can provide mutual aid. Typically, churches do not create much demand for police protection. Most calls are for burglaries or vandalism (Menchaca, 2011). The Concord Police Department could serve the proposed project without increasing staffing, equipment or facilities. Therefore, the impact on existing police services is considered less than significant. No mitigation is necessary.

Emergency Vehicle Access

Emergency vehicles would use the access roadway and Canal bridge crossing to reach the project site and the properties located north of the site. The proposed project includes improving the access roadway and resurfacing the existing bridge during the early phase of site preparation. The access roadway would be repaved, median landscaping removed and sidewalks installed. The bridge improvements include replacing the wooden planks with a steel pan and asphalt surface. The applicant has indicated that traffic control measures will be implemented to help control local traffic using both the access roadway and bridge crossing. During construction of the access roadway one lane will be closed at a time to allow for traffic to pass through. The same approach would be used when the bridgework is undertaken. A formal traffic management plan has not been submitted to the City of Concord.

> **IMPACT XIV-1: Reconstruction of the access roadway and bridge could affect vehicular access for residents and emergency vehicles along the roadway during construction.**
>
> **Mitigation Measure XIV-1:** The applicant shall prepare and submit a traffic control plan to the City of Concord, the Contra Costa Water District and the Contra Costa County Fire Protection District that adequately explains how vehicle access would be maintained on the access roadway and bridge at all times during construction.

With implementation of Mitigation measure XIV-1, this impact would be less than significant.

Schools, Parks, and Other Public Services

The proposed project consists of a church. There would be no housing for residents at the church. Therefore, the project itself would not generate any new demand for schools, parks, or other public services. There would be no impact from the proposed project.

SOURCES OF INFORMATION

Anonymous firefighter, Contra Costa County Fire Protection District Station No. 10. 2011. Personal communication with Robert Mills, Mills Associates, February 15.

City of Concord, Planning Division, Planning and Economic Development. 2002. *Environmental Impact Fact Sheet,* July 7.

Contra Costa County Fire Protection District. 2002. *HDP 1-00 St. Mary and St. Mina Optic Orthodox Church,* letter to City of Concord Community Development Department, June 25.

George Guorgui, 2012. Memos to Carolyn Mills, Mills Associates, April 10 and May 23.

Menchaca, Ivan, Sergeant, Concord Police Department. 2011. Personal communication with Robert Mills, Mills Associates, February 22.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XV. **RECREATION —**				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?		√		
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				√

Setting:

The Lime Ridge Open Space lies to the east (beyond the houses located above the project site) and south of the project site. The EBRPD Canal Trail extends along the western boundary of the project site.

Discussion:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed project consists of a church. There would be no housing for residents at the church. Therefore, the project in itself would not generate any new demand for parks or other recreational facilities. There would be no impact from the proposed project.

The access roadway to the church would cross the EBRPD Canal Trail at grade and would create safety concerns.

IMPACT XV-1: Drivers entering or leaving the proposed project site would cross the EBRPD Canal Trail and could endanger pedestrians using the trail.

Mitigation Measure XV-1: The access roadway to the church shall be provided with the following features:

- slow speed limit (e.g., 15 miles per hour) signs in both directions;
- striping where the access roadway crosses the EBRPD Canal Trail;
- signs warning drivers that they are approaching the trail crosswalk; and

- pruning of trees and plants to provide adequate lines of sight along the trail, which will require ongoing maintenance.

With implementation of this mitigation measure, the impacts on existing recreational facilities would be less than significant.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The proposed project does not include any public recreational facilities; thus, there would be no impact. The multi-use building would include a basketball court.

SOURCES OF INFORMATION

East Bay Regional Park District, 2000, Letter from Brian Wiese to Cheryl Whitfield, City of Concord Planning Division, August 1.

East Bay Regional Park District, 2002, Letter from Terry Noonan to Joan Ryan, City of Concord Planning Division, June 25.

LCA Architects, 2012. Conceptual Floor Plan – Multi-Use Building, January 31.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI.	**TRANSPORTATION/TRAFFIC** — Would the project:				
	a) Exceed the capacity of the existing circulation system, based on an applicable measure of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?		√		
	b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				√
	c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				√

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		√		
e) Result in inadequate emergency access?		√		
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?		√		

Setting:

San Miguel Road is the primary access road to/from the project site. The road is oriented in a north-south direction between Treat Boulevard to the south and Cowell Road to the north. From Treat Boulevard, San Miguel Road extends north past the project site to Via Montanas, then turns west for a short distance before turning north again to Cowell Road. San Miguel Road acts as a collector road, serving local vehicle trips to/from the residential areas as well as through trips between Treat Boulevard and Cowell Road. Near the project access roadway, it is a winding two-lane road with little or no shoulder areas.

The roadway that would serve the project extends east from San Miguel Road approximately 240 feet south of the Lane Drive/Lanway Court intersection. This roadway currently provides access to two private residences (#'s 934 & 936 San Miguel Road) and a plant business (Mother Nature's Interior Plant Rentals) east of the canal. The existing roadway is an asphalt, one-lane road approximately 12 to 15 feet wide. There are parallel driveways on both sides of the access roadway serving private residences. (Refer to Photos I and J.)

Photo I –Existing roadway

Photo J – Parallel driveway to the south

Pedestrian and bicycle facilities on San Miguel Road are limited to a sidewalk on the east side of the street that begins just north of the access roadway and extends north to Via Montanas. There are no sidewalks south of the access roadway. The Contra Costa Canal Regional Trail is a Class I

pedestrian/bike path located east of San Miguel Road (east of the residences fronting San Miguel Road and west of the canal) that extends through the project area and beyond. The trail provides an alternative route to San Miguel Road to/from the south for pedestrians and cyclists.

Level of service (LOS) is a measure of operating conditions for motorists which applies a letter grade, ranging from A to F, to successive levels of operating performance. LOS A represents optimum conditions with free-flow movement and minimal delays/congestion. LOS F represents a significantly congested condition where traffic flows can exceed design capacities resulting in long vehicle delays and queues. For roadway segments, LOS is based on the average daily traffic (ADT) volumes. Average daily traffic is defined as the total volume passing a point or segment of a roadway facility, in both directions, during a 24-hour period. For intersections, LOS is based on peak hour volumes and is measured in vehicle delay (seconds) or a volume-to-capacity (v/c) ratio. At unsignalized intersections, the LOS usually refers to the minor street or stop-sign controlled movements. LOS definitions are provided in Tables E-1 and E-2 in Appendix E.

In consultation with City staff, San Miguel Road intersections at the access roadway, Lane Drive/Lanway Court, and Via Montanas were analyzed for level-of-service conditions. To assess vehicle traffic flows, weekend (Sunday) and weekday peak period intersection turning movement counts were conducted (Omni Means, 2010). The weekend counts were conducted during the church's anticipated peak trip generating hours (8:00 a.m. to 2:00 p.m.). The weekday counts were conducted during peak commute periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.).

All three intersections are operating at LOS A (7 to 9 second delay) during the Sunday peak hours. On weekdays, the San Miguel Road/Via Montanas intersection operates at LOS A during both peak hours as well. The minor-street approaches at the access roadway and Lane Drive/Lanway Court intersections operate at LOS B or better (8 to 11 second delays) during the weekday peak hours. The minor-street volumes are very low (12 or less) and vehicle queues are minimal. Existing intersection LOS is shown in Table E-3 of Appendix E. (LOS calculation worksheets will be provided to City staff.)

A level-of-service analysis was conducted for San Miguel Road in the project vicinity. Machine tube counts tabulating the 24-hour average daily traffic (ADT) volumes were conducted over the course of a week near the project access roadway (Baymetrics, 2010). The existing ADT volumes are shown on Figure E-2 of Appendix E.

Table E-4 in Appendix E lists the existing roadway segment LOS conditions. As indicated in the table, San Miguel Road is currently operating at LOS A through the study area.

Future Base Volumes

Future base traffic conditions represent existing plus approved/pending development traffic that would be generated in the near-term (3 to 5 years). Based on discussions with City officials, there are no specific projects within the study area anticipated within five years. However, in order to provide a conservative estimate, existing traffic volumes were increased by five percent (reflecting growth of one percent per year for five years). The future base volumes are shown on Figure E-3 of Appendix E.

Future Base Intersection Conditions

With the future base traffic volumes, the intersection LOS has been calculated and is shown in Table E-5 of Appendix E. With future base volumes, the LOS would remain unchanged from existing conditions. Vehicle delays would increase slightly, but the intersections would continue to operate at LOS B or better.

Future Base Roadway Conditions

The roadway segment LOS conditions are shown in Table E-6 of Appendix E. San Miguel Road would continue to operate at LOS A with future base traffic volumes.

Discussion:

a) Exceed the capacity of the existing circulation system, based on an applicable measure of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Existing intersection and roadway level-of-service conditions were calculated at LOS B or better for all of the studied time periods, with delays of 11 seconds or less at minor side street approaches. These conditions reflect stable traffic flow and efficient progression through the intersections and streets.

With future base volumes, operating conditions would be similar to existing conditions. Intersection and roadway levels-of-service would remain at LOS B or better, with delays remaining at 11 seconds or less for the minor side street approaches.

Study intersections would continue to operate at efficient levels-of-service with proposed project traffic added to future-base volumes. On Sundays, intersection levels-of-service would remain at LOS A, except at the project access roadway approach to San Miguel Road which would change from LOS A to B during the Sunday mid-day peak hour (delay would increase 1 second). On weekdays, the study intersections would continue to operate at the same LOS as future base conditions without the project except the access roadway approach to San Miguel Road which would change from LOS A to B (2 second delay increase).

Daily volumes on San Miguel Road would remain well within the carrying capacity of a two-lane collector street and would continue to operate at LOS A (less than 6,000 ADT). The project would add approximately 300 daily trips to Sunday background volumes of 1,950 ADT and 300 daily trips to weekday background volumes of 2,950 ADT.

Pedestrian and bicycle access to the project site from San Miguel Road would be provided via a reconstructed access roadway (paved) and new sidewalk along the south side of the access roadway. Additionally, The Contra Costa Canal Trail extends along the west side of the site thereby providing a bicycle route for persons wishing to attend church services. Therefore, the impact is considered less-than significant.

IMPACT XVI-1: The church would periodically create high vehicle traffic volumes. During these times, the potential for vehicle conflicts could be greater at project study intersections/streets.

Mitigation Measure XVI-1A: To reduce vehicle conflicts and enhance pedestrian safety, install All-Way Stop Sign control at the joint intersection of San Miguel Road and the project access roadway/adjacent private driveway to the north. Additionally, install advance stop warning devices on San Miguel Road as directed and approved by the City of Concord.

Mitigation Measure XVI-1B: Eliminate 30 feet of an existing tree-bush screen (closest to San Miguel Road) between the project access roadway and the adjacent private driveway to the north and relocate existing mailboxes in coordination with the adjacent property owners.

IMPACT XVI-2: If all vehicles arrive/depart within a short time period, whether attending church services or the annual special event, vehicle queuing could occur on the access roadway. This is considered a significant impact if it blocks the trail crossing or access for residents and emergency vehicles.

Mitigation Measure XVI-2A: To ensure that extensive vehicle queuing does not occur, the following measure(s) shall be implemented as needed if attendance growth results in extensive queuing:

- provide two Sunday masses (instead of one) that are scheduled so vehicles from the first service exit before vehicles arrive for the second service;
- schedule class sizes and times to minimize the number of simultaneous trips; and
- use traffic control personnel to facilitate traffic flow in and out of the parking lot and at the trail crossing during the busiest time periods.

Mitigation Measure XVI-2B: "Trail Crossing" signs shall be installed at the trail crossing to alert approaching drivers. In addition, "Keep Clear" pavement markings shall be installed instructing motorists to not stop within the trail crossing. (Also refer to Mitigation Measure XV-1 Recreation.)

With implementation of Mitigation Measures XVI-1A and 1B, and XVI-2A and 2B, the impacts would be less than significant.

b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Not applicable; the studied circulation system does not include roads or highways under the auspices of a congestion management program, therefore, there is no impact.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The project would not impact air traffic patterns, including no increase to traffic levels and no change in location resulting in substantial safety risks. Therefore, there is no impact.

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

Sight distances in both directions at the project access roadway/San Miguel Road intersection exceed the minimum distance requirements. Sight distance to/from the south equals 300 feet versus a recommendation of 180 feet. Sight distance to/from the north equals 250 feet versus 206 feet recommended. Although sight distances are adequate, the distance can be improved by trimming foliage located on the west side of San Miguel Road south of the access roadway and relocating mailboxes on the north side of the access roadway.

Accident records maintained by the Concord Police Department were reviewed for the past five years for this report. The five-year accident history did not indicate an existing problem. Implementation of the proposed project would periodically generate higher volumes at the project access roadway/San Miguel Road intersection. Mitigation Measure XVI-1A addresses the potential traffic conflict at San Miguel Road and the project access roadway.

As stated previously, vehicle queuing analyses were conducted and do not indicate a queuing problem based on anticipated arrival/departure rates. However, in order to ensure significant queuing does not occur, it is recommended that the applicant prepare and implement, if needed, mitigation measures that satisfy the City of Concord. These include providing two masses instead of one and scheduling event times to minimize concurrent trips. These would reduce the potential impacts to less than significant. Refer to Mitigation Measure XVI-2A.

The applicant has submitted engineered drawings (Humann Company, 2012) to the City of Concord which illustrate the proposed parking area and on-site vehicle circulation routes. The entrance driveway into the project site is 20 feet wide whereas City code requires the driveway to be 24 feet wide to accommodate two-way traffic. Approval of the final parking lot design will be incorporated into approval of the overall site improvement plans. The review process will verify that onsite circulation is adequate, including adequate drive-aisle widths and turning radii for automobiles/trucks/emergency vehicles; proper parking stall design; and sufficient signing/markings (including red-curbed areas prohibiting parking and adequate pedestrian routing) to satisfy onsite circulation. This would reduce the potential onsite circulation impacts to less than significant.

While the review process will mitigate any potential design impacts to less than significant, some recommendations for onsite improvements (though not significant) may be considered to enhance circulation. In order to clarify proper right-of-way near the church property entrance area, consideration could be given to installing a stop sign at the entrance driveway for vehicles exiting the church property and/or another stop sign for vehicles leaving the northern parking area (29 spaces) at the internal intersection near the entrance. Painting a double-yellow centerline stripe on the entry drive-aisle (main entry plaza) to demarcate the travel lanes would also enhance vehicle circulation.

IMPACT XVI-3: The entrance driveway into the church parking is not wide enough to accommodate two-way traffic.

Mitigation Measure XVI-3: To facilitate traffic flow, the entrance driveway shall be widened to 24 feet from the project site entrance to the first handicap stall.

Parking Demand

The project site plan provides 99 parking spaces, which meets the city's zoning requirement of 99 spaces (297-person occupancy at one space required for each 3 persons). However, based upon surveyed existing parking demand and automobile occupancy, it is feasible that the congregation will increase to the point that there will be inadequate parking. With potential future attendance of 297 people, the demand would be 140 spaces based on existing demand characteristics. The annual special event could also attract more cars than can be accommodated on the project site.

> **IMPACT XVI-4: A future growth in church attendance could result in a parking demand of 140 spaces during the Sunday service, exceeding the number of spaces proposed for the project or required by the City.**
>
> **Mitigation Measure XVI-4:** If needed, provide two Sunday masses (instead of one) that are scheduled so vehicles from the first service exit before vehicles arrive for the second service (also included as part of Mitigation Measure XVI-2A).
>
> **IMPACT XVI-5: A future increase in the number of persons attending the annual special event could result in a parking demand that exceeds the proposed number of parking spaces.**
>
> **Mitigation Measure XVI-5:** The project applicant shall prepare and submit a parking management plan to the City of Concord to address parking demand on site for the annual special event with increased (full) participation. Such a plan could include options such as a ride-sharing program; walking to the site for local residents; securing acceptable off-site parking; shuttle service to/from a satellite parking area, etc. The annual special event shall be held offsite if the parking management plan does not demonstrate to the satisfaction of the City that parking can be accommodated adequately on site.

With implementation of Mitigation Measures XVI-4 and XVI-5, the impacts would be less than significant.

e) Result in inadequate emergency access?

The church has submitted engineering plans to the City of Concord for structural improvements to the bridge. The Fire District and the Contra Costa Water District will also review the plans to verify that the bridge meets the required structural and safety standards. Approval of the bridge improvement plans will be incorporated into approval of the overall site improvement plans. This would reduce the potential structural impacts to less than significant.

Access to the adjoining residences could be blocked during reconstruction of the access roadway and Canal bridge. Correspondence from the project manager indicate that one lane of traffic will remain available to local traffic at all times during construction of the access roadway and the bridge crossing. Vehicular access and emergency access to residences along the access roadway and bridge must be maintained at all times during construction. It is recommended that the project applicant submit a traffic control plan prior to construction to all applicable agencies, including City of Concord, Contra Costa Water District and Contra Costa County Fire Protection District personnel. The traffic control plan should adequately explain how residential and emergency vehicle access

would be maintained at all times (including during construction of the project buildings and reconstruction of the access roadway and bridge).

IMPACT XVI-6: Reconstruction of the access roadway and bridge could affect vehicular access for residents and emergency vehicles along the roadway during construction.

Mitigation Measure XVI-6: The applicant shall prepare and submit a traffic control plan to the City of Concord, Contra Costa Water District and the Contra Costa County Fire Protection District that adequately explains how vehicle access would be maintained on the access roadway and bridge at all times during construction.

The bulk of construction-related traffic would be generated by dirt hauling trucks during the site grading phase and on-site employees during the building phases. Based on several conservative assumptions, the construction traffic is expected to generate approximately 216 daily trips and 56 peak hour trips. The volumes would not significantly affect level-of-service conditions, but would be noticeable by adjacent residents. Construction traffic would include heavy vehicles on the access roadway and bridge.

IMPACT XVI-7: Vehicle volumes to the site would increase during construction of the project.

Mitigation Measures XVI-7: A construction traffic management plan shall be prepared to include the following:

- A description of how residential/emergency vehicle access shall be maintained orderly and safely at all times;
- An oversight plan for the dirt-removal truck trips, including hours of operation, maximum load/truck size, number of loads per hour, and traffic routing map. The plan shall be developed to minimize disruption of adjacent residents as much as possible; and
- A plan that illustrates how parking for construction employees shall be accommodated on site.

With implementation of Mitigation Measures XVI-6 and XVI-7, the impacts would be less than significant.

f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

The proposed project would not conflict with adopted policies, plans, or programs supporting alternative transportation. The project would provide pedestrian and bicycle access from San Miguel Road via a reconstructed access roadway (paved) and new sidewalk. The Contra Costa Canal Trail is also in close proximity to the project site and it is possible that some church members may utilize the trail if they live in close proximity to the project site. Providing several bicycle spaces would encourage cycling and reduce the potential impact to less than significant.

IMPACT XVI-8: Project plans do not include bicycle racks for church members who may utilize the trail to access the project site.

Mitigation Measure XVI-8: To accommodate bicyclists, the project applicant shall provide bicycle racks as directed and approved by the City of Concord.

With implementation of Mitigation Measure XVI-8 the impact would be less than significant.

SOURCES OF INFORMATION

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Humann Company Inc., 2012, Tentative Site, Drainage and Utility Plan, January 27.

LCA Architects, 2012. Reference Master Plan, January 31.

Omni Means Ltd, Intersection counts, Sunday and Weekday peak periods, March 10, 11, 14 and 21, 2010.

Transportation Research Board. 1985. "Intersection Channelization Guide," NCHRP Report 279, November.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVII.	**UTILITIES AND SERVICE SYSTEMS** — Would the project:				
	a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				√
	b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			√	

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			√	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			√	
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			√	
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			√	
g) Comply with federal, state, and local statutes and regulations related to solid waste?				√

Setting:

The public/private utilities that could serve the proposed project include the following:

Water: Contra Costa Water District (CCWD)
Wastewater (i.e., sewerage): City of Concord and Central Contra Costa Sanitary District (CCCSD)
Storm Drainage: City of Concord and Contra Costa County Flood Control and Water Conservation District (CCCFCWCD)
Solid Waste Disposal: Concord Disposal Services
Solid Waste Recycling: Mount Diablo Recycle
Electrical power and natural gas: Pacific Gas and Electric Company (PG&E)

Discussion:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Wastewater from the proposed project would be conveyed through sanitary sewers to the CCCSD Wastewater Treatment Plant (WWTP) in Martinez for treatment prior to disposal into Suisun Bay. The CCCSD plant operates under a National Pollutant Discharge Elimination System (NPDES) permit issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB) that establishes discharge requirements that reduce pollutants in the plant's effluent to acceptable levels. CCCSD must satisfy these requirements. If not, the RWQCB has the authority to levy penalties, impose cease and desist orders, and issue moratoriums for new sewer service connections if waste discharge requirements are consistently violated. The proposed project would not cause CCCSD to exceed wastewater treatment requirements; thus, no impact would occur.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Contra Costa Water District (CCWD) owns and operates the Bollman Water Treatment Plant that would provide potable water for the proposed project. The plant has a current capacity of 75 million gallons per day (mgd). The current maximum day demand on the treatment plant is between 60 and 65 mgd during the peak summer months (Vanisco, 2010). The proposed project would have a maximum-day water demand of approximately 0.0018 mgd (600 festival attendees × 3 gallons per attendee per day). This small demand would not require expansion of water treatment plant facilities.

A new water supply pipeline would be installed up the access roadway from the existing water main along San Miguel Road. Providing the CCWD storage reservoirs and water mains to the project site are adequate to provide fire flows required by the Contra Costa County Fire Protection District, the proposed project would not require construction of new water facilities. Therefore, associated impacts would be less than significant, and no additional mitigation is necessary. The project applicant would be required to obtain permits from the CCWD and United States Bureau of Reclamation for construction of the bridge spanning the Contra Costa Canal.

The CCCSD WWTP has an average dry weather flow (ADWF) treatment capacity of 55 million gallons per day (mgd) and a peak wet weather flow hydraulic capacity of 240 mgd. The WWTP currently treats an ADWF of approximately 45 mgd (CCCSD, 2008). The proposed project would generate a maximum of approximately 0.0012 mgd ADWF (600 festival attendees × 2 gallons per attendee per day). This small demand would not require expansion of wastewater treatment facilities.

The existing sewer under San Miguel Road has sufficient available capacity to accommodate the additional wastewater that would be generated by the proposed project (Cruz, 2011). However, CCCSD conveyance facilities farther downstream do not have adequate flow-carrying capacity under CCCSD's current design criteria for ultimate expansion of CCCSD's service area. Improvements to correct deficiencies are or will be included in CCCSD's Capital Improvement Plan. These improvement projects will be the subject of separate environmental review as required by the California Environment Quality Act. Improvements to CCCSD's existing facilities that are required as a result of new development will be funded from applicable CCCSD fees and charges. The applicant would be required to pay these fees and charges at the time of connection to the sewer system. Since the wastewater flow from the proposed project would be so small, the proposed project itself would not require construction of new wastewater facilities. Therefore, associated impacts would be less than significant, and no additional mitigation is necessary.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

New storm water drainage facilities, consisting of drop inlets and storm drains (i.e., storm water pipelines under the roadways), would be installed to serve the proposed project. Storm water runoff would be directed to flow-through and bio-retention planters that would treat the storm water to reduce pollutants in conformance the Contra Costa County Clean Water Program C.3 requirements. The treated water from these planters that does not infiltrate into the ground would flow through storm drains to the small creek on the west side of San Miguel Road and eventually to Pine Creek further west of the project site.

Construction of this storm drain system, while mostly underground, would have similar impacts as construction of the buildings, parking areas and access roadway that are addressed in other sections of this checklist. Providing adequate conditions of approval are enacted to reduce any potential construction impacts to less-than-significant levels, the impacts of construction of new or expanded storm drainage facilities would be less than significant, and no additional mitigation is necessary.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

CCWD's Urban Water Management Plan documents planning activities to ensure adequate water supplies will be available to meet exiting and future demands for water in normal precipitation years and dry years. The 2005 plan determined that CCWD has sufficient water supplies to meet demands through 2030 through a combination of allocations from the federal Central Valley Project, conservation, use of recycled water, and water transfers. During multi-year droughts, spot purchases and short-term demand management would also be used. The proposed project would have a less-than-significant impact on available water supplies, and no additional mitigation is necessary.

e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Refer to discussion of Item b) above. The CCCSD WWTP has sufficient capacity to serve both the proposed project and other planned developments in the CCCSD service area for the next several decades. The impact would be less than significant, and no additional mitigation is necessary.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

The proposed church project is expected to generate approximately 10 tons of solid waste per year (50 average attendees × 0.2 tons per attendee per year), of which 50 percent is garbage that would be sent to a landfill. Concord Disposal Services would collect garbage from the proposed project. Mount Diablo Recycle would collect recyclable materials. Garbage would be taken to the Contra Costa Transfer and Recovery Station in Pittsburg where certain recyclable materials (e.g., construction waste materials) are extracted and sent to the nearby Acme Landfill. The remaining garbage is transported to the Potrero Hills Landfill in Solano County, which has adequate capacity. Therefore, the proposed project would have a less-than-significant impact on landfill capacity, and no mitigation is necessary.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

The Potrero Hills Landfill must continuously satisfy the requirements of its license to comply with federal, state, and local statutes and regulations related to solid waste disposal. Therefore, the proposed project would have no impact on compliance with these statutes.

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		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVIII.	**MANDATORY FINDINGS OF SIGNIFICANCE —**				
	a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		√		
	b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)		√		
	c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		√		

Discussion:

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The development is contained to the 3.39-acre site. The site contains a wetland, which would be eliminated with the proposed development. A storm drain would replace the existing roadside ditch. Mitigation measures have been recommended in Section IV. Biological Resources. There are no rare or endangered species located on the project site based upon three separate site surveys. There are no identified cultural resources on the project site, however mitigation has been suggested that—should artifacts or human remains be found during grading activities—all work shall cease until the artifacts can be identified and/or removed. Refer to Section V. Cultural Resources.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

The proposed project does not create substantial cumulative impacts. Residential development within the area surrounding the project site is essentially built out. There is the potential for the church congregation to increase and mitigation measures have been recommended in Section XVI. Transportation/Traffic to alleviate potential impacts as a result of such an increase.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project does create significant impacts, however these can be mitigated to a less than significant level. Impacts associated with site preparation and building construction are considered short-term impacts due to the length of the construction period. As discussed in Appendix D Traffic Analysis, residents will notice an increase of activity with traffic going to and from the project site. However, the traffic volumes are such that the levels of service do not change and therefore, this is not considered a significant impact.

Appendix A

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PLAN

(For Significant Impacts Only)

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
AESTHETICS				
I-1A: The landscaping shall be installed as soon as the church structure has been erected and parking lot improvements completed. This should occur prior to completion of church interior.	Applicant/Landscape Architect	Planning Division shall review and approve landscape plans prior to installation of landscaping. Applicant to notify Planning Division when landscaping has been installed; staff to conduct on-site inspection.	Planning Division	Upon erection of church structure and completion of parking lot improvements.
I-1B: The applicant shall post a security bond to assure protection of existing and newly planted trees that are located on the property. The term of the bond shall extend at least two years beyond completion of all construction.	Applicant	Bond shall be posted prior to start of site preparation and grading.	Planning Division	Prior to issuance of grading permit.
I-1C: Newly planted trees and shrubs shall be monitored for a period of five years from the date of installation. Any trees lost during this period shall be replaced and monitored by the applicant for the same length of time.	Applicant	The applicant shall submit annual monitoring reports to the Planning Division for review and approval.	Planning Division	Reports filed yearly after first year of installation.
I-1D: The tree screen along the southwest façade of the chapel shall be supplemented with additional trees to further screen the chapel from trail users.	Applicant/Landscape Architect	Planning Division shall review and approve revised landscape plans.	Planning Division	Upon completion of grading and prior to building construction.
I-2: All exterior lights, as well as the dome light, shall have automatic timers to shut off at 10:30 PM, with the exception of security lighting (e.g. single lights located over doorways).	Applicant	Lighting plans shall include information regarding automatic shut off switches for exterior lights and dome light. Planning Division to review and approve.	Planning Division	Prior to construction of sanctuary and parking lot.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
BIOLOGICAL RESOURCES				
IV-1: A pre-construction survey shall be implemented to determine the presence of newly established or actively used nest structures in trees and grassy areas and incorporate nest protective procedures if such nests occur. If proposed site clearing, grading, or noise-generating constructions occurs during the period of September through January, no pre-construction survey for nesting birds would be required. If grading or construction occurs during the February through August breeding season, however, a biologist should conduct a pre-construction survey to determine if special-status birds are nesting in or near trees or grass area within the grading zone or within trees proposed for removal. The biologist should conduct the survey no more than 30 days prior to initiation of grading, site preparation, or construction. If no nesting activity is observed, site preparation, grading or construction could proceed. If a nesting activity is observed, the nest structure should be monitored for bird egg-incubation, including: • Incubation behavior (e.g., regular periods of "disappearance" into the same location followed by short, secretive flights to forage). • Extreme distress and alarm calls when in close vicinity of the nest. • Observation of food carried in the beak or claws to the nest. If the biologist observes incubation behavior, incorporating the following measures should protect the nest location:	Applicant/Project Sponsor/Qualified Biologist	(1) Conduct pre-construction surveys as required, if occupied nests are identified, establish buffer zones and monitor in consultation with CDFG. (2) Incorporate results into grading and/or construction plans.	Applicant/Project Sponsor in contract with biologist reporting to City Planning and Engineering	Prior to construction if construction is planned for February to April period

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
• Establishment of a buffer using orange construction fencing around the nest in accordance with California Department of Fish and Game (CDFG) recommendations until the young have fledged. A no-disturbance zone of a width needed to adequately protect nests during construction shall protect all active nests. For most songbirds, a 50-foot zone is recommended; for raptors, a 200-foot zone is recommended. • Monitor the nest a minimum of once per week to confirm that the young have fledged and that no new nesting pairs are present before the buffer is removed. After the biologist has determined that all young have fledged, construction may proceed within the protected zone. If it is not feasible to delay or modify construction activities around the nest, the biologist should contact the CDFG to discuss alternative buffer options.				
IV-2: The project applicant shall avoid disturbance to the potential roosts of special-status bats during the removal of trees through a Pre-Construction Special Status Bat Species Survey. If construction activities (i.e., ground clearing and grading, including removal of trees) occur during the non-breeding season of bats (September 1 through February 28), no pre-construction survey and no other mitigation is required. If construction occurs during the breeding season (March 1 through August 31), the applicant shall perform a pre-construction special status bat species survey with the following components to avoid impacts to special-status bats:	Applicant/Project Sponsor/Qualified Biologist	(1) Conduct pre-construction surveys as required, if occupied nests are identified, establish buffer zones and monitor in consultation with CDFG. (2) Incorporate results into grading plans.	Applicant/Project Sponsor in contract with biologist reporting to City Planning and Engineering	Prior to construction if construction is planned for March to August period

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
• Prior to grading or tree removal, a biologist shall inspect each group of trees to determine bat presence and use. The biologist will conduct the assessment through appropriate combination of inspection, sampling, exit counts, and acoustic surveys. As appropriate, bat exit or emergence counts will be made at dusk to determine bat activity. In addition, an acoustic detector may also be used to determine • If pre-construction surveys indicate that roosts are inactive or potential habitat is unoccupied during the constriction period, no further mitigation is required. Trees that have been determined to be unoccupied by special-status bats may be removed. • If, however, individuals or colonies were present during proposed tree removal, and the tree removal can reasonably be expected to result in harm, then bats shall be excluded from their roost locations during the appropriate time of the year using humane methods. Such methods will be selected in consultation between the biologist and the CDFG. Whatever method is selected it must follow CDFG protocols.				

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
• If there is potential for adverse effects on bat habitat, then measures developed under the direction of the biologist shall be implemented to reduce the effect on the bat colony to a negligible level. Measures may include improvement of off-site colony roosts, installation of artificial "bat boxes," or improvement of species management sufficient to offset impacts from the loss of a colony. Such measures will be implemented in consultation between the biologist and the CDFG. Whatever method is selected it must follow CDFG protocols.				
IV-3: The project applicant shall obtain a Section 404 Permit from the U.S. Army Corps of Engineers and, as required, a Section 401 Water Quality Certification from the Regional Water Quality Control Board and a Section 1600 Streambed Alteration Agreement with the California Department of Fish and Game prior to the placement of fill or construction of structures and access roads over jurisdictional wetlands, and implement appropriate compensation measures for the loss of wetland values and acreage, and implement best management practices (BMPs) to reduce potential impairment to the Pine Creek tributary's water quality.	Applicant/Project Sponsor /Qualified wetlands biologist	(1) City to verify proof of regulatory permits and approvals and, as required, wetlands loss compensation. (2) Incorporation of permit conditions as part of project approval	City Planning and Engineering, pursuant to conditions of permits/approvals from the CDFG, Corps, and RWQCB.	Prior to finalization of plans and initiation of grading and site preparation.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
Impacts to regulated "waters of the U.S." or state-regulated "waters of the State" shall not occur without first obtaining an authorization to use the Nationwide Permit(s) or an Individual Permit from the Corps and a Section 401 Regional Water Quality Control Board permit. Such permit conditions may include compensation for wetland values lost through site construction-related fill by creating replacement, mitigation wetlands or enhancing existing wetlands. If possible, mitigation wetlands shall be created on-site and will resemble those wetlands affected by the project (known as in-kind replacement). If wetlands cannot be created "in-kind" and "on-site," other alternatives shall be explored with the Corps and RWQCB for creating compensation wetlands at an off-site location. Some requirements for mitigating impacts to wetlands, to be determined by permit conditions, could include: • Replacement of impacted wetlands at a 2:1 ratio. For permanent wetland impacts, depending on assessed habitat values, wetlands may be replaced at a minimum ratio of two acres created for each acre, or fraction thereof, permanently impacted. • Creation of in-perpetuity preservation. The Corps and other regulatory agencies may require that wetlands not impacted by the proposed project and any new wetlands created to mitigate project impacts be set aside in perpetuity, either through a perpetual deed restrictions or a conservation easement.				

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
• Establishment of a five-year monitoring program to monitor the progress of the wetland mitigation toward an established goal. At the end of each monitoring year, an annual report would be submitted to the Corps, RWQCB and other resource agencies that permitted the project. This report would document the hydrological and vegetative condition of the mitigation wetlands, and would recommend remedial measures as necessary to correct deficiencies. Adequate compensation could also include creating wetlands at a suitable location that: • remain inundated or saturated for sufficient duration to support hydrophytic vegetation, and. • exhibit plant and invertebrate species richness comparable to existing wetlands. In lieu of creating compensation wetlands, as approved by the Corps and RWQCB, the applicant may purchase mitigation credits from an approved mitigation bank. Depending upon the location of the rock rip rap energy dissipater as indicated on the Tentative Map, the project applicant may also be required to prepare an application to the CDFG for a California Fish and Game Code, Section 1600 Streambed Alteration Agreement and to implement appropriate BMPs to reduce adverse impacts to Pine Creek water quality.				

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
CULTURAL RESOURCES				
V-1A: If historic or prehistoric artifacts, features or cultural resources are encountered during construction of the proposed project, all work shall be halted in the immediate vicinity of the find for purposes of evaluation by a qualified professional archaeologist approved by the City of Concord Planning Department.	Construction Manager	Notify City Planning Division if cultural resources are encountered. City to conduct on-sight inspection.	City Planning Division	During grading activities.
V-1B: The County Coroner shall be notified if human remains are uncovered during construction. If it is determined that the remains are Native American, a representative of the Native American Heritage Council (NAHC) shall be consulted.	Construction Manager	Notify City of Concord Planning Division and County Coroner if remains are uncovered.	City Planning Division	During grading/ trenching activities.
GEOLOGY AND SOILS				
VI-1: Construction drawings shall be reviewed by the City of Concord prior to the issuance of the grading permit or building permits to ensure the design provides a subdrain adequate to prevent accumulation of ground water in the alluvial deposit beneath proposed buildings.	Applicant/Applicant's Engineer	Construction drawings shall be submitted to City Engineering Division for review and approval.	City Engineering Division	Prior to issuance of grading permit.
VI-2A: The project geotechnical engineer and engineering geologist shall monitor project implementation to ensure that construction complies with the recommendations in the approved geotechnical report and that supplemental recommendations are provided if unexpected conditions are encountered during construction.	Applicant's geo-technical engineer and engineering geologist	Consultants shall provide City Engineering Division with monitoring reports on a bi-weekly basis during grading activities. Engineering Division shall conduct on-site inspections.	City Engineering Division	During grading operations.
VI-2B: During grading, the project geotechnical engineer/engineering geologist shall observe and approve all excavations in foundation areas of buildings and monitor placement of fill and installation of subdrains.	Applicant's geotechnical engineer	Observation and mapping throughout mass grading of the site. Engineering Division to review and approve the mapping.	City Engineering Division	During grading operations.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
VI-2C: Cut slopes and cuts made for retaining walls shall be observed and mapped by the project engineering geologist, who will provide any required slope modification recommendations based on the actual geologic conditions encountered during grading. Prior to any modification, the applicant shall obtain the City's approval.	Applicant's geotechnical engineer	Observation and mapping throughout mass grading of the site. Engineering Division to review and approve the mapping of the retaining walls.	City Engineering Division	During grading operations.
VI-2D Placement of all fill shall be observed and tested by the project geotechnical engineer.	Applicant's geotechnical engineer and grading contractor	Observation and testing throughout mass grading of the site. Engineering Division to review and approve reports.	City Engineering Division	During grading operations.
VI-2E: Prior to requesting final inspection, the project geotechnical engineer shall submit a grading completion report that presents the following: • results of compaction testing; • a detailed original geologic map of the site based on observations of the project engineering geologist during construction; • a map showing location and approximate depth of all installed subdrains, including cleanouts and outfalls; • results of the soil corrosivity tests of soils on each graded building pad, and • comments on the consistency of the construction with the recommendations in the geotechnical reports that were the basis of issuance of the construction permits.	Project Engineer or Engineering Geologist	Review and approval of the Grading Completion Report by the City's Engineering Division.	City Engineering Division	Prior to issuance of first building permit.
VI-2F: Gradient criteria for engineered slopes as recommended by Kleinfelder shall be required for development of the project site. Any conflicts between the future grading plans and these criteria should be interpreted as evidence that special				

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
engineering is required (e.g., retaining walls, geogrid reinforcement). Those standards call for use of 3:1 fill slopes as a general standard for the project, with the exception that competent bedrock may be constructed with a 2:1 gradient.				
VI-2G: All recommendations of the City's peer geologist (presented in Table 3-5) shall be implemented during the processing of construction permits and/or during construction as appropriate. With regard to the grading and drainage plans, the following changes are recommended by the City's peer reviewer prior to issuance of building permits. Appropriately licensed professionals shall prepare the plans. • Page 15 of the 2001 KI report provides recommendations for paved interceptor drains and paved terraces. These recommendations for surface drainage facilities appear to apply to the proposed cut slope in the eastern portion of the property. It is recommended that the grading and drainage plans be modified to be in conformance with the recommendations of the KI report.	Project Engineer	Review and approval by City's peer geologist.	City Engineering Division	Prior to issuance of grading permit.
• It is recommended that consideration be given to adding a legend to the grading and drainage plan which provides a key to the symbols used on the plan sheets. It is also recommended that the KI reports be referenced on the grading and drainage plans and be considered part of the plans. • It is recommended that the cut/fill transition line be added to the plans.				

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
VI-2H: Unstable soils shall be removed within graded areas.	Project Engineer	Grading plans to show where unstable areas occur. Grading plan reviewed and approved by Engineering Division.	City Engineering Division	Prior to issuance of grading permit.
VI-2I: During grading, the project engineering geologist shall observe and approve all excavations in foundation areas of buildings down to stable bedrock that is not subject to soil creep or liquefaction. Cut slopes shall be observed and mapped by the project engineering geologist, who will provide any required slope modification recommendations based on the actual geologic conditions encountered during grading. Written approval from the City's representatives shall be obtained prior to any modification. Placement of all fill shall be observed and tested by the project geotechnical engineer, and the density test results and reports shall be submitted to the City to be kept on file.	Project Engineering Geologist	Observation and mapping throughout mass grading of the site. Engineering Division to review and approve the mapping.	City Engineering Division	Submit a final grading re port prior to finalizing grading permit.
VI-3A: Grading activities shall be restricted to the summer construction season (15 April through 15 October). Any earthwork done after 15 October shall be limited to activities directly related to erosion control, unless additional work is authorized in writing by the City of Concord.	Project Engineer	City of Concord to review requests for winter season work at site.	City Engineering Division	Prior to authorization of any winter season work.
VI-3B: The applicant shall provide an Erosion Control Plan prior to approval of the grading plan. The following interim control measures shall be employed based on site-specific needs in the project areas: • Grading to minimize areas of exposed, erodible material, and to avoid over-concentration of rapidly flowing runoff in unprotected, erodible areas.	Applicant/Project Engineer	Submit erosion control plan to City Engineering Division for review and approval. Plan shall contain information as laid out in the mitigation measure.	City Engineering Division.	Prior to issuance of grading permit.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
• Include water bars, temporary culverts and swales, mulch and jute netting blanks on exposed slopes, hydroseeding, silt fences, and sediment traps/basins. • Place stripped topsoil on graded 3:1 (or flatter) slopes prior to the onset of winter rains. • Include a comprehensive program for inspection and maintenance during the winter rainy season, including provisions for documenting maintenance activities. • Direct runoff to ungraded areas, thereby simplifying erosion control and sediment control measures within the graded area. • Monitor the effectiveness of the erosion control measures throughout the duration of construction.				
VI-4: Same measure as Mitigation Measure VI-2.	Applicant/Applicant's Engineer	Construction drawings shall be submitted to City Engineering Division for review and approval.	City Engineering Division	Prior to issuance of grading permit.
VI-5: An amended soils report shall be submitted to the City of Concord confirming the absence or presence of expansive soils prior to issuance of construction permits. It may be necessary to alter foundation plans depending upon the results contained in the final soils report.	Applicant/Project Engineer	Submit an amended soils report for review and approval by City Engineering Division.	City Engineering Division	Prior to issuance of grading permit.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
HYDROLOGY/WATER QUALITY				
IX-1: A seasonally appropriate Storm Water Pollution Prevention Plan for the proposed project shall be prepared for the approval by the City of Concord and RWQCB before issuance of a grading permit. This plan shall include erosion control measures (such as extensive use of fabric rolls or straw bales) that can be relocated as grading of the site progresses to prevent off-site siltation, especially along the Contra Costa Canal.	Project Engineer	Submit a SWPPP for the review and approval by the City of Concord and RWQCB. Provide City with copy of response by RWQCB.	City Engineering Division	Prior to issuance of grading permit.
LAND USE AND PLANNING				
X-1: The applicant shall revise the plans to include the following measures: • provide additional trees and landscaping along the southwest façade of the chapel and; • use an acceptable pervious surface for paved areas where practical.	Applicant/Architect	Revised plans shall be submitted to City Planning Division for review and approval by Design Review Board.	City Planning Division	Prior to hearing before .Planning Commission
NOISE				
XII-1: The following measures shall be applied to the project: • all church activities shall be held indoors, including the annual festival. • all evening activities shall be finished by 10:00 p.m., including cleanup detail; and • parking area lights shall be turned off by 10:30 p.m., excluding security lighting, which can consist of single lights placed over doorways	Applicant	The church shall provide to the City a management plan describing the nighttime activities and schedule for turning off exterior lights. The management plan will detail how the mitigation measures will be carried out.	City Planning Division	Prior to occupancy.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
XII-2: Locate the heating, ventilating, and air conditioning (HVAC) equipment away from sensitive receivers. Shield rooftop mechanical equipment with rooftop screens or perimeter parapet walls and employ noise control baffles, sound attenuators, or enclosures where required. The goal of this mitigation is to reduce noise levels to 60 dBA or less at the boundaries of the site and 55 dBA or less at adjacent residential properties. HVAC noise controls shall be analyzed and reviewed by a qualified acoustical consultant prior to issuance of a building permit**.**	Applicant/Architect	Revise the building plans to show the location of the HVAC equipment. Plans to be reviewed by City Planning Division.	City Planning Division	Prior to issuance of building permit.
XII-3: Develop a construction mitigation plan for each phase of the project in close coordination with adjacent noise-sensitive land uses so that construction activities can be scheduled to minimize noise disturbance. The construction mitigation plan shall consider the following available controls to reduce construction noise levels as low as practical: • Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 8:00 a.m. and 5:00 p.m., Monday through Friday. Construction equipment shall not be started prior to 8:00 a.m. Construction shall be prohibited on weekends and city-observed holidays. • Construction workers and deliveries shall not arrive on the project site until 8 a.m., Monday through Friday.	Applicant's Contractor	Provide City Planning Division with the construction management plan for review and approval. The plan shall incorporate the measures recommended in the mitigation.	City Planning Division	Prior to issuance of grading permit.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
• Erect temporary noise barriers (e.g., solid plywood fences [minimum 8 feet in height] and/or acoustical blankets) if necessary, along the project access roadway. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling. • Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment. • Prohibit all unnecessary idling of internal combustion engines. • Route construction related traffic to and from the site via designated truck routes and avoid residential streets where possible. • Utilize "quiet" models of air compressors and other stationary noise sources where technology exists. • Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses. • Shield adjacent sensitive uses from stationary equipment with individual noise barriers or partial acoustical enclosures. • Locate staging areas and construction material storage areas as far away as possible from adjacent land uses.				

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
• Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures to correct the problem be implemented. • Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule. • Hold a pre-construction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are implemented.				
PUBLIC SERVICES				
XIV-1: The applicant shall prepare and submit a traffic control plan to the City of Concord, the Contra Costa Water District and the Contra Costa County Fire Protection District that adequately explains how vehicle access would be maintained on the roadway and bridge at all times during construction.	Applicant's Engineer	Provide City Transportation Division with a traffic control plan for review and approval. Also include response from Contra Costa Fire Protection District. City Transportation Division to conduct site inspection during bridge reconstruction.	City Transportation Division	Prior to issuance of construction permit for bridge and roadway.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
RECREATION				
XV-1: The access roadway to the church shall be provided with the following features: • slow speed limit (e.g., 15 miles per hour) signs in both directions; • striping where the access roadway crosses the EBRPD Canal Trail; • signs warning drivers that they are approaching the trail crosswalk; and • pruning of trees and plants to provide adequate lines of sight along the trail, which will require ongoing maintenance.	Applicant's Engineer	Improvement plans shall include the safety features as described in the mitigation measure. Plans to be reviewed by City Engineering and EBRPD. Staff to conduct on-site inspections upon completion of project.	City Engineering	Submittal of improvement plans. Installation to be completed prior to occupancy permit.
TRANSPORTATION/TRAFFIC				
XVI-1A: To reduce vehicle conflicts and enhance pedestrian safety, install All-Way Stop Sign control at the joint intersection of San Miguel Road and the project access roadway/adjacent private driveway to the north. Additionally, install advance stop warning devices on San Miguel Road as directed and approved by the City of Concord.	Project Engineer	Show traffic signs and markings on improvement plans for driveway and roadway. Submit to Transportation Division for review and approval. Staff to conduct on-site visit upon installation.	Transportation Division	Submittal of improvement plans; Prior to start of road improve-ments.
XVI-1B: Eliminate 30 feet of an existing tree-bush screen (closest to San Miguel Road) between the project access roadway and the adjacent private driveway to the north and relocate existing mailboxes in coordination with the adjacent property owners.	Project Engineer/Contractor	Improvement plans to reflect brush removal – Improvement plans to be reviewed by Transportation Division. Staff to conduct site visit	Transportation Division	Submittal of improvement plans; Prior to start of road improve-ments

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
XVI-2A: To ensure that extensive vehicle queuing does not occur, the following measures shall be implemented as needed if attendance growth results in extensive queuing:: • provide two Sunday masses (instead of one) that are scheduled so vehicles from the first service exit before vehicles arrive for the second service; • schedule class sizes and times to minimize the number of simultaneous trips, and • use traffic control personnel to facilitate traffic flow in and out of the parking lot and at the trail crossing during the busiest time periods.	Applicant	Provide schedule of masses and classes to Planning Division annually. When mass attendance reaches 218 persons, church shall schedule two masses.	Planning Division	Submit on an annual basis after occupancy permit issued.
XVI-2B: "Trail Crossing" signs shall be installed at the trail crossing to alert approaching drivers. In addition, "Keep Clear" pavement markings shall be installed instructing motorists to not stop within the trail crossing. (Also refer to XV. Recreation, Mitigation Measure XV-1.)	Applicant's Engineer	Site improvement plans shall show location of trail crossing signs and pavement markings. Plans to be reviewed by City Transportation Division. Conduct site visit to verify installation.	Transportation Division	Submittal prior to grading. Post construction and installation of access road.
XVI-3: To facilitate traffic flow, the entrance driveway shall be widened to 24 feet from the project site entrance to the first handicap stall.	Applicant's Engineer	Revise site plan and submit for approval by City's Traffic Engineer.	Transportation Division	Submittal prior to grading.
XVI-4: Same as Mitigation Measures XVI-2A.	Applicant	Provide schedule of masses and classes to Planning Division annually. When mass attendance reaches 218 persons, church shall schedule two masses.	Planning Division	Submit on an annual basis after occupancy permit issued.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
XVI-5: The project applicant shall prepare and submit a parking management plan to the City of Concord to address parking demand for the annual special event with increased (full) participation. Such a plan could include options such as a ride-sharing program; walking to the site for local residents; securing acceptable off-site parking; shuttle service to/from a satellite parking area, etc. The annual special event shall be held offsite if the parking management plan does not demonstrate to the satisfaction of the City that parking demand can be accommodated adequately on the project on site.	Applicant	Submit parking management plan for annual special event to Transportation Division for review and approval.	Transportation Division	Prior to issuance of occupancy permit.
XVI-6: The applicant shall prepare and submit a traffic control plan to the City of Concord, the Contra Costa Water District and the Contra Costa County Fire Protection District that adequately explains how vehicle access would be maintained on the access roadway and bridge at all times during construction.	Applicant's Engineer	Provide City Transportation Division with construction traffic control plan for review and approval. Also include response from Contra Costa Fire Protection District. City Transportation Division to conduct site inspection during bridge and roadway construction.	City Transportation Division	Prior to issuance of construction permit for bridge and roadway.
XVI-7: A construction traffic management plan shall be prepared to include the following: • A description of how residential/emergency vehicle access shall be maintained orderly and safely at all times; • An oversight plan for the dirt-removal truck trips, including hours of operation, maximum load/truck size, number of loads per hour, and traffic routing map. The plan shall be developed to minimize disruption of adjacent residents as much as possible; and • A plan that illustrates how parking for construction employees shall be accommodated on site.	Applicant's Engineer	Provide City Transportation Division with construction management plan for review and approval. Also include response from Contra Costa Fire Protection District. City Transportation Division to conduct site inspection during grading/site improvement phase of the project.	City Transportation Division	Prior to issuance of grading permit. During grading operations.

Mitigation Measure	Person/Agency Responsible for Implementation	Monitoring Requirements	Person/Agency Responsible for Monitoring	Timing or Frequency of Monitoring
XVI-8: To accommodate bicyclists, the project applicant shall provide bicycle racks as directed and approved by the City of Concord.	Applicant's Engineer	Improvement plans shall show the location of bicycle racks. Plans reviewed and approved by City Engineer and Transportation Division. On-site inspection to confirm racks in place.	City Engineer/City Transportation Division	Prior to issuance of construction/ grading permit. On-site inspection prior to issuance of occupancy permit.

Appendix B

Biological Resources

Appendix B
Biological Resources

Introduction

Biological surveys of the project site were conducted on June 29, 2006,[1] August 13, 2009,[2] and August 10, 2010.[3] The California Natural Diversity Database (CNDDB) records of special-status plants and animals, and natural habitats, occurring in the region of the project area was reviewed on July 13, 2006, with an updated review of recorded observations of state- and federally-listed sensitive species on August 9, 2010. The June and August field surveys occurred during the known flowering periods of potentially-occurring special-status plant species. A wetlands delineation of the project site was conducted on June 29, 2006.[4]

Setting

Vegetation Cover and Wildlife Habitat

The 3.63-acre project study area is bound by single-family residences to the east, a small nursery to the north, and the Lime Ridge Open Space to the south. A portion of the Contra Costa Canal, along with a pedestrian footpath and single-family residences border the site to the west. The southern half of the site is characterized by nonnative grassland. Horticultural and native trees characterize the northern half of the site, in addition to a small seasonal and emergent wetland. The wetland drains into a culvert near the northwest corner of the site and empties into a small channel along the main access roadway to the project site from San Miguel Road.

The vegetative landscape characterized as a disturbed urbanized habitat of horticultural tree plantings within a matrix of annual grassland. The approximately 1.4 acres of horticultural trees consist of silver dollar gum *(Eucalyptus polyanthemos*), manna gum *(Eucalyptus viminalis),* California fan palm *(Washingtonia filifera),* deodar cedar *(Cedrus deodara),* Peruvian pepper tree *(Schinus molle),* white elm *(Ulmus Americana)* and tobacco tree *(Nicotiana glauca*), with some interspersed native or naturalized trees, including valley oaks *(Quercus lobata),* planted Northern California black walnut *(Juglans hindsii),* and California buckeye *(Aesculus californica*). Smaller trees or tall shrub species include olive *(Olea europaea),* crimson bottlebrush *(Callistemon citrinus)*, and blue elderberry *(Sambucus mexicana).*

The grassland, within which the trees and shrubs occur, covers approximately 2 acres of the project site. It is a nonnative grassland cover dominated by introduced annual plants including slender wild oat *(Avena barbata),* vetch *(Vicia sp.),* yellow star thistle *(Centaurea solstitialis),* Italian thistle *(Carduus pycnocephalus),* ripgut grass *(Bromus diandrus),* isolated Jimson weed (*Datura wrightii)* and belladonna lily (*Amaryllis belladonna*), and patches of periwinkle (*Vinca major*). These species typically occur on disturbed sites, or former sites of human habitation.

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1 Sycamore Environmental Consultants, Inc. 2006.Biological Evaluation Letter Report for St. Mary and St. Mina Coptic Orthodox Church (APN 130-261-002), City of Concord, CA, November 7, 2006.
2 TOVA Applied Science & Technology, field verification surveys, August 13, 2009 and August 10, 2010.
3 *Ibid.*
4 Sycamore Environmental Consultants, Inc. 2006. Preliminary Jurisdictional Delineation Report for St. Mary and St. Mina Coptic Orthodox Church (APN 130-261-002), City of Concord. November 7, 2006.

Wildlife Habitat

Disturbed, annual grassland vegetation generally supports a variety of mammals, birds, and reptiles that are commonly associated with ruderal or weedy plant cover. The surveys in 2006, 2009, and 2010 identified mostly birds and deer, with signs (scat, odor, etc.) of skunk, and perhaps coyote. Birds observed to use the grassland and scattered shrub habitat include scrub jay, mourning dove, and black phoebe. Several raptors (birds of prey) may occasionally forage through the area, and those observed include red-tailed hawk and turkey vulture. Based on the paucity of small mammal burrows on the site, it appears that a low prey base limits the likelihood that the site provides an important source of prey for these species. There was no evidence of large mammal denning activity such as den openings, signs of scat (other than deer), or sign of extensive small mammal burrows observed on the site during the field surveys.

Wetlands

An estimated 0.15 acre of seasonal wetland and 0.012 acre of emergent wetland occur on the project site. The seasonal wetland is dominated by common sow thistle *(Sonchus oleraceus),* Italian ryegrass *(Lolium multiflorum),* slender wild oat *(Avena barbata),*Bermuda grass *(Cynodon dactylon),* Mediterranean barley *(Hordeum marinum ssp. gussoneanum),* and beard grass *(Polypogon sp.).* The emergent wetland area is dominated by narrow leaf cattail *(Typha angustifolia),* Johnson grass *(Sorghum halepense),* Italian ryegrass, Bermuda grass, beard grass *(Polypogon sp.),* and lamb's quarters *(Chenopodium album).*

A narrow (180-foot-long, one-foot-wide) intermittent flow channel occurs parallel to the main access roadway to the project site from San Miguel Road. The area is small, approximately 0.004 acre, and appears to convey drainage water from the seasonal wetland by way of a culvert under the Contra Costa Canal. The channel is open alongside the roadway, but eventually flows through another culvert under San Miguel Road. There is no riparian (creek or stream-associated tree or shrub) vegetation area around the channel.

Special-status Species

Special-status species are plants and animals legally protected under state and federal endangered species acts (ESAs) or other regulations, or the scientific community considers them sufficiently rare to qualify for such listing. Special-status plants and animals are species in the following categories:

- Species listed or proposed for listing as threatened or endangered under the federal ESA;
- Species that are candidates for possible future listing as threatened or endangered under the federal ESA;
- Species listed or proposed or listing by the State of California as threatened or endangered under the California Endangered Species Act;
- Species that meet the definitions of rare or endangered under CEQA[5];
- Plants listed as rare under the California Native Plant Protection Act[6];

[5] State CEQA Guidelines, Section 15380.

[6] California Fish and Game Code, Section 1900 et seq.

- Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California"[7];
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution,[8] which may be included as special status species on the basis of local significance or recent biological information;
- Animal species of special concern to the California Department of Fish and Game; and
- Animals fully protected in California.[9]

The California Natural Diversity Database (CNDDB) *RareFind* records for the U.S.G.S 7.5-minute topographic quadrangles encompassing the project site and surrounding geographic area[10] indicate fifty-six (56) special-status plants (Table B-1) and thirty-six (36) special-status animals (Table A-2) are known to occur within the region of, but not necessarily on, the project site. The 2006, 2009, and 2010 site surveys determined the presence or absence of suitable habitat and/ or individuals of these special-status species.

Special-Status Salamander and Frog

California tiger salamander (CTS)**.** The salamander frequents grassland, oak savannah, and the edges of mixed woodland and lower elevation coniferous forest. It spends much of its time underground in mammal burrows, which are not extensive on the project site. Suitable breeding habitat for CTS, such as standing bodies of fresh water (including natural and manmade) ponds, vernal pools, and other ephemeral or permanent water bodies, that typically support inundation during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall, does not occur on the project site. Because of the absence of permanent or semi-permanent ponds, streams, stock ponds, irrigation ponds, or siltation ponds on the project site, there is no suitable breeding habitat for CTS. Based on the lack of breeding habitat, and the absence of suitable aestivation habitat, it is highly unlikely that the project site provides suitable habitat for the CTS. California tiger salamander was not observed on the project site during field surveys and is not expected to occur.

California red-legged Frog (CRLF). The CRLF inhabits quiet pools of streams, freshwater marshes, and occasionally ponds characterized by dense, shrubby vegetation associated with deep (≤ 0.7 m), still or slow-moving water. The species requires permanent or nearly permanent pools for larval development. There is no suitable breeding habitat for CRLF, such as permanent ponds or streams on the project site. The project site, however, does provide vegetation cover that is characteristic of CRLF upland dispersal and aestivation habitat, but it is highly unlikely that the site would be used for such uses. There are no known populations of CRLF within 5 miles of the project site,[11] and the creeks and channels connecting the project site with the known populations of CRLF have been altered. Urbanized land uses, altered channels, roadways, and residential development create the

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[7] California Native Plant Society. *Inventory of Rare and Endangered Plants of California (sixth edition).* Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. Sacramento, CA: California Native Plant Society. Lists 1B and 2.
[8] *Ibid.* Lists 3 and 4.
[9] California Fish and Game Code, Section 3511 (birds), Section 4700 (mammals), and Section 5050 (amphibians and reptiles).
[10] Walnut Creek, Benicia, Vine Hill, Honker Bay, Briones Valley, Clayton, Oakland East, Las Trampas Ridge, and Diablo USGS Topographic Quadrangles.
[11] Sycamore Environmental Consultants, Inc. 2006.Biological Evaluation Letter Report for St. Mary and St. Mina Coptic Orthodox Church (APN 130-261-002), City of Concord, CA, November 7, 2006

physical constraints and barriers to potential CRLF migration to the project site. California red-legged frog was not observed on the project site during field surveys and is not expected to occur.

Birds of Prey and Migratory Bird Nests

Trees, isolated shrubs, and the annual grassland on the projects site provide potential nesting habitat for birds of prey and migratory birds, regulated by the federal Migratory Bird Treaty Act. These birds include the short-eared owl, burrowing owl, northern harrier, and the California horned lark (Table A-2).

Short-eared owl. This species occurs in open areas within annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and large areas of salt or fresh-water emergent wetlands. Short-eared owls are commonly found in open, treeless areas with elevated sites for perches, and dense vegetation for roosting and nesting. They nest on dry ground in topographic depressions concealed in vegetation and occasionally in burrows. The short-eared owl is a widespread winter migrant, found primarily in the Central Valley, in the western Sierra Nevada foothills, and in the southern desert region. They occasionally breed in northern California, and is known to occur in the Grizzly Island Wildlife area. The California Department of Fish and Game is primarily concerned with the nests of short-eared owls. The nonnative grassland on a portion of the project site provides potential nesting and foraging habitat for the short-eared owl, however, no nests were observed during the 2006 and 2010 field surveys and the species is not expected to occur on the site due to the absence of associated extensive area of salt or fresh-water marsh.

Burrowing owl. The burrowing owl is a yearlong resident of open, dry grassland and desert habitats, and in grass, forb, and open shrub stages of pinyon juniper and ponderosa pine habitats. They usually nest in old burrows of ground squirrels or other small mammals, but on occasion, they may dig their own burrows in soft soil. The nonnative grasslands in the southern half of the project site potential nesting and foraging habitat for burrowing owls. However, small burrowing mammals, burrowing owls, or their burrows were not observed on the site during the 2006, 2009 and 2010 field surveys. In addition, the clay soils of the Altamont series on the site are described as "very hard, very firm," [12] a physical characteristic making it unsuitable for burrowing owls to dig their own burrow.

Northern harrier. Northern harriers forage along wet meadows, sloughs, savannas, prairies, and marshes. Birds nest on the ground in shrubby vegetation, usually at a marsh edge. Their nest is built of a large mound of sticks on wet areas, and a smaller cup of grasses on dry sites. They mostly nest in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water. The emergent wetland habitat on the site is very small and surrounded by woodlands, and is not suitable as nest sites. During the 2006, 2009 and 2010 field surveys, no northern harriers or their nests were observed on the project site. It is unlikely that a northern harrier would be found nesting on the site; suitable habitat is limited and the site is close to human development.

[12] www2.ftw.nrcs.usda.gov/dat/Atamont.html, accessed August 20, 2010.

California horned lark. The California horned lark is a ground-nester that occurs in a variety of open habitats, usually where trees and large shrubs are absent. They frequent grasslands and other open habitats with low, sparse vegetation. Grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities provide cover. When the lark builds a nest, it is usually within a hollow in the ground, typically beside or partially under grass tufts. The nest is a shallow cup of coarse stems and leaves, lined with fine grasses. The nonnative grasslands on a portion of the project site could provide nesting and foraging habitat for the California horned lark. During the 2006, 2009, and 20010 field surveys, however, no California horned larks or their nests were observed on the site.

Plant Species

Bent-flowered fiddleneck. The fiddleneck is an annual plant found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland. The species blooms during March through June, and has been recorded to occur in the vicinity of Lime Ridge, just above Boundary Oak Golf Course. The nonnative grasslands and the horticultural and native tree stands on the project site provide potential habitat for bent-flowered fiddleneck. The 2006 biological survey, however, was conducted during the blooming period and the species was not observed.

Big tarplant. This is also an annual plant that occurs in valley and foothill grassland, usually on clay to clay-loam soils, and frequently on slopes and often in burned areas. In Contra Costa County, the occurrences of the tarplant are primarily on soils of the Altamont series, the same soils series as that on the project site. The 2009 and 2010 surveys, conducted during the blooming period of the plant (July–October), resulted in no observations of the species on the project site.

Mt. Diablo fairy-lantern. This species is a perennial bulbiferous herb found in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. The species has been recorded to occur on the west slope of Lime Ridge, southeast of the Boundary Oak Golf Course, east of Walnut Creek. Primarily, however, the species is associated with the Diablo Range. The 2006 biological survey was conducted during the blooming period (April-June) and the species was not observed.

Diablo helianthella. This is also a perennial herb found in broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grasslands. Diablo helianthella is endemic to the San Francisco Bay Area, occurring in the Diablo Range, Berkeley Hills, and San Bruno Mountain, associated with thin, rocky, well-drained soils. The closest CNDDB record is 1.75 miles southeast of the project site, on the western slope of Lime Ridge, about ½ mile west of Ridge Summit, west of Clayton. The flowering period of the helianthella is March through June. The 2006 biological survey was conducted during the blooming period (April-June) and the species was not observed

Showy madia. The showy madia is known from scattered populations in the interior foothills of the South Coast Ranges. Showy madia grows in grasslands and oak woodlands on heavy clay soils. The species has been historically observed near Antioch, and between Antioch and Lone Tree Valley, however, the last observation of the species in Contra Costa County was in 1941. It appears from the CNDDB records that occurrences in the vicinity of Antioch may have been extirpated by urban development. Although marginal suitable habitat for the species occurs on the project site, the species is considered to be extirpated in Contra Costa County and is not expected to be impacted by the proposed project.

The development of the project site would not result in adverse impacts to the habitat of endangered, rare or threatened species pursuant to California Environmental Quality Act (CEQA) Section 14332(c), because:

- Surveys Indicate No Special-Status Plants or Animals on the Site: No special-status plants or animals were observed during surveys conducted in 2006, 2009, and 2010. Based on the surveys the project would not adversely affect special-status plants, animals, or their potential habitats.
- Absence of Suitable Habitat: Woodland, chaparral, coastal scrub, vernal pool, alkali sink, serpentine or alkali soil habitats, marshes and swamp habitat, or open water bodies, do not occur in the project study area or within the hydrological or topographic influence of the project site.
- Nesting Birds: None of the sensitive bird species identified in Table B-2 or their nest were observed on the project site. No other nesting birds potentially protected by the Migratory Bird Treaty Act were observed. However, birds could initiate nesting in trees or grassy areas prior to tree removal and site construction. If some of the trees are planned for retention and preservation, these may occur near areas planned for grading or construction. Direct impacts to nests as a result of tree removal or excessive human activity near nests in trees planned for preservation, may result in impaired reproduction success of sensitive bird species.

Special-status Bats. No evidence of bat roosting activity was observed on the project site during the field surveys. There is, however, the remote possibility that new roosts could be established prior to the removal of trees. An adverse impact to special-status bats could occur if trees scheduled for removal were occupied in the future, prior to tree removal.

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Table B-1
Special Status Plant Species Recorded in the Region of the St. Mary and St. Mina Coptic Orthodox Church

Species	Status (Federal/State/CNPS)	Habitat Requirements
Amsinckia grandiflora/ Large-flowered fiddleneck	FE/CE/List 1B	Woodland, valley and foothill grassland
Amsinckia lunaris/ Bent-flowered fiddleneck	--/--/List 1B	Coastal bluff scrub, valley and foothill grassland, cismontane woodland.
Arctostaphylos auriculata/ Mt. Diablo manzanita	--/--/List 1B	Chaparral vegetation in canyons and on slopes, on sandstone
Arctostphylos manzanita ssp. laevigata/ Contra Costa manzanita	--/--/List 1B	Chaparral
Arctostaphylos pallida/ Pallid manzanita	FT/CE/List 1B	Uplifted marine terraces on siliceous shale or thin chert in broadleaved upland forest, chaparral, woodland or coastal scrub.
Astragalus tener var. tener/ Alkali milk-vetch	--/ --/List 1B	Alkali playa, valley and foothill grasslands, and vernal pools
Atriplex depressa/ Brittlescale	--/--/List 1B	Chenopod scrub, meadows, playas, grassland, vernal pools
Atriplex joaquiniana/ San Joaquin spearscale	--/--/List 1B	Chenopod scrub, alkali meadows, alkali grassland
Blepharizonia plumosa / Big tarplant	--/--/List 1B	Valley and foothill grassland
Calochortus pulchellus/ Mt. Diablo fairy-lantern	FSC/- --/List 1B	Chaparral, woodlands, riparian woodlands, and grasslands.
Californica macrophylla/ Round-leaved filaree	--/--/List 1B	Cismontane woodland, valley and grassland, clay soils
Campanula exiqua/ Chaparral harebell	FSC/ --/List 1B	Chaparral on rocky substrates, usually serpentines.
Centromadia parryi ssp. congdonii/ Congdon's tarplant	--/--/List 1B	Valley and foothill grasslands, on alkaline, heavy white clay soils
Chorizanthe robusta var. robusta/ *Robust spineflower*	FE/ --/List 1B	Sandy terraces and bluffs in woodlands, coastal dunes and coastal scrub
Cirsium andrewsii/ *Franciscan thistle*	--/--/List 1B	Coastal bluffs scrub, broadleaved upland forest, coastal scrub
Cicuta maculata var. bolanderi/ Bolander's water-hemlock	--/ -- /List 2	Fresh and brackish water marshes
Clarkia concinna ssp. automixa/ Santa Clara red ribbons	--/--/List 4	Woodland and chaparral on slopes near drainages
Clarkia franciscana/ Presidio clarkia	FE/CE/List 1B	Serpentine outcrops in coastal scrub, valley and foothill grassland
Cordylanthus maritimus ssp. palustris/ Point Reyes bird's-beak	--/ --/List 1B	Coastal salt marsh
Cordylanthus mollis ssp. mollis/ Soft bird's-beak	FE/CR/List 1B	Coastal salt marsh
Cordylanthus nidularis/ Mt. Diablo bird's-beak	FSC/ --/List 1B	Chaparral; serpentine soils
Delphinium californicum spp. *interius*/ Hospital Canyon larkspur	FSC/ --/List 1B	Chaparral
Dirca occidentalis/ Western leatherwood	--/--/List 1B	Mesic, shaded slopes in chaparral, woodland and forest habitats, or riparian woodlands.
Eriogonum luteum var. *caninum*/ Tiburon buckwheat	--/--/List 1B	Open serpentine areas
Eriogonum truncatum/ Mt. Diablo buckwheat	--/--/List 1B	Chaparral, coastal scrub, valley and foothill grassland

Table B-1
Special Status Plant Species Recorded in the Region of the St. Mary and St. Mina Coptic Orthodox Church

Species	Status (Federal/State/CNPS)	Habitat Requirements
Eriastrum brandegeeae/ Brandegee's eriastrum	--/--/List 1B	Barren volcanic soils in chaparral and woodlands
Erodium macrohyllum/ Round-leaved filaree	--/--/List 2	Cismontane woodland, valley and grassland, clay soils
Fritillaria liliacea/ Fragrant fritillary	FSC/ --/List 1B	Heavy soil, often on serpentine in grasslands, northern coastal scrub, redwood forests.
Helianthella castanea/ Diablo helianthella	FSC/ --/List 1B	Thin, rocky soil, grassy hillsides, foothill woodland, chaparral.
Hesperolinon breweri/ Brewer's western flax	FSC/---/List 1B	Serpentine soils, chaparral and oak woodland.
Hoita strobilina/ Loma Prieta hoita	--/-- /List1B	Chaparral, woodland, riparian woodland/usually on serpentine soils.
Holocarpha macradenia/ Santa Cruz tarplant	FT/CE/List 1B	Coastal prairie and scrub, and grasslands. Natural populations are extirpated in Contra Costa County; extant occurrences (Briones and Richmond) are introduced.
Horkelia cuneata ssp. sericea/ Kellogg's horkelia	-- /-- /List 1B	Closed-cone coniferous forest, chaparral, coastal scrub
Isocoma argutal Carquinez goldenbush	--/--/List 1B	Valley and foothill grassland, alkaline soils
Lasthenia conjugens/ Contra Costa goldfields	FE/ --/List 1B	Vernal pools
Lathyrus jepsonii var. *jepsonii*/ Delta tule pea	--/--/List 1B	Marshes and swamps (freshwater and brackish)
Lilaeopsis masonii/ Mason's lilaeopsis	--/CR/List 1B	Marshes and swamps (freshwater and brackish)
Limosella subulata/ Delta mudwort	--/ --/List 2	Mud banks in riparian scrub, freshwater and brackish wetlands
Madia radiata/ Showy madia	--/--/List 1B	Cismontane woodland, valley and foothill grassland
Malacothamnus hallii/ Hall's bush mallow	FSC/ --/List 1B	Chaparral and coastal scrub vegetation.
Meconella oregano/ Oregon meconella	--/ --/List 1B	Open, moist places in coastal prairie and coastal scrub
Monardella villosa ssp. globosa/ Robust monardella	--/--/List 1B	Broadleaved upland forest, chaparral, woodland, and valley foothill grassland
Navarretia gowenii/ Lime Ridge navarretia	--/--/List 1B	Calcium carbonate-rich soils with high clay content in chaparral
Oenothera deltoides ssp. howelii/ Antioch-Dunes evening-primrose	FE/CE/List 1B	Interior dunes, remnant river bluffs and sand dunes near Antioch
Phacelia phacelioides/ Mt. Diablo phacelia	FSC/ --/List 1B	Chaparral or rocky soils in woodlands. Known from fewer than twenty occurrences. These do not include the project area.
Plagiobothrys diffusus/ San Francisco popcorn-flower	FSC/CE/List 1B	Coastal prairie, valley and foothill grassland. Found only in Alameda, Santa Cruz, San Francisco, and San Mateo counties.
Potamageton filiformis/ Slender-leaved pondweed	--/--/List 2	Shallow, clear water of lakes and drainage channels of marshes and swamps.
Sanicula saxatilis/ Rock sanicle	FSC/ --/List 1B	Broad-leaved upland forest, chaparral, valley and foothill grassland, rocky areas.
Sanicula maritima/ Adobe sanicle	--/--/List 1B	Chaparral, coastal prairie, meadows and seeps, valley and foothill grassland on clay or serpentine.
Senicio aphanactis/ Rayless ragwort	--/ --/List 2	Drying alkaline flats, cismontane woodland, coastal scrub

Table B-1
Special Status Plant Species Recorded in the Region of the St. Mary and St. Mina Coptic Orthodox Church

Species	Status (Federal/State/CNPS)	Habitat Requirements
Streptanthus albidus ssp. peramoenus/ Most beautiful jewel-flower	FSC/ --/List 1B	Chaparral, woodlands, grasslands usually on serpentines.
Strepthanus hispidus/ Mt. Diablo jewel-flower	FSC/ --/List 1B	Chaparral, grasslands on rocky soils. Known from fewer than fifteen occurrences in the Mt. Diablo area.
Symphyotrichum lentum/ Suisun marsh aster	--/ --/ List 1B	Brackish and freshwater sloughs in marshes and swamps
Triquetrella californica/ *Coastal triquetrella*	--/ --/List 1B	Coastal bluff scrub, coastal scrub.
Tropidocarpum capparideum/ Caper-fruited tropidocarpum	--/--/List 1B	Alkaline clay soils in valley and foothill grassland.
Viburnum ellipticum/ Oval-leaved viburnum	--/ --/List 2	Chaparral, lower montane coniferous forest.

Key to Status codes:

FE Federal Endangered
FT Federal Threatened
FSC Federal Species of Concern
CE California Endangered
CR California Rare
1B CNPS List 1B of plants rare, threatened or endangered in California and elsewhere
2 CNPS List 2 of plants rare, threatened, or endangered in California but more common elsewhere
4 CNPS List 4 of plants rare, threatened, or endangered in California but of limited distribution and not very threatened in the State

Table B-2

Special-status Animal Species Recorded in the Region of the St. Mary-St. Mina Coptic Orthodox Church

Species	Status State/Federal	Habitat Requirements	Suitable Habitat on Site
Accipiter cooperii / Cooper's hawk (nesting only)	SSC	Open woodlands, nests mainly in riparian growths of deciduous trees but also in live oak trees.	Low: Suitable nesting habitat present on site.
Actinemys marmorata/ Northwestern pond turtle	SSC/ FSC	Associated with permanent water – marshes, rivers, streams and irrigation ditches with aquatic vegetation.	No suitable habitat for the species on the site
Agelarius tricolor (nesting)/ Tri-colored blackbird	SSC/FSC	Forages in agricultural fields and grasslands; nests primarily in freshwater marshes with tall emergent vegetation, and less often in riparian thickets.	No: The project site lacks the freshwater marsh nesting habitat or riparian thicket structure preferred by this species.
Ambystoma californiense/ California tiger salamander	SSC/ FE	Seasonal water bodies, vernal pools, and stock ponds, absent of fish, in grassland or woodland habitats.	No suitable breeding or aestivation habitat for the species on the site
Antrozous pallidus/ Pallid bat	SSC	High moisture content sandy or loose loamy soils under sparsely distributed vegetation.	Low: Suitable roosting habitat present on site.
Aquila chrysaetos/ Golden eagle (nesting and wintering)	SSC	Woodlands and grassland nest in cliff-walls or large trees in open areas.	No: Suitable nesting habitat not presents; suitable foraging habitat present on site.
Asio flammous/ Short-eared owl (nesting only)	SSC	Swamps and bottom lands, meadows, irrigated alfalfa fields. Tule parches or tall grasses needed for nesting.	Low. Suitable nesting habitat not present on site due to the absence of associated extensive areas of salt or fresh-water marsh.
Athene cunicularia/ Burrowing owl	SSC/ FSC	Grasslands and scrublands. Dependent on mammal burrows or ground squirrel dens.	Low. Small burrowing mammals, burrows lacking and presence of hard clay, non-friable soils.
Buteo regalis/ Ferruginous hawk (wintering)	SSC/FSC	Open grassland, sage brush flats, desert scrub, and low foothills. Forages in winter over grasslands.	Low. Suitable foraging habitat present on site but ground squirrel prey-base is not abundant.
Callophrys mossil bayensis/ San Bruno elfin butterfly	FE	Coastal, mountainous areas with grassy ground cover. Mainly in the vicinity of San Bruno Mountain	No
Circus cyaneus/ Northern harrier	SSC	Coastal salt and fresh-water marsh. Nest and forage in grasslands, usually at the edge of marsh. Nest is a large mound of sticks in wet areas.	Low. The site is not associated with marsh habitat and is close to human development.
Eremophila alpetris actica California horned lark	SSC	Nests in short grass prairie, mountain meadows, coastal plains, and fallow fields.	Marginal. Recorded to breed in grazed grasslands on the foothill ridges in the southern portion of Contra Costa County.
Dipodomys heermanni berkeleyensis/ Berkeley kangaroo rat	FSC	Open grassy hilltops and open spaces in chaparral and blue-oak/gray pine woodlands	Not Expected: Species presumed extinct; specimens last recorded from summit of Mt. Diablo in 1936, approximately 4.5 miles west of the project study area.

Table B-2

Special-status Animal Species Recorded in the Region of the St. Mary-St. Mina Coptic Orthodox Church

Species	Status State/Federal	Habitat Requirements	Suitable Habitat on Site
Euphydryas editha bayensis/ Bay checkerspot butterfly	FT	Native grasslands on outcrops of serpentine soil. Plantain (*Plantago erecta*) is the primary host plant. Owl's-clover (*Castilleja densiflorus*) and purple owl's-clover (*Castilleja.exserta*) are the secondary host plants.	No
Falco mexicanus/ Prairie falcon	SSC	Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	No
Geothlypis trichas sinuosa/ Saltmarsh common yellowthroat	SSC	Coastal salt marsh	No
Haliaeetus leucocephalus/ Bald eagle	--/CE	Roost in tall trees around lakes and reservoirs	No
Helminthoglypta nickliniana bridgesii/ Bridges' Coast Range shoulderband snail	FSC	Rock piles within open hillsides in tall grasses and weeds	Low: Marginally suitable habitat present on site, but most likely occurs near Mt. Diablo.
Lasionycteris noctivagans/ Silver-haired bat	SSC	Coastal and mountain forest dweller, feeds over streams, ponds and open, brushy areas. Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon juniper woodlands, and valley foothill and montane riparian habitats. Roost in hollow trees, snags, buildings, rock crevices, caves, and under bark.	Low. The project site is not within the winter or summer range of the silver-haired bat. The site may provide marginal habitat during spring and fall migrations.
Lasiurus cinereus/ Hoary bat	SSC	Roosts in dense foliage of medium to large trees, requires source of water	Low. Last recorded collection in Concord was in 1951. More recently seen in Walnut Creek in 2001.
Lateralus jamaicensis coturniculus/ California black rail	CT/FSC	Associated with brackish and tidal salt marsh. Found in areas with heavy pickleweed growth.	No
Lepidurus packardi/ Vernal pool tadpole shrimp	FE	Vernal pools	No
Linderiella occidentalis/ California linderiella	SSC	Vernal pools	No
Masticophis lateralis euryxanthus/ Alameda whipsnake	CT/FT	Scrub and associated grasslands.	No. Scrub vegetation or rock outcrops absent on the site.
Melospiza melodia maxillaris/ Suisun song sparrow	SSC	Coastal brackish marsh	No
Nyctinompos macrotis Mexican (Big) free-tailed bat	SSC	Low-lying arid areas with high cliffs or rocky outcrops for roosting	No. Suitable roosting habitat is absent.
Perognathus inornatus inornatus/ San Joaquin pocket mouse	SSC/FSC	Grasslands and blue oak savannas on sandy fine textured soils	No. The project site does not contain blue oaks or extensive grassland areas to support this species.
Phrynosoma blainvillii/ Coast horned lizard	SSC	Lowlands along sandy washes with scattered low bushes	No
Pogonichthys macrolepidotus/ Sacramento splittail	SSC	Sacramento-San Joaquin estuary. Slow-moving sections of rivers and sloughs.	No
Rallus longirostris obsoletus/ California clapper rail	CE/FE	Associated primarily with saltwater marshes and tidal sloughs.	No

Table B-2

Special-status Animal Species Recorded in the Region of the St. Mary-St. Mina Coptic Orthodox Church

Species	Status State/Federal	Habitat Requirements	Suitable Habitat on Site
Rana draytonii/ California red-legged frog	SSC/ FT	Lowlands and foothills in or near permanent sources of water with dense, shrubby or emergent riparian vegetation	No. Absence of breeding habitat and presence of physical and land use barriers to migration from off-site areas.
Rana boylei/ Foothill yellow-legged frog	SSC/FSC	Perennial creeks and streams usually with cobble bottoms	No
Sterna antillarum browni /California least tern	CE/FE	Nest along the coast on flat substrates, beaches, and paved areas.	No
Reithhrodontomys raviventri/ Salt marsh harvest mouse	CE/FE	Associated with saline, emergent wetlands.	No
Taxidea taxus/ American badger	SSC	Digs burrows in dry open stages of shrub, forest, and herbaceous vegetation. Needs friable soils and a prey base of burrowing rodents. They frequently reuse old burrows.	No.The soil is extremely hard and unsuitable habitat for badgers to dig burrows.
Vulpes macrotis mutica/ San Joaquin kit fox	CT/ FE	Grasslands on loose textured, friable soil, with ground squirrel burrows	No.

Key to Status Codes:

FE = Federally Endangered
FT = Federally Threatened
FSC = Federal Species of Concern
CE = State of California Endangered
CT = State of California Threatened
SSC = State of California Species of Special Concern
CFP = California fully protected

Appendix C

Geology and Grading

Appendix C
Geology and Grading

Introduction

Previous Investigations

Kleinfelder, Inc. performed an initial geotechnical investigation of the site and documented their findings in a report dated December 20, 2001.[13] Their scope of work included: (a) literature review, (b) subsurface exploration of the parcel, (c) laboratory testing of selected samples, (d) engineering analysis of the data gathered, and (e) preparation of a report documenting the investigation and presenting the geotechnical engineer's findings and recommendations. The subsurface exploration program consisted of the logging of seven auger borings that were drilled to depths of 6.5 to 21.5 feet. All of the borings were extended into bedrock.

The purpose of the investigation was to explore and evaluate subsurface conditions at various locations on the site in order to develop geotechnical design recommendations. During the 10-year period since the Kleinfelder report was issued, the design of the project has evolved and the California Building Code has been revised. Nevertheless, the subsurface data remains valid, and the report provides sufficient data to make preliminary assessment of geologic and seismic geological hazards. The specific criteria and standards for site grading, drainage and foundation design in the report will require updating prior to issuance of construction permits. Additional subsurface exploration may be needed to address the revised project layout, and the report will need to provide updated seismic parameters to address the changes in the building code, and a site reconnaissance will be needed to confirm/refine Kleinfelder's assessment of site conditions. Finally, there may be geotechnical mitigation measures that are incorporated into the CEQA document. Adoption of mitigation measures may trigger the need for further update to the geotechnical report.

In 2002, Kleinfelder, Inc. performed a fault hazard investigation of the site.[14] The scope of that investigation includes a) literature review, b) field reconnaissance of the site, and c) logging of exploratory trenches that averaged 5 feet in depth. The investigation was intended to evaluate the risk of surface fault rupture.

In 2012 Kleinfelder prepared an updated report that was intended to a) address the specific project that is the subject of the CEQA document, and b) in response to questions that arose during preparation of the CEQA document, supplemental fault trenching was performed. [15] Specifically, Kleinfelder logged trenches T-3 and T-4. The purpose of Trench T-3 was

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[13] Kleinfelder, Inc., 2001. *Geotechnical Investigation Report, Saint Mary & Saint Mina Coptic Orthodox Church, Concord, California.* Kleinfelder Job #43-1422-01.GEO (report dated December 20, 2001).

[14] Kleinfelder, Inc., 2002,. *Subsurface Fault Investigation, Saint Mary and Saint Mina Coptic Orthodox Church, 930 San Miguel Road, Concord, California,* Kleinfelder Job #43-1422-01/ FLT (report dated March 27, 2002).

[15] Kleinfelder, Inc., 2012, *Response to Environmental Impact Report Review Comments and Limited Geologic and Geotechnical Update from the Planned St. Mary and St. Mina Coptic Orthodox Church, 930 San Miguel Read, Concord, California,* Kleinfelder Job # 126408 (report dated May 2, 2012)

determine if there was evidence of a fault controlling the alignment of the northeast-trending drainage swale of the site, and T-4 was to provide additional subsurface data on a segment of T-1 that encountered a zone of deep weathering and increased moisture content.

The City of Concord Ordinance Code makes provisions for requiring additional geologic and geotechnical studies during the processing of grading and building permits. Consequently, a phased study of the geotechnical aspects of the project as outlined above is consistent with adopted regulations. The geologic issues to be resolved by the pending application are chiefly land use, adequacy of the fault investigation, and grading concept for the project. Construction details are not needed at this time.

Published Mapping

The project site and adjacent region have been mapped by geologists of the U.S. Geological Survey (USGS) and the California Geological Survey (CGS) (formerly California Division of Mines and Geology). The products of the USGS mapping include bedrock geology maps (Graymer, et al., 1994[16] and Dibblee, 1980) [17]; and photointerpretative landslide maps (Nilsen, 1975).[18] The CGS has issued an Alquist-Priolo Earthquake Fault Zone map of the Concord fault.[19]

Other pertinent literature includes the mapping of a Chevron geologist, Ron Crane,[20] and a USGS Professional Paper that evaluates the stratigraphy and engineering geology of hillsides throughout the San Francisco Bay Region.[21]

Setting

Bedrock Geology

The site is located within an area of faulted and tightly folded bedrock formations. In the Lime Ridge area these formations consist chiefly of marine sedimentary rocks of Eocene age. The most recent geologic map of the Concord area is a map published by the USGS (Graymer, et al., 1994). That map is largely a compilation of previous mapping, with digitizing of the data. Figure C-1 presents a portion of the map that shows the site vicinity. According to this map, the site is within the outcrop belt of the Domingene Formation – (Td), with Nortonville Shale (Tnv) mapped in the east corner of the property. The Domingene consists chiefly of thin bedded to massive sandstone with minor interbedded siltstone and mudstone. The Nortonville Shale is described as "brown to grayish-green mudstone and

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[16] Graymer, R.W., D.L. Jones and E.E. Brabb, 1994. *Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County: A Digitized Database.* U.S. Geological Survey Open File Report 94-622.

[17] Dibblee, T.W., 1980, *Preliminary Geologic Map of the Walnut Creek Quadrangle, Contra Costa County, California,* U.S. Geological Survey, Open File Report 80-351.

[18] Nilsen, T.H. 1975. *Preliminary Photointerpretation Map of Landslide and Other Surficial Deposits of the Walnut Creek 7.5' Quadrangle, Contra Costa County, California.* U.S. Geological Survey, Open File Map 75-277-54.

[19] Bryant, W.A. and E.W. Hart, 2007, *Fault Rupture Zones in California,* California Geological Survey, Special Publication 42; and *Earthquake Fault Zone Map, Walnut Creek Quadrangle-,* Revised 1993.

[20] Crane, Ron, 1988, in *Field Trip Guide to the Geology of the San Ramon Valley and Environs,* Northern California Geological Society.

[21] Ellen, S.D. and C.M. Wentworth, 1995. *Hillside Materials and Slopes of the San Francisco Bay Region, California.* U.S. Geological Survey, Professional Paper 1357.

claystone with minor interbedded siltstone and sandstone." The rocks that make up Lime Ridge have been tilted and tightly folded. The orientation of bedding is not well established on the site. By interpolation from nearby measurement, bedding is inferred to dip steeply to the N30E.

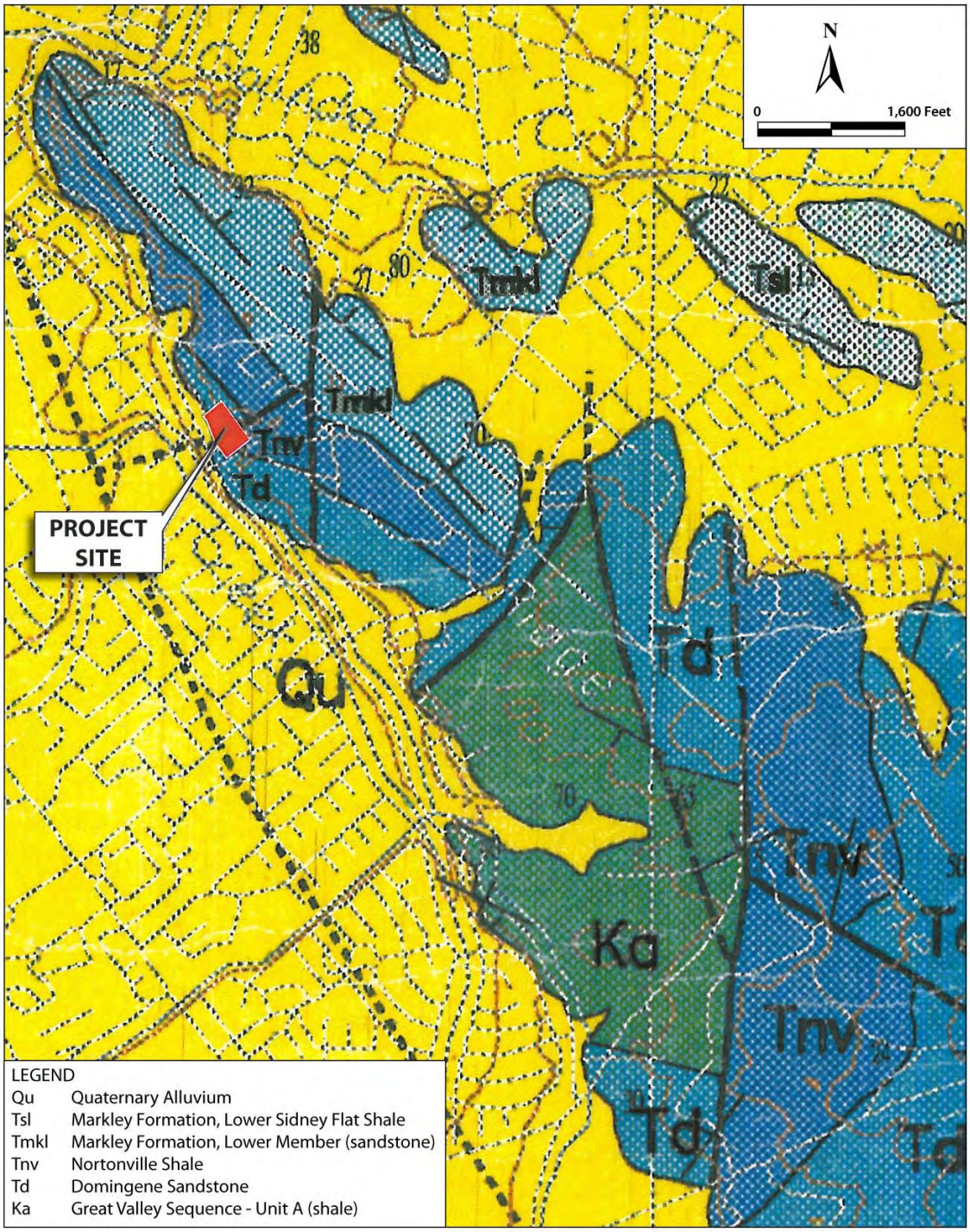
The major structural feature on the site is a northeast-trending bedrock fault. The Crane geologic map interpreted this fault to be a thrust fault that dips to the south-southeast and has a mapped length of one-half mile. The location of the fault is indicated to be in the axis of the drainage swale on the project site (i.e., the drainage can be inferred to owe its origin to the erosion of the weak, sheared rock that was present along the fault zone.)

The fault that bisects the site extends approximately one-quarter mile west of the property, where it intersects the Concord fault. The Concord fault considered being active by both the USGS and by the California Geological Survey (CGS). Figure C-1 represents the Concord fault, by a black dotted line indicating that the location shown is approximate, and that there is no surface manifestation of the fault known to Graymer. It should be noted that the mapping of Graymer that is presented in Figure C-1 is intended to provide information of bedrock geology. It does not classify faults by activity status, and the locations shown should be considered approximate.

Figure B-2 indicates that a portion of the property is located within the Alquist-Priolo Earthquake Fault Zone (A-P Zone) that encompasses recently active and potentially active traces of the Concord fault. According to the CGS, recently active and potentially active traces of the Concord fault may be located anywhere within the A-P Zone. In the site vicinity the A-P Zone trends approximately N40W, and is just over 1,000 feet in width. Only the southwest portion of the property is the zone. Although the Site Plan does not attempt to accurately show the location of the A-P Zone on the parcel, comparison of the Figure B-2 with the Site Plan for the project indicates that the sanctuary, classroom and multi-use buildings are located outside (i.e. just northeast) of the A-P Zone. The only planned building in the A-P zone is the chapel. Other improvements in the A-P Zone are bridge across the canal, along with portions of the internal roadways and parking lot.

It should be recognized that the official A-P Zone map issued by the State of California was released in 1993. That map is at a scale of 1 inch = 2,000 feet and utilized USGS quadrangle maps as its base. The boundary of the A-P zone consists of a series of line segments. The "turning points" at the ends of the line segments are have defined coordinates. The digitized map presented in Figure B-2 faithfully utilized the interpretation of the State. It is presented on a parcel map base for ease of reference. The boundaries of the project site are highlighted in turquoise. Some background information of the A-P and Concord fault is presented in the following paragraph.

For the purposes of the A-P Act, a fault that has experiences surface fault rupture during Holocene time (about the last 11,000 years) is considered active and therefore requires zoning. In the downtown business district of Concord, geologic studies have confirmed the precise location of the fault and confirmed that the fault is active. In the downtown business district of Concord, geologic studies have confirmed the precise location of the fault and confirmed that the fault is active. In the downtown area the fault has a well-defined fault scarp, and is a water table barrier (with water levels higher in the northeast site of the fault zone).



Source: USGS Open File Report 94-622

Figure C-1 USGS Geologic Map

Additionally, tectonic creep has been confirmed in the downtown business district. However, the segment of the fault that passes along the southwest flank of Lime Ridge has been the subject of relatively few geologic studies. Consequently the precise location of the fault is not well documented. According to the State, there is a significant risk of surface fault rupture anywhere in the A-P zone. The zone of active faulting is generally less than 10 feet in width, but there is potential for subsidiary or branching traces. The width of the zone reflects the uncertainty in the precise location of the active fault trace(s). Within the A-P zone, detailed geologic studies are required for projects that fall under the authority of the A-P Act.

A-P Act

The text of the Alquist-Priolo Act can be found in the California Public Resources Code, Division 2, Chapter 7.5, commencing with section 2621. The A-P Act provides policies and criteria to assist cities and counties in the exercise of their responsibility to prohibit the location of structures for human occupancy astride the surface trace of known active faults.

The law applies to any subdivision of land which is subject to the Subdivision Map Act, and for the construction of structures for human occupancy, with the exception of a single family wood-frame or steel-frame dwelling not exceeding two stories when that dwelling is not part of a development of four or more dwellings. Structures for human occupancy are defined in the California Building Code as having an occupancy factor of 2,000 person/hours per year. With regard to the St. Mary and St. Mina church improvements, the only structure for human occupancy that is proposed within the A-P Zone is the chapel. The bridge, parking lot, and internal roadways are not considered "structures for human occupancy" and do not fall under the authority of the A-P Act. For the proposed chapel, the state law requires an investigation directed to evaluate of the hazard of surface fault rupture. . Guidelines have been adopted for the fault investigation by the State Mining & Geology Board (CEG Note 49), and the law requires that the investigation be peer reviewed by a registered geologist retained by the local jurisdiction (in this case, the City of Concord). The California Geological Survey has also issued *General Guidelines for Review of Geologic Reports* (CEG Special Publication 42).

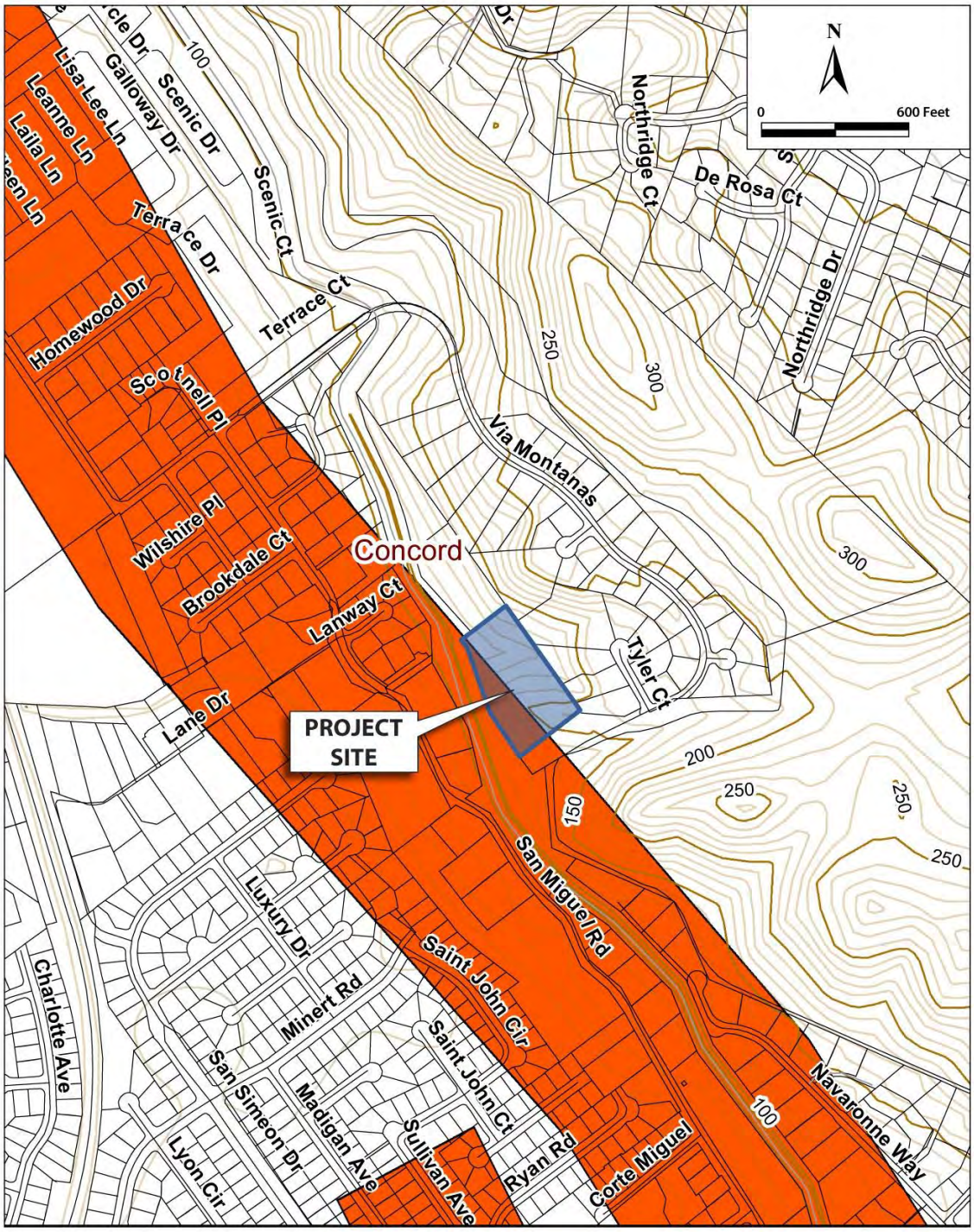
In summary, the law and its implementing guidelines does not indicate when in the planning process the investigation must be performed. The relationship to CEQA is clearly defined. The state guidelines and regulations to implement A-P Act are not intended to negate, supersede or duplicate any requirements of CEQA. At the discretion of the lead agency, some or all of the requirements of the A-P Act may occur either before, concurrent with or after the CEQA process. In this case the project proponent has submitted an investigation directed to fault hazards. That investigation has been peer reviewed by Cal Engineering & Geology (CEG)[22] for the City of Concord. The intent of our review is to assist the evaluation of potential environmental impacts and to identify mitigation measures. The peer review determined that the Kleinfelder report was adequate for the preparation of the CEQA document and processing of the application. Nevertheless, CEG recommends detailed mapping of cut slopes and excavations made for buildings, retaining walls, and other improvements to confirm/refine the evaluation of fault hazards presented in the Kleinfelder reports.

[22] Cal Engieering & Geology, 2012. Geotechnical & Geologic Review, Saint Mary & Saint Mina Coptic Orthodox Church, 930 San Miguel Road, Concord, CA. CEG Job #120500.00, August 28.

Engineering Geologic Properties of Bedrock

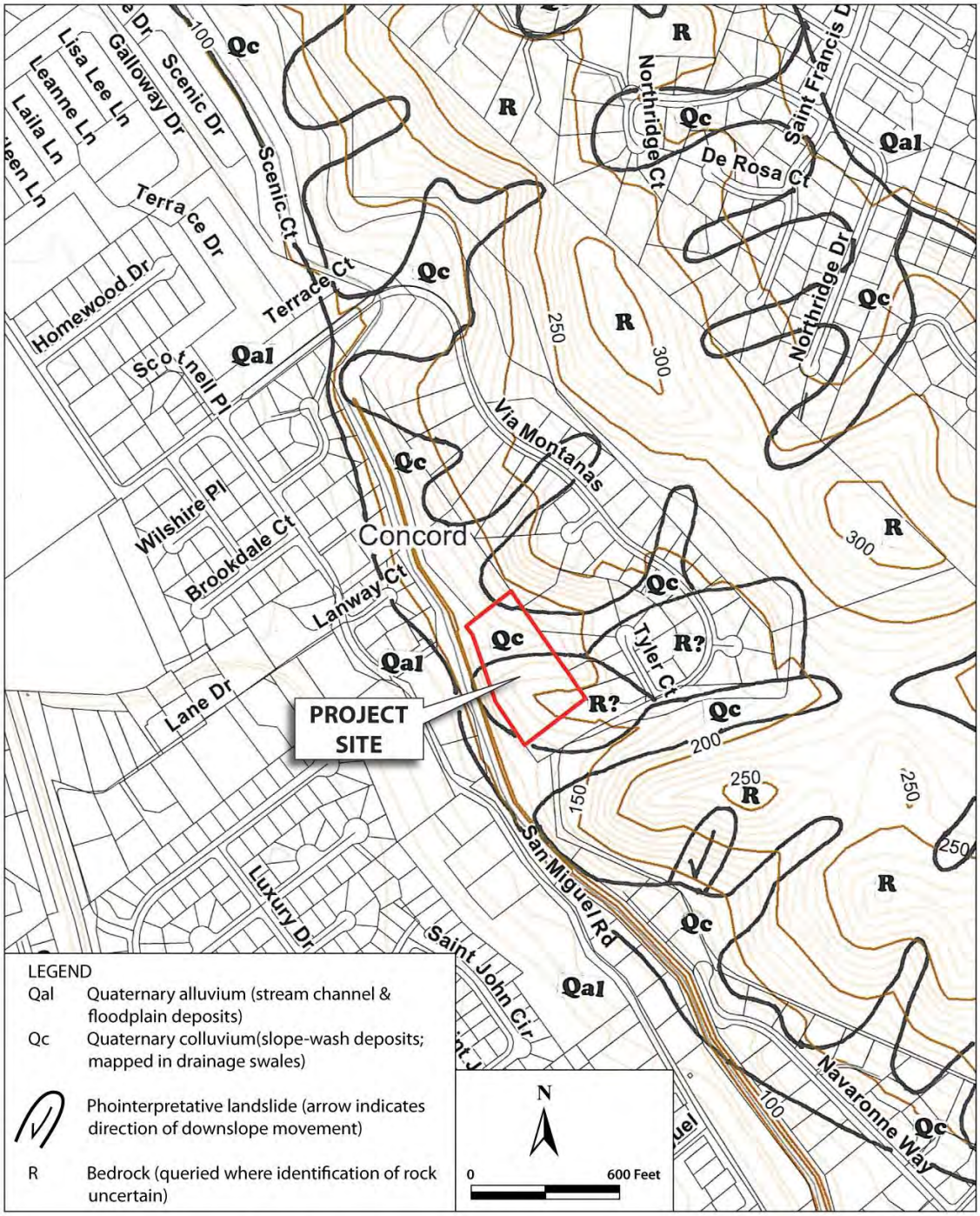
The USGS issued a Professional Paper that characterizes hillside materials in the San Francisco Bay Region (Ellen & Wentworth, 1995). The maps and unit descriptions are intended to provide a guide to the physical nature of the ground from place-to-place in hillside terrain of the region. The report does not classify geologic units according to their slope stability characteristics. Instead, it provides a unit description, emphasizing physical properties that most influence engineering operations in land development. This publication refers to the geologic unit on the portion of the property proposed for residential development as the Domingene Sandstone. Key features of this formation may be summarized as follows:

> *Composition: The four primary rock types occur within this unit in the Lime Ridge area are as follows: (1) Sandstone, quartz rich, medium- to coarse-grained, moderately to well sorted, somewhat silty, much white in color. In some places cemented by calcite in concretions, and in other places, limonite cemented; (2) Interbedded with the sandstone described above are less erosion-resistant beds of siltstone, some tuffaceous; and clayey, fine-grained sandstone; (3) Conglomerate, which in the Lime Ridge area occurs at the top of the formation at /near is contact with the Nortonville Shale. This conglomerate unit consists of pebbles and sub-angular cobbles of diabase: and (4) Travertine overlying calcareous sandstone. Additionally, the Domingene Sandstone on Lime Ridge is reported to include some breccia, probably tectonic, on the west side of Lime Ridge.*
>
> *Permeability: The permeability shows a strong correlation with grain size; high where coarse grained and well sorted; some rock low due to the concentration of clay and silt in the matrix of sandstone. In summary, perhaps one-half of the formation has at least moderate permeability and the remainder is low to very low.*
>
> *Hardness: Sandstone is typically firm to soft where weathered and fresh; in places the rock is firm owing to partial cementation by iron oxide (limonite) along fractures; concretions, cemented sandstone and travertine are hard.*
>
> *Weathering: Sandstone is weathered to depths of 30 feet or more; iron staining extends to greater depth.*
>
> *Surficial Mantle: Largely granular, but some clayey. Some has clayey subsoil.*
>
> *Expansivity: Most bedrock and the overlying soil mantle within the outcrop belt of the Domingene Sandstone is non-expansive; but some clayey rock within the formation is known to be severely expansive (shale, mudstone and overlying mantle).*



Source: California Geological Survey (1993) and Kleinfelder West, Inc.

Figure C-2 Alquist-Priolo Earthquake Fault Zone Map



Source: California Geological Survey (1993)

Figure C-3 Photointerpretation Map of Landslide and Other Surficial Deposits

Landslide Deposits
USGS Mapping

In 1975 the USGS published surficial deposit maps of the entire San Francisco Bay Region. These maps, which were based on geologic interpretation of 1960s and early 1970s vertical angle aerial photographs, mapped the distribution of alluvial, colluvial and terrace deposits, along with mapping landslides. These maps were published at 1 inch = 2,000 feet. Figure C-3 presents the USGS map on a clean topographic base at a scale of 1 inch = 600 feet. Only two suspected landslide areas shown on this map, and neither presents a hazard to the project site. The USGS map shows the inferred distribution of colluvial deposits (Qc) on the flanks of Lime Ridge in the project vicinity. These are areas of thicker than normal accumulations of soils. Typically colluvial deposits occur in drainage swales and at the toe of ridges. On the valley floor area to the west of the ridge, the map shows alluvial deposits (Qal). These are stream channel and overbank deposits of Pine Creek and its tributaries. The potential building sites are indicated to be within areas mapped as bedrock. The USGS map is not a substitute for a detailed geologic investigation, and it does not attempt to classify slides according to type of slide, activity status or depth of slide plane. The intent of this map is to "red flag" sites that may be at risk of landslides and where detailed, site-specific investigations are warranted.

Slope Map

The Concord General Plan gives consideration to slopes gradients in evaluation of the relative development potential of properties, recognizing the cost and engineering difficulties of grading in areas of steep slopes. In response to the City's concerns, the civil engineers for the project have prepared a slope map of the site. Briefly summarized, the average existing grade of the site is indicated to be 17 percent. The drainage swale of the property is characterized by slopes of less than 15 percent; and the northwest-facing slope in the central portion of the site has slope of 20 to 30 percent. The steepest slopes on the site are indicated to be the north property corner, where slopes range up to 40 percent. The applicant has also submitted a slope map of the project following grading and development of the site as proposed. It indicates that the use area of the site would generally have grades of lass than 10 percent. However, a 10 to 15 percent grade is indicated for the lowest segment of the on-site. The proposed 30-foot-high cut slope that is southeast of the use areas on the site is indicated to have a 25 to 30 percent.

Kleinfelder Reports

Introduction

The reports issued by Kleinfelder were published in 2001 (geotechnical) and 2002 (fault study) and 2012. Those reports present an overview of subsurface conditions on the property, an assessment of potential geologic hazards, along with conclusions and preliminary geotechnical design recommendation. The reports have been determined by the City of Concord to be sufficient data to allow the processing of the pending application. Figure C-4 shows the location of seven borings and two exploratory trenches logged by Kleinfelder. It also shows the area "shadowed" to the exploratory trenches, assuming that the general trend of the Concord fault is parallel to the alignment A-P Zone in the site vicinity (i.e., if the Concord fault crossed the portion of the site that is shaded beige, it should also

have crossed the exploratory trench logged by Kleinfelder). It should be noted that the Kleinfelder trenches were oriented and positioned to evaluate potential fault hazards to the building on the site that are clearly northeast of the A-P Zone. Finally, the 2012 Kleinfelder investigation provides data relating to the possible significance of the inactive bedrock fault that are shown to bisect the site (see Figure C-1).

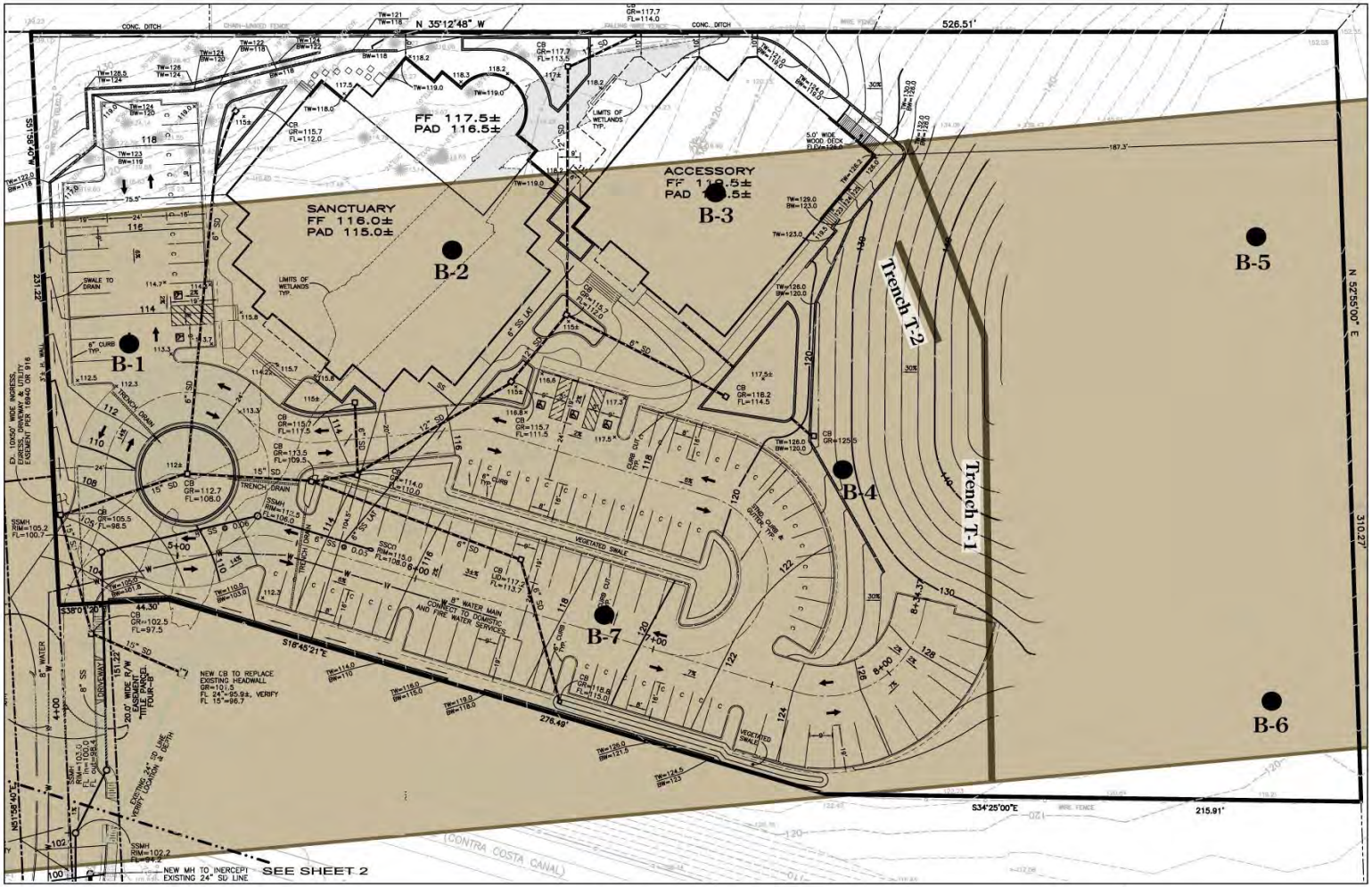
Subsurface Conditions

As Figure C-4 indicates, the seven borings were distributed across the parcel. (Note that the plan presented is based upon a previous site plan, but the boring information remains the same.) The borings ranged from 5.5 to 31.5 feet in depth. The logs describe the surface soil as dark brown clayey sand that was typically 1 to 2 feet in thickness. Colluvial deposits were encountered in Borings B-1 and B-3. (B-1 was not sufficiently deep to determine the total thickness of the colluvium; in B-3, the colluvium/bedrock contact is at a depth of 11 feet below the surface.) The colluvium is described as dark brown, moist, loose silty sand that locally contains lean clay and gravel horizons. In B-3, the colluvium had a dry density of 74 lbs/cubic foot (a low density). The bedrock is consistently described as silty fine- to medium-grained sand that locally contains gravel. There are thin interbeds of lean clay with silty sand. The depth of weathering extended to the full depth explored (greater than 30 feet in B-5). Only two of the seven borings were located in the area of the potential building sites (Borings B-2 and B-3). They encountered rock at depths of 5 and 11 feet, respectively.

Exploratory Trenches

The logs of the exploratory trenches indicate that the depth of trenching was 3 to 11 feet but averaged approximately 5 to 5.5 feet over most of their extent. The trenches were positioned in the south portion of the property, just southeast of the planned improvements. It is an upland area where soils are relatively thin. The following description is intended to highlight and summarize (not supercede) the findings of Kleinfelder.

- No evidence of active faulting, therefore no restrictions on land use are recommended (i.e. no structural setbacks are deemed necessary.)
- No further evaluation of faulting is recommended. .Kleinfelder indicated that their exploratory trenches were loosely backfilled and where the planned grading does not remove the loose backfill, it will be necessary to remove the existing fill and replace it with engineered fill.
- The primary geotechnical concern is site preparation work prior to filling the swale at the north portion of the project. Kleinfelder recommends over-excavation of this area and installation of subdrains prior to placement of engineered fill.
- The 2012 report includes recommendations for the design of the planned retaining walls.
- Surface soils have a low to moderate expansion potential, and these materials will be blended with excavated bedrock to further reduce the expansion potential.
- Following rough grading, the corrosion testing of the pad(s) is recommended by Kleinfelder to confirm the corrosivity of the soils.
- Seismic parameters from the current version of the California Building Code are provided in the 2012 update report.



LEGEND

Area "shadowed" by the exploratory trenches

0 40 Feet

Source: Darwin Myers Associates

Figure C-4 Grading Plan Showing Subsurface Data Points

- At Station 1+97 Kleinfelder observed a prominent shear that was interpreted as a possible fault-related feature. To more fully evaluate the significance of the shear, Trench T-2 was excavated a short distance away from Trench T-1, and positioned to intersect the expected continuation of the shear to the northwest. However, the shear was not present in Trench T-2, indicating that is a local feature and not evidence of faulting.

Kleinfelder Evaluation of Geologic Hazards

1. Faulting. Based on geologic data gathered, Kleinfelder concludes the site is free of evidence of active faulting.
2. Soil Creep. Soil creep was evident in both soils and severely weathered bedrock. The report recommends that soil and rock underlying any planned foundations be sub-excavated to depths greater than the zone of influence of creeping soils. The project engineering geologist will determine the depth of sub-excavation required for the project during grading based on exposed conditions.
3. Ground Shaking. A tool used by seismologists to describe ground shaking is a Probabilistic Seismic Hazard Assessment (PSHA). This approach is used to estimate values for Peak Ground Acceleration (PGA) that has a 10% probability of being exceeded in 50 years. According to the Kleinfelder report, the PGA for the site is 0.55g. However, the report acknowledges that using the methodology of the California Geological Survey, the PGA for the site is between 0.6 and 0.7g. The PGA has uses for quantitative evaluation of liquefaction hazards.
4. Liquefaction. The report acknowledges that there are at least 7 feet of loose sand in the axis of the drainage swale. For sands to possess a liquefaction potential, they must be saturated. Kleinfelder did not evaluate the liquefaction potential of the sands because at the time that the borings were drilled (late October 2001) no free water was present. According to the report, the liquefaction potential is considered "remote."
5. Seismic Design Criteria. The geotechnical report provides seismic design criteria, but the California Building Code was updated in 2007. As a result of the code changes, the seismic design parameters provided by Kleinfelder will require updating prior to preparation of structural plans for construction of buildings.
6. Loose Colluvial Soils. Kleinfelder recommends that all loose colluvial soils on the site be over-excavated and replaced with engineered fill.
7. Slope Stability. There is no specific discussion of landsliding in the Kleinfelder report but the geotechnical report stated that *the stability of slopes is due in large part to their location and orientation with respect to structure of the underlying rock.* The report goes on to recommend that the project engineering geologist observe exposed conditions on cut slopes during grading so that supplemental recommendations can be provided if adverse conditions are present. (The Kleinfelder report recommends use of 2:1 (horizontal to vertical) gradients be restricted to use for bedrock cut slopes; other graded slopes are to use gradients of 3:1.)

8. Cut/Fill Transition and Differential Fill Thickness. Where buildings are to be constructed astride a fill/fill transition or where there is an issue due to the differential thickness of soils, special recommendations are provided by the Kleinfelder report.

Appendix D

Noise

Appendix D
Noise Analysis

Introduction

This report evaluates potential noise impacts resulting from the proposed St. Mary and St. Mina Coptic Orthodox Church project. The Setting section of this report presents the fundamentals of environmental noise and vibration, describes regulatory criteria that are applicable in the project's assessment, and summarizes the results of the noise monitoring survey. Noise from project construction activities will substantially increase ambient noise levels at residences in the project vicinity over a temporary basis even with the implementation of all construction noise control best management practices. The noise impact from project construction activities would be significant and unavoidable.

Setting

Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table D-1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table D-2. Because sound levels can vary markedly over a short

Table D-1
Definitions of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels measured in the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Table D-2
Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night—because excessive noise interferes with the ability to sleep—24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level, CNEL, is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 p.m. to 10:00 p.m.) and a 10 dB addition to nocturnal (10:00 p.m. to 7:00 a.m.) noise levels. The Day/Night Average Sound Level, DNL or L_{dn}, is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Effects of Noise

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn}. Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn} and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA L_{dn} with open windows and 65-70 dBA L_{dn} if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, while those facing major roadways and freeways typically need special glass windows.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA L_{dn}. At an L_{dn} of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 25-30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between an L_{dn} of 60-70 dBA. Between an L_{dn} of 70-80 dBA, each decibel increase increases by about 3 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the L_{dn} is 60 dBA, approximately 30-35 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 3 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 4 percent increase in the percentage of the population highly annoyed.

Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the Peak Particle Velocity (PPV) and another is the Root Mean Square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. In this section, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table D-3 displays the reactions of people and the effects on buildings that continuous vibration levels produce. The annoyance levels shown in Table D-3 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Table D-3
Reaction of People and Damage to Buildings at Various Continuous Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006 to 0.019	Threshold of perception, Possibility of intrusion	Vibration unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk of "architectural" damage to normal dwellings such as plastered walls or ceilings.
0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations	Vibration at this level would cause "architectural" damage and possibly minor structural damage.

Source: Transportation Related Earthborne Vibrations (Caltrans Experiences), Technical Advisory, Vibration TAV-02-01-R9601, California Department of Transportation, February 20, 2002.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generate the highest construction related ground-borne vibration levels as shown in Table D-4. Because of the impulsive nature of such activities, the use of the peak particle velocity descriptor (PPV) has been routinely used to measure and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

Table D-4

Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 ft. (in/sec)	PPV at 50 ft. (in/sec)
Pile Driver (Impact)	upper range	1.158	0.409
	typical	0.644	0.228
Pile Driver (Sonic)	upper range	0.734	0.260
	typical	0.170	0.060
Clam shovel drop		0.202	0.071
Hydromill (slurry wall)	in soil	0.008	0.003
	in rock	0.017	0.006
Vibratory Roller		0.210	0.074
Hoe Ram		0.089	0.031
Large bulldozer		0.089	0.031
Caisson drilling		0.089	0.031
Loaded trucks		0.076	0.027
Jackhammer		0.035	0.012
Small bulldozer		0.003	0.001

Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006.

Regulatory Criteria

The proposed project would be subject to noise-related regulations, plans, and policies contained in documents prepared by the State of California and the City of Concord. These documents are implemented during the environmental review process to limit noise exposure at existing and proposed noise sensitive land uses. Applicable documents include: (1) the California Environmental Quality Act (CEQA) Guidelines, Appendix G, (2) the City of Concord General Plan, and (3) the City of Concord Municipal Code. Regulations, plans, and policies presented within these documents form the basis of the significance criteria used to assess project impacts.

State CEQA Guidelines

As shown on the Environmental Checklist in Chapter 3, CEQA requires an evaluation of the significance of potential project noise impacts. Potential noise effects from a project are considered to cause a significant environmental impact if any of the following occur:

a) exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b) exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;

c) a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

d) a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

e) for a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels;

f) for a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Checklist items (a), (b), (c), and (d) are relevant to the proposed project. The project is located over two miles from Buchanan Field Airport and would not be exposed to excessive aircraft noise; therefore, checklist items (e) and (f) are not carried forward in this analysis.

City of Concord General Plan

The City of Concord's General Plan[23] establishes noise and land use compatibility standards to evaluate a project's compatibility with the noise environment at the project site. Churches are considered "normally acceptable" in noise environments of 70 dBA CNEL or less. Principles and Policies contained in the Noise and Safety Element that apply to the project include the following:

Principle S-2.1: Encourage Land Use Compatibility for Community Noise Environments.

Policy S-2.1.1: Use the community noise level exposure standards, shown in Figure 7-8, as review criteria for new land uses.

These standards show noise levels that are "normally acceptable," "conditionally acceptable," and "normally unacceptable" and "clearly unacceptable" for different types of land use.

Policy S-2.1.2: Require a noise study and mitigation measures for all projects that have noise exposure greater than "normally acceptable" levels.

The need for mitigation of exterior noise exposure for development shall be evaluated on a case-by-case basis. Within urban residential neighborhoods where medium and high density residential development and mixed use development is planned, the City will balance the need for noise mitigation with urban design considerations, and may not require exterior walls along streets where an attractive pedestrian-oriented environment with porches and front stoops is desired.

Policy S-2.1.3: Consider an increase of four or more dBA to be "significant" if the resulting noise level would exceed that described as "normally acceptable" in Figure 7-8.

When an increase in noise would result in a "significant" impact to residents or businesses, then mitigation will be required to reduce noise exposure. If the increase is four dBA or more, the change in noise is discretional. If the increase in noise is three dBA or less, then

[23] *Concord 2030: Urban Area General Plan*, 2005 pages 7-22 to 7-24.

the noise impact is considered insignificant and no mitigation is needed. By setting a specific threshold of significance in the General Plan, this policy will facilitate making a determination of environmental impact, as required by the California Environmental Quality Act. It will help the City judge whether (1) the potential impact of a development project on the noise environment warrants mitigation, or (2) a statement of overriding considerations will be required.

Principle S-2.2: Mitigate Noise Sources.

Policy S-2.2.1: Provide for the mitigation of noise exposure in areas of the City exposed to noise levels in excess of the "normally acceptable" standards to the extent feasible (see Figures 7-2, 7-3 and 7-8).

Policy S-2.2.2: Reduce noise intrusion generated by miscellaneous noise sources through conditions of approval to control noise-generating activities.

Policy S-2.2.4: Require new noise sources to use best available control technology (BACT) to minimize noise emissions.

Noise from mechanical equipment can be reduced by soundproofing materials and sound-deadening installation; controlling hours of operation also will reduce noise impacts during the morning or evening.

Policy S-2.2.5: Require developers to reduce the noise impacts of new development on adjacent properties through appropriate means.

Increasing setbacks, screening, use of soundproofing materials and double-glazing windows, as well as fences and walls, building orientation and design, and landscaping all can help buffer or mask sound.

City of Concord Municipal Code

The City of Concord Municipal Code, Chapter 122, establishes quantitative and qualitative limits for noise and vibration as follows:

> *Municipal Code, Chapter 122*
>
> *(2) Noise. No use shall be permitted which creates ambient noise level greater than 65 decibels beyond the boundaries of the site;*
>
> *(Code 1965, § 10472; Ord. No. 1037)*
>
> *(3) Vibration, heat, glare, or electrical disturbance. No use shall be permitted which creates vibrations, heat, glare, or electrical disturbances beyond the boundaries of the site.*

Existing Noise Environment

The proposed church would be located in a predominantly residential area of the City east of San Miguel Road. A noise monitoring survey was conducted at the site between February 10 and February 14, 2011, to quantify ambient noise levels. This survey consisted of two long-term noise measurements and two short-term noise measurements at locations representative of the proposed sanctuary and adjacent residential land uses. Noise levels were monitored using Larson-Davis Laboratories Model 820 integrating sound level meters fitted with precision microphones and windscreens. Figure D-1 shows the noise monitoring locations.

The first long-term noise measurement (LT-1) was made adjacent to existing residences along the proposed roadway to the church property, approximately 240 feet from San Miguel Road. Noise levels were measured in consecutive ten-minute intervals. During each interval, the equivalent level (L_{eq}) and the sound levels exceeded 1, 10, 50, and 90 percent of the time were measured. The ambient noise levels representing the near maximum levels (L_{01}) and background levels (L_{90}) are shown along with the average noise level (L_{eq}) as summarized in Figures D-2 through D-6. A review of these data shows that daytime hourly average noise levels typically ranged from 47 to 58 dBA. The CNEL was 56 dBA on Friday, and 54 dBA on Saturday and Sunday.

A second long-term noise measurement (LT-2) was made near the east property line of the site. Figures D-7 through D-11 summarize the data collected near the proposed sanctuary. A review of these data shows that daytime hourly average noise levels typically ranged from 39 to 57 dBA. The CNEL was 53 dBA on Friday, 52 dBA on Saturday, and 50 dBA on Sunday.

Two ten-minute noise measurements were conducted to complete the survey. The results of these noise measurements are summarized in Table D-5.

Table D-5
Summary of Short-Term Noise Measurements (dBA)

Noise Measurement Location	Noise Source	L_{eq}	L_{max}	$L_{(10)}$	$L_{(50)}$	$L_{(90)}$	CNEL
ST-1 ~ 45 ft. west of the centerline of San Miguel Road. (2/10/11, 11:30 to 11:40)	Traffic	58	70	64	48	37	58
ST-2 ~ Highest point on property south of proposed church buildings. (2/10/11, 11:50 to 12:00)	Traffic	41	54	44	40	38	50-53

Figure D-1 Aerial Photo Showing Noise Monitoring Locations

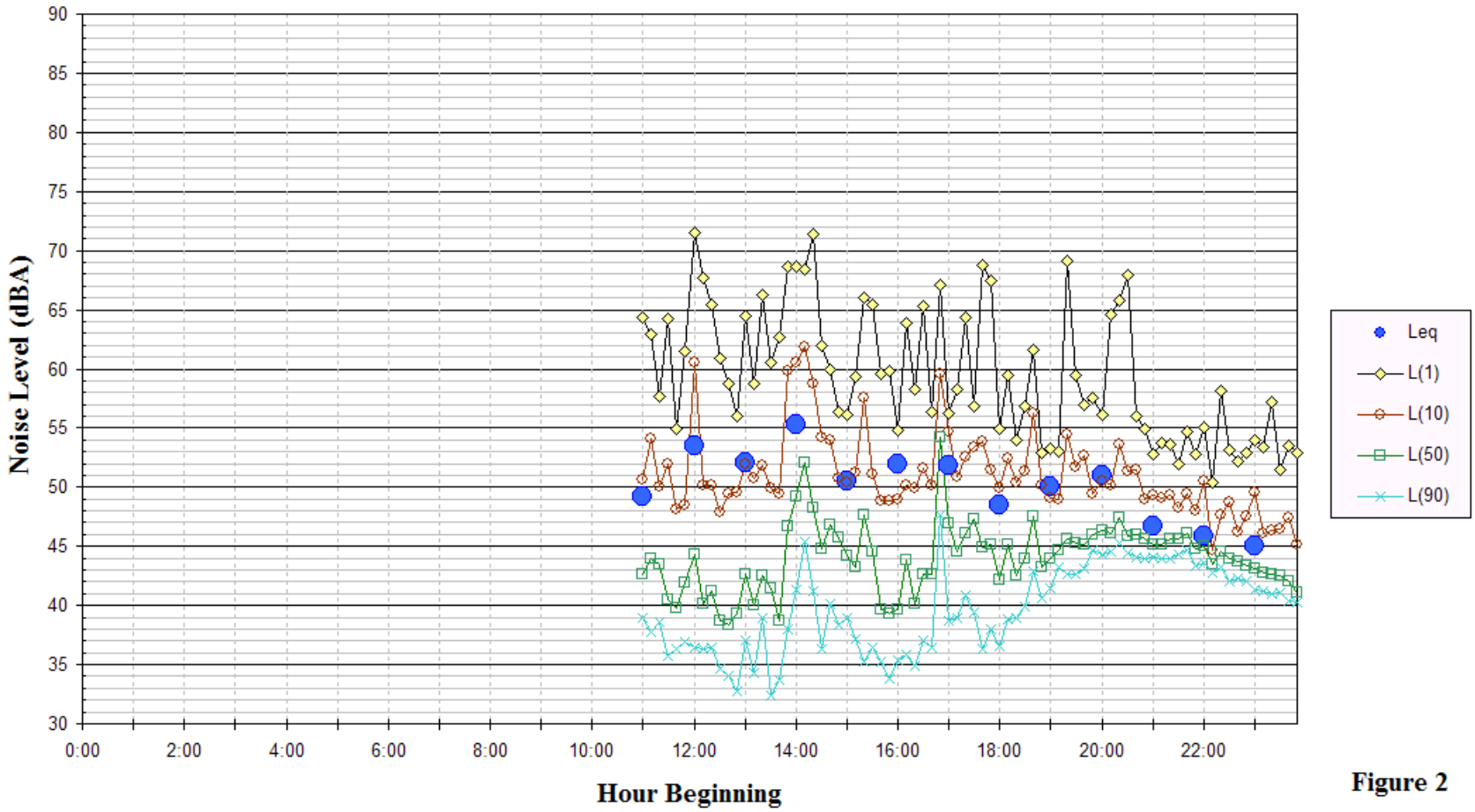
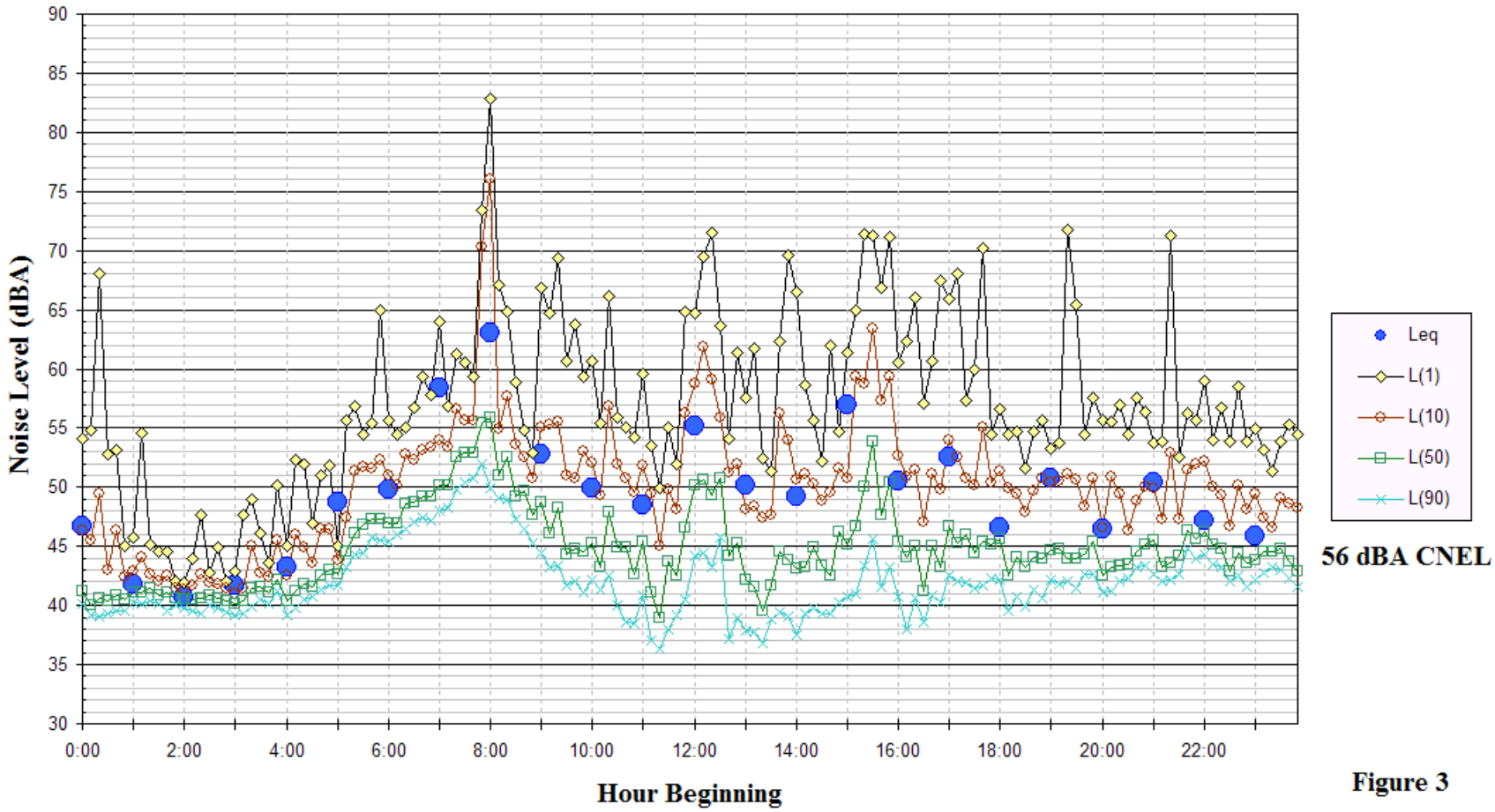

Noise Levels at LT-1
~ 240 feet from San Miguel Road adjacent to the Proposed Driveway
Thursday, February 10, 2011
Noise Level (dBA)
90
85
80
75
70
65
60
55
50
45
40
35
30
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
Hour Beginning
Leq
L(1)
L(10)
L(50)
L(90)

Figure 2

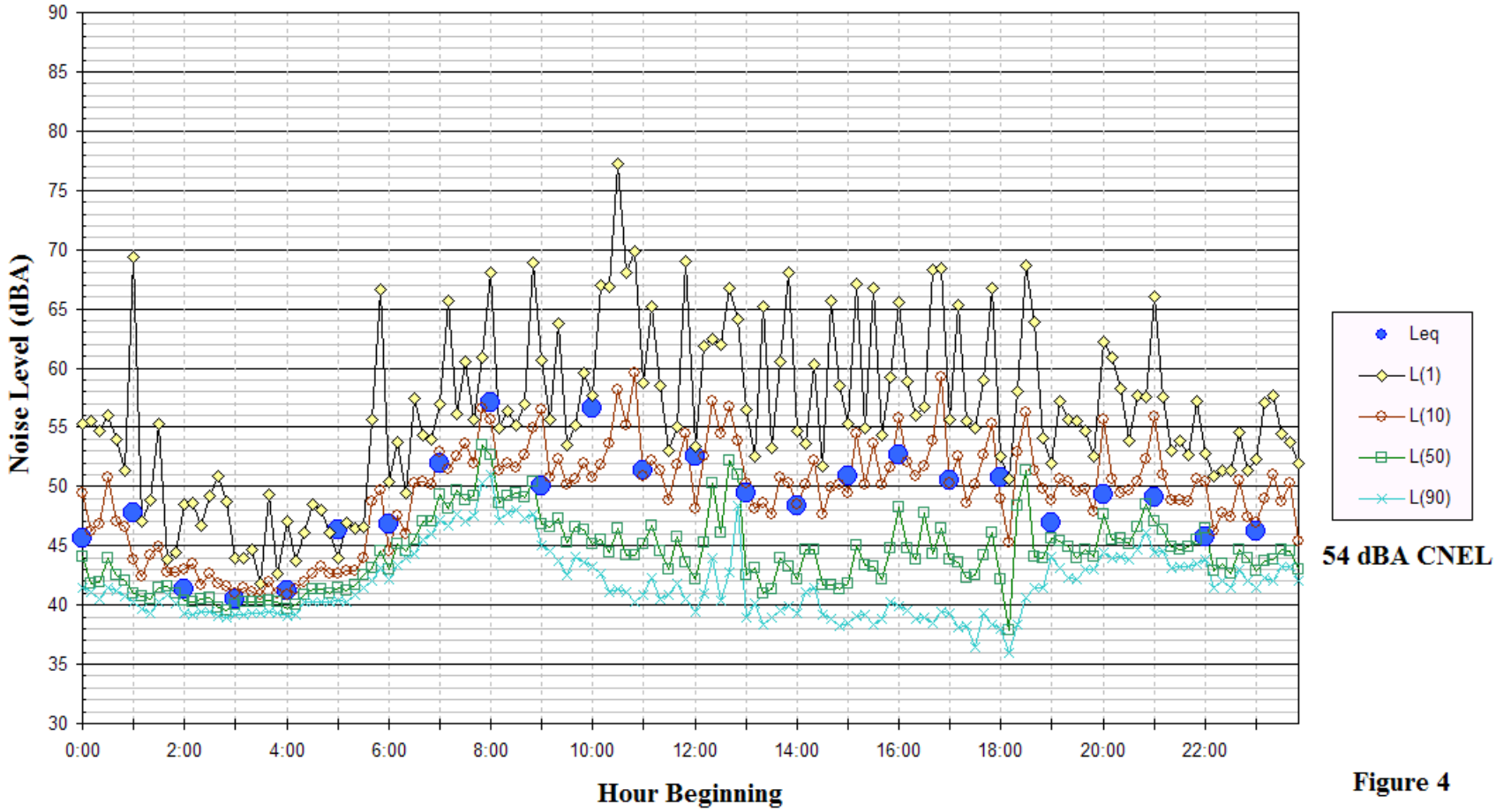
Noise Levels at LT-1
~ 240 feet from San Miguel Road adjacent to the Proposed Driveway
Friday, February 11, 2011



56 dBA CNEL

Figure 3

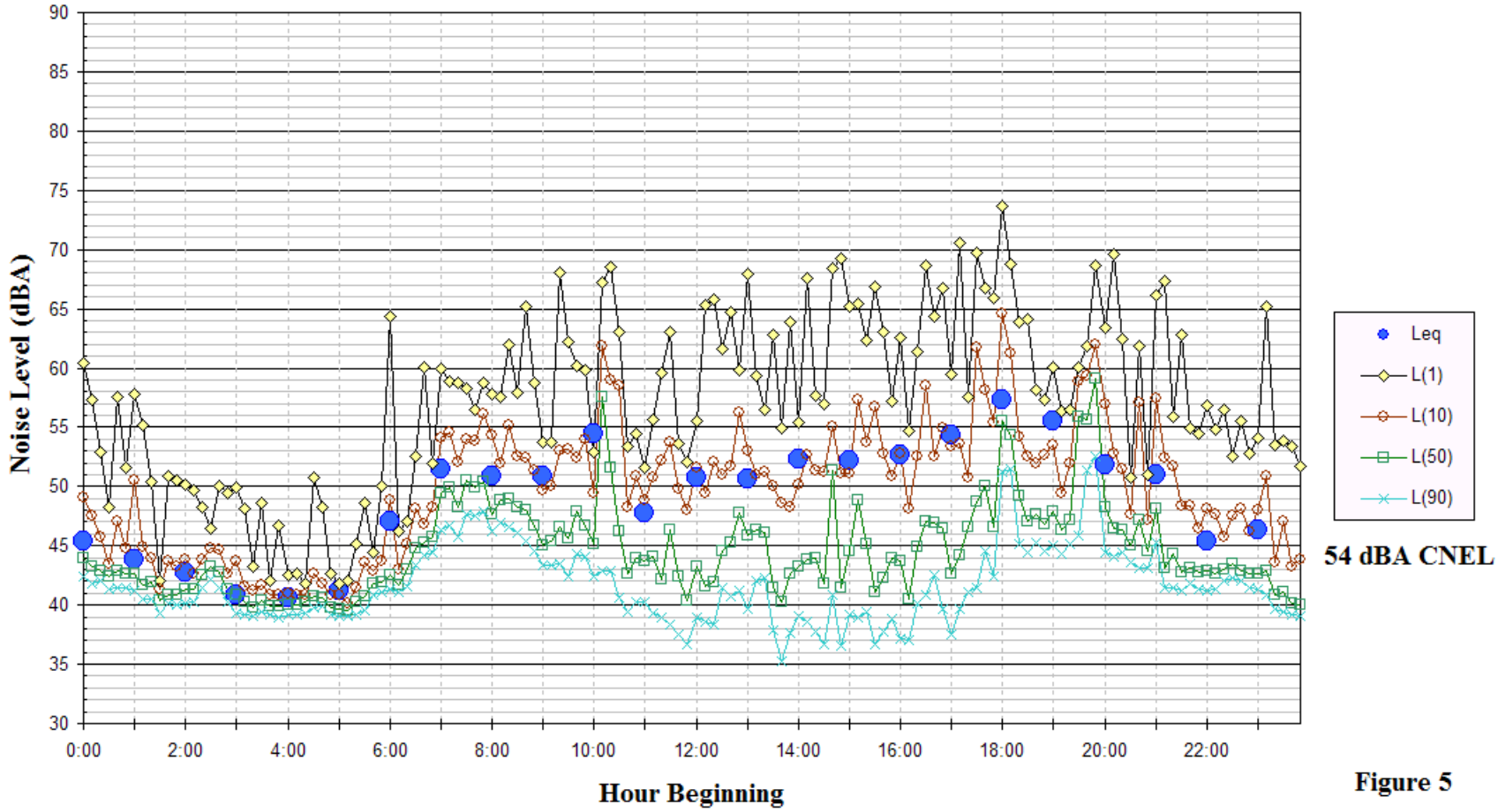
Noise Levels at LT-1
~ 240 feet from San Miguel Road adjacent to the Proposed Driveway
Saturday, February 12, 2011



54 dBA CNEL

Figure 4

Noise Levels at LT-1
~ 240 feet from San Miguel Road adjacent to the Proposed Driveway
Sunday, February 13, 2011



54 dBA CNEL

Figure 5

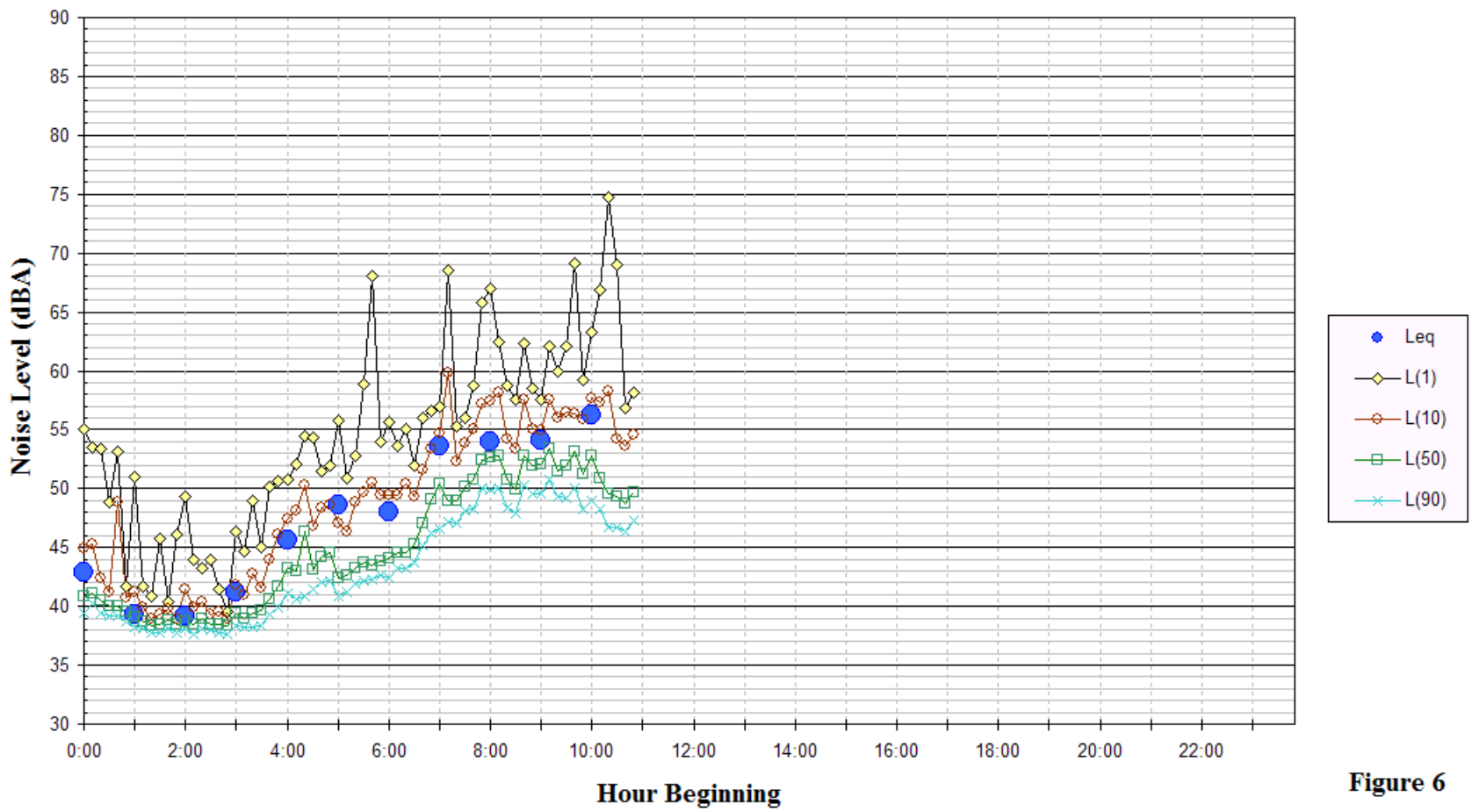

Noise Levels at LT-1
~ 240 feet from San Miguel Road adjacent to the Proposed Driveway
Monday, February 14, 2011
Noise Level (dBA)
90
85
80
75
70
65
60
55
50
45
40
35
30
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
Hour Beginning
Leq
L(1)
L(10)
L(50)
L(90)

Figure 6

Noise Levels at LT-2
~ East Property Line of Site Near Proposed Sanctuary
Thursday, February 10, 2011

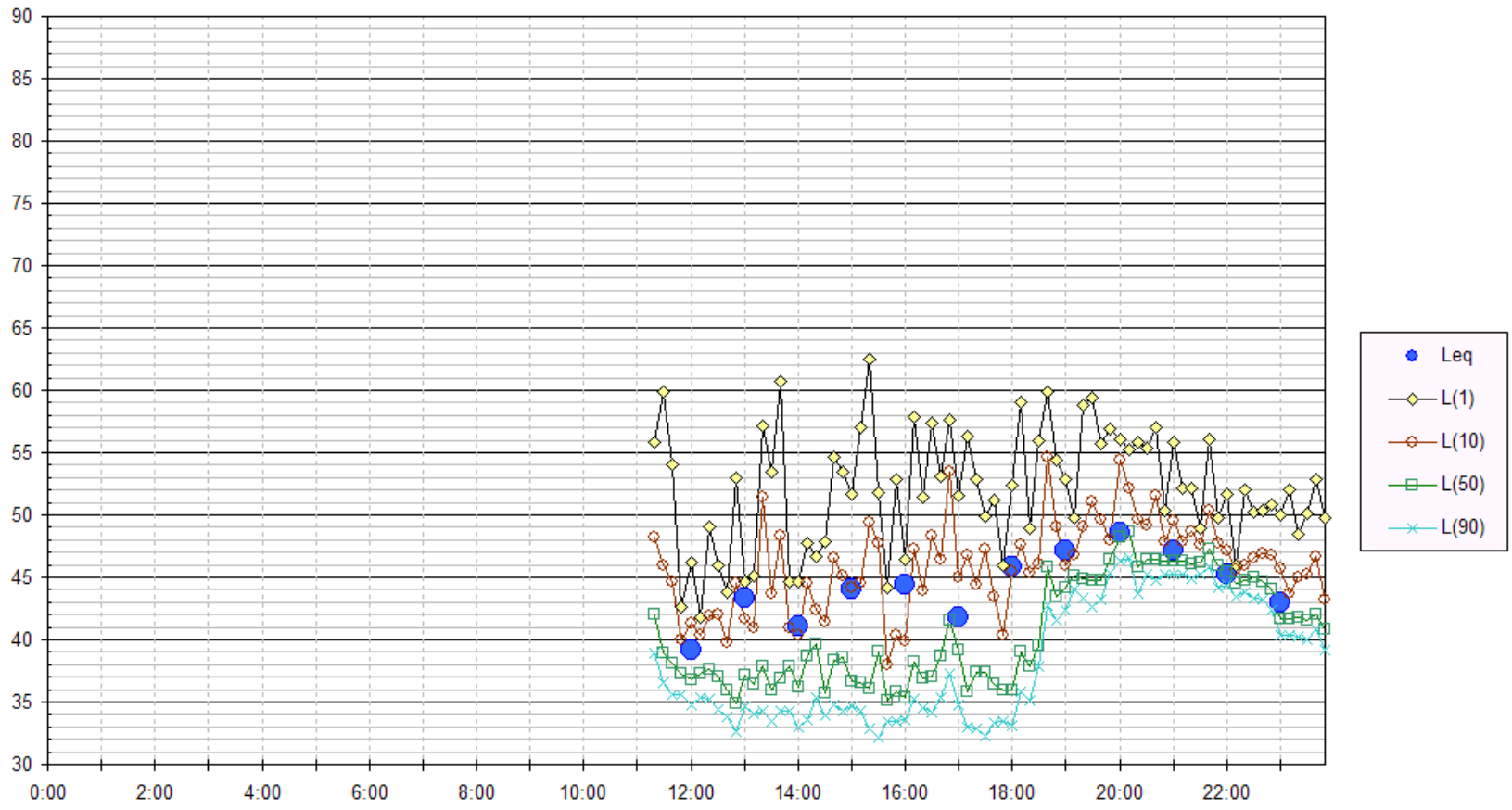
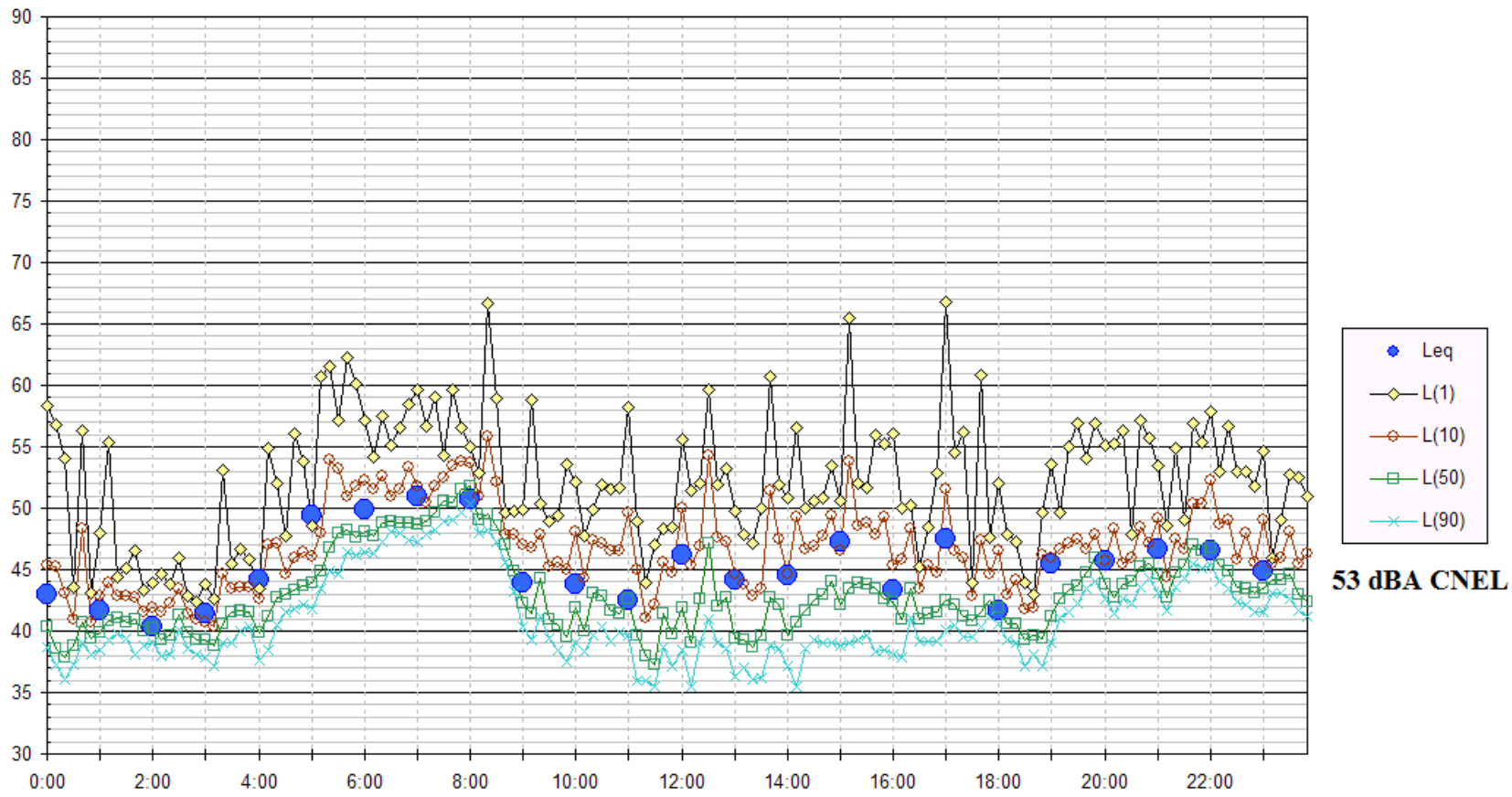


Figure 7

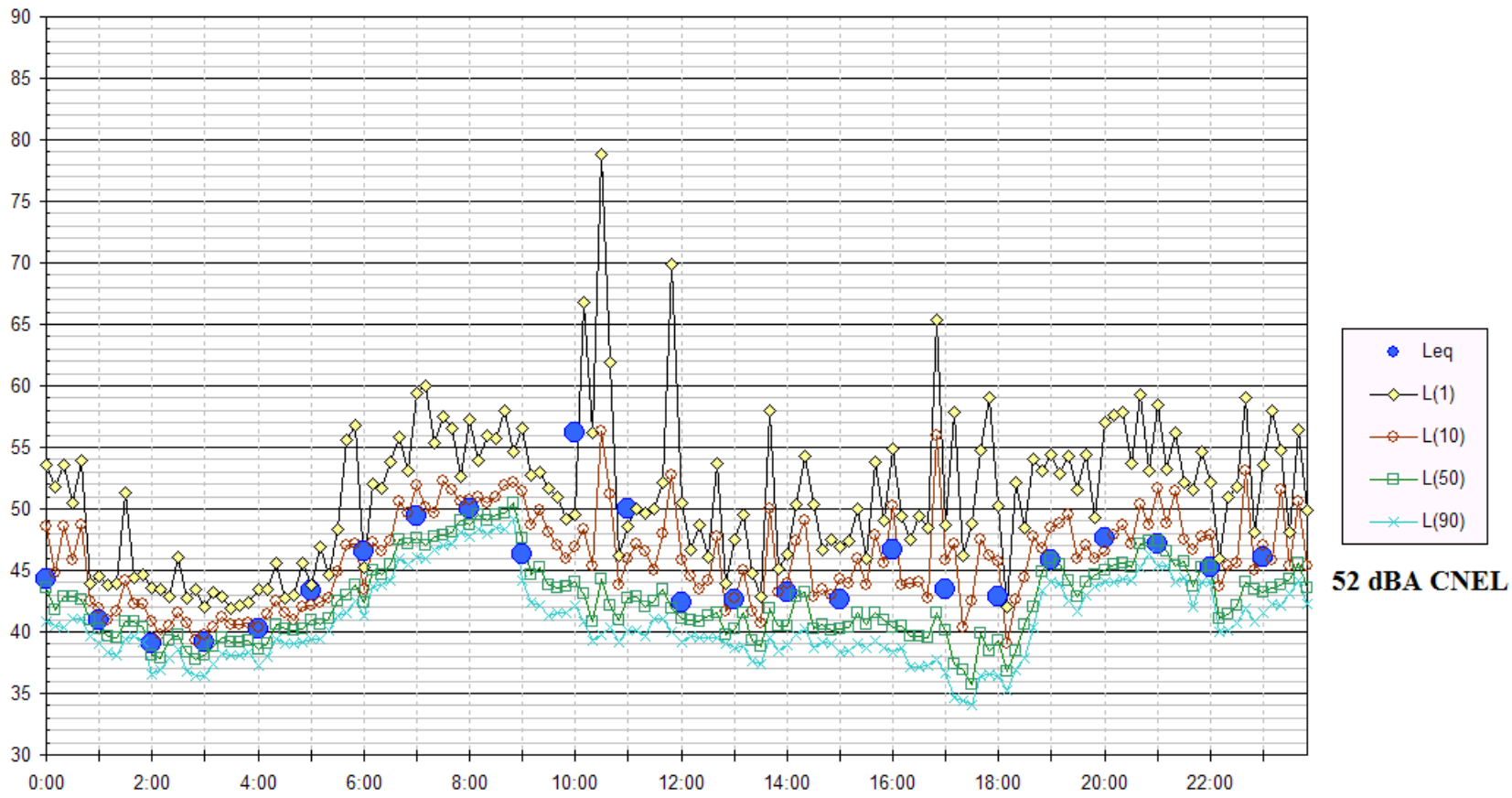
Noise Levels at LT-2
~ East Property Line of Site Near Proposed Sanctuary
Friday, February 11, 2011



53 dBA CNEL

Figure 8

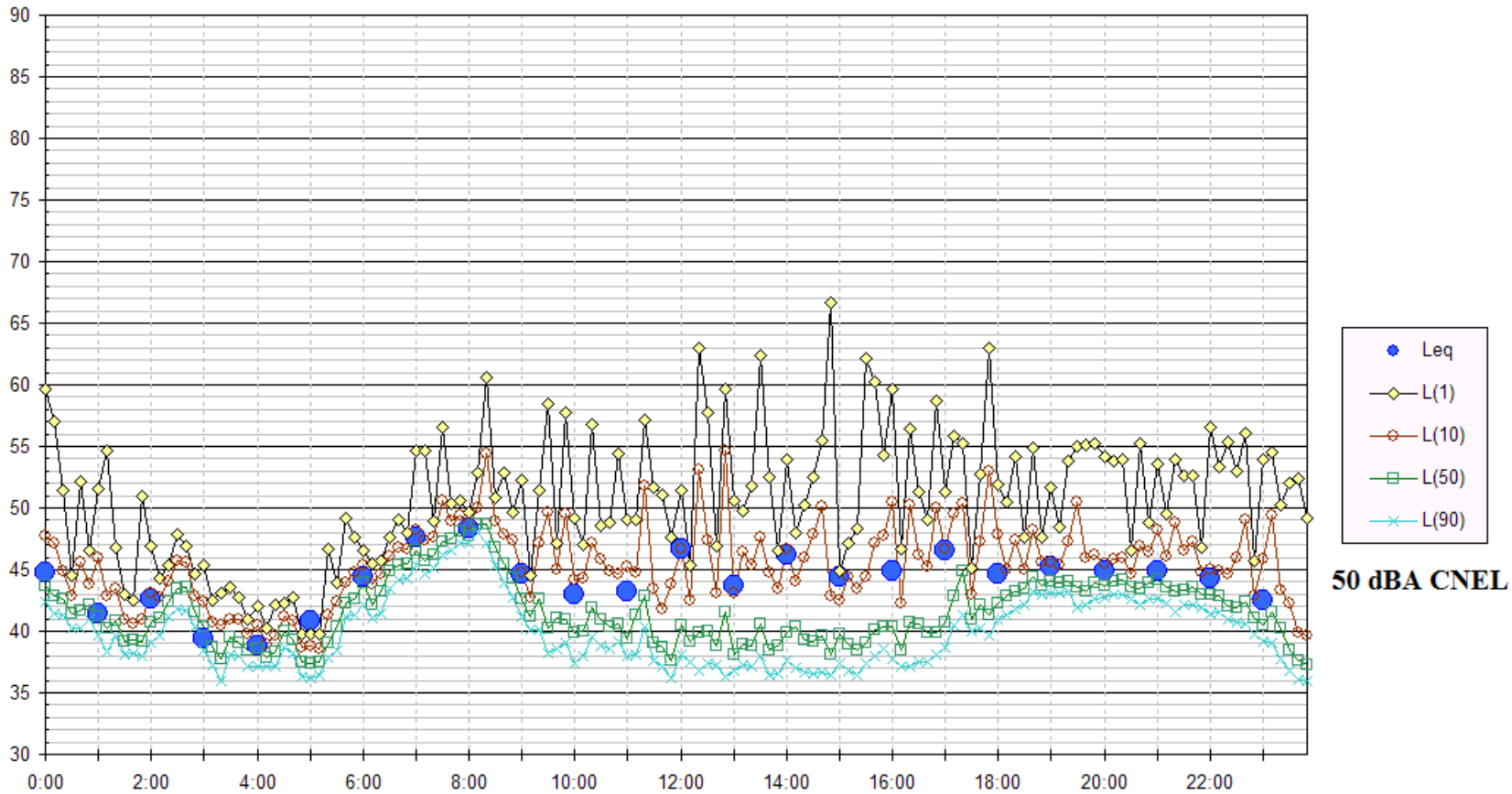
Noise Levels at LT-2
~ East Property Line of Site Near Proposed Sanctuary
Saturday, February 12, 2011



52 dBA CNEL

Figure 9

Noise Levels at LT-2
~ East Property Line of Site Near Proposed Sanctuary
Sunday, February 13, 2011



50 dBA CNEL

Figure 10

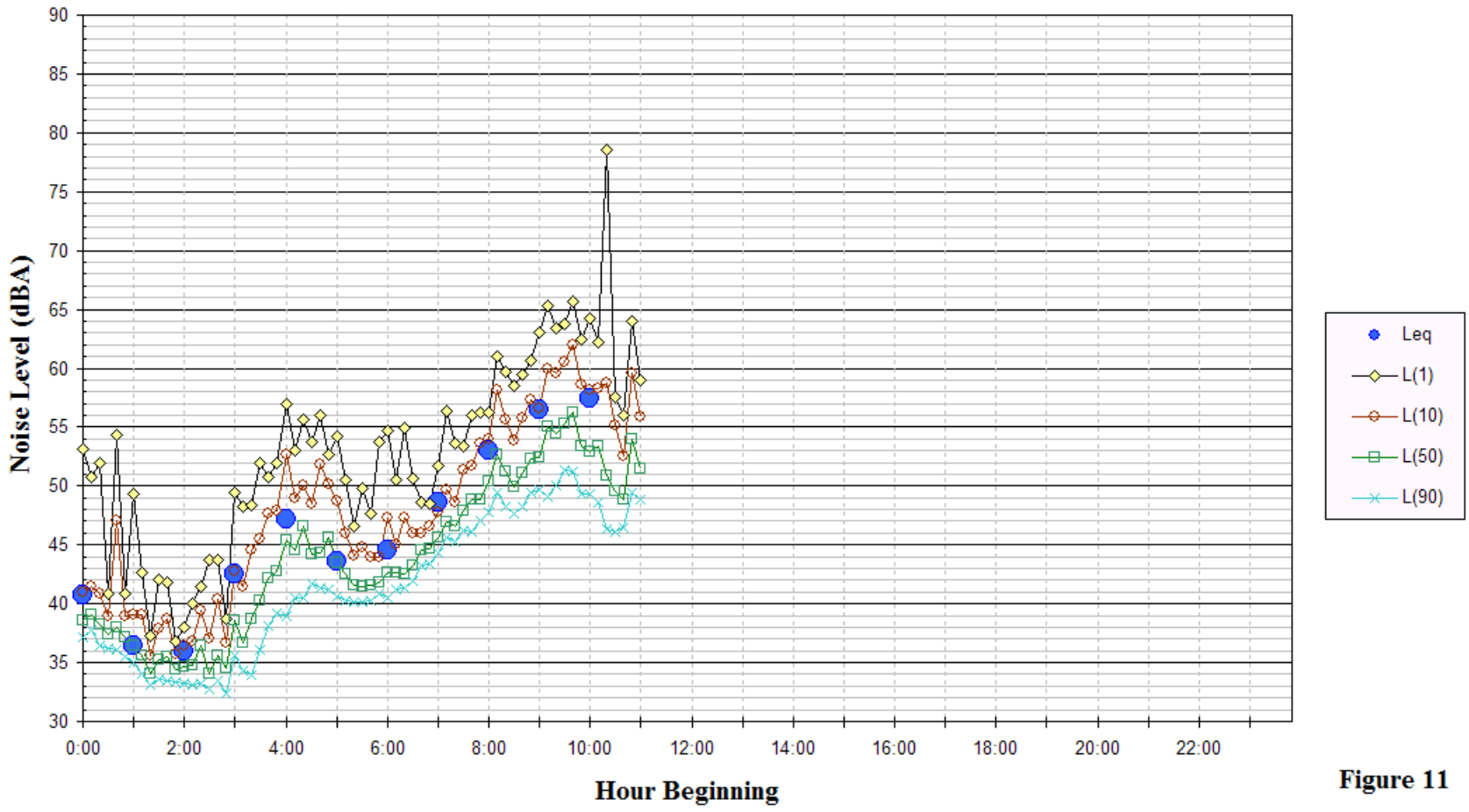

Noise Levels at LT-2
~ East Property Line of Site Near Proposed Sanctuary
Monday, February 14, 2011
Noise Level (dBA)
90
85
80
75
70
65
60
55
50
45
40
35
30
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
Hour Beginning
Leq
L(1)
L(10)
L(50)
L(90)

Figure 11

Construction Noise

Noise impacts from construction activities depend upon the various pieces of construction equipment, the timing and length of noise-generating activities, and the distance between the construction noise sources and noise sensitive areas. During each stage of construction, there would be a different mix of equipment operating at the project site. Typical construction noise levels at a distance of 50 feet are shown in Tables D-6 and D-7. Table D-6 shows the average noise level ranges by construction phase and Table D-7 shows the maximum noise level ranges for different types of construction equipment. Most demolition and construction noise is in the range of 80 to 90 dBA at a distance of 50 feet from the source.

Table D-6
Typical Ranges of Energy Equivalent Construction Noise Levels at 50 Feet, Leq in dBA

	Domestic Housing		Office Building, Hotel, Hospital, School, Public Works		Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station		Public Works Roads & Highways, Sewers, and Trenches	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.

Source: USEPA, Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

Table D-7
Construction Equipment 50-foot Noise Emission Limits

Equipment Category	L_{max} Level (dBA)[1,2]	Impact/Continuous
Arc Welder	73	Continuous
Auger Drill Rig	85	Continuous
Backhoe	80	Continuous
Bar Bender	80	Continuous
Boring Jack Power Unit	80	Continuous
Chain Saw	85	Continuous
Compressor[3]	70	Continuous
Compressor (other)	80	Continuous
Concrete Mixer	85	Continuous
Concrete Pump	82	Continuous
Concrete Saw	90	Continuous
Concrete Vibrator	80	Continuous
Crane	85	Continuous
Dozer	85	Continuous
Excavator	85	Continuous
Front End Loader	80	Continuous
Generator	82	Continuous
Generator (25 KVA or less)	70	Continuous
Gradall	85	Continuous
Grader	85	Continuous
Grinder Saw	85	Continuous
Horizontal Boring Hydro Jack	80	Continuous
Hydra Break Ram	90	Impact
Impact Pile Driver	105	Impact
Insitu Soil Sampling Rig	84	Continuous
Jackhammer	85	Impact
Mounted Impact Hammer (hoe ram)	90	Impact
Paver	85	Continuous
Pneumatic Tools	85	Continuous
Pumps	77	Continuous
Rock Drill	85	Continuous
Scraper	85	Continuous
Slurry Trenching Machine	82	Continuous
Soil Mix Drill Rig	80	Continuous
Street Sweeper	80	Continuous
Tractor	84	Continuous
Truck (dump, delivery)	84	Continuous
Vacuum Excavator Truck (vac-truck)	85	Continuous
Vibratory Compactor	80	Continuous
Vibratory Pile Driver	95	Continuous
All other equipment with engines larger than 5 HP	85	Continuous

Notes:
1 Measured at 50 feet from the construction equipment, with a "slow" (1 sec.) time constant.
2 Noise limits apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.
3 Portable Air Compressor rated at 75 cfm or greater and that operates at greater than 50 psi.

Appendix E

Traffic/Circulation

Appendix E
Traffic Impact Analysis

INTRODUCTION

This report presents the results of a traffic impact analysis performed by Omni-Means for the proposed St. Mary & St. Mina's Coptic Orthodox Church project in the city of Concord, CA. The proposed project would consist of a new sanctuary building and an accessory building with offices and classroom areas. There would also be an onsite parking area. The project site would be located off of San Miguel Road north of Treat Boulevard. Specifically, the site would be located on an undeveloped parcel on the east side of the Contra Costa Canal and Regional Trail which parallels San Miguel Road in the study area. Access to the site would be gained approximately 240 feet south of the Lane Drive-Lanway Court intersection via an existing access road and bridge over the canal. Figure E-1 illustrates the project vicinity and site location. Based on input from City Transportation and Planning staff, some of the key elements of the traffic analysis for this development proposal relate to project trip generation associated with the facility's weekend and weekday activities and the operations of neighboring streets potentially affected by increases from proposed project traffic. Some of the key issues anticipated for the traffic analysis include the following:

- Additional traffic volumes on San Miguel Road;
- Operations impacts at the San Miguel Road project site access;
- Potential queuing problems from church traffic entering and exiting the site;
- The affect of proposed project traffic on local neighborhood streets;
- Potential vehicle conflicts with pedestrians & bicyclists using the canal trail;
- Impacts to emergency vehicle access on project roadway and canal bridge;
- Parking conditions and onsite traffic circulation.

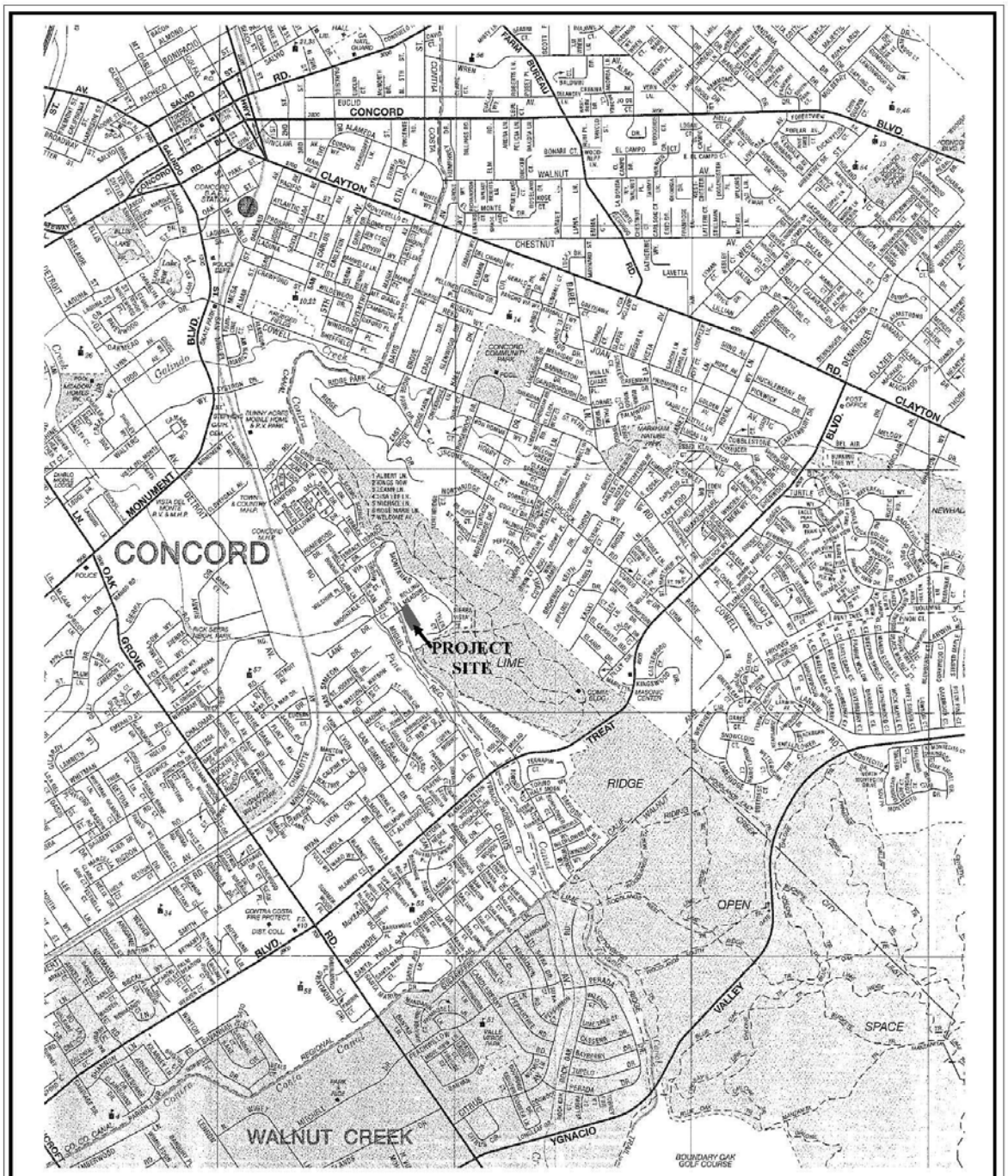
Based on discussions with City staff, the following three scenarios have been analyzed in the transportation and circulation analysis:

- Existing Traffic Conditions
- Future-Base No Project Conditions
- Future-Base Plus Project Conditions

Existing Traffic Conditions: Represents existing traffic flow conditions collected through new field counts on the weekend and weekday at neighboring intersections and roadway segments.

Future-Base No Project Conditions: Represents existing traffic plus traffic growth from anticipated approved projects over the next 3-5 year period. Approved developments may not have begun construction, may be under construction but not occupied, may be partially occupied, or pending.

Future-Base plus Project Conditions: Project trips are added to the future-base traffic volumes. Adverse project impacts are identified and improvements to mitigate the impacts (when possible) are presented.



Project Vicinity Map

North

omni-means

figure 1

Existing Conditions

Street Network

San Miguel Road is the primary access road to/from the project site. The road is oriented in a north-south direction between Treat Boulevard to the south and Cowell Road to the north. From Treat Boulevard, San Miguel Road extends north past the project site to Via Montanas, then turns west for a short distance before turning north again to Cowell Road. San Miguel Road acts as a collector road, serving local vehicle trips to/from the residential areas as well as through trips between Treat Boulevard and Cowell Road. Near the project access roadway, San Miguel Road is a winding two-lane road with little or no shoulder areas. The posted speed limit is 25 mph. However, there are advisory "20 mph" signs posted near the project's access roadway due to the road curvature and lack of shoulders. The roadway parallels Pine Creek which is located on the west side of the street. A guard rail extends along much of this west side. As San Miguel Road approaches Lane Drive/Lanway Court, the northbound approach widens to provide a separate left-turn lane into Lane Drive. North of Lane Drive the road straightens and is improved with curb/gutter, sidewalk, and accommodates on-street parking.

The roadway that would serve the project extends east from San Miguel Road approximately 240 feet south of the Lane Drive-Lanway Court intersection. The project roadway currently provides access to two private residences (#'s 934 & 936) and a plant business (Mother Nature's Interior Plant Rentals) east of the canal. The existing access is an unimproved gravel surface one-lane road approximately 12-15 feet in width. There are parallel driveways on both sides of the project roadway serving private residences.

Lane Drive is a residential street that extends in a westerly direction from San Miguel Road opposite Lanway Court. It is a two-lane street which provides access to the immediate residential area and is unimproved with no curb/gutters or sidewalks.

Lanway Court is a short residential cul-de-sac across from Lane Drive.

Via Montanas extends east from San Miguel Road north of the project site. This road rises to the top of a ridge then curves south where it terminates in a cul-de-sac. It is an improved street with curb/gutters, on-street parking, and sidewalk along the east side. Via Montanas serves residences on both sides and provides access to the Lime Ridge Open Space Recreation Area at two locations. A raised speed hump to control vehicle speeds is installed as a traffic calming measure.

Treat Boulevard is a major arterial street that extends in a primarily east-west direction south of the project site. It provides access to a mix of residential, commercial, and institutional uses as it extends east from the I-680 freeway in the city of Walnut Creek to Clayton Road in the city of Concord.

The nearest regional access to the proposed project site is provided by Interstate 680 (I-680) and State Route 242 (SR-242) located approximately two miles to the west.

Pedestrian and Bicycle Facilities

Pedestrian and bicycle facilities on San Miguel Road are limited to a sidewalk on the east side of the street that begins just north of the access roadway and extends north to Via Montanas. There are no sidewalks south of the access road. The Contra Costa Canal Regional Trail is a Class I pedestrian/bike path located east of San Miguel Road (east of the residences fronting San Miguel Road and west of the canal) that extends through the study area and beyond. The trail provides an alternative route to San Miguel Road to/from the south.

Transit Facilities

Bus transit in the greater area is provided by the Contra Costa County Transit Authority (County Connection).[24]

Route #15 is the closest route to the project site. This route extends between the Concord and Walnut Creek BART stations along Treat Boulevard. Bus stops are located on Treat Boulevard. The route operates between 5:45 a.m. and 8:44 p.m. on weekdays with headways approximately every 60 minutes. The route does not operate on weekends.

Route #616 is a "school route" bus serving students on school days that stops on San Miguel Road a mile north of the project site near Systron Drive.

Existing Operating Conditions

Level-of-Service (LOS) Concept/Methodologies

Level-of-service (LOS) is a measure of operating conditions for motorists which applies a letter grade, ranging from A to F, to successive levels of operating performance. LOS A represents optimum conditions with free-flow movement and minimal delays/congestion. LOS F represents a significantly congested condition where traffic flows can exceed design capacities resulting in long vehicle delays and queues. For roadway segments, LOS is based on the average daily traffic (ADT) volumes. Average daily traffic is defined as the total volume passing a point or segment of a roadway facility, in both directions, during a 24-hour period. For intersections, LOS is based on peak hour volumes and is measured in vehicle delay (seconds) or a volume-to-capacity (v/c) ratio. At unsignalized intersections, the LOS usually refers to the minor street or stop-sign controlled movements. LOS definitions are provided in Tables E-1 and E-2.

Existing Intersection Conditions

In consultation with City staff, San Miguel Road intersections at the project access roadway, Lane Drive/Lanway Court, and Via Montanas were analyzed for level-of-service conditions. To assess vehicle traffic flows, weekend (Sunday) and weekday peak period intersection turning movement counts were conducted.[25] The weekend counts were conducted during the church's anticipated peak trip generating hours (8:00 am – 2:00 pm). The weekday counts were conducted during peak commute periods (7:00-9:00 a.m. and 4:00-6:00 p.m.).

[24] *Contra Costa County Connection Agency (County Connection), Maps and Schedules (as of December, 2010).*
[25] *Omni Means Ltd, Intersection counts, Sunday and Weekday peak periods, March 10,11,14,21, 2010.*

TABLE E--1
LEVEL-OF-SERVICE CRITERIA FOR INTERSECTIONS

Level of Service	Type of Flow	Delay	Maneuverability	Control Delay (seconds/vehicle)		
				Signalized	Unsignalized	All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10.0 secs. ≤ 0.60 v/c	≤ 10.0	≤ 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and ≤ 20.0 secs. 0.61 – 0.70 v/c	>10 and ≤ 15.0	>10 and ≤ 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20 and ≤ 35.0 secs. 0.71 – 0.80 v/c	>15 and ≤ 25.0	>15 and ≤ 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles of stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35 and ≤ 55.0 secs. 0.81 – 0.90 v/c	>25 and ≤ 35.0	>25 and ≤ 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55 and ≤ 80.0 secs. 0.91 – 1.00 v/c	>35 and ≤ 50.0	>35 and ≤ 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0 secs. > 1.00 v/c	> 50.0	> 50.0

References: 1. Highway Capacity Manual, Fourth Edition, Transportation Research Board, 2000, Contra Costa Transportation Authority (CCTA), Technical Procedures Update, Final, July 9, 2006. For the purposes of this study, CCTA intersection methodology has been used for signalized intersections yielding an LOS and v/c ratio.

TABLE E--2
LEVEL OF SERVICE (LOS) CRITERIA FOR ROADWAYS

	LOS "A"	LOS "B"	LOS "C"	LOS "D"	LOS "E"
All Facilities (Volume-to-Capacity Ratio (V/C))	<0.6	0.6-0.7	0.7-0.8	0.8-0.9	0.9-1.0
	Two-way Average Daily Traffic (ADT) Threshold				
Roadway Segment Type	**LOS "A"**	**LOS "B"**	**LOS "C"**	**LOS "D"**	**LOS "E"**
6-Lane Freeway	60,000	80,000	100,000	120,000	140,000
4-Lane Freeway	35,000	50,000	65,000	80,000	95,000
4-lane Rural Highway	24,000	28,000	32,000	36,000	40,000
2-Lane Rural Highway	12,000	14,000	16,000	18,000	20,000
6-Lane Divided Arterial	32,000	38,000	43,000	49,000	54,000
4-Lane Divided Arterial	22,000	25,000	29,000	32,500	36,000
4-Lane Undivided Arterial	18,000	21,000	24,000	27,000	30,000
2-Lane Undivided Arterial	9,000	10,500	12,000	13,500	15,000
4-Lane Collector	12,000	15,000	18,000	21,000	24,000
2-Lane Collector	6,000	7,500	9,000	10,500	12,000

Note: 1. Based on "Highway Capacity Manual", Transportation Research Board, 2000 peak hour capacities. Daily capacities in the study area are assumed as nine times the peak hour capacity.

2. All volumes are approximate and assume typical roadway characteristics. Actual threshold volumes for each Level of Service listed above may vary depending on a variety of factors including (but not limited to) roadway curvature and grade, intersection or interchange spacing, driveway spacing, percentage of trucks and other heavy vehicles, travel lane widths, signal timing characteristics, on-street parking, volume of cross traffic and pedestrians, etc.

The intersections were analyzed utilizing Synchro/SimTraffic software based on *HCM 2000* operations methodology. This methodology yields an intersection LOS and vehicle delay expressed in seconds. The existing volumes are shown in Figure E-2.

All three intersections are operating at LOS A (7"-9" delay) during the Sunday peak hours. On weekdays, the San Miguel Road/Via Montanas intersection operates at LOS A during both peak hours as well. The minor-street approaches at the project roadway and Lane Drive-Lanway Court intersections operate at LOS B or better (8"-11" delay) during the weekday peak hours. The minor-street volumes are very low (twelve or less) and vehicle queues are minimal. (LOS calculation worksheets are on file with the City of Concord Planning Division.) Existing intersection LOS is shown in Table E-3.

TABLE E-3
EXISTING CONDITIONS: INTERSECTION LEVELS-OF-SERVICE
SUNDAY CHURCH PEAK & WEEKDAY COMMUTE PEAK HOURS

#	Intersection	Sunday AM LOS, Delay	Sunday Mid-day LOS, Delay	Weekday AM LOS, Delay	Weekday PM LOS, Delay
1	San Miguel Rd./Project Roadway (MSSC)	WB: A, 8.8" SB L: A, 0.4"	A, 9.1" A, 0.4"	B, 10.0" A, 0.2"	A, 9.6" A, 0.2"
2	San Miguel Rd./Lane Dr.-Lanway Ct. (MSSC)	WB: A, 8.9" EB: A, 8.8"	A, 9.2" A, 9.3"	B, 10.8" B, 10.2"	B, 10.4" B, 10.0"
3	San Miguel Rd./Via Montanas (AWSC)	A, 7.1"	A, 7.2"	A, 8.2"	A, 7.6"

MSSC = Minor-Street Stop Control. AWSC = All-Way Stop Control. WB & EB refer to LOS for stopped westbound & eastbound approaches. SB L refers to LOS for southbound left-turn movement.
Intersection LOS calculations based on HCM 2000 methodology using Synchro-Simtraffic software.

Existing Roadway Conditions

A level-of-service analysis was conducted for San Miguel Road in the project vicinity. Machine tube counts tabulating the 24-hour average daily traffic (ADT) volumes were conducted over the course of a week near the project access road.[26] The existing ADT volumes are shown in Figure E-2.

Table E-4 lists the existing roadway segment LOS conditions. As indicated in the table, San Miguel Road is currently operating at LOS A through the study area.

TABLE E-4
EXISTING CONDITIONS: ROADWAY SEGMENT LEVELS-OF-SERVICE
SUNDAY & WEEKDAY

Roadway Segment	Configuration	Sunday ADT, LOS	Saturday ADT, LOS	Weekday ADT, LOS
San Miguel Rd. near project roadway	2-Lane Collector	1,850 A (LOS A: 0-6,000 ADT)	2,100 A	2,800 A

Source: Baymetrics Traffic Resources, ADT counts on San Miguel Road, March 10-16, 2010.

Future-base Traffic Conditions

Future-base Volumes

Future-base traffic conditions represent existing plus approved/pending development traffic that would be generated in the near-term (3-5 years). Based on discussions with City officials, there are no specific projects within the study area anticipated within five years. However, in order to provide a conservative estimate, existing traffic volumes were increased by five percent (reflecting growth of one percent per year for five years). The future-base volumes are shown in Figure E-3.

Future-base Intersection Conditions

With the future-base traffic volumes, the intersection LOS has been calculated and is shown in Table E-5. With future-base volumes, the LOS would remain unchanged from existing conditions. Vehicle delays would increase slightly, but the intersections would continue to operate at LOS B or better.

[26] *Baymetrics Traffic Resources, Average Daily Traffic (ADT) counts,San Miguel Road,, March10-16, 2010.*

TABLE E-5
FUTURE-BASE CONDITIONS: INTERSECTION LEVELS-OF-SERVICE
SUNDAY & WEEKDAY

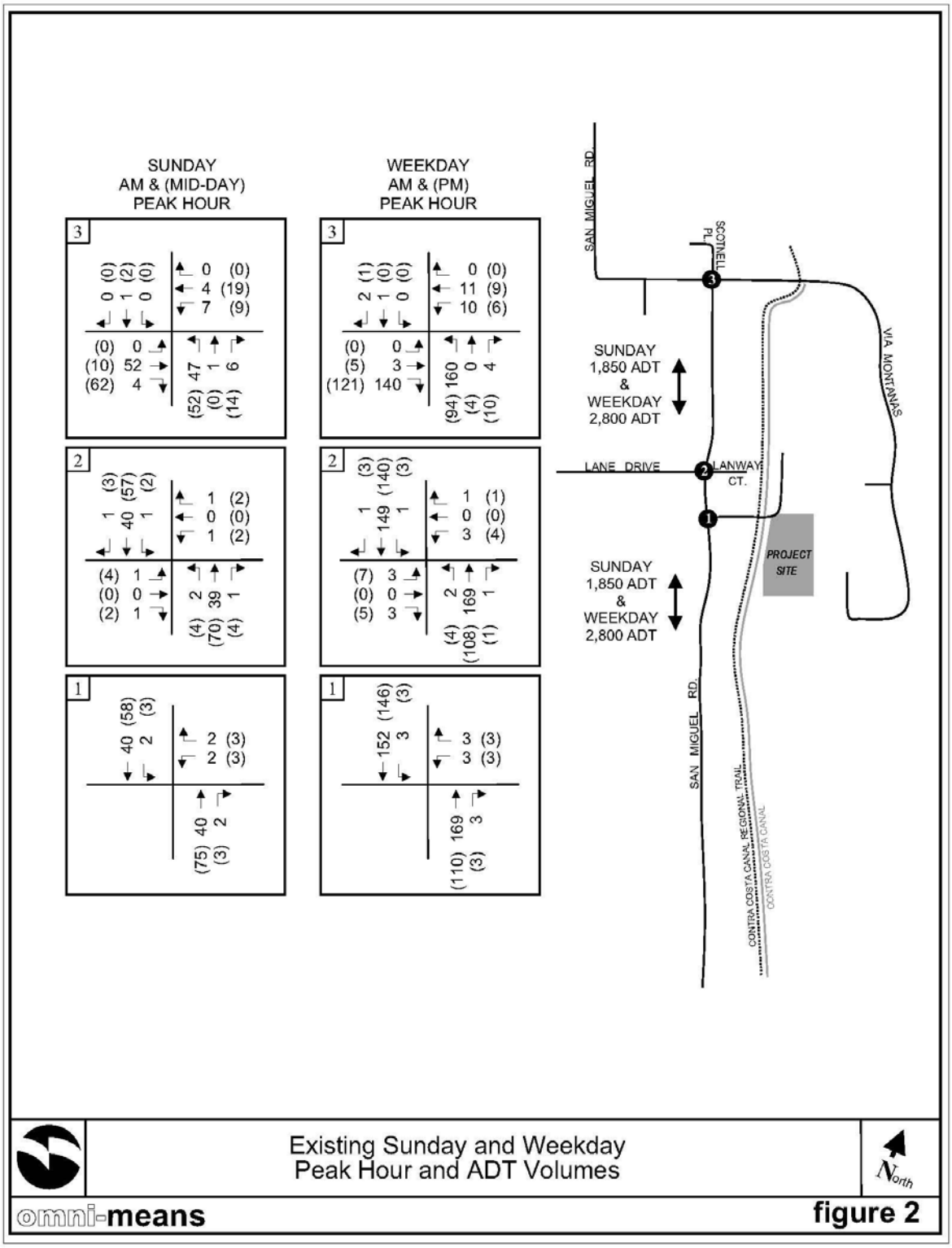
Intersection		SUNDAY AM Existing LOS, Delay	SUNDAY AM Future Base LOS, Delay	SUNDAY MID-DAY Existing LOS, Delay	SUNDAY MID-DAY Future Base LOS, Delay	WEEKDAY AM Existing LOS, Delay	WEEKDAY AM Future Base LOS, Delay	WEEKDAY PM Existing LOS, Delay	WEEKDAY PM Future Base LOS, Delay
San Miguel Rd. / Project Roadway	WB:	A 8.8"	A 8.8"	A 9.1"	A 9.1"	B 10.0"	B 10.1"	A 9.6"	A 9.7"
	SB L:	A 0.4"	A 0.4"	A 0.4"	A 0.4"	A 0.2"	A 0.2"	A 0.2"	A 0.2"
San Miguel Rd. / Lane Dr.-Lanway Ct.	WB:	A 8.9"	A 8.9"	A 9.2"	A 9.2"	B 10.8"	B 10.9"	B 10.0"	B 10.5"
	EB:	A 8.8"	A 8.9"	A 9.3"	A 9.3"	B 10.2"	B 10.3"	A 7.5"	B 10.1"
San Miguel Rd. / Via Montanas		A 7.1"	A 7.2"	A 7.3"	A 7.3"	A 8.2"	A 8.3"	A 7.6"	A 7.7"

Future-base Roadway Conditions

The roadway segment LOS conditions are shown in Table E-6. San Miguel Road would continue to operate at LOS A with future-base traffic volumes.

TABLE E-6
FUTURE-BASE CONDITIONS: ROADWAY SEGMENT LEVELS-OF-SERVICE
SUNDAY & WEEKDAY

Roadway Segment	Configuration	Sunday Existing ADT, LOS	Sunday Future-Base ADT, LOS	Weekday Existing ADT, LOS	Weekday Future-Base ADT, LOS
San Miguel Rd. near project roadway	2-Lane Collector	1,850 A (LOS A = 0-6,000 ADT)	1,950 A	2,800 A	2,950 A


SUNDAY
AM & (MID-DAY)
PEAK HOUR
WEEKDAY
AM & (PM)
PEAK HOUR
SAN MIGUEL RD.
SCOTNELL PL.
VIA MONTANAS
SUNDAY
1,850 ADT
&
WEEKDAY
2,800 ADT
LANE DRIVE
LANWAY CT.
PROJECT SITE
SAN MIGUEL RD.
CONTRA COSTA CANAL REGIONAL TRAIL
CONTRA COSTA CANAL
Existing Sunday and Weekday
Peak Hour and ADT Volumes
North
omni-means
figure 2

Proposed Project Conditions

Project Description

The proposed church project would be located on an undeveloped site east of San Miguel Road and north of Treat Boulevard. Based on the most recent project description and building program supplied to the City, the project would consist of the following uses: Sanctuary building - used for worship and devotional gatherings (13,020 sq. ft. with maximum capacity of 297 people); Classroom building (2,840 sq. ft.); Multi-use building (6,280 sq. ft.); and Chapel building (1,140 sq. ft.).[27]

Project Activity Schedule

Vehicle trips for the project were calculated based on activity schedules submitted by church officials, the proposed site plan, and surveys conducted at the church's existing location on Clayton Road.[28] [29] [30] The proposed project's activity and frequency schedule is shown in Table E-7.

The most active periods for attendance and vehicle circulation would occur outside of the weekday AM and PM peak hour commute periods. The Sunday church service would generate the highest number of project trips on a regular basis. Existing church attendance ranges from 100-150 people and is expected to remain at the current level at the new location for several years. However, the new sanctuary would have a maximum occupancy of 297 persons.

On weekdays, vehicle trip activity is primarily generated by classes/meetings at night. The schedule indicates these generally occur between 6:30 and 9:30 p.m., with approximately 25 persons per activity. However, on some evenings two activities occur simultaneously (during summer the youth and adult classes overlap on Tuesdays and Wednesdays), resulting in 35-50 attendees. A smaller number of trips are generated on some mornings by the weekday mass services which are attended by 10-15 persons.

The church also holds an annual festival (special event) which typically occurs in October. Attendance consists of 100-200 families (600 people) over a three day period.

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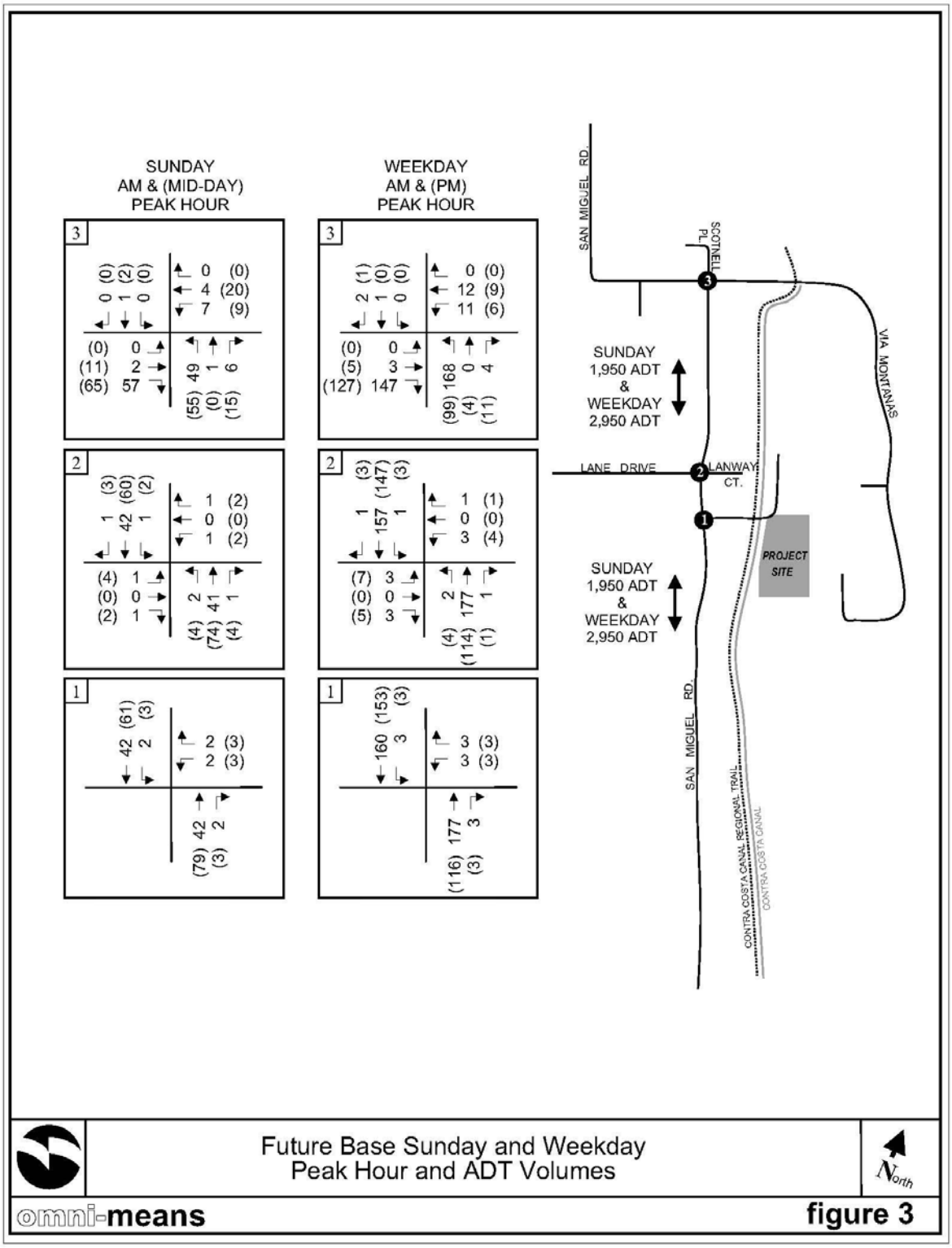
[27] *Mills, Carolyn, Mills Associates Planning and Engineering Services, Lafayette, CA, correspondence,March, 2012 .*

[28] *Guorgui, George, St. Mary & St. Minas Coptic Orthodox Church, Correspondence regarding proposed activity schedule (including written submittal), September 21 – November 8, 2010.*

[29] *Humann Company, Engineering & Surveying, Tentative Site, Grading, Drainage, and Utility Plan for St. Mary & St. Mina's Coptic Orthodox Church in Concord, 1021 Brown Avenue, Lafayette, CA 94549, January 27, 2012 set.*

[30] *Omni-Means Engineers and Planners, Existing church surveys during peak trip generation periods: Sunday 8:00 a.m. - 2:00 p.m. and Weeknight 6:00-10:00 p.m., March 7,12,17, & November 7, 2010, 2500 Clayton Road, Concord, CA..*



Future Base Sunday and Weekday
Peak Hour and ADT Volumes

omni-means

figure 3

TABLE E-7
PROPOSED PROJECT ACTIVITY SCHEDULE

Day	Use/Activity	Time Period	Existing Attendance
Sunday	Mass Service / Sunday School	8:00 a.m.-2:00 p.m. Peak vehicle activity 10:00-11:00 am & 1:00-2:00 pm	100-150 Persons
Monday	Mass Service	6:30-8:00 a.m.	10-15
Tuesday	Woman Meeting (every other Tues.)	7:30-9:30 p.m.	5-10
	Youth Club (Summer)	6:30-8:30 p.m.	20-25
Wednesday	Mass Service	9:00-10:00 a.m.	10-15
	Bible Study	7:30-9:30 p.m.	10-25
	Youth Club (Summer)	6:30-8:30 p.m.	20-25
Thursday	Youth Club (Summer)	6:30-8:30 p.m.	20-25
Friday	Youth Club (Winter)	7:30-9:30 p.m.	20-25
Saturday	Vespers	7:30-9:30 p.m.	10-25
Once per Year (October)	Annual Festival (3 days)	9:00 a.m. – 6:30 p.m.	200-600

Source: St. Mary & St. Mina Coptic Orthodox Church, Mr. George Guorgui.

Project Trip Generation

Sunday Trip Generation

The existing church facility has one Sunday service attended by 100-150 people based on discussions with church officials. Two surveys were conducted by Omni-Means which observed the vehicle trips, parking demand, and the number of persons riding in each vehicle (automobile occupancy). The highest surveyed volumes are shown in Table E-8. Attendance was observed to be 130 persons. Church officials expect attendance levels to remain unchanged for several years, then increase gradually over time. The new sanctuary would have a maximum occupancy of 297 persons. As a conservative estimate, this study evaluated project conditions assuming attendance equals the maximum occupancy of 297 persons.

Applying the observed automobile occupancy of 2.13 persons per car to 297 attendees, the project would generate 280 total trips, with 140 inbound before the service and 140 outbound after the service (see Table E-9).

The surveyed arrival/departure rates found approximately 60% of the trips occur in the peak hour before the service (10:00–11:00 a.m.) and after the service (1:00-2:00 p.m.). Therefore, with 299 persons the project would be expected to generate peak hour volumes of 84 inbound trips before the service and 84 outbound trips after the service.

It is possible that future arrival/departure rates would remain similar to existing conditions. However, to remain conservative, the LOS analysis assumed all 280 trips occur within one hour of the service (140 in before the service and 140 out after the service).

Weekday Trip Generation

Church officials indicate morning mass attendance is approximately 15 people. Highest attendance occurs at night, with 25 people per class. On some nights two classes meet. According to the schedule, most of the weekday trip generation occurs outside of the peak commute periods of 7:00-9:00 a.m. and 4:00-6:00 p.m. (when background volumes are highest). As a conservative measure, class sizes were increased to reflect the potential church membership of 297 persons. Since future activities could be scheduled during the commute period, the project trips were added to the peak commute hour volumes for the analysis. The highest number of project trips would occur on nights when two classes (youth and adult) meet. The existing class times are staggered so the trips from each class occur at different times. However, to account for the possibility that future classes could be scheduled at the same time, the project trips were generated assuming both class times are the same.

An adult class with 50 attendees (and the surveyed occupancy of 1.41 persons per vehicle) would generate 72 trips (36 in before class and 36 out afterward). The youth class trips were generated assuming an adult driver drops-off before class and picks-up after the class. With 50 attendees the class would generate approximately 144 trips (36 in and 36 out before the class, plus 36 in and 36 out after the class). The two classes combined would generate 216 trips (72 in and 36 out before the classes, plus 36 in and 72 out after the classes). The proposed project trip generation based on these assumptions is shown in Table E-9.

It is noted again that the trip generation for the classes is based on several conservative assumptions and would likely be lower on average (single class days, staggered class times, lower attendance, etc.) than calculated.

On weekday mornings that have an activity (Monday and Wednesday church service), the existing church generates approximately 30 trips, with 15 in before mass and 15 out afterward. If morning service attendance mirrors the membership's potential to approximately double in size, the service would generate 60 trips (30 in before the mass and 30 out after the mass).

TABLE E-8
EXISTING CHURCH VOLUMES

Activity	Hourly Volumes	In	Out	Total
Sunday Church Service: Attendance = 130 persons. Maximum Parking Demand = 61 vehicles. Vehicle Occupancy = 2.13 people/vehicle. Total church trips =122 (61 in, 61 out). Peak Hour volumes = 38 in, 35 out (60% of totals).	8:00-9:00 am:	4	0	4
	9:00-10:00 am:	15	0	15
	10:00-11:00 am:	38	0	38
	11:00-12:00 pm:	4	0	4
	12:00-1:00 pm:	0	14	14
	1:00-2:00 pm:	0	35	35
	2:00-3:00 pm:	0	6	6
Weekday PM Class: Attendance = 24 persons. Maximum Parking Demand = 17 vehicles. Vehicle Occupancy = 1.41 people/vehicle. Total trips = 34 (17 in, 17 out)	6:00-7:00 pm:	8	0	8
	7:00-8:00 pm:	9	0	9
	8:00-9:00 pm:	0	7	7
	9:00-10:00 pm:	0	10	10

Source: Omni-Means Engineers and Planners, Highest volumes from surveys at existing church location (2500 Clayton Road, Concord), March 7, 12, 17, November7, 2010.

TABLE E-9
PROPOSED PROJECT TRIP GENERATION

Activity	Trips
Weekend Peak Activity: (Sunday Church Service) Max. Sanctuary Occupancy = 297 people. Vehicle Occupancy = 2.13 persons/vehicle. Vehicle Trips = 280 (140 in, 140 out).	140 in 0 out 140 total Before mass 0 in 140 out 140 total After mass **140 in 140 out 280 Total**
Weekend Daily Trips	**Approximately 300 Total**
Weekday AM Peak Activity: (Monday/Wednesday Morning Church Service) 30 people @ 1 person/vehicle Vehicle Trips = 60 (30 in, 30 out)	30 in 0 out 30 total Before mass 0 in 30 out 30 total After mass **30 in 30 out 60 Total**
Weekday PM Peak Activity: Vehicle Occupancy = 1.41 persons/vehicle Youth Class: 50 people Dropoff = 2 trips (1 in, 1out) Pickup = 2 trips (1 in, 1 out) Vehicle Trips = 144 (72 in, 72 out) Adult Class: 50 people Vehicle Trips = 72 (36 in, 36 out)	Youth Class: 36 in 36 out 72 total Before Class 36 in 36 out 72 total After Class **72 in 72 out 144 Total** Adult Class: 36 in 0 out 36 total Before Class 0 in 36 out 36 total After Class **36 in 36 out 72 Total** Both Classes: 72 in 36 out 108 total Before Classes 36 in 72 out 108 total After Classes **108 in 108 out 216 Total**
Weekday Daily Trips	**Approximately 300 Total**

Project trip generation assuming membership increases to sanctuary maximum of 297 persons.

Project Trip Distribution

Discussions with the project sponsor on the travel patterns of members to/from the site indicate that all of the existing church members would likely gain access from the south via Treat Boulevard and San Miguel Road. However, new church membership could draw from areas on both sides of the project site. Existing attendance is approximately 50% of the capacity of the proposed sanctuary. For the potential 50% increase, it was assumed half of new membership would be to/from the north and half would be to/from the south on San Miguel Road. Therefore, the combined existing and future trip distributions result in 75% to/from the south and 25% to/from the north on San Miguel Road. The project trips are shown in Figure E-4.

Future-base Plus Project Intersection Conditions

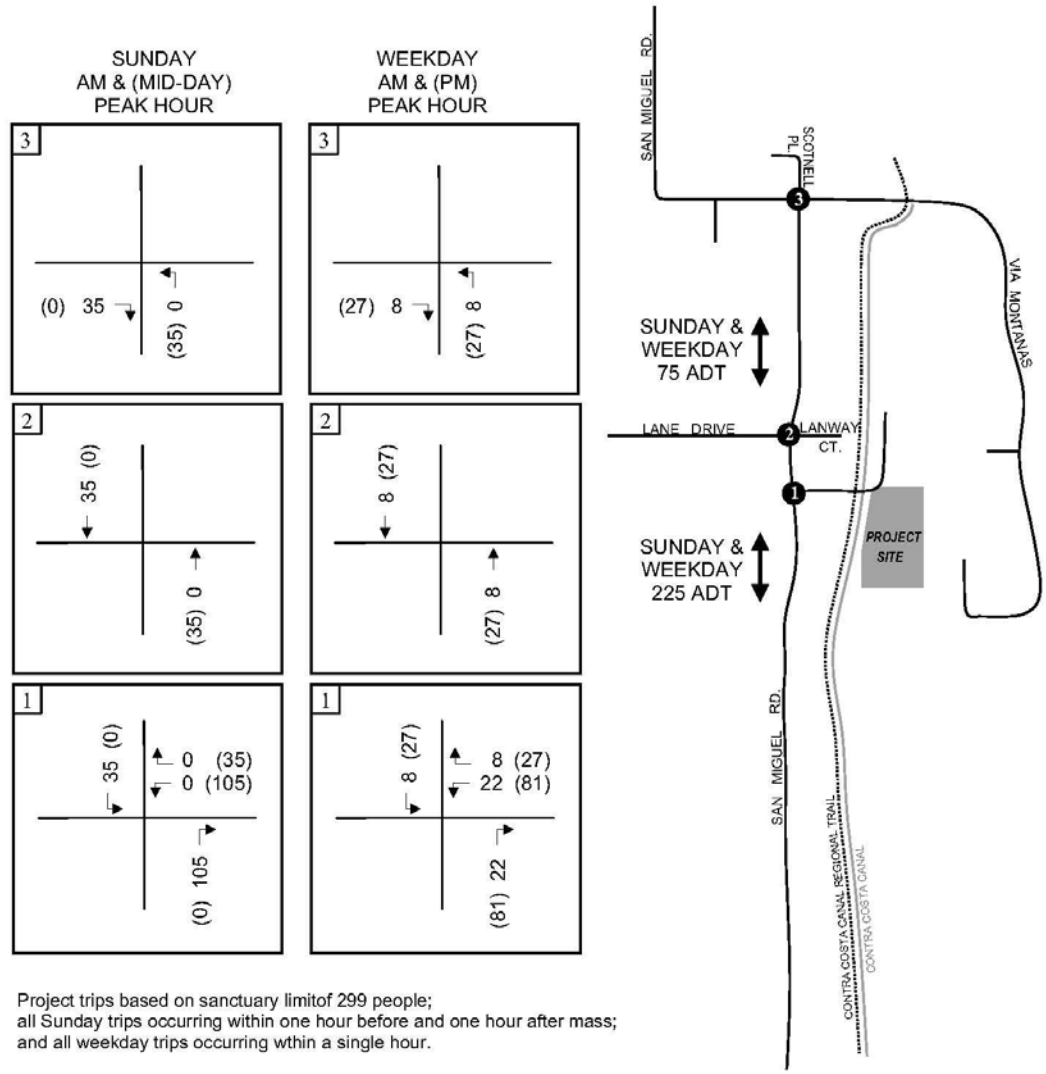
With the project trips added to future-base traffic volumes, study intersection LOS have been calculated and are shown in Table E-10. The future-base plus project volumes are shown in Figure E-5. Sunday morning and weekday morning LOS would remain unchanged at all three intersections. The Sunday mid-day and weekday PM LOS at the San Miguel Road/Project Roadway's westbound approach would change from LOS A to B, with delays increasing 1-2 seconds. All of the intersections would continue to operate efficiently during the Sunday and weekday peak hours.

Future-base Plus Project Roadway Conditions

Future-base plus project roadway operation and LOS are shown in Table E-11. San Miguel Road north and south of the project access would continue to operate at LOS A with future-base traffic volumes.

TABLE E-10
FUTURE-BASE + PROJECT CONDITIONS: INTERSECTION LEVELS-OF-SERVICE
SUNDAY & WEEKDAY

	SUNDAY AM		SUNDAY MID-DAY		WEEKDAY AM		WEEKDAY PM	
Roadway Segment	F.-B. LOS, Delay	F.-B. + Project LOS, Delay	F.-B. LOS, Delay	F.-B. + Project LOS, Delay	F.-B. LOS, Delay	F.-B. + Project LOS, Delay	F.-B. LOS, Delay	F.-B. + Project LOS, Delay
San Miguel Rd. / Project Roadway	WB: A 8.8 " SB L: A 0.3"	A 9.4" A 3.7"	A 9.1" A 0.4"	B 10.2" A 0.4"	B 10.1" A 0.2"	B 10.6" A 0.4"	A 9.7" A 0.2"	B 12.0" A 1.4"
San Miguel Rd. / Lane Dr.-Lanway Ct.	WB: A 8.9" EB: A 8.9"	A 9.0" A 9.1"	A 9.2" A 9.3"	A 9.5" A 9.5"	B 10.9" B 10.3"	B 11.0" B 10.3"	B 10.5" B 10.1"	B 10.9" B 10.5"
San Miguel Rd. / Via Montanas	A 7.2"	A 7.2"	A 7.3"	A 7.5"	A 8.3"	A 8.4"	A 7.7"	A 8.0"



Project trips based on sanctuary limitof 299 people;
all Sunday trips occurring within one hour before and one hour after mass;
and all weekday trips occurring wthin a single hour.

Sunday and Weekday
PeakHour and ADT Project Trips

North

omni-means

figure 4

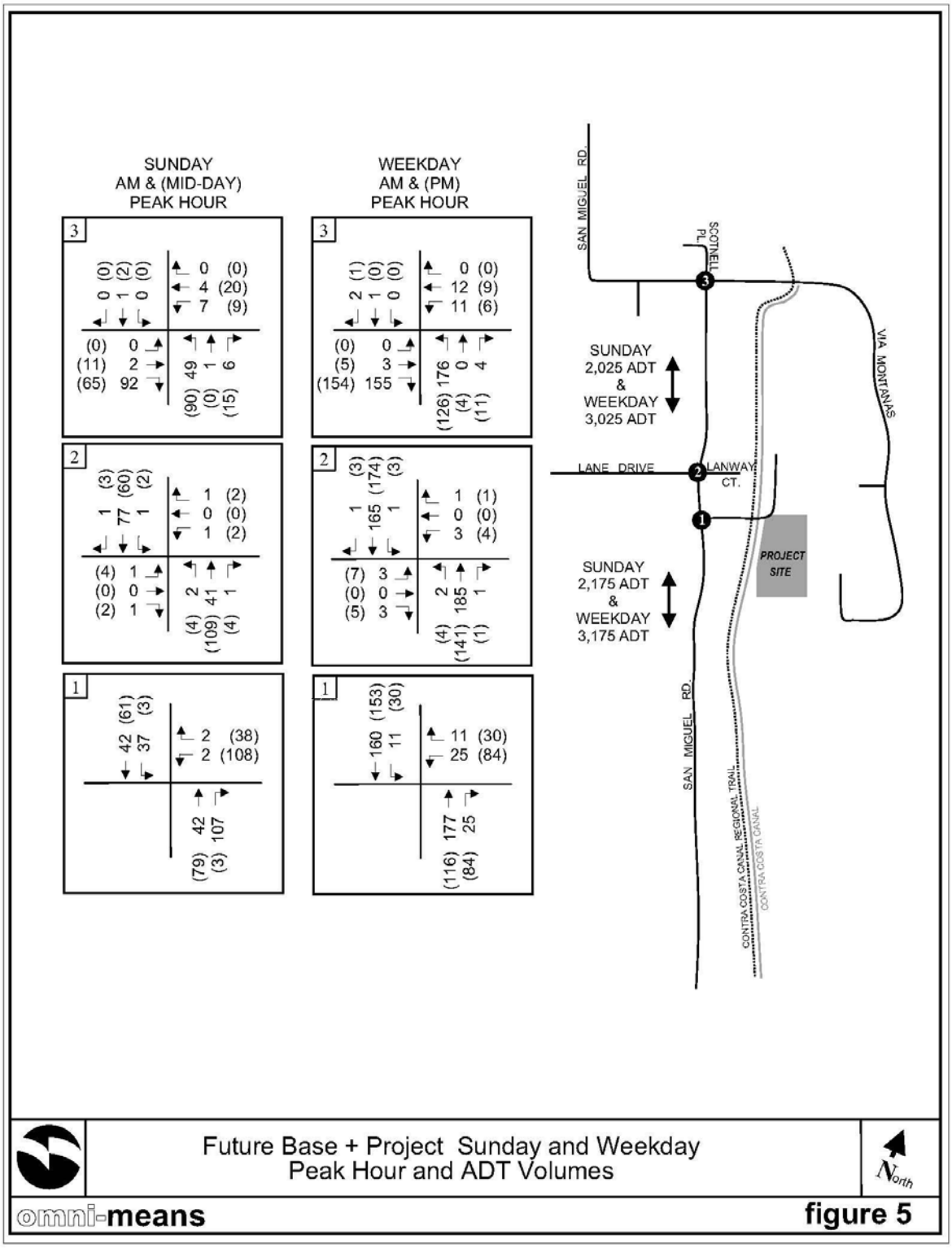

SUNDAY
AM & (MID-DAY)
PEAK HOUR
WEEKDAY
AM & (PM)
PEAK HOUR
SAN MIGUEL RD.
SCOTNELL PL.
VIA MONTANAS
SUNDAY
2,025 ADT
&
WEEKDAY
3,025 ADT
LANE DRIVE
LANWAY CT.
PROJECT SITE
SUNDAY
2,175 ADT
&
WEEKDAY
3,175 ADT
SAN MIGUEL RD.
CONTRA COSTA CANAL REGIONAL TRAIL
CONTRA COSTA CANAL
Future Base + Project Sunday and Weekday
Peak Hour and ADT Volumes
North
omni-means
figure 5

TABLE E-11
FUTURE-BASE CONDITIONS: ROADWAY SEGMENT LEVELS-OF-SERVICE
SUNDAY & WEEKDAY

Roadway Segment	Configuration	Sunday Future-Base ADT, LOS	Sunday F.B.+Proj. ADT, LOS	Weekday Future-Base ADT, LOS	Weekday F.B.+Proj. ADT, LOS
San Miguel Rd. South of project roadway	2-Lane Collector	1,950 A (LOS A = 0-6,000 ADT)	2,175 A	2,950 A	3,175 A
San Miguel Rd. North of project roadway	2-Lane Collector	1,950 A	2,025 A	2,950 A	3,025 A

Project Effects on Local Streets / Neighborhood Quality Impacts

Unlike the quantitative level-of-service approach which is used to evaluate operational impacts to drivers and vehicles using the road system, the evaluation of impacts to neighborhood quality from project-related traffic increases is more difficult to quantify. Residential street traffic flow characteristics do not necessarily lend themselves to conventional traffic capacity analysis. Residential street traffic impacts relate more closely to residents' concerns regarding traffic volume increases, noise, and pedestrian safety. There is not a generally established guideline that considers these factors relative to traffic effects on residential streets.

Streets are commonly categorized based on their function and the volumes they carry. Arterial streets are major streets that serve traffic traveling across town and through adjacent cities (e.g. Treat Boulevard). Collector streets carry lower volumes than arterials and generally serve as the primary link between smaller areas (neighborhoods) and arterials. Collector streets often carry a combination of local traffic and "pass-through" traffic between arterial streets. Purely local streets carry the lowest volumes and provide direct access to adjacent properties. In the project area, San Miguel Road functions as a collector street by carrying traffic to/from the local residential streets as well as pass-through traffic between Treat Boulevard and Monument Boulevard. However, it also provides direct access to residences north and south of the project site.

As stated previously, the daily volumes on San Miguel Road are well within the carrying capacity of a collector street and would remain so with the added project traffic. With church membership of 299 persons, the project would add approximately 300 daily trips to weekend background volumes of 1,950 vehicles and to weekday volumes of 2,950 vehicles. San Miguel Road would continue to operate at LOS A conditions.

However, the proportional increase to background volumes would vary at different hours of the day. On Sundays the project would generate most of its trips before and after the church service, then very few trips at other times of the day. Table E-12 provides a comparison of the hourly two-way volumes on San Miguel Road north and south of the access roadway. As the table shows, the peak Sunday church trips would occur when background volumes are low compared to other times of the day. The church service would add 105 trips to background volumes of 128-142 vehicles south of the access road, resulting in a 74 percent to 82 percent increase during that hour of activity.

TABLE E-12
SAN MIGUEL ROAD HOURLY VOLUMES

	NORTH OF ACCESS ROADWAY					SOUTH OF ACCESS ROADWAY				
	EXISTING	FUTURE BASE	PROJECT TRIPS	F.B. + PROJECT	% INCREASE	EXISTING	FUTURE BASE	PROJECT TRIPS	F.B. + PROJECT	% INCREASE
Sunday										
7:00-8:00 am	46	48	0		0%	46	48	0		0%
8:00-9:00 am	76	80	0		0%	76	80	0		0%
9:00-10:00 am	82	86	0		0%	82	86	0		0%
10:00-11:00 am	122	128	35	163	27%	122	128	105	233	82%
11:00-12:00 pm	124	130	0		0%	124	130	0		0%
12:00-1:00 pm	147	154	0		0%	147	154	0		0%
1:00-2:00 pm	135	142	35	177	25%	135	142	105	247	74%
Weekday AM										
Monday Mass										
6:00-7:00 am	283	297	8	305	3%	283	297	22	319	7%
7:00-8:00 am	190	200	0		0%	190	200			0%
8:00-9:00 am	138	145	8	153	6%	138	145	22	167	15%
Wednesday Mass										
8:00-9:00 am	196	206	8	214	4%	196	206	22	228	11%
9:00-10:00 am	143	150	0		0%					0%
10:00-11:00 am	110	116	8	124	7%	110	116	22	138	19%
Weekday PM										
Tuesday										
Youth/Adult Classes										
6:00-7:00 pm Youth	182	191	18	209	9%	182	191	54	245	28%
7:00-8:00 pm Adult	100	105	9	114	9%	100	105	27	132	26%
8:00-9:00 pm Youth	79	83	18	101	22%	79	83	54	137	65%
9:00-10:00 pm Adult	61	64	9	73	14%	61	64	27	91	42%
Wednesday										
Youth/Adult Classes										
6:00-7:00 pm Youth	180	189	18	207	10%	180	189	54	243	29%
7:00-8:00 pm Adult	132	139	9	148	6%	132	139	27	166	19%
8:00-9:00 pm Youth	83	87	18	105	21%	83	87	54	141	62%
9:00-10:00 pm Adult	69	72	9	81	13%	69	72	27	99	38%
Thursday										
Youth Class										
6:00-7:00 pm	184	193	18	211	9%	184	193	54	247	28%
7:00-8:00 pm	113	119	0		0%	113	119	0		0%
8:00-9:00 pm	102	107	18	125	17%	102	107	54	161	50%
Friday										
Youth Class										
7:00-8:00 pm	110	116	18	134	16%	110	116	54	170	47%
8:00-9:00 pm	83	87	0		0%	83	87	0		0%
9:00-10:00 pm	71	75	18	93	24%	71	75	54	129	72%
Saturday										
7:00-8:00 pm	84	88	9	97	10%	84	88	27	115	31%
8:00-9:00 pm	74	78	0		0%	74	78	0		0%
9:00-10:00 pm	71	75	9	84	12%	71	75	27	102	36%

Source: Baymetrics Traffic Resources, ADT counts on San Miguel Road, March 10-16, 2009. Project trip generation assumes membership equal to sanctuary maximum of 297 persons.

The weekday evening classes could add 27-54 hourly trips to San Miguel Road south of the project access before and after class. The trips would represent an increase of 20%-30% in the early evening before class, but the same volume would represent an increase of 40%-70% later at night after class.

Volumes on the project access roadway would increase substantially (compared to existing volumes of 2-3 hourly trips) during the hours of church trip activity.

The study intersections and roadways would operate efficiently with the added project trips. And most trips would be limited to the periods before and after mass and weeknight classes. However, at those times, background volumes are lower compared to other times of the day. Adjacent residents on San Miguel Road would notice increased vehicle activity before and after events. Residents living along the project access road would experience the largest increase since existing volumes are extremely low.

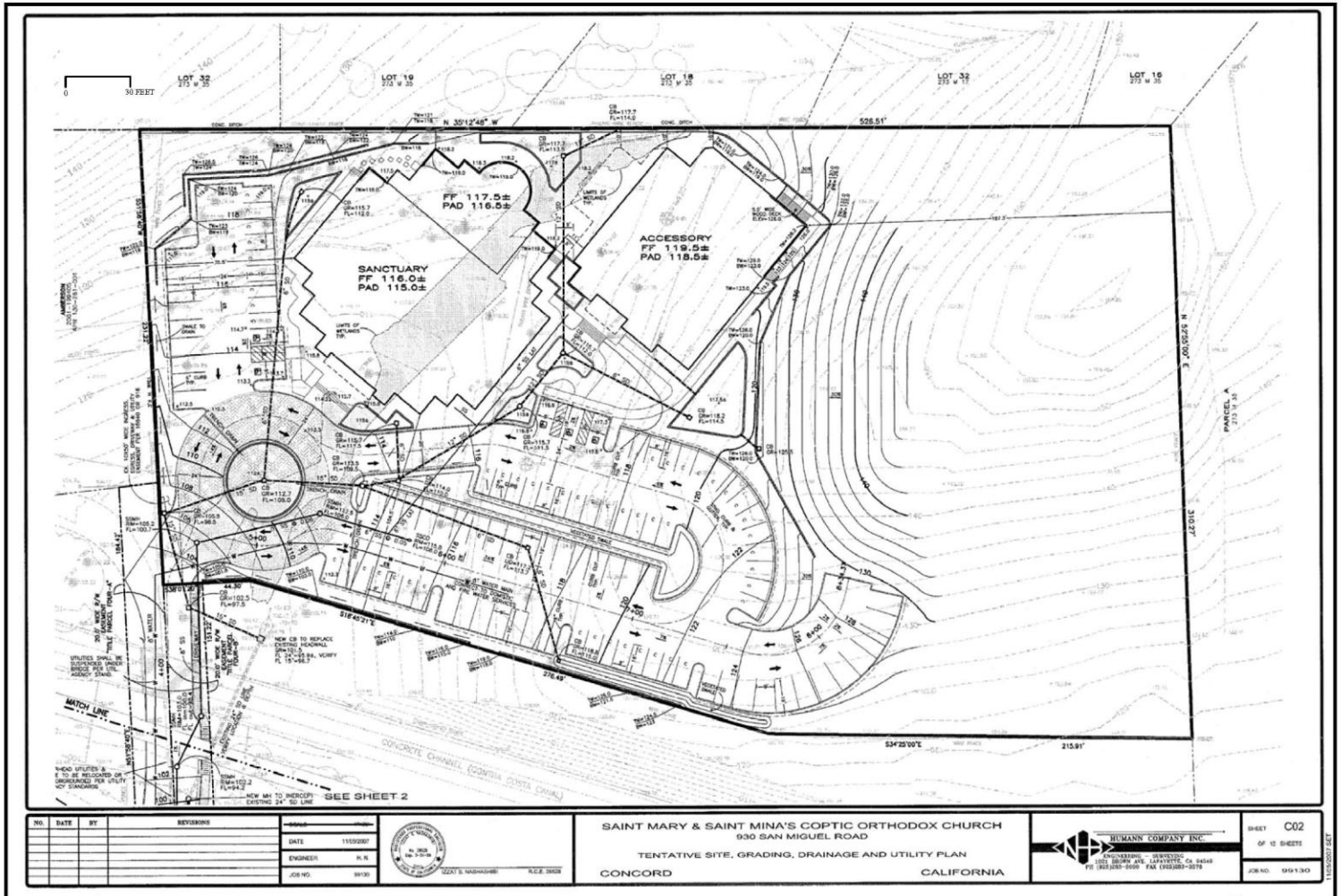
Project Access Roadway Reconstruction

The project access road extends east from San Miguel Road on a modest uphill grade, intersecting the Contra Costa Canal Trail (approximately 250 feet east) and crosses over the canal via a wooden bridge (approximately 280 feet east). The roadway then curves north for approximately 350 feet where it terminates. The roadway serves two single family residences and a plant-rental facility (Mother Nature's Indoor Plant Rentals) east of the canal. The project's parking lot entrance would be located approximately 40 feet east of the bridge. The existing roadway between San Miguel Road and the bridge is a gravel surface road approximately 12-15 feet wide. Due to the narrow width, it functions as a one lane road and is unable to accommodate two-way travel. Existing volumes are very low (three or fewer vehicles per hour), therefore opposing vehicle conflicts seldom occur.

The project applicant has submitted a site plan and road plan as shown in Figures E-6 and E-7. The plan indicates the new roadway between San Miguel Road and the church entrance would be paved and widened to 24-28 feet, with curb, gutter, and a sidewalk on the south side. The new access road would consist of two travel lanes (one each way) 12-14 feet wide, which meets the typical standard for a public street. The plan also shows the bridge consisting of two lanes (one each way) both 12 feet wide and a sidewalk.

Residential property immediately south of the project roadway is currently accessed via a separate parallel driveway from San Miguel Road. This driveway would be eliminated as a result of the widened project access road. Access would be via three driveway cutouts on the south side of the new project roadway. The western and middle cut-outs would form a semi-circle driveway serving the property nearest San Miguel Road. The eastern driveway would serve property closer to the canal.

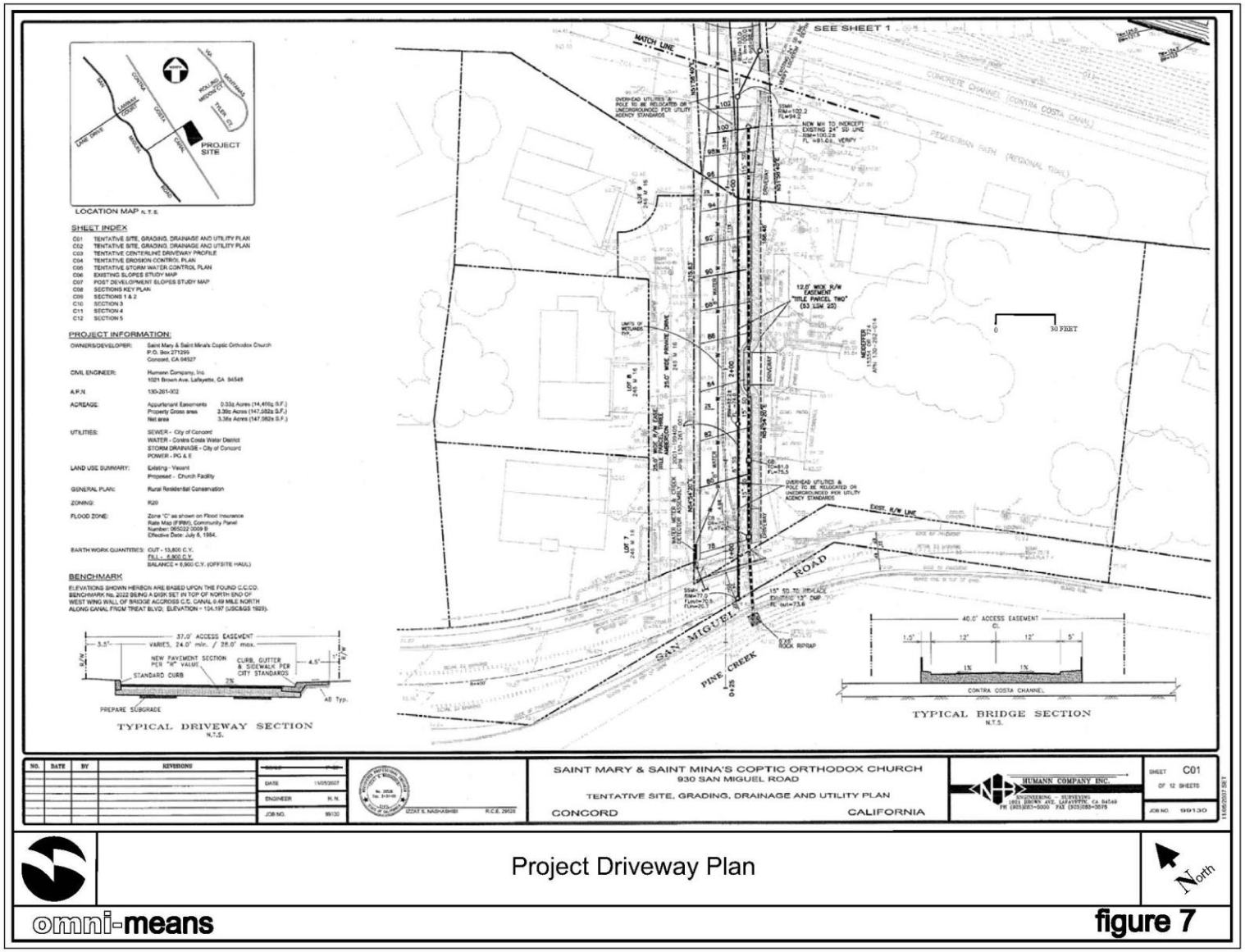
Vehicle access to the existing residences could be blocked during reconstruction of the roadway and bridge, which would be a significant impact unless a traffic management plan is provided to the city which describes how vehicle access will be maintained during construction. The project applicant has stated a plan will be provided and conditioned as part of the overall site improvement approval process.



Project Site Plan

omni-means

figure 6


SEE SHEET 1
MATCH LINE
LOCATION MAP N.T.S.
PROJECT SITE
SHEET INDEX
C01 TENTATIVE SITE, GRADING, DRAINAGE AND UTILITY PLAN
C02 TENTATIVE SITE, GRADING, DRAINAGE AND UTILITY PLAN
C03 TENTATIVE CENTERLINE DRIVEWAY PROFILE
C04 TENTATIVE EROSION CONTROL PLAN
C05 TENTATIVE STORM WATER CONTROL PLAN
C06 EXISTING SLOPES STUDY MAP
C07 POST DEVELOPMENT SLOPES STUDY MAP
C08 SECTIONS KEY PLAN
C09 SECTIONS 1 & 2
C10 SECTION 3
C11 SECTION 4
C12 SECTION 5
PROJECT INFORMATION:
OWNERS/DEVELOPER: Saint Mary & Saint Mina's Coptic Orthodox Church
P.O. Box 271299
Concord, CA 94527
CIVIL ENGINEER: Humann Company, Inc.
1021 Brown Ave. Lafayette, CA 94549
A.P.N. 130-261-002
ACREAGE: Appurtenant Easements 0.33± Acres (14,416± S.F.)
Property Gross area 3.38± Acres (147,082± S.F.)
Net area 3.38± Acres (147,082± S.F.)
UTILITIES: SEWER - City of Concord
WATER - Contra Costa Water District
STORM DRAINAGE - City of Concord
POWER - PG & E
LAND USE SUMMARY: Existing - Vacant
Proposed - Church Facility
GENERAL PLAN: Rural Residential Conservation
ZONING: R20
FLOOD ZONE: Zone "C" as shown on Flood Insurance Rate Map (FIRM), Community Panel Number: 065022 0009 B
Effective Date: July 5, 1984.
EARTH WORK QUANTITIES: CUT - 13,800 C.Y.
FILL - 6,900 C.Y.
BALANCE = 6,900 C.Y. (OFFSITE HAUL)
BENCHMARK
ELEVATIONS SHOWN HEREON ARE BASED UPON THE FOUND C.C.C.O. BENCHMARK No. 2022 BEING A DISK SET IN TOP OF NORTH END OF WEST WING WALL OF BRIDGE ACCROSS C.C. CANAL 0.49 MILE NORTH ALONG CANAL FROM TREAT BLVD; ELEVATION = 104.197 (USC&GS 1929).
37.0' ACCESS EASEMENT
VARIES, 24.0' min. / 28.0' max.
NEW PAVEMENT SECTION PER "R" VALUE
CURB, GUTTER & SIDEWALK PER CITY STANDARDS
STANDARD CURB
PREPARE SUBGRADE
TYPICAL DRIVEWAY SECTION
N.T.S.
12.0' WIDE R/W EASEMENT "TITLE PARCEL TWO" (53 LDM 25)
OVERHEAD UTILITIES & POLE TO BE RELOCATED OR UNDERGROUNDED PER UTILITY AGENCY STANDARDS
NEW MH TO INTERCEPT EXISTING 24" SD LINE
EXIST. R/W LINE
SAN MIGUEL ROAD
PINE CREEK
ROCK RIPRAP
PEDESTRIAN PATH (REGIONAL TRAIL)
CONCRETE CHANNEL (CONTRA COSTA CANAL)
0 30 FEET
40.0' ACCESS EASEMENT
CONTRA COSTA CHANNEL
TYPICAL BRIDGE SECTION
N.T.S.
NO. DATE BY REVISIONS
DATE 11/05/2007
ENGINEER R.N.
JOB NO. 99130
SAINT MARY & SAINT MINA'S COPTIC ORTHODOX CHURCH
930 SAN MIGUEL ROAD
TENTATIVE SITE, GRADING, DRAINAGE AND UTILITY PLAN
CONCORD CALIFORNIA
HUMANN COMPANY INC.
ENGINEERING - SURVEYING
1021 BROWN AVE. LAFAYETTE, Ca. 94549
PH (925)283-5000 FAX (925)283-3075
SHEET C01
OF 12 SHEETS
JOB NO. 99130
Project Driveway Plan
North
omni-means
figure 7

Canal Bridge Reconstruction

The existing bridge is a wooden surfaced bridge approximately 20 feet long and 30 feet wide over the canal. It was recently upgraded to meet the weight requirements of the Contra Costa Water District. Existing volumes are very low (under 100 ADT). The project could add 300 daily vehicle trips. Temporary vehicle queuing could occur on the bridge if all vehicles leave simultaneously after a large event. The project may also create additional demand for heavy vehicles or emergency vehicles across the bridge.

Church officials intend to replace the wooden planks with a steel pan and asphalt surface. Engineering plans for these improvements, which the church believes satisfy the required standards, will be submitted to the City of Concord, Contra Costa Fire District and Contra Costa Water District.

Sight Distance at San Miguel Road

Sight distances at the project access roadway/San Miguel Road intersection were measured and compared to recommended guidelines as defined in the California Department of Transportation (Caltrans) Highway Design Manual.[31] For private roads and driveways, Caltrans recommends maintaining "stopping" sight distance, which is defined as the distance required by the driver of a vehicle traveling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. The sight distance guidelines are based on the speeds of approaching vehicles on the major street (higher speeds require longer stopping distance).

San Miguel Road in the project area has a speed limit of 25 mph, but there is a lower posted advisory speed limit of 20 mph near the project roadway due to the curve in the road. Radar speed measurements were conducted in order to determine the prevailing speeds.[32] The 85th percentile speed or critical speed (the speed at which 85% of the surveyed vehicles are traveling at or below) is the standard threshold used for speed-related calculations. The 85th-percentile speeds were 27 mph for the northbound approach and 30 mph for the southbound approach.

Based on the Caltrans equations, the recommended sight distance is 180 feet for the northbound approach. The sight distance was measured to be approximately 300 feet, which exceeds the recommended distance. The recommended sight distance for the southbound approach is 206 feet. The measured sight distance equals approximately 250 feet, which satisfies the recommended distance.

- Even though recommended sight distances are met, it appears the northbound sight distance could be increased to at least 350 feet by trimming some foliage along the creek west of the existing guardrail. It appears the southbound sight distance could be extended to 300 feet if existing mailboxes on the north side of the roadway were relocated out of the way.

Traffic Accident History

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[31] *California Department of Transportation (Caltrans), Highway Design Manual, Chapter 400, Topic 405, Intersection Design Standards, July 1, 2008.*

[32] *Omni-Means Engineers & Planners, Radar speed surveys on San Miguel Road approaches to project roadwayy, March, 2010.*

The recorded accident history is the source used by transportation engineers in assessing accident history. A review of City accident records from the previous five years (7/1/05 – 6/30/10) indicates there were no recorded accidents at the project roadway/San Miguel Road intersection. There has been one recorded accident at the Lane Drive/San Miguel Road intersection, which involved a car backing-up and hitting a fixed object. The accident history does not indicate an existing accident problem at these locations. However, it is noted that the critical speeds of 27-30 mph are higher than the posted advisory speed limit of 20 mph through the curve on San Miguel Road at the project roadway intersection.

Vehicle Queuing Analysis at Project Roadway

Vehicle queuing analyses were conducted for the approaches at the project roadway/San Miguel Road intersection during the peak periods of activity. (Queuing worksheets are provided in the Appendix.) On Sunday mornings before mass service, 35-40 vehicles could potentially turn left into the project roadway from southbound San Miguel Road during the peak hour. The associated vehicle queue was calculated to be 23 feet (1 car). The volumes were compared to left-turn lane warrants which indicate when a separate left-turn lane is recommended.[33] (The warrant graphs are provided in the Appendix.) A separate left-turn lane would not be warranted.

On weekdays, peak trip generation would occur during the evening classes. On the busiest nights, 30 vehicles could turn left into the roadway from southbound San Miguel Road during the peak hour. The associated vehicle queue was calculated to be 37 feet (2 cars). Based on the volume warrants, a separate left-turn lane would not be warranted.

On Sunday mornings after mass service, 140-146 vehicles could potentially turn out of the roadway at San Miguel Road during the peak hour. (It is noted, however, that surveys at the existing church found only 60% of all vehicles exit within one hour after the service.) The associated vehicle queue was calculated to be 66 feet (3 cars) assuming the departure rate is relatively uniform. Queuing of this length could be accommodated within the roadway segment between San Miguel Road and the canal trail crossing which is approximately 250 feet long.

After the evening classes, 108 vehicles could potentially turn out of the roadway at San Miguel Road if all of the parents picking up children and all of the adult attendees exit simultaneously. (It is noted the activity schedule indicates these would not occur together.) The associated vehicle queue would be 57 feet (2-3 vehicles) assuming the departure rates remain similar to those observed at the existing church.

Potential Impacts to Pedestrian/Bicycle Trail Crossing

The Contra Costa Canal Regional pedestrian/bicycle trail intersects the project roadway on the west side of the canal. There are currently stop-sign controls for trail users at the approaches to the roadway. Vehicle volumes would be low most of the time. However, vehicle volumes would increase before and after church service on Sunday and evening classes on weekdays.

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[33] *Transportation Research Board, "Intersection Channelization Guide," NCHRP Report 279, November, 1985.*

Pedestrian/Bicycle Access to Project Site

The proposed site plan indicates the existing gravel roadway between San Miguel Road and the church property would be paved and widened with a sidewalk along the south side. There is an existing sidewalk on San Miguel Road that begins on the north side of the project roadway and extends north. There are no pedestrian facilities on San Miguel Road south of the project 's access road due to the absence of adequate shoulder areas. However, the canal trail extends north-south through the study area and provides an alternative route to San Miguel Road for pedestrians traveling to/from the south. The trail is in close proximity to the project site and provides access at the canal bridge crossing.

PROJECT SITE PLAN

Parking

City Code Requirements

The proposed project would provide 99 total parking spaces (95 unrestricted plus 4 accessible spaces). The Concord City Municipal Code for assembly areas with fixed seats (including church sanctuaries) requires one parking space for each three seats.[34] The proposed sanctuary's occupancy is 297 persons, equating to 99 required spaces. With 99 proposed spaces, the project would satisfy the parking code requirement.

Future Parking Demand

It must be noted, however, that future parking demand will likely exceed the proposed supply even though the code requirement is met. The sanctuary occupancy limit equates to 140 vehicles (297 persons @ 2.13 persons per vehicle). This would result in a deficit of 41 spaces. The closest supplemental parking would be street spaces on San Miguel Road beginning north of Lanway Court.

Maximum church attendance is currently about 150 persons, equating to 70 occupied parking spaces. The church attendance could grow to 210 persons and still be accommodated onsite (99 occupied spaces based on the surveyed vehicle occupancy).

Onsite Vehicle Circulation

Civil plan drawings of the proposed parking field and onsite circulation routes have been submitted to the City of Concord by the church civil design firm. Authorization of the final parking lot design will be incorporated into authorization of the overall site improvement plans. The review process will verify onsite circulation is adequate, including adequate drive-aisle widths and turning widths for automobiles/trucks/emergency vehicles; proper parking stall design; and sufficient signing/markings

[34] *City of Concord, Municipal Code, Article VII: Off-street parking facilities, Section 122-845, Code 1965, Ord. No. 713; Ord. No. 1169.*

(including red-curbed areas prohibiting parking and adequate pedestrian routing) to satisfy onsite circulation. This would reduce the potential onsite circulation impacts to less than significant.

The review process will mitigate any parking design impacts to less than significant. However, some onsite improvements (though not significant) may be considered to enhance circulation. In order to establish right-of-way near the entrance area, consideration could be given to installing a stop sign at the church entrance driveway for vehicles exiting the site and/or another stop sign for vehicles leaving the northern parking area (29 spaces) at the internal intersection near the entrance. Painting a double-yellow centerline stripe on the entry drive-aisle to demarcate the travel lanes would also enhance vehicle circulation.

CONSTRUCTION TRAFFIC CONDITIONS

Traffic impacts associated with the proposed project construction activity period were considered. Church officials' initial estimate of construction activities indicate that overall construction would occur in four general phases:

1. Site improvements (including bridge upgrade), site grading, and installation of utilities (3-6 months);
2. Construction of church/sanctuary building (1 year);
3. External church improvements including parking lot, lighting, and landscaping (included with church construction);
4. Construction of classroom and multi-use buildings –depends upon funding (exact length of time for construction is unknown..

Detailed information regarding specific construction schedules and workers is not available at this time. Activity levels would vary during the construction process. However, the bulk of construction trips would be generated by dirt-removal trucks during the site grading phase as well as onsite employees during the building phases.

The church anticipates the removal of 19,000 cubic yards of earth for the grading. Single or double container trucks could be used. Typical load volumes are 5-7 cubic yards per container. To remain conservative, the trips were calculated assuming single container trucks. Assuming a one (1) month construction period (20 days) for removal of fill, 6 yards per container, and an 8-hour construction day the number of temporary construction trips could be calculated as follows:

- 6,900 cubic yards / 6 yards per truck = 3,167 trucks
- 3,167 trucks / 3 month grading period = 53 daily trucks
- 53 daily trucks / 8 hour day = 7 trucks per hour
- 7 trucks per hour x 2 trips = 14 peak hour truck trips (7 in, 7 out)

Peak onsite employee numbers would vary throughout the construction process. A conservative estimate of 40 onsite employees plus 10 miscellaneous vehicles (deliveries, inspections, etc.) equates to 100 daily employee trips.

Combined truck and employee construction traffic has been calculated at 216 daily trips and 56 peak hour trips as follows:

	Daily trips	Peak Hour
53 daily dirt-removal trucks	x 2 = 106 daily trips	14 (7 in, 7 out)
40 employees (maximum)	x 2 = 80 daily trips	AM: 40 (40 in, 0 out)
		PM: 40 (0 in, 40 out)
10 miscellaneous x 2	= 20 daily trips	2 (1 in, 1 out)
	206 daily trips	AM: 56 (48 in, 8 out)
		PM: 56 (8 in, 48 out)

The construction traffic could add approximately 206 daily trips to existing background volumes of 2,850 trips (8% increase). The identified volumes would not significantly affect the level-of-service conditions. However, the higher volumes and associated factors (increased noise, etc.) would be noticeable by adjacent residents.

Construction traffic would include heavy equipment and material deliveries on the access road and bridge. The bridge is proposed to be fortified in the beginning phase of construction.

A construction traffic management plan which includes how vehicle access will be maintained; the routing and scheduling of dirt-removal trucks to minimize disruption; and how employee parking will be adequately accommodated onsite should be required to reduce potentially significant construction impacts to less than significant. The project applicant has stated a plan will be provided and conditioned as part of the overall, site improvement approval process.

ANNUAL SPECIAL EVENT

According to church officials, the church holds an annual festival for three days usually in October. The festival is currently held at Heather Farms Park in Walnut Creek. The church would like to hold the festival at the proposed project site. Attendance ranges from 100-200 families (200-600 people). The event hours are typically 9:00 a.m. to 6:30 p.m. in the evening. Potential impacts from the festival would relate to parking adequacy and vehicle queuing/congestion.

The onsite parking capacity would be limited to the project's 99 spaces. Assuming one vehicle per family, the maximum number of attendees that could be accommodated onsite at the same time is 99 families. The closest supplemental parking would be street spaces on San Miguel Road north of Lanway Court.

If vehicle trips are spread over several hours, vehicle queues would not be significant.

ALTERNATIVE ACCESS FROM VIA MONTANAS

At the City of Concord's request, an analysis of the project impacts on Via Montanas has been evaluated. This analysis assumes access to the project site from Via Montanas instead of the San Miguel Road access.

Via Montanas extends east from San Miguel Road north of the project site then curves south where it ends in a cul-de-sac on a hill above the east side of the project site. The road provides direct access to 42 single family homes and two parking areas for the Lime Ridge Open Space.

Existing volumes on Via Montanas were derived from the San Miguel Road/Via Montanas intersection counts. These were increased five percent to account for possible future-base volume increases. Table E-11 lists the two-way daily and peak hour volumes on Via Montanas near San Miguel Road. Via Montanas has a single access near San Miguel Road, therefore volumes are highest near San Miguel Road and decrease further to the south since there are fewer residences to create trips. Volumes midway between San Miguel Road and the south end are approximately half of those near San Miguel Road. Volumes at the south end of Via Montanas are very low.

Project trip distributions would be altered with access to/from Via Montanas. On San Miguel Road, 75% of the trips from the south that would have turned at the original roadway would continue north to Via Montanas. The 25% of the trips from the north would also enter at Via Montanas. By shifting the access on San Miguel Road north to Via Montanas, the segment of San Miguel Road between the original access roadway and the Via Montanas intersection would carry 75% percent of the project trips instead of 25%. Via Montanas would carry 100% of the trips inbound and outbound. The project access road would likely be at the south end of Via Montanas. Therefore, project trips would travel the length of Via Montanas to and from the site.

The project trips were added to the future-base volumes and are listed in Table E-13. The project would add approximately 300 ADT to background volumes of 600 ADT on Sundays and 400 ADT on weekdays to the northern portion of Via Montanas. Peak hourly volumes would increase from 20-55 trips to 160-195 trips on Sundays and from 30-35 trips to 245-250 trips on the busiest weekday evenings. The percentage increase in trips compared to background volumes would be higher further south from San Miguel Road. The volumes would remain well below the operational capacity and the San Miguel Road/Via Montanas intersection would continue to operate at LOS A (9" delay or less) during all peak hours.

However, transportation impacts to residential streets often relate more to residents' perceptions regarding changes in traffic congestion, noise, safety, etc., and there is not a formal standard to measure these factors. Generally, purely residential streets are defined as serving only the access needs of adjacent residences (no through trips) and are typically categorized as carrying a maximum of 1,000-1,200 daily trips. If volumes are higher, the adjacent residents will likely perceive the road as a residential collector street instead of a purely residential street.

Volumes with the project would remain under 1,000 daily trips, but the volumes would be at the upper limit expected for a local residential street. In addition, the project trips would represent a high percentage increase to the background volumes, particularly during the peak hours of church activity. For most of the day there would be few or no project trips, but before and after events volumes near San Miguel Road would increase 155% to 600%. The percentage increases would be much higher at the south end of Via Montanas since the background volumes are very low.

TABLE E-13
VIA MONTANAS ALTERNATIVE ACCESS VOLUMES

	NEAR SAN MIGUEL RD.			
	FUTURE BASE	**PROJECT TRIPS**	**FUTURE-BASE + PROJECT**	**% INCREASE[2]**
Sunday				
ADT:[1]	600	300	900	50%
AM Peak Hour:	20	140	160	600%
Mid-day Peak Hour:	55	140	195	155%
Weekday				
ADT:[1]	400	300	700	75%
AM Peak Hour:	28	60	88	114%
PM Peak Hour:	32	216	248	575%

[1]*For purely residential streets, volumes over 1,000 ADT are generally considered high enough to diminish the neighborhood characteristics of the street.*

[2]*Percentage increases would be much higher at the south end of Via Montanas due to lower background volumes.*

This alternative access could raise other potentially significant impacts. The roadway would extend through the open space area on the site, which has steeper slopes thereby creating grading and slope stability issues. Locating the site access through the open space may also be contrary to the findings of the Hillside Development Plan. It would also create aesthetic impacts and increased noise to residents along Via Montanas as the homes are located much closer to the street than on San Miguel. Conversely, such an alignment could potentially alleviate the need to reconstruct the bridge and access road.