Appendices

Final
Environmental Impact Report
CITRACADO PARKWAY EXTENSION PROJECT

City File # ER-2006-10
SCH# 2007041061

February 2012

Prepared for:

City of Escondido
Department of Engineering Services
201 North Broadway
Escondido, CA 92025

Prepared by:

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ESCONDIDO
City of Choice

AECOM

FINAL ENVIRONMENTAL IMPACT REPORT
FOR THE
CITRACADO PARKWAY EXTENSION PROJECT

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APPENDICES

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APPENDIX A
MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

Mitigation Monitoring and Reporting Program (MMRP)
For the EIR for the Citracado Parkway Extension Project

PROJECT NAME: Environmental Impact Report for the Citracado Parkway Extension Project (SCH #2007041061)

PROJECT DESCRIPTION: The City of Escondido (City) proposes to improve and extend Citracado Parkway from West Valley Parkway to Andreasen Drive, providing an arterial connection and roadway improvements. The City is also proposing the annexation of three parcels within the community of Harmony Grove, in unincorporated San Diego County, that are in proximity to the proposed roadway extension. Three alternatives are being considered for the proposed project, either (1) construct with annexation alternative; (2) construct without annexation alternative; (3) construct with bridge over Harmony Grove to Escondido Creek alternative; or (4) the no project alternative.

PROJECT LOCATION: City of Escondido, CA and unincorporated San Diego County, including the area from West Valley Parkway to Andreasen Drive.

APPLICANT/CONTACT PERSON: Robert Zaino

PHONE NUMBER: (760) 839-4001

ASSOCIATED CASE NO.: ER-2006-10

APPROVAL BODY/DATE:

PROJECT MANAGER: Bill Martin

Phases at which the Mitigation Measures are to be implemented: Before, during, and after construction of the proposed Citracado Parkway roadway extension.

MITIGATION MEASURES

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
BIO-1. Permanent and temporary direct impacts to sensitive vegetation communities within the Project site would occur as a result of construction activities.	**MM-BIO-1: Direct Impacts to Sensitive Vegetation Communities** **MM-BIO-1.1:** To avoid incidental loss of sensitive habitat types during construction activities, environmentally sensitive area fencing shall be installed along the limits of disturbance prior to the start of construction. In addition, grading limits shall be flagged or fenced and grading shall not occur beyond this flagging/fencing. Construction crews shall be made fully aware of this boundary.	MM-BIO-1.1 Page 3.4-35 of EIR	Contractor		
	MM-BIO-1.2: Temporary impacts to sensitive upland and wetland habitats shall be mitigated through replacement on-site at a ratio of 1:1 for a total of 6.28 acres of habitat restoration. In addition to the 6.28-acre area, any bareground post-construction (e.g., areas of ornamental, disturbed, and eucalyptus woodland habitat impacted during construction) shall be planted post-construction for erosion control purposes.	MM-BIO-1.2 Page 3.4-36 of EIR	City of Escondido Planning Department		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	MM-BIO-1.3: A restoration maintenance and monitoring plan for the 6.28 acres of habitat restoration, as described in MM-BIO-1.2, shall be prepared by a qualified restoration ecologist and shall incorporate an appropriate native species planting palette to blend in with the existing and surrounding habitats. Preference for habitat community restoration shall be determined based on the existing and surrounding habitats by a qualified restoration ecologist. Areas of nonnative grassland and eucalyptus woodland shall be restored in the form of native grassland and/or open oak woodland habitats. No nonnative species shall be incorporated into the restoration plan. This plan shall include details of site preparation, implementation and planting specifications, and maintenance and monitoring procedures. The plan shall also outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria.	MM-BIO-1.3 Page 3.4-36 of EIR	Restoration Ecologist TBD		
	MM-BIO-1.4: Permanent impacts to sensitive upland habitats shall be mitigated off-site through drawdown of mitigation credits from the Daley Ranch Mitigation Bank. Mitigation shall be completed, as shown in Table 3.4-3, at ratios in accordance with the NCMSCP and Escondido Subarea Plan as the guiding regulatory documents for the proposed Project. Coast live oak woodland shall be mitigated at 2:1 inside PAMA and 1:1 outside PAMA for a total of 1.70 acres of mitigation. Coastal sage scrub shall be mitigated at 1.5:1 inside PAMA and 1:1 outside PAMA for a total of 0.63 acre of mitigation. Nonnative grassland shall be mitigated at a ratio of 1:1 inside PAMA and 0.5:1 outside PAMA for a total of 4.20 acres of mitigation. Total mitigation credit to be drawn down from the Daley Ranch Mitigation Bank shall be 6.53 acres.	MM-BIO-1.4 Page 3.4-36 of EIR	City of Escondido Planning Department		
	MM-BIO-1.5: Permanent impacts to riparian and wetland habitats shall be mitigated at a ratio of up to 3:1 for a total of up to 2.13 acres of mitigation required. All permanent shaded areas shall be mitigated at a ratio of up to 3:1 with the first 0.64 acre occurring through restoration on-site, the second 0.64 acre occurring off-site and the remaining 0.64 acre via debit of preservation credits at Daley Ranch. All other permanent impacts (0.07 acre) shall be mitigated at up to 3:1 ratio with 0.14 acre off-site and 0.07 acre via debit	MM-BIO-1.5 Page 3.4-38 of EIR	City of Escondido Planning Department		

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	preservation credits at Daley Ranch. Off-site mitigation in the amount of 0.78 acre shall occur directly adjacent to the Project site at the southeast portion of the Hale Avenue Resource Recovery Facility (HARRF) Expansion Parcel.				
	MM-BIO-1.6: A mitigation maintenance and monitoring plan for both on-site and off-site riparian and wetland mitigation, as described in MM-BIO-1.5, shall be prepared by a qualified restoration ecologist and shall incorporate an appropriate native species planting palette to blend in with the existing and surrounding habitats. This plan shall include details of site preparation, implementation and planting specifications, and maintenance and monitoring procedures. The plan shall also outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria.	MM-BIO-1.6 Page 3.4-38 of EIR	Restoration Ecologist TBD		
BIO-2. Potential temporary and permanent indirect impacts to the vegetation communities surrounding the Project site would occur as a result of Project construction and operation.	**MM-BIO-2: Indirect Impacts to Sensitive Vegetation Communities** **MM-BIO-2.1:** Storage of soil or fill material from the Project site shall be within the Project area or developed areas. The contractor shall delineate stockpile areas on the grading plans for review by the City.	MM-BIO-2.1 Page 3.4-38 of EIR	Contractor		
	MM-BIO-2.2: Construction access shall use existing developed areas or be within the right-of-way of proposed road improvements. If unauthorized new or temporary access routes are determined to be necessary, these areas shall be surveyed for biological resources prior to their use. Contractors shall clearly mark all access routes (i.e., flagged and/or staked) prior to the onset of construction. Implementation of erosion and sedimentation control measures as identified in MM-BIO-5 would also reduce any potential indirect impacts to sensitive vegetation communities to less than significant.	MM-BIO-2.2 Page 3.4-38 of EIR	Contractor		
	MM-BIO-2-3: The contractor shall periodically monitor the work area to ensure that construction-related activities do not generate excessive amounts of fugitive dust. Water shall be applied to the construction right-of-way, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion.	MM-BIO-2.3 Page 3.4-39 of EIR	Contractor		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
BIO-3. Within the Project site, construction and placement of the Escondido Creek Bridge would result in 0.01 acre of permanent direct impacts to potential jurisdictional waters. Temporary direct impacts to jurisdictional waters within the Project site would occur to 0.75 acre. Shading from bridge construction would directly and permanently impact 0.64 acre.	**MM-BIO-3: Direct Impacts to Jurisdictional Waters** **MM-BIO-3.1:** MM-BIO-1 requires mitigation for all permanent wetland habitat impacts at a ratio of up to 3:1. In addition, in accordance with resource agency policies, the mitigation shall not result in a net loss of wetland habitat or wetland functions and values. Therefore, a minimum of 1:1 of the final mitigation replacement ratio shall be accomplished by wetland/riparian restoration at the southeast portion of the HARRF Expansion Parcel (0.78 acre). The proposed mitigation is subject to the resource agencies' review and discretion; thus, the mitigation obligations for the impacts to jurisdictional wetland habitats may change from those presented here.	MM-BIO-3.1 Page 3.4-39 of EIR	City of Escondido Planning Department		
	MM-BIO-3.2: Impacts to riparian habitats and wetlands, as well as jurisdictional waters, shall require the following permits by regulatory federal and state agencies and acts: (1) USACE, CWA, Section 404 permit for placement of dredged or fill material within waters of the U.S.; (2) RWQCB, CWA, Section 401 state water quality certification/waiver for an action that may result in degradation of waters of the state; and (3) CDFG, CFGC, Section 1602 agreement for alteration of a streambed. The mitigation could occur in the form of wetland/riparian creation or restoration (which both result in a gain of wetland/riparian area), or creation or restoration combined with enhancement.	MM-BIO-3.2 Page 3.4-39 of EIR	City of Escondido Planning Department		
BIO-4. Impacts to jurisdictional waters would occur within a deed restricted mitigation area.	**MM-BIO-4: Direct Impacts to a Deed Restricted Mitigation Area** The deed restriction shall be removed from the area underneath the bridge. In kind, a deed restriction shall be placed on all mitigation acreage proposed at the southeast portion of the HARRF Expansion Parcel. In addition, an area of equal acreage to the area being removed from the deed restriction to the west of the bridge shall be placed under deed restriction in the vicinity of the now proposed mitigation location on the HARRF Expansion Parcel.	MM-BIO-4 Page 3.4-39 of EIR	City of Escondido Planning Department		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
BIO-5. Potential temporary and permanent indirect impacts to the jurisdictional waters surrounding the Project site would occur as a result of Project construction.	**MM-BIO-5: Indirect Impacts to Jurisdictional Waters** **MM-BIO-5.1**: As identified in MM-BIO-1, environmentally sensitive area fencing shall be installed at the Project site to ensure no unintentional impacts to sensitive habitats. In the area of the HARRF access driveway, the limits of potentially jurisdictional southern willow riparian forest shall be flagged for avoidance, and silt fencing shall be installed in this location to avoid any indirect impacts to this potentially jurisdictional habitat.	MM-BIO-5.1 Page 3.4-40 of EIR	Contractor		
	MM-BIO-5.2: A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared to comply with RWQCB requirements. The SWPPP shall identify the design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during construction. Erosion control measures shall be regularly checked by the contractor, the Project biologist, and/or the City. Specific BMP plans shall be reviewed by the City and the Project biologist and modified, if necessary, prior to implementation. Fencing and erosion control measures of all Project areas shall be inspected a minimum of once per week.	MM-BIO-5.2 Page 3.4-40 of EIR	Contractor/ Project Biologist and/or City of Escondido Planning Department		
	MM-BIO-5.3: Activities, including staging areas, equipment access, and disposal or temporary placement of excess fill, shall be prohibited within off-site drainages. Implementation of measures as identified in MM-BIO-2 would also reduce any potential indirect impacts to jurisdictional waters to less than significant.	MM-BIO-5.3 Page 3.4-40 of EIR	Contractor		
BIO-6. Direct permanent impacts would occur to 16 mature and 12 protected trees.	**MM-BIO-6: Direct Impacts to Mature and Protected Trees** **MM-BIO-6.1:** Prior to the start of construction, all *mature* and/or *protected* trees shall be identified by a qualified biological monitor within the temporary and permanent impact areas. Impacts to trees in the temporary work area shall be avoided to the extent feasible. Trees in the temporary impact area that can be avoided shall be temporarily fenced off at the drip line of the tree to prevent impacts during construction.	MM-BIO-6.1 Page 3.4-40 of EIR	Project Biologist TBD		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	MM-BIO-6.2: If *mature* and/or *protected* trees cannot be preserved on-site, then impacts shall be mitigated as required under the City of Escondido Municipal Code (Chapter 33, Article 55). Where mature and protected trees occur in open oak woodland and/or riparian habitat, habitat-based mitigation as required under MM-BIO-1 and MM-BIO-3 will reduce impacts to less than significant. Of the 38 mature trees, a total of 16 *mature* trees are not associated with riparian and oak woodland habitats on-site. These 16 *mature* trees that cannot be preserved on-site shall be replaced at a minimum 1:1 ratio. Of the 33 protected trees, a total of 12 *protected* trees are not associated with riparian and oak woodland habitats on-site. These 12 *protected* trees that cannot be preserved on-site shall be replaced at a minimum 2:1 ratio. The number, size, species, and location of replacement trees shall be determined on a case-by-case basis by the City of Escondido Planning Department. Replacement trees shall be incorporated into the on-site revegetation plan, as required in MM-BIO-1.	MM-BIO-6.2 Page 3.4-40 of EIR	City of Escondido Planning Department		
BIO-7. Mature and/or protected trees were not surveyed in the buffer; however, indirect impacts may occur to those adjacent to the Project site. Potential temporary, indirect impacts to mature and/or protected trees would arise during Project construction as a result of runoff and sedimentation, erosion, and fugitive dust.	**MM-BIO-7: Indirect Impacts to Mature and Protected Trees** Implementation of measures as identified in MM-BIO-2 would reduce any potential indirect impacts to *mature* and *protected* trees to less than significant.	MM-BIO-7 Page 3.4-41 of EIR	Contractor		
BIO-8. Direct permanent impacts would occur to three Engelmann oak that occur in the planned grading areas.	**MM-BIO-8: Direct Impacts to Sensitive Plant Species (Engelmann Oaks)** Impacts to two Engelmann oak trees shall be avoided in the temporary impact area to the extent feasible, as required in MM-BIO-5. Permanent impacts to one Engelmann oak tree (and temporary impacts to the two Engelmann oak trees, if they cannot be avoided) shall be mitigated as required for *protected* trees under the City of Escondido Municipal Code	MM-BIO-8 Page 3.4-41 of EIR	City of Escondido Planning Department		

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	(Chapter 33, Article 55). Engelmann oaks shall be replaced at a minimum 2:1 ratio at an on-site location, or elsewhere in the City, as determined by the City Director of Planning.				
BIO-9. Potential temporary, indirect impacts to Palmer's sagewort and Engelmann oak would arise during Project construction as a result of runoff, sedimentation, erosion, and fugitive dust. Potential permanent indirect impacts to Palmer's sagewort and Engelmann oak may occur during Project operation, such as habitat degradation and introduction of harmful exotic plant species.	**MM-BIO-9: Indirect Impacts to Sensitive Plant Species (Palmer's Sagewort and Engelmann Oaks)** **MM-BIO-9.1:** In the Project buffer, the four individuals of Palmer's sagewort shall be flagged for avoidance and further impacts shall be avoided through implementation of the following: no unnecessary or unauthorized trespass by workers or equipment in the Project buffer, prohibition of staging and storage of equipment and materials, prohibition of refueling activities, and prohibition of littering or dumping debris in areas known to contain Palmer's sagewort outside the Project area. Palmer's sagewort shall also be planted within the Project's potential on-site wetland/riparian restoration area.	MM-BIO-9.1 Page 3.4-41 of EIR	Contractor		
	MM-BIO-9.2: Implementation of measures identified in MM-BIO-2 would reduce any potential indirect impacts to Engelmann oaks to less than significant.	MM-BIO-9.2 Page 3.4-41 of EIR	Contractor		
BIO-10. Suitable Cooper's hawk, yellow warbler, and yellow-breasted chat habitat present in the Project site would be directly impacted by construction of the Project. Operation of the Project may temporarily directly impact these species when tree trimming is necessary during routine maintenance.	**MM-BIO-10: Direct Impacts to Cooper's Hawk, Yellow Warbler, and Yellow-Breasted Chat and Other Migratory Birds** Under CFGC Division 4, Part 2, Chapter 1, Section 3503.5, "it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto," where "take" is defined under Division 0.5, Chapter 1, Section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." In addition, the MBTA restricts the killing of migratory birds or destruction of active migratory bird nests and/or eggs. Therefore, vegetation clearing should occur outside of the typical breeding season for raptors and migratory birds (January 1 through September 1). If this is not possible, then a qualified biologist shall conduct a survey for nesting birds no more than 5 calendar days prior to construction to	MM-BIO-10 Page 3.4-41 of EIR	Project Biologist TBD		

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	determine the presence or absence of nests in the Project area, and the potential need for additional Project mitigation measures. If construction is halted for more than 5 calendar days during the breeding season, then nest surveys must be repeated prior to any additional vegetation clearing.				
BIO-11. Temporary, indirect impacts are likely to arise from construction-generated fugitive dust accumulation on surrounding vegetation and/or noise resulting in destruction and/or avoidance of habitat by wildlife. Operation of the Project may result in permanent indirect impacts to Cooper's hawk, yellow warbler, and yellow-breasted chat, which includes edge effects, where the Project would lead to increased lighting, noise, and exotic plant and wildlife invasion.	**MM-BIO-11: Indirect Impacts to Cooper's Hawk, Yellow Warbler, and Yellow-Breasted Chat and Birds and Other Migratory Birds** **MM-BIO-11.1:** If nesting birds, including but not limited to, special-status species and those species protected by the MBTA, are detected in the Project site or Project buffer, the nest shall be flagged and no construction activity shall take place within 500 feet of the nest until nesting is complete (nestlings have fledged or nest has failed) or a Project biologist and noise specialist have confirmed that construction noise levels are less than 60 dBA L_{eq} at the nest site.	MM-BIO-11.1 Page 3.4-42 of EIR	Project Biologist and Noise Specialist TBD		
	MM-BIO-11.2: If construction activities occur at night, all Project lighting (e.g., staging areas, equipment storage sites, roadway) shall be directed onto the roadway or construction site and away from sensitive habitat. Light glare shields shall also be used to reduce the extent of illumination into adjoining areas.	MM-BIO-11.2 Page 3.4-42 of EIR	Contractor		
	MM-BIO-11.3: Final construction plans shall detail all operational street light locations and shall be provided to the City of Escondido Planning Department for review. Operational street lights shall be directed onto the roadway and away from open space areas. When considering spacing of lighting along the roadway, special consideration shall be given to the lighting along the new bridge and in the vicinity of the riparian habitat in Escondido Creek. Lighting in the area of Escondido Creek should be avoided if possible. If lighting is necessary for safe roadway operations in the vicinity of the creek, filters, shields, automatic dusk-to-dawn sensors, and/or other commercially available devices shall be implemented so that lighting is not reflecting into the adjacent riparian habitat. Final construction plans detailing lighting shall include specifications for all proposed devices	MM-BIO-11.3 Page 3.4-42 of EIR	City of Escondido Planning Department		

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	to avoid lighting impacts within the riparian habitat adjacent to the bridge. These lighting specifications shall be reviewed and approved by the City of Escondido Planning Department prior to Project implementation.				
	MM-BIO-11.4: Operational traffic noise may reduce breeding potential for the yellow warbler, yellow-breasted chat, and Cooper's hawk within 230 feet of the centerline of the bridge and/or roadway. Noise levels shall be considered when preparing the restoration plan to allow for the planting of mature and protected trees, as required in MM-BIO-6, in areas where traffic noise levels would not be expected to impact breeding and nesting activities of foraging raptors, including Cooper's hawk. Implementation of habitat-based mitigation for direct impacts as described in MM-BIO-1 and MM-BIO-3 would result in an overall increase in suitable habitat for yellow warbler and yellow-breasted chat, and would reduce any potential indirect noise impacts to less than significant.	MM-BIO-11.4 Page 3.4-43 of EIR			
	MM-BIO-11.5: Implementation of measures as identified in MM-BIO-2 would also reduce any potential indirect impacts to sensitive wildlife species and birds protected under the MBTA to less than significant.	MM-BIO-11.5 Page 3.4-43 of EIR	Contractor		
BIO-12. The Project would result in direct construction-related impacts to migratory bird populations on-site in the form of habitat destruction, and potentially death, injury, or harassment of nesting birds, their eggs, and their young.	**MM-BIO-12: Direct Impacts to Migratory Birds** Implementation of measures as identified in MM-BIO-10 would reduce any potential direct impacts to migratory bird populations to less than significant.	MM-BIO-12 Page 3.4-43 of EIR	Project Biologist TBD		
BIO-13. Temporary, indirect impacts are likely to arise from construction-generated fugitive dust accumulation on surrounding vegetation and construction-related	**MM-BIO-13: Indirect Impacts to Migratory Birds** Implementation of measures as identified in MM-BIO-11.1, BIO-11.2, and BIO-11.3 would reduce any potential indirect impacts to migratory birds to less than significant.	MM-BIO-13 Page 3.4-43 of EIR	Project Biologist and Noise Specialist TBD/ Contractor/City of Escondido Planning		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
erosion, runoff, and sedimentation into plant communities resulting in destruction and/or avoidance of migratory bird habitat. Additionally, construction-related noise is likely to cause migratory bird nest abandonment in areas adjacent to construction in the Project site.			Department		
CR-1. Evidence of human remains was discovered during the testing at Site SDI-12,209 Locus 1 by EDAW in 2008 within the Project's APE. No other remains were identified by BFSA during subsequent subsurface excavations conducted in the Project APE. As noted previously, there is also the indication that the Project area was used by Native Americans for religious, ritual, or other special activities based upon the recordation of pictographs adjacent to the Project's APE. Therefore, impacts to Native American burials and sacred site elements are expected. These impacts are considered significant.	**MM-CR-1: Human Remains Encountered within the Construction Zone** **MM-CR-1.1:** In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, protocols and procedures noted in the PRC Section 5097.98, the California Government Code Section 27491, the Health and Safety Code Section 7050.5, and the County of San Diego Historical Resources Guidelines for the treatment of human remains encountered at archaeological sites will be followed. The City of Escondido will prepare and submit to the tribes for their review and comments a Pre-Excavation Agreement that is intended to outline the procedures and protocol to be followed in the event human remains are identified. This agreement is not a mandatory precursor to the implementation of the mitigation and monitoring program; however, the City is committed to the proper treatment of any human remains that may be encountered, and will make the necessary effort to implement the Pre-Excavation Agreement. The procedures listed below shall be followed where human remains are encountered: A. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: a. A City Official is contacted. b. The Coroner is contacted to determine that no investigation of the cause of death is required, and	MM-CR-1.1 Page 3.5-16 of EIR	City of Escondido/ Consulting Archaeologist/ MLD		

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	c. If the Coroner determines the remains are Native American: i. The Coroner shall contact the Native American Heritage Commission (Commission) within 24 hours. ii. The Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. Previous discoveries of human remains on this project resulted in the NAHC identifying two MLDs, the KCRC for the Kumeyaay and Carmen Mojado for the San Luis Rey (Luiseño). It is reasonable to assume that the MLDs will continue in that role for the duration of the project. iii. The Most Likely Descendent (MLD) may make recommendations to the landowner or the City for the excavation work. B. The Native American human remains and associated funerary items that are removed from the Project APE may be reburied at a location mutually agreed upon by the City and the MLD(s). A portion of a City owned parcel has been designated by the City as a location where human remains can be reburied and preserved. An open space easement will be placed over this lot within the City-owned property adjacent to the Citracado Parkway Project. This easement will be permanent and will protect all cultural materials within the easement indefinitely. If reinterment of human remains cannot be accomplished at the time of discovery, the MLD(s) shall either take temporary possession of the remains or identify a location for the temporary but secure storage of the remains. C. Any time human remains are encountered or suspected and soil conditions are appropriate for the technique, the use of canine forensics will be considered when searching for human remains. The decision to use canine forensics will be made on a case-by-case basis through consultation between the City representative, the Consulting Archaeologist (defined as the individual charged with the responsibility of implementing the Mitigation Monitoring and Reporting Program and directing field				

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	excavations),and the MLD(s). Because human remains require special consideration and handling, they must be defined in a broad sense. For the purposes of this document, human remains are defined as: a. Cremations including the soil surrounding the deposit, b. Interments including the soil surrounding the deposit, and c. Associated funerary items.				
	MM-CR-1.2: In consultation with the City representative, the Consulting Archaeologist, and the MLD, additional measures, such as focused archaeological excavations, may be required to determine the extent of burials or ensure the recovery of all elements of the burial.	MM-CR-1.2 Page 3.5-17 of EIR	City of Escondido Planning Department/ Consulting Archaeologist/ MLD		
CR-2. Should human remains or sacred/religious artifacts be encountered and subsequently removed from the construction zone, the disposition of these remains after removal from the construction area represents a significant impact to Native American religious beliefs and customs (CR-2). Consultation with Native American representatives since 2008 has provided a platform to address the issue and propose mitigation measures to address this impact.	**MM-CR-2: Disposition of Human Remains** The majority of Locus 1 of SDI-8280 is situated outside of the Project's APE and is located on property owned by the City of Escondido. To ensure the preservation of the significant pictographs recorded at SDI-8280 and located adjacent to the APE (and within the City's ownership), the City shall delineate an area for preservation that encompasses the pictographs. Furthermore, because of the high potential to recover additional human remains or sensitive artifacts associated with sacred, religious, or ceremonial components of the material cultural of the prehistoric occupants of these sites, the City shall also identify this preservation area within Locus 1 of SDI-8280 as a location for the repatriation and reburial of such sacred, religious, or ceremonial artifacts or human remains identified by the MLD(s) as appropriate for reburial. The preservation area within Locus 1 of SDI-8280 shall be either dedicated as an open space easement to ensure the perpetual protection of the pictographs and any reburied cultural materials; or, the preservation area may be legally separated from the City's property and ownership conveyed to the Kumeyaay-Diegueño Land Conservancy (KDLC) to provide the local Native American community direct control of the preservation area for perpetual access to the human	MM-CR-2 Page 3.5-18 of EIR	City of Escondido Planning Department		

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	remains reburied there and to facilitate their guardianship over this location. From the perspective of CEQA and the mitigation of impacts to cultural resources, either method of preservation would be sufficient to accomplish the goal of the mitigation program. The proposed preservation area within Locus 1 of SDI-8280 is depicted in the BFSA technical report.				
CR-3. The construction project represents a source of potential indirect impacts to the significant prehistoric pictographs at Locus 1 of SDI-8280 and at SDI-12,209. Blasting, grading, dust, flying debris, and general construction activity are considered sources of potential indirect impacts to the rock art panels at these sites. The pictographs at SDI-8280 are the most likely to be indirectly affected by grading because these are approximately 20 feet from the construction zone. Furthermore, significant features and deposits of both SDI-8280 and SDI-12,209 border the APE and may be indirectly impacted by inadvertent grading or construction. Indirect impacts would be significant if construction activities stray beyond the APE.	**MM-CR-3: Indirect Impacts to Significant Cultural Deposits and Rock Art Elements at SDI-8280 and SDI-12,209** **MM-CR-3.1:** Indirect impacts to elements of SDI-8280 and SDI-12,209 that are adjacent to the construction APE shall be mitigated through fencing that will be used to isolate the work area. Notes shall be placed on the construction plans and notices posted on the job site that areas outside of the APE contain "Environmentally Sensitive Areas." No construction activity shall be permitted outside of the APE unless that area has been reviewed for potential impacts to cultural deposits.	MM-CR-3.1 Page 3.5-18 of EIR	Contractor		
	MM-CR-3.2: Concerns over the pictograph at SDI-12,209, which is situated east of the alignment, have been raised by the Native American community. The boulder with the pictograph could be affected by vibrations from blasting or heavy equipment. Measures would be required to ensure indirect impacts do not cause any damage to this feature. Measures to protect the feature may include wrapping the rock with layers of fabric to protect the pictograph image. Engineering assistance will be necessary to calculate the need for any structural shoring of the rock to prevent movement. This pictograph is located on private property, and measures to mitigate potential indirect impacts may require the consent of the property owner. The status of access to the boulder at the time of construction to provide mitigation of indirect impacts is not known at this time. If access is denied, measures to protect the pictograph rock will be limited to fencing along the limits of construction.	MM-CR-3.2 Page 3.5-18 of EIR	City of Escondido Engineering Department		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	MM-CR-3.3: The pictographs located in Locus 1 of SDI-8280 are situated near the APE and may be affected by the grading of the new road. The southernmost of the pictographs is immediately adjacent to the road cut, and will be very near the construction activity, which represents a source of potential indirect impacts. To ensure the preservation of the pictograph, measures will be needed to secure the boulder from dust and debris, vibrations, and any damage to the surface of the boulder. The following measures shall be completed prior to the initiation of grading within 500 feet of the pictographs at Locus 1 of SDI-8280: A. The project engineer/design consultant shall devise a method to secure the slope between the southern pictograph boulder and the proposed retaining wall immediately adjacent to the pictograph. B. The drilling of tie rods needed to secure the retaining wall adjacent and downslope from the southern pictograph shall not cause any degradation to the soil below the pictograph that might over time affect the stability of the feature. C. Dust and debris from the grading of the road will affect and potentially damage the painted surface of the pictographs. Measures shall be implemented to ensure the surfaces of the boulders are protected. These measures may include the wrapping of the boulder first in a cloth to cover the boulder surface and the construction of a framework to create a barrier to flying debris. Prior to the start of grading, the City's resident engineer shall meet with the Consulting Archaeologist, the tribal representatives, and the contractor to arrive at an agreement upon which method would be preferred to accomplish the protection of the feature. If, for any reason, a mutually-agreeable method cannot be achieved by all parties, then the Consulting Archaeologist shall be responsible to implement measures to ensure the pictograph is not damaged during construction. Prior to placement of any protective materials over the pictographics, digital photographs shall be taken with the	MM-CR-3.3 Page 3.5-19 of EIR	City of Escondido Engineering Department/ Consulting Archaeologist/ Contractor		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	purpose of using technological methods to enhance the observable image while the opportunity exists prior to construction of the roadway. D. Following the completion of the road project, all protective materials shall be removed from the pictographs and the area returned to its natural setting. In addition to the protection of the pictograph features, the milling features that will be affected by the Project and that are considered sensitive to Native American groups will be preserved (and capped) or possibly moved, where possible and feasible. The majority of milling features at SDI-12,209 are far too large to move, and may be capped and preserved in the fill soil needed to raise the roadbed. Smaller milling features may be moved to the open space easement at SDI-8280. To determine which milling features within the APE will be preserved, moved, or destroyed, a field meeting will be required prior to the start of grading and will be attended by the City's engineer, the contractor, the Native American representatives, and the Consulting Archaeologist to review the inventory of milling features within the APE and determine the most appropriate candidates to move or relocate, which may be preserved by capping and will be impacted by grading. Where preservation cannot be accomplished, no additional work is required, as all the features have been previously recorded.				
CR-4. The present study indicates that approximately 6,157 square meters of SDI-12,209 Locus 1 and 3,751 square meters of Locus 2 will be impacted by the proposed Project. Because the testing and evaluation program identified an intact subsurface deposit, the site is considered to have additional research potential. Therefore, Site	**MM-CR-4: Direct Impacts to Significant Elements of SDI-12,209** For direct impacts to significant components of Site SDI-12,209 (Loci 1 and 2), mitigation of those impacts would be achieved through the implementation of a data recovery program. As a condition of approval for this Project, and prior to the initiation of any clearing, grading or construction associated with the road project within the boundaries of the cultural sites, the City shall direct the archaeological consultant to prepare a detailed research design to orientate the research perspective, stipulate the archaeological goals, address Native American concerns, and direct the excavation process. The implementation of the research design constitutes mitigation for the proposed destruction of the	MM-CR-4 Page 3.5-20 of EIR	Consulting Archaeologist		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
SDI-12,209 is considered an important cultural resource according to the criteria listed in CEQA, Section 15064.5, and any impacts to the cultural resource will be considered significant.	significant portions of archaeological Site SDI-12,209 (Loci 1 and 2) within the alignment. The mitigation of impacts shall be achieved by the excavation and analysis of a sufficient sample of the significant deposits affected to exhaust the research potential of those areas. Based on the archaeological research records for this region, and following widely applied guideline requirements from agencies in this area, mitigation of impacts through applied data recovery programs will typically target a 10 to 15 percent sample as a statistically valid recovery level for significant deposits. However, the overriding measure of the adequacy of a sample of a significant deposit is the exhaustion of research potential and achievement of a redundant artifact recovery pattern. To facilitate the periodic review of the excavation collection and assessment of the status of the information accumulated, the data recovery program will utilize a statistical sampling process that will require the evaluation of the excavation at 5 percent sample increments, or phases. At the conclusion of each phase of sampling (potentially Phases 1, 2, 3), the Consulting Archaeologist shall determine if the subsequent phase of sampling is required, using criteria listed in the research design, and potentially stratifying the subsequent sample phase to focus excavations in areas with higher research potential. The Consulting Archaeologist responsible for the mitigation program will have the latitude to adjust the stratified sampling process to maximize efforts in any particular areas that possess identified higher research potential. The sampling protocol is highlighted below, but will be presented in greater detail in the research design. A. The basic unit of the data recovery field program will be standard one-meter-square test units. Each unit will be excavated using common archaeological protocols for fieldwork, including the excavation of each unit in decimeter levels to a depth that exceeds the lowest depth of the cultural deposit. All excavations will be completed using hand tools and work will be approached in a careful, professional manner. All of the soil excavated from the units will be subjected to hydro-screening on-site. The use of water to separate dirt from the				

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	archaeological collections will ensure that any human remains are immediately revealed and will also enhance the recovery of cultural materials that may be too small to otherwise be identified. All soils will be hydro-screened through one-eighth-inch mesh hardware cloth, with at least 10 percent of the excavated sample to be screened with one-tenth-inch mesh hardware cloth to search for those elements of the deposit that otherwise would pass through the one-eighth-inch mesh. All recovered cultural materials will be bagged by provenience, labeled, and transported to a secure location for laboratory analysis. B. All excavations (both archaeological and construction-related) will include monitoring by Luiseño and Kumeyaay MLDs (or their designated representatives). C. Detailed field maps will be completed using Global Positioning System technology with submeter accuracy to record all excavations and features encountered. D. Phase I of the fieldwork program will include a five percent hand-excavated sample of each identified subsurface deposit that will be directly impacted. E. At the completion of Phase I, the Consulting Archaeologist shall evaluate the results and consider issues of site integrity, data redundancy, spatial and temporal patterning, features, and other relevant topics in order to assess the adequacy of the initial five percent sample. The Consulting Archaeologist shall communicate with the City of Escondido and County of San Diego the results of the Phase I evaluation and recommendation for Phase II additional work. Based on this assessment, the site will be stratified to delineate areas with further research potential or the potential to produce features. A second phase of field investigations would consist of an additional 5 percent sample of that stratified area with further research potential. Adjustments in the sample size shall be an option of the Consulting Archaeologist should the assessment of the sources of the Phase I sample indicate the Phase II sample should be less than 5				

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	percent. F. Implement Phase II of fieldwork, as necessary. Upon completion of the second phase of sampling, the Consulting Archaeologist will evaluate the success of the Phase II and consider the need for further sampling. The Consulting Archaeologist shall submit the results of this evaluation to the City of Escondido and County of San Diego as well as any recommendations for Phase III additional excavations. Should this analysis confirm research potential remains, a third phase (Phase III) will be employed. Typically, as a product of site organization and use pattern during the Late Prehistoric period, the sampling process will identify a core area of more intense artifact concentration and variety of artifact types. The final phase (Phase III) of the stratified sample would commonly employ a large block excavation to focus Phase III efforts only upon the core deposit. G. Implement Phase III of sampling if determined to be necessary. H. Conduct an intensive laboratory program for all recovered cultural materials. All items in the collection will be subjected to standard laboratory procedures of cleaning, cataloging, data entry, and artifact analysis including lithics analysis, ceramics analysis, faunal analysis, floral analysis, assemblage analysis, and radiocarbon dating. I. Provide evidence to the satisfaction of the City that all archaeological materials recovered, during both the significance testing and data recovery phases, have been curated according to current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Agreements with the Native American representatives regarding elements of the archaeological excavation recovery will supersede curation requirements if these artifacts are requested by the tribes for repatriation,				

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	relocation, and/or reburial. Complete and submit the Final Technical Report to the satisfaction of the City.				
CR-5. The alignment for Citracado Parkway will pass through two significant prehistoric sites and across an area used extensively by prehistoric inhabitants of this village complex. The potential exists that undocumented cultural deposits may be encountered during grading of the Project. Impacts to undocumented elements of SDI-8280 or SDI-12,209 may be significant.	**MM-CR-5: Potential Impacts to Undocumented Cultural Deposits During Grading** The construction of the Citracado Parkway Extension would require the implementation of a MMRP. The basis for this requirement is that the construction APE will include known significant cultural resources and areas where potentially important cultural deposits could be discovered. To identify any significant and previously undocumented elements of SDI-8280 and SDI-12,209, the MMRP will require the presence of an archaeological monitor, as well as Luiseño and Kumeyaay Native American monitors, during all grading and trenching associated with the project. The actual building of the roadway following the completion of earthwork will not require monitoring, although periodic visits by the monitors will be conducted to ensure the adjacent cultural resources remain intact. The MMRP shall state the following:	MM-CR-5 Page 3.5-22 of EIR	City of Escondido Planning Department		
	MM-CR-5.1: During the cutting of previously undisturbed soil, archaeological and Native American monitors shall be on-site full time to perform inspections of the excavations. The presence of the Consulting Archaeologist is a mandatory grading requirement; however, the Native American monitors may choose to monitor at their discretion during the grading program. The number of monitors permitted on the Project will depend on the rate of excavation, the number of areas being graded at any one time, the materials excavated, and the presence and abundance of artifacts and features. The Consulting Archaeologist shall provide the City with a rationale for the number of monitors needed to comply with the mitigation measure. Safety issues and protocols will be cited in those instances where the number of individuals on-site may be limited due to hazardous conditions. Because of the constrained work environment, a monitoring team shall typically include one archaeological monitor and two Native American monitors, one Kumeyaay and one Luiseño. The	MM-CR-5.1 Page 3.5-23 of EIR	Consulting Archaeologist		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	supervising archaeologist will recommend additional monitoring teams should multiple work areas be graded simultaneously.				
	MM-CR-5.2: Prior to the initiation of grading, the contractor shall organize a preconstruction meeting of all personnel scheduled to work on the grading and construction phases of the project. The purpose of this meeting will be a Worker's Education Program to instruct the workforce about the cultural resources associated with the Project, the sensitivity of these resources to the local Native American community, and the protocols to be followed should any workers encounter artifacts during work on the project. The Consulting Archaeologist shall conduct the Worker's Education Program and shall include the Native American representatives as part of the presentation of Native American concerns.	MM-CR-5.2 Page 3.5-23 of EIR	Contractor/ Consulting Archaeologist		
	MM-CR-5.3: Isolates and clearly nonsignificant deposits will be documented in the field but will not be subjected to data recovery mitigation.	MM-CR-5.3 Page 3.5-23 of EIR	Consulting Archaeologist		
	MM-CR-5.4: In the event that previously unidentified and potentially significant cultural resources are discovered, the Consulting Archaeologist or Native American monitor shall have the authority to divert or temporarily halt ground disturbance operations to review possible discoveries. This temporary diversion of work shall be as brief as possible; however, if a discovery is confirmed, the supervising archaeologist shall report this to the City's resident engineer. The discovery location shall be secured from further disturbance to allow evaluation of potentially significant cultural resources. The Consulting Archaeologist shall contact the City's resident engineer at the time of any discovery. The Consulting Archaeologist, in consultation with tribal representatives, shall determine the significance of the discovered resources. For any significant cultural resources discovered during monitoring of grading, further mitigation measures (data recovery) will be necessary to complete the impact mitigation. A detailed description of additional mitigation measures will be prepared by the Consulting Archaeologist and approved by the City, prior to	MM-CR-5.4 Page 3.5-23 of EIR	Consulting Archaeologist / City of Escondido Engineering Department		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	implementation. If any human remains are discovered, the County Coroner shall be contacted (see MM-CR-2). In the event that the remains are determined to be of Native American origin, the MLDs shall be contacted to determine proper treatment and disposition of the remains.				
	MM-CR-5.5: In areas within the APE where significant deposits have been identified, controlled grading may be implemented to carefully peel away layers of soil, which could expose features or human remains with minimal damage. The Consulting Archaeologist, in conjunction with Native American monitors, shall determine when and where controlled grading is needed based upon the results of the Data Recovery Program and any new discoveries made during grading. The pace, depth, duration, and location of the controlled grading protocol will be made in concert with tribal monitors but will ultimately be the responsibility of the Consulting Archaeologist to grade and implement the program.	MM-CR-5.5 Page 3.5-24 of EIR	Consulting Archaeologist		
	MM-CR-5.6: All cultural material collected during the grading monitoring program shall be processed and curated according to current professional repository standards and as required by the environmental policies and guidelines of the County of San Diego. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Agreements with the MLDs (Pre-Excavation Agreement) regarding human remains and associated grave goods will supersede curation requirements and all human remains and associated grave goods will be submitted to the tribes for repatriation, relocation, and/or reburial.	MM-CR-5.6 Page 3.5-24 of EIR	Consulting Archaeologist		
	MM-CR-5.7: A section of the final data recovery report for the Citracado Extension Project shall include a description of the mitigation monitoring program and a report of all findings made during the monitoring process. Copies of the mitigation and monitoring report will be provided to the City of Escondido, County of San Diego, the Native American tribes, and the South Coastal Information Center at San	MM-CR-5.7 Page 3.5-24 of EIR	Consulting Archaeologist		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
	Diego State University. The final technical report and the curation of collections shall be completed within 1 year of the termination of fieldwork and monitoring and grading.				
Construction-generated noise associated with the proposed Project would not result in significant temporary noise impacts to noise-sensitive receptors. The proposed Project would not expose local sensitive receptors to significant temporary impacts resulting from groundborne vibrations **NOISE-1.** With implementation of the proposed Project, 2014 noise levels would range from 54 to 71 dBA CNEL; 31 receptors would be exposed to noise levels equal to or greater than 60 dBA CNEL and 10 receptors would be exposed to noise level greater than 65 dBA CNEL. Noise-level increase under the Build Condition in 2014 would range from -4 to 21 dBA over the projected 2014 No Build and 1 to 24 dBA over existing 2010 noise levels; 16 receptors would be exposed to a noise-level increases of 5 dBA or greater when comparing the 2014 Build and No	No construction-related temporary noise impacts to sensitive receptors were determined in the preceding analysis. As a result, construction-related noise impacts would be less than significant. **MM-NOISE-1: Sound Walls** Soundwalls shall be constructed as shown in Figure 3.9-3. To reduce noise levels to 65 dBA CNEL or less, soundwall 1 (SW1) and soundwall 2 (SW2) shall be 10 feet in height and soundwalls 3–5 (SW3–SW5) shall be 8 feet in height. Additionally, to achieve a noticeable reduction (i.e., 3 dBA) an 8-foot-high soundwall (SW6) shall be constructed for R24 and R31, 6-foot-high soundwalls (SW7+SW8) shall be constructed for R34 and R35, and a 12-foot-high soundwall shall be constructed for R37 (SW9). Mitigation was designed for R36 due to a cumulatively considerable impact but was determined infeasible, as no configuration could achieve a 3 dBA reduction due to the design and access requirements of the lot. While the proposed Project would result in a substantial permanent increase in noise levels, with inclusion of the modeled walls in the proposed project at the specified heights, the proposed Project would not expose local noise-sensitive receptors to noise levels in excess of 65 dBA CNEL and would not exceed interior noise level standards. Given the City's goal of 60 dBA, even with the implementations of proposed mitigation, the proposed Project would result in a significant unavoidable impact at receptors R2, R4 through R10, R14 through R16, R18 through R20, R23, R24, R26 through R29, and R36, as noise levels would continue to exceed 60 dBA CNEL. As the walls for R34, R35, and R37 are located on private property, permission would be required by the property	MM-Noise-1 Page 3.9-24 of EIR	Contractor		

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
Build Conditions. Under 2030 conditions all receptors except R33, and R39 would be exposed to noise levels in excess of 6 dBA or to noise increases over existing 2010 conditions of greater than 5 dBA. The Project would result in a cumulatively considerable substantial increase in noise levels, i.e. an increase greater than 1 dBA with Project, at receptors R22, R27, R28, R30, R31, R34, R35, R36, R37, R38. Based on the noise levels presented in Table 3.9-8, R22, R27, R28, R30, R31, R34 and R36 would be exposed to a substantial increase in noise levels and a noise level in excess of 60 dBA CNEL. Therefore, the proposed Project would cause a significant impact at R22, R27, R28, R30, R31, R34, and R36 (NOISE-1).	owners to construct the soundwalls. Thus, it cannot be guaranteed that the soundwalls for these locations can be built. If the identified soundwalls cannot be built, impacts at these receptors would be significant and unavoidable.				

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
TR-1. For the year 2014 forecast scenario, the proposed Project would have a significant adverse impact on the operations of the intersection at Citracado Parkway and West Valley Parkway (level of service [LOS] at this intersection would decline from LOS D to LOS F with Project implementation).	It is recommended that this intersection be left unimproved until Citracado Parkway can be extended to the east to connect to Interstate 15 (I-15) and/or lane geometry improvements can be made at the intersection. No mitigation measures are proposed as a part of this Project, and this impact would remain significant and unavoidable.	MM-TR-1 Page 3.10-11 of EIR			
TR-2. For the year 2014 and year 2030 forecast scenarios, the proposed Project would have a significant adverse impact on the operations of the intersection at Del Dios Highway and Via Rancho Parkway. Year 2014 and year 2030 LOS at this intersection would be LOS F with Project implementation. The proposed Project would reduce the AM LOS value from LOS D to LOS F, and would also cause an incremental contribution to PM traffic volumes at the intersection that would result in a significant increase in motorist delay compared to the no project condition.	In the event that this intersection receives no San Diego County (County) improvements, or if the City of Escondido (City) does not complete the Citracado Parkway link to I-15, then this impact would remain significant and unavoidable. No mitigation measures are proposed as a part of this Project (although other planned improvements would likely reduce this impact), and this impact would remain significant and unavoidable.	MM-TR-2 Page 3.10-12 of EIR			

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
TR-3. For the 2014 forecast scenarios, the proposed Project would have a significant adverse impact on the operations of the Via Rancho Parkway street segment south of Del Dios Highway. The average daily LOS for this segment would decline from LOS D to LOS E with Project implementation.	No mitigation measures are proposed as a part of this Project, and this impact would remain significant and unavoidable.	MM-TR-3 Page 3.10-13 of EIR			
TR-4. For the 2014 forecast scenarios, the proposed Project would have a significant adverse impact on the operations of the West Valley Parkway/Del Dios Highway (where Del Dios Highway begins within the County limits) segment between Citracado Parkway and Via Rancho Parkway. The average daily LOS for this segment would be LOS F with or without Project implementation. Although the proposed Project would not reduce the LOS value (LOS F is the lowest rating), the incremental contribution of the Project to traffic volumes along the segment would exceed the County's significance criteria for a significant impact by adding 200 or	No mitigation measures are proposed as a part of this Project, and this impact would remain significant and unavoidable.	MM-TR-4 Page 3.10-13 of EIR			

Nature of Impact	Mitigation Measure	Identification No. Location in Doc.	Responsibility for Implementation	Certified Initials/Date	Comments
more average daily trips (ADT) to a street segment performing at LOS F.					
TR-5. Temporary vehicular traffic disruptions and detours during Project construction would result in a temporary short-term adverse impact on alternative transportation facilities.	**MM-TR-5:** A Traffic Management Plan would be prepared to address the traffic control procedures during construction of the proposed Project. The plan would include measures to provide alternate routes for bicyclists and pedestrians that would use facilities affected by Project construction. Implementation of an approved Project Traffic Management Plan would reduce this impact to less than significant.	MM-TR-5 Page 3.10-11 of EIR	City of Escondido Planning Department		

APPENDIX B

NOTICE OF PREPARATION AND COMMENT LETTERS

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Planning Division
201 North Broadway, Escondido, CA 92025
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CITY OF ESCONDIDO
NOTICE OF PREPARATION

Date: April 11, 2007

To: State Clearinghouse
Office of Planning & Research
1400 Tenth Street, Room 222
Sacramento, CA 95814

Subject: Notice of Preparation of an
Environmental Impact Report for the
Citracado Parkway Extension and Annexation Project

Lead Agency: City of Escondido
Department of Public Works
201 North Broadway
Escondido, CA 92025
Phone: (760) 839-4651

The City of Escondido (City), as Lead Agency, is preparing an Environmental Impact Report (EIR) for a proposed roadway extension and potential annexation project, Citracado Parkway. The purpose of this Notice of Preparation (NOP) is to inform agencies and the public that an EIR is being prepared for this project and to invite specific comments on the scope and content of the information to be included and analyzed in the EIR. Agencies should comment on the elements of the environmental information that are relevant to their statutory responsibilities in connection with the proposed project.

The City proposes to extend and improve Citracado Parkway from West Valley Parkway to Andreasen Drive (see Figure 1). The proposed Citracado Parkway roadway extension would require a new structure crossing at Escondido Creek and may include landform alterations at the proposed intersection, or interchange, with Harmony Grove Road. Minor street realignments and/or grade adjustments may also be proposed for the intersection of Kuana Loa Drive with Harmony Grove Road. Traffic signals will be considered at various intersections with Citracado Parkway along the corridor being studied such as Citracado Parkway at Harmony Grove Road and/or Citracado Parkway at Avenida Del Diablo.

The City is also considering the annexation of three parcels (see Figure 2) crossed by or in proximity to the proposed roadway extension. One of the parcels is owned by the City and is currently located within the County of San Diego jurisdictional boundaries. All three parcels are outside the City's Sphere of Influence (see Figure 2). The City has reviewed the proposed project and features and determined the following areas must be analyzed in an EIR:

Aesthetics. Potential visual impacts will be evaluated, including proposed structure height and effects on surrounding properties and public view corridors potentially resulting from the new structure and/or from landform alterations.

Biological Resources. The proposed project's potential effects on biological resources associated with habitats, rare plant species, animal species, mature trees, and any other state or federally listed species will be assessed. The new proposed bridge crossing of Escondido Creek warrants consideration of wetland impacts and will require both a Streamcourse Alteration Agreement from California Department of Fish and Game and a 404 Permit from the Army Corps of Engineers pursuant to the Clean Water Act.

Cultural Resources. The EIR will include an evaluation of the proposed project's potential effects on archaeological and historic resources.

Traffic and Circulation. The EIR will present the results of a traffic circulation analysis prepared for the project, assessing the potential effects on subregional travel patterns and the surrounding street system.

Noise. The potential effect of construction noise on nearby properties will be assessed, including any effects of excavation, truck traffic, and pile driving that may be associated with construction of the proposed creek crossing. The noise effects on increased traffic volumes and higher speeds on noise levels, and the resultant effects on sensitive land uses will be studied.

Air Quality. The EIR will examine the conformance of the project with air quality control strategies of the San Diego Air Pollution Control District and with federal and state air quality standards.

Water Quality. The EIR will address potential effects of storm water runoff from the project during construction and after development, in the context of state and federal regulations and the City's Storm Water Management and Discharge Control Ordinance.

Geology and Soils. The EIR will report the results of a geotechnical investigation of the project site, including an evaluation of seismic effects, suitability of geologic materials for construction, groundwater, and any other geologic hazards.

Hazardous Materials. The EIR will discuss the potential for hazardous materials to be encountered on the site during grading activities, based on database searches, and on-site reconnaissance. Potential hazards will be discussed in the context of local, state, and federal hazardous material regulation.

Growth-Inducing Effects. The EIR will discuss ways in which the proposed project may foster economic and population growth in Escondido and the region consistent with the California Environmental Quality Act (CEQA) Guidelines.

Cumulative Effects. The EIR will discuss whether impacts of the proposed project, whether or not they are individually significant, might be considered significant when combined with the effects of other projects or potential projects, particularly in Escondido and adjacent portions of San Diego County.

The City has prepared this NOP pursuant to Section 15082 of the CEQA Guidelines. Due to the time limits mandated by state law, your response should be sent at the earliest possible date, but **no later than 30 days** after issuance of this notice **(May 11, 2007)**. Please send your written comments to Diana Delgadillo, Associate Planner – City of Escondido, at the address shown above. If you represent an agency or organization, please indicate a contact person.

County of San Diego

DEPARTMENT OF PUBLIC WORKS

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May 4, 2007

Diana Delgadillo, Associate Planner
City of Escondido
Department of Public Works
201 North Broadway
Escondido, CA 92025

Notice of Preparation (NOP) of Environmental Impact Report for the Citracado Parkway Extension and Annexation Project – City of Escondido

The County of San Diego Department of Public Works Transportation Planning staff has reviewed the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the proposed Citracado Parkway roadway extension and potential annexation project dated April 11, 2007. The project is located within the jurisdictions of the City of Escondido and the County of San Diego. The project may have potentially significant direct and/or cumulative traffic impacts to County roads and intersections located within the unincorporated area adjacent to the City. To facilitate coordination with the County, the following are items that the project's EIR should address:

- The EIR should provide a "with" and "without" project traffic analysis for the near-term/opening day and long-range scenarios.

- The EIR should assess the project's potential impacts to the following County roadway segments and intersections:

    - Country Club Drive (SA 550)
    - Kauana Loa Drive (SA 550)
    - Harmony Grove Road (SC 1370)
    - Del Dios Highway (SF 727)
    - Via Rancho Parkway (SA 570)
    - Gamble Lane (SA 580)
    - Harmony Grove Road @ Country Club Drive
    - Del Dios Highway @ Via Rancho Parkway

- The EIR should reference the County's updated/adopted Significance Criteria/Traffic Impact Guidelines dated September 26, 2006. The traffic analysis should follow the format requirements for facilities within the unincorporated area as specified in the County's adopted guidelines.

- The EIR should provide a brief summary of the County's General Plan 2020 (GP2020) Circulation Element (CE) Road Network recommendations for affected roadways within the unincorporated area.

- The EIR should clearly identify the near-term/opening day and long-term land use and roadway network assumptions for the surrounding unincorporated area.

- The EIR should clarify if the City will be annexing all of the County parcels along the segments of Citracado Parkway that are proposed to be constructed.

- For the parcels that are proposed to be annexed, the EIR should include a comparative assessment based on the County's currently adopted General Plan land uses and the City's adopted General Plan land uses.

- The EIR should clarify the future planned Gamble Lane improvements and if the improvements are considered in the long-term analysis.

- The Level of Service (LOS) tables should identify which roadway segments and intersections are located within the County's jurisdiction.

- The LOS assessment of roadway segments within the County's jurisdiction should be based on the County's Public Road Standard LOS criteria.

- Traffic signal warrants should be provided for any proposed signals located within the County's jurisdiction.

- Conceptual striping/signing plans for the proposed Harmony Grove Road / Kauana Loa Drive intersection should be included in the traffic analysis. The EIR should clarify which jurisdiction will be responsible for managing/maintaining the new intersection. The City should coordinate with the County DPW Traffic Section in developing the design for the proposed intersection.

- The City should coordinate with County staff on the list of near-term/cumulative proposed/pending projects.

If you have any question on these comments, please call Nick Ortiz of the DPW Transportation Section at (858) 874-4204. I can be reached at (858) 874-4054.

Sincerely,

JULIAM M. QUINN, Environmental Planning Manager
Department of Public Works

JMQ: jmq

Cc: Bob Goralka (DPW); Nick Ortiz (DPW)

February 7, 2007

RESOLUTION OF SAN DIEGO COUNTY)
BOARD OF SUPERVISORS)
CONDITIONALLY APPROVING)
VESTING TENTATIVE MAP NO. 5365RPL^2)

WHEREAS, Vesting Tentative Map No. 5365RPL^2 proposing the division of property located on both sides of Harmony Grove Road at the intersection with Country Club Drive and generally described as:

> A portion of Section 30, a portion of the northeast quarter and the southeast quarter of Section 25, a portion of the southeast quarter of Section 24, and a portion of the southwest quarter of Section 19, all in Township 12 South, Range 2 West, San Bernardino Meridian;

was filed with the County of San Diego pursuant to the Subdivision Map Act and San Diego County Subdivision Ordinance on October 27, 2006; and

WHEREAS, on February 7, 2007, the Board of Supervisors of the County of San Diego pursuant to Section 81.307 of the San Diego County Subdivision Ordinance held a duly advertised public hearing on said Tentative Map and received for its consideration, documentation, written and oral testimony, recommendations from all affected public agencies, and heard from all interested parties present at said hearing; and

WHEREAS, the Board of Supervisors of the County of San Diego has determined that the conditions hereinafter enumerated are necessary to ensure that the subdivision and the improvement thereof will comply with the Subdivision Map Act and conform to all ordinances, plans, rules, standards, and improvement and design requirements of San Diego County.

IT IS RESOLVED, THEREFORE, that the Board of Supervisors of the County of San Diego hereby makes the following findings as supported by the minutes, maps, exhibits, and documentation of said Tentative Map all of which are herein incorporated by reference:

1. The Vesting Tentative Map is consistent with all elements of the San Diego County General Plan and with the (21) Specific Plan Area (1.6) Land Use Designation of the North County Metropolitan Subregional Plan because it proposes a mixed use rural village in accordance with the provision of the Harmony Grove Specific Plan (SP 04-003) with a residential density that does not exceed 1.6 dwelling units per acre and complies with the provisions of the State Subdivision Map Act and the Subdivision Ordinance of the San Diego County Code;

2. The Vesting Tentative Map is consistent with the Zoning Ordinance because it proposes residential, commercial, civic, recreational and open space use types in accordance with the Harmony Grove Village Specific Plan (SP 04-003) with a minimum net lot size of 2,200 square feet in the S88 Specific Planning Area Use Regulation;

3. The design and improvements of the proposed subdivision are consistent with all elements of the San Diego County General Plan and with the North County Metropolitan Subregional Plan, and comply with the provisions of the State Subdivision Act and the Subdivision Ordinance of the San Diego County Code;

4. The site is physically suitable for the type of development because most of the project will be located on the level portions of the valley floor and on the gentler slopes located in the northerly portion of the project site. A granite landform located in the southeasterly portion of the site will accommodate some development in areas that were formerly rocks quarries. These areas will be restored and integrated into overall development concept of the Harmony Grove Specific Plan. Sensitive areas such as steep slopes, wetlands and floodplains will be subject to open space easements in accordance with the provisions of a comprehensive Resource Management Plan;

5. The site is physically suitable for the proposed density of development because all necessary public services are available to the site. The project will include the construction of a wastewater treatment plant that will process the sewage to a tertiary level and recycle the remaining effluent as irrigation for the parks and other common landscaped areas;

6. The design of the subdivision and the type of improvements will not cause public health problems because adequate water supply and sewage disposal services have been found to be available or can be provided concurrent with need;

7. The design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat based upon the findings of Environmental Impact Report dated November 15, 2006, on file with the Department of Planning and Land Use as Environmental Review Number 04-08-011;

8. The design of the subdivision or the type of improvements do not conflict with easements, acquired by the public at large, for access through, or use of property within the proposed subdivision, as defined under Section 66474 of the Government Code, State of California; and
The division and development of the property in the manner set forth on the approved Tentative Map will not unreasonably interfere with the free and complete exercise of the public entity or public utility right-of-way or easement;

9. The discharge of sewage waste from the subdivision into the County-operated Harmony Grove Village Sewer Maintenance District sewer system will not result in violation of existing requirements prescribed by the California Regional Water Quality Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code, as specified by Government Code Section 66474.6;

10. It is hereby certified that the Final EIR dated November 15, 2006 on file with DPLU as Environmental Review Number 04-08-011 has been completed in compliance with the California Environmental Quality Act, reflects the Board of Supervisors independent judgment and analysis, and was presented to the Board of Supervisors on February 7, 2007, and the Board of Supervisors has reviewed and considered the information contained in the Final EIR prior to approving the project.

11. The "California Environmental Quality Act Guidelines Section 15091 Findings Regarding Significant Effects of the Project" dated December 27, 2006 on file with DPLU as Environmental Review Number 04-08-011; is hereby adopted;

12. The "Statement of Overriding Considerations" dated December 27, 2006 on file with DPLU as Environmental Review Number 04-08-011; is hereby adopted;

13. The project is consistent with the provisions of the Resource Protection Ordinance as amended concurrently with this approval (POD 06-007).

    A waiver of the requirement to dedicate open space over sensitive steep slopes is granted for specified lots and is based on findings set forth in Major Use Permit P04-012 for the Village Development Area.

14. It is hereby found that the project proposed by the application has prepared plans and documentation demonstrating compliance with the provisions of the County of San Diego Watershed Protection, Stormwater Management, and Discharge Control Ordinance.

15. Because adequate facilities and services have been assured and adequate environmental review and documentation have been prepared, the regional housing opportunities afforded by the subdivision outweigh the impacts upon the public service needs of County residents and fiscal and environmental resources; and

16. A sufficient water supply exists as defined under the requirements of Section 66473.7 of the Government Code. This finding is based on a Water Supply Assessment Report for this project that was approved by the Rincon del Diablo Municipal Water District on November 9, 2004.

IT IS FURTHER RESOLVED, DETERMINED, AND ORDERED, that based on these findings, said Vesting Tentative Map is hereby approved subject to the following conditions:

A. The approval of this Tentative Map TM 5365RPL^2 shall take effect and be in force on March 9, 2007, but only if GPA 07-001, SP 04-003 and R04-010, also are approved and become effective that day.

The approval of this Tentative Map expires on March 9, 2010 at 4:00 p.m., unless prior to that date a request for a Time Extension has been filed and is subsequently approved as provided by Section 81.308 of the County Subdivision Ordinance

PLEASE NOTE: Condition compliance, preparation of grading and improvement plans and final mapping may take a year or more to complete. Applicants are advised to begin this process at least one year prior to expiration of this Tentative Map.

PLEASE NOTE: Time Extension requests cannot be processed without updated project information including new Department of Environmental Health certification of septic systems. Since Department of Environmental Health review may take several months, applicants anticipating the need for Time Extensions for their projects are advised to submit applications for septic certification to the Department of Environmental Health several months prior to the expiration of their Tentative Maps.

B. The "Standard Conditions for Tentative Subdivision Maps" approved by the Board of Supervisors on June 16, 2000, and filed with the Clerk as Resolution No. 00-199, shall be made conditions of this Tentative Map approval. Only those exceptions to the Standard Conditions set forth in this Resolution or shown on the Tentative Map will be authorized.

C. The following conditions shall be complied with before a Final Map is approved by the Board of Supervisors and filed with the County Recorder of San Diego County (and, where specifically, indicated, shall also be complied with prior to issuance of grading or other permits as specified):

PLANS AND SPECIFICATIONS

(Street Improvements and Access)

1. Standard Conditions 1 through 12.

2. Specific Conditions:

a. Prior to approval of the First Final Map, improve or agree to improve and provide security for **Harmony Grove Road (SC 1370)**, on-site, within the project boundary, in accordance with Public Road Standards for a Town Collector, to a graded width of seventy-four feet (74') with fifty-four feet (54') of asphalt concrete pavement over approved base with Portland cement concrete curb and gutter with face of curb at twenty-seven feet (27') from centerline to the satisfaction of the Director of Public Works.

b. Prior to approval of the First Final Map, improve or agree to improve and provide security for Harmony Grove Road (SC 1370), from Country Club Drive easterly and northerly to Village Road northeast of POA 41, as an interim improvement, to a graded width of thirty-six feet (36') and an improved width of (28') of asphalt concrete pavement over approved base. The existing pavement may remain and shall be widened with asphalt concrete to provide a constant width of twenty-eight feet (28') to the satisfaction of the Director of Public Works. Where the twenty-eight foot improved width is infeasible, the applicant shall submit a design exception to the Satisfaction of the Director of Public Works.

c. Prior to approval of the First Final Map, improve or agree to improve and provide security for **Country Club Drive (SC 1375)**, within and along the project frontage north of Village Drive, in accordance with Public Road Standards for a Rural Light Collector, to a graded width of sixty feet (60') with forty-feet (40') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalks with face of curb at twenty (20') from centerline to the satisfaction of the Director of Public Works. Where infeasible or inappropriate to meet the 40-mph design speed as specified in the Public Road Standards for a Rural Light Collector, the applicant may submit to the Director of Public Works a design exception that is in substantial conformance with the "Safety Enhancement Alternative" exhibit submitted to the Board of Supervisors February 7, 2007.

d. Prior to approval of the First Final Map, improve or agree to improve and provide security for **Village Road and Country Club Drive (SC 1375)**, from Harmony Grove Road northerly along existing Country Club Drive to the easterly subdivision boundary at existing Harmony Grove Road, in accordance with Public Road Standards for a Town Collector, to a graded width of seventy-four (74') with fifty-four feet (54') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalks with face of curb at twenty-seven feet (27') from centerline to the satisfaction of the Director of Public Works.

e. **Improve roads or agree to improve and provide security for them, with the recordation of the Final Map for the Unit the road is within, abuts, or provides access to.**

f. Prior to approval of the Final Map for Unit 1, improve or agree to improve and provide security for **'R' Street**, from Country Club Drive to 'Q' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

g. Prior to approval of the Final Map for Unit 1, improve or agree to improve and provide security for **'Q' Street**, from Village Road to the cul-de-sac southwest of Lot 574 in accordance with Public Road Standards for a modified Residential Road, to a graded width of fifty-one feet (51') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

h. 'Q' Street shall terminate with a cul-de-sac southwest of Lot 574, graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

i. Prior to approval of the Final Map for Unit 1, improve or agree to improve and provide security for the unnamed private easement roads serving Lots 571 – 574, 576 – 625, 634 - 650 to an improved width of twenty-four feet (24') with asphalt concrete pavement over approved base with asphalt concrete dike at twelve feet (12') from centerline. The improvement and design standards of Section 3.1(C) of the County Standards for Private Streets for one hundred (100) or less trips shall apply to the satisfaction of DPLU Fire and the Director of Public Works.

j. Provide standard street knuckle (modified as necessary) in accordance with Regional Standard Drawing DS-15 for 'Q' Street at Lot 656 to the satisfaction of the Director of Public Works.

k. The unnamed private easement roads serving Lots 571 – 574, 576 – 625, 634 - 650 each shall terminate to the satisfaction of DPLU Fire and the County of San Diego, Director of Public Works.

l. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for 'T' Street, from Alley 8 to 'JJ' Street in accordance with Public Road Standards for a modified Residential Collector (one-way), to a graded width of thirty-eight feet (38') with twenty-two feet (22') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

m. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for **'U' Street**, from 'I' Street to 'JJ' Street in accordance with Public Road Standards for a modified Residential Collector (one-way), to a graded width of thirty-eight feet (38') with twenty-two feet (22') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

n. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for **'I' Street** from 'T' Street to Country Club Drive in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

o. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for **'FF' Street**, from 'K' Street to Country Club Drive in accordance with Public Road Standards for a modified Commercial Road, to a graded width of seventy-nine feet (79') with forty-nine feet (49') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalks to the satisfaction of the Director of Public Works.

p. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for **'N' Street**, from 'JJ' Street to 'K' Street in accordance with Public Road Standards for modified Residential Collector, to a graded width of sixty-two feet (62') with forty feet (40') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks with face of curb at twenty feet (20') from centerline to the satisfaction of the Director of Public Works.

q. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for **'JJ' Street**, from 'U' Street to 'N' Street in accordance with Public Road Standards for modified Residential

Collector, to a graded width of sixty-two feet (62') with forty feet (40') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks with face of curb at twenty feet (20') from centerline to the satisfaction of the Director of Public Works.

r. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for **'K' Street**, from 'JJ Street to 'N' Street in accordance with Public Road Standards for modified Residential Collector, to a graded width of sixty-two feet (62') with forty feet (40') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks with face of curb at twenty feet (20') from centerline to the satisfaction of the Director of Public Works.

s. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for **'K' Street**, from 'N Street to 'S' Street in accordance with Public Road Standards for modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

t. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for 'M' Street, from 'N' Street to 'O' Street in accordance with Public Road Standards for a modified Residential Collector (one-way), to a graded width of thirty-eight feet (38') with twenty-two feet (22)' of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

u. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for 'L' Street, from 'N' Street to 'S' Street in accordance with Public Road Standards for a modified Residential Collector (one-way), to a graded width of thirty-eight feet (38') with twenty-two feet (22') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

v. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for 'S' Street, from 'L' Street to the cul-de-sac in accordance with Public Road Standards for a modified Residential Road, to a graded width of fifty-one feet (51') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete

curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

w. 'S' Street shall terminate with a cul-de-sac at Lots 236 graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

x. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for 'V' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of seventy-four feet (74') with a minimum forty-six feet (46') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

y. Prior to approval of the Final Map for Unit 2, improve or agree to improve and provide security for 'G' Street in accordance with Public Road Standards for modified Residential Road, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

z. Prior to approval of the Final Map for Unit 3, improve or agree to improve and provide security for 'B' Street, from 'EE' Street to 'LL' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

aa. Prior to approval of the Final Map for Unit 3, improve or agree to improve and provide security for 'I' Street, from 'O' Street to Alley 7 in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

bb. Prior to approval of the Final Map for Unit 3, improve or agree to improve and provide security for 'EE' Street, from 'B' Street to 'JJ' Street in accordance with Public Road Standards for a modified Residential Collector (one-way), to a graded width of thirty-eight feet (38') with twenty-

two feet (22') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

cc. Prior to approval of the Final Map for Unit 3, improve or agree to improve and provide security for 'LL' Street, from 'B' Street to 'JJ' Street in accordance with Public Road Standards for a modified Residential Collector (one-way), to a graded width of thirty-eight feet (38') with twenty-two feet (22') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

dd. Prior to approval of the Final Map for Unit 3, improve or agree to improve and provide security for 'N' Street, from Alley 10 to 'JJ' Street in accordance with Public Road Standards for modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks with face of curb at eighteen feet (18') from centerline to the satisfaction of the Director of Public Works.

ee. Prior to approval of the Final Map for Unit 3, improve or agree to improve and provide security for 'O' Street, from Lot 519 to 'M' Street in accordance with Public Road Standards for a modified Residential Road, to a graded width of fifty-one feet (51') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

ff. Prior to approval of the Final Map for Unit 4, improve or agree to improve and provide security for Country Club Drive, within and along the project boundary, from existing Country Club Drive approximately four hundred eighty feet (480') south of Harmony Grove Road to the southwesterly corner of Lot 658, in accordance with Public Road Standards, as an interim improvement, to a graded width of forty feet (40') with twenty-eight feet (28') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalks with face of curb at fourteen feet (14') from centerline to the satisfaction of the Director of Public Works.

gg. Prior to approval of the Final Map for Unit 5, improve or agree to improve and provide security for 'Y' Street, from 'C' Street to 'B' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of

asphalt concrete pavement over approved base, and from 'C' Street to 'AA' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of forty-eight (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

hh. Design speed for 'Y' Street shall be 30 mph. Intersection of 'Y' Street and 'B' street shall be re-aligned through Lot POA 52, to provide a minimum two-hundred foot (200') centerline radius.

ii. Prior to approval of the Final Map for Unit 5, improve or agree to improve and provide security for 'C' Street, from 'Y' Street to 'D' Street, in accordance with Public Road Standards for a modified Residential Road, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works. Minimum horizontal radius shall be two-hundred feet (200'), or provide a standard street knuckle (modified as necessary) at Lot 659 in accordance with Regional Standard Drawing DS-15 to the satisfaction of the Director of Public Works.

jj. Prior to approval of the Final Map for Unit 5, improve or agree to improve and provide security for 'T' Street, from 'D' Street to Alley 8 in accordance with Public Road Standards for a modified Residential Collector (one-way), to a graded width of thirty-eight feet (38') with twenty-two feet (22') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

kk. Prior to approval of the Final Map for Unit 5, improve or agree to improve and provide security for 'U' Street, from 'D' Street to 'I' Street in accordance with Public Road Standards for a modified Residential Collector (one-way), to a graded width of thirty-eight feet (38') with twenty-two feet (22') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

ll. Prior to approval of the Final Map for Unit 5, improve or agree to improve and provide security for 'D' Street, from 'Y' Street to 'U' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six (36') of asphalt concrete pavement over approved base with Portland cement concrete

curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

mm. Prior to approval of the Final Map for Unit 5, improve or agree to improve and provide security for 'E' Street, from 'Y' Street to 'T' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

nn. Prior to approval of the Final Map for Unit 5, improve or agree to improve and provide security for 'B' Street, from 'EE' Street to 'T' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

oo. Prior to approval of the Final Map for Unit 5, improve or agree to improve and provide security for 'I' Street, from Alley 7 to 'T' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

pp. Prior to approval of the Final Map for Unit 6, improve or agree to improve and provide security for 'A' Street, from Harmony Grove Drive to Lot 184 in accordance with Public Road Standards for modified Residential Collector, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

qq. Design speed for 'A' Street shall be 30 mph.

rr. Prior to approval of the Final Map for Unit 6, improve or agree to improve and provide security for 'B' Street, from 'LL' Street to 'N' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

ss. Prior to approval of the Final Map for Unit 6, improve or agree to improve and provide security for 'P' Street, from 'A' Street to the cul-de-sac at POA 30 in accordance with Public Road Standards for modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

tt. 'P' Street shall terminate with a cul-de-sac at POA 30 graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

uu. Prior to approval of the Final Map for Unit 6, improve or agree to improve and provide security for 'N' Street, from 'B' Street to Alley 10 in accordance with Public Road Standards for modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks with face of curb at eighteen feet (18') from centerline to the satisfaction of the Director of Public Works.

vv. Provide a standard street knuckle (modified as necessary) in accordance with Regional Standard Drawing DS-15 for 'N' Street at the 'B' Street intersection to the satisfaction of the Director of Public Works.

ww. Prior to approval of the Final Map for Unit 6, improve or agree to improve and provide security for 'O' Street, from the cul-de-sac to Lot 519 in accordance with Public Road Standards for a modified Residential Road, to a graded width of fifty-one feet (51') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

xx. 'O' Street shall terminate with a cul-de-sac at Lot 226 graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

yy. Prior to approval of the Final Map for Unit 6, improve or agree to improve and provide security for 'KK' Street, in accordance with Public Road Standards for a modified Residential Cul-de-sac, to a graded width of

forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

zz. 'KK' Street shall terminate with a cul-de-sac at Lot 205, graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

aaa. Prior to approval of the Final Map for Unit 6, improve or agree to improve and provide security for POA 22, POA 27, POA 29, and the unnamed private easement road serving Lots 205, 206, and 207 to a minimum graded width of twenty eight feet (28') and to a minimum improved width of twenty-four feet (24') with asphalt concrete pavement over approved base with asphalt concrete curb and gutter at a minimum twelve feet (12') from centerline. The improvement and design standards of Section 3.1(C) of the County Standards for Private Streets for one hundred (100) or less trips shall apply to the satisfaction of DPLU Fire and the Director of Public Works.

bbb. POA 22, POA 27, POA 29, and the unnamed private easement road serving Lots 205, 206, and 207 each shall terminate to the satisfaction of DPLU Fire and the County of San Diego, Director of Public Works.

ccc. Prior to approval of the Final Map for Unit 6, improve or agree to improve and provide security for the existing unnamed private easement road, along the northerly Unit boundary adjacent to Lot 195, from 'A' Street to the westerly Unit and Project boundary, to a graded width of twenty-four feet (24') and to an improved width of twenty feet (20') with asphalt concrete pavement over approved base with asphalt concrete curb and gutter at ten feet (10') from centerline. The existing pavement may remain and shall be widened with asphalt concrete to provide a constant width of twenty feet (20'). All distressed sections shall be replaced The improvement and design standards of Section 3.1(C) of the County Standards for Private Streets for one hundred (100) or less trips shall apply to the satisfaction of DPLU Fire and the Director of Public Works.

ddd. Prior to approval of the Final Map for Unit 7, improve or agree to improve and provide security for 'D' Street, from 'U' Street to 'I' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six (36') of asphalt concrete pavement over approved base with Portland cement concrete

curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

eee. Provide a standard street knuckle (modified as necessary) in accordance with Regional Standard Drawing DS-15 for 'D' Street at Lot 666 to the satisfaction of the Director of Public Works.

fff. Prior to approval of the Final Map for Unit 7, improve or agree to improve and provide security for 'F' Street, from 'U' Street to 'D' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

ggg. Prior to approval of the Final Map for Unit 7, improve or agree to improve and provide security for 'H' Street, from 'U' Street to 'D' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of sixty feet (60') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalks to the satisfaction of the Director of Public Works.

hhh. Prior to approval of the Final Map for Unit 8, improve or agree to improve and provide security for 'AA' Street, from the westerly corner of POA 13 to 'Y' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of forty-eight feet (48'), and from the westerly corner of POA 13 to 'A" Street, in accordance with Public Road Standards for a modified Residential collector, to a graded width of forty-four (44') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

iii. Design speed for 'AA' Street shall be 30 mph.

jjj. Prior to approval of the Final Map for Unit 8, improve or agree to improve and provide security for 'DD' Street in accordance with Public Road Standards for a modified Residential Cul-de-sac, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

kkk. 'DD' Street shall terminate with a cul-de-sac at Lot 109, graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

lll. Prior to approval of the Final Map for Unit 8, improve or agree to improve and provide security for 'A' Street, from 'AA Street' to Lot 184 in accordance with Public Road Standards for a modified Residential Collector, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

mmm. Design speed for 'A' Street shall be 30 mph.

nnn. Prior to approval of the Final Map for Unit 9, improve or agree to improve and provide security for 'J' Street in accordance with Public Road Standards for a modified Residential Cul-de-sac, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and sidewalk to the satisfaction of the Director of Public Works.

ooo. 'J' Street shall terminate with a cul-de-sac at Lot 180, graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

ppp. Prior to approval of the Final Map for Unit 9, improve or agree to improve and provide security for 'W' Street, from 'AA' Street to the cul-de-sac in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

qqq. 'W' Street shall terminate with a cul-de-sac at Lot 171, graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

rrr. Minimum horizontal radius for 'W' Street shall be two hundred feet (200'),

sss. Prior to approval of the Final Map for Unit 9, improve or agree to improve and provide security for 'BB' Street in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

ttt. 'BB' Street shall terminate with a cul-de-sac at Lot 158, graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point.

uuu. Provide standard street knuckle (modified as necessary) in accordance with Regional Standard Drawing DS-15 for 'BB' Street at POA 11 to the satisfaction of the Director of Public Works.

vvv. Prior to approval of the Final Map for Unit 9, improve or agree to improve and provide security for 'A' Street, from 'J Street' to POA 54 in accordance with Public Road Standards for a modified Residential Collector, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

www. Prior to approval of the Final Map for Unit 9, improve or agree to improve and provide security for 'A' Street, from POA 54 to 'AA' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of forty-four feet (44') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works

xxx. Design Speed for 'A' Street shall be 30 mph.

yyy. Prior to approval of the Final Map for Unit 9, improve or agree to improve and provide security for POA 6, POA 9, POA 12, and POA 18 to a minimum graded width of twenty eight feet (28') and to a minimum improved width of twenty-four feet (24') with asphalt concrete pavement over approved base with asphalt concrete curb and gutter at twelve feet (12') from centerline. The improvement and design standards of Section 3.1(C) of the County Standards for Private Streets for one hundred (100) or less trips shall apply to the satisfaction of DPLU Fire and the Director of Public Works.

zzz. POAs 6, 9, 12, and 18 each shall terminate to the satisfaction of DPLU Fire and the County of San Diego, Director of Public Works.

aaaa. Prior to approval of the Final Map for Unit 10, improve or agree to improve and provide security for 'Y' Street, from Lot 68 to the southeast corner of Lot 87 in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

bbbb. Provide temporary cul-de-sac (modified as necessary) in accordance with Regional Standard Drawing DS-5 for 'Y' Street at Lot 68 to the satisfaction of the Director of Public Works.

cccc. Prior to approval of the Final Map for Unit 10, improve or agree to improve and provide security for 'Y' Street, from the southeast corner of Lot 87 to POA 2, in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-four feet (44') with thirty-six (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

dddd. Prior to approval of the Final Map for Unit 10, improve or agree to improve and provide security for 'Y' Street, from POA 2 to 'AA' Street, in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

eeee. Provide standard street knuckle (modified as necessary) in accordance with Regional Standard Drawing DS-15 for 'Y' Street at Lot 87 to the satisfaction of the Director of Public Works.

ffff. Prior to approval of the Final Map for Unit 10, improve or agree to improve and provide security for POA 1 to a minimum graded width of twenty-eight feet (28') and to a minimum improved width of twenty-four feet (24') with asphalt concrete pavement over approved base with asphalt concrete curb and gutter at twelve feet (12') from centerline. The improvement and design standards of Section 3.1(C) of the County Standards for Private Streets for one hundred (100) or less trips shall apply to the satisfaction of DPLU Fire and the Director of Public Works.

gggg. POA 1 shall terminate to the satisfaction of DPLU Fire and the County of San Diego, Director of Public Works.

hhhh. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for 'A' Street, from 'X' Street to 'Y' Street in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

iiii. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for 'A' Street, from 'Y' Street to 'J' Street in accordance with Public Road Standards for a modified Residential Collector, to a graded width of forty four (44') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

jjjj. Design speed for 'A' Street shall be 30 mph.

kkkk. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for 'X' Street, in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

llll. 'X' Street shall terminate with a cul-de-sac at Lot 31 graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point to the satisfaction of the Director of Public Works.

mmmm. Provide a standard street knuckle (modified as necessary) in accordance with Regional Standard Drawing DS-15 for 'X' Street at Lot 18, to the satisfaction of the Director of Public Works.

nnnn. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for 'NN' Street, in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

oooo. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for 'MM' Street, from 'A' Street to 'NN' Street, in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

pppp. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for 'MM' Street, from 'NN' Street to the cul-de-sac at Lot 8, to a graded width of twenty-eight feet (28') and to an improved width of twenty-four feet (24') with asphalt concrete pavement over approved base with asphalt concrete curb and gutter at twelve feet (12') from centerline. The improvement and design standards of Section 3.1(C) of the County Standards for Private Streets for one hundred (100) or less trips shall apply to the satisfaction of the Director of Public Works.

qqqq. 'MM' Street shall terminate with a cul-de-sac at Lot 8, graded to a radius of thirty-eight feet (38') and surfaced to a radius of thirty-six feet (36') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-six feet (36') from the radius point to the satisfaction of the Director of Public Works.

rrrr. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for 'Y' Street, from the Lot 68 to the cul-de-sac at Lot 2 in accordance with Public Road Standards for a modified Residential Road, to a graded width of forty-eight feet (48') with thirty-six feet (36') of asphalt concrete pavement over approved base with Portland cement concrete curb, gutter and five foot (5') sidewalk to the satisfaction of the Director of Public Works.

ssss. 'Y' Street shall terminate with a cul-de-sac at Lot 2, graded to a radius of forty-six feet (46') and surfaced to a radius of thirty-eight feet (38') with asphalt concrete pavement over approved base with Portland cement concrete curb gutter and sidewalk with face of curb at thirty-eight feet (38') from the radius point to the satisfaction of the Director of Public Works.

tttt. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for POA 39 to a graded width of twenty eight feet (28') and to an improved width of twenty-four feet (24') with asphalt concrete pavement over approved base with asphalt concrete curb and gutter at twelve feet (12') from centerline. The improvement and design standards of Section 3.1(C) of the County Standards for Private Streets for one hundred (100) or less trips shall apply to the satisfaction of the Director of Public Works.

uuuu. POA 39 shall terminate to the satisfaction of DPLU Fire and the County of San Diego, Director of Public Works.

vvvv. Prior to approval of the Final Map for Unit 11, improve or agree to improve and provide security for the unnamed private easement road serving Lots 1 and 2 to a graded width of twenty eight feet (28') and to an improved width of twenty-four feet (24') with asphalt concrete pavement over approved base with asphalt concrete curb and gutter at twelve feet (12') from centerline. The improvement and design standards of Section 3.1(C) of the County Standards for Private Streets for one hundred (100) or less trips shall apply to the satisfaction of the Director of Public Works.

wwww. The unnamed private easement road serving Lots 1 and 2 shall terminate to the satisfaction of DPLU Fire and the County of San Diego, Director of Public Works.

xxxx. Asphalt concrete surfacing material shall be hand-raked and compacted to form smooth tapered connections along all edges including those edges adjacent to soil. The edges of asphalt concrete shall be hand-raked at 45 degrees or flatter, so as to provide a smooth transition next to existing soil, including those areas scheduled for shoulder backing. The above shall be done to the satisfaction of the Director of Public Works.

yyyy. Adequate sight distance per County Standards shall be provided at all proposed intersections to the satisfaction of the Director of Public Works.

zzzz. Where height of fill bank for a 2:1 slope is greater than twelve feet (12'); or where height of fill bank for a 1.5:1 slope is greater than ten feet (10'), guardrail shall be installed per CALTRANS standards to the satisfaction of the Director of Public Works.

aaaaa. If pathways are dedicated, improve the pathway, or agree to improve and provide security for them, with the approval of the unit they are within. Contact the DPW Pathway Coordinator, CIP Project Development at (858) 694-2830 for design requirements within proposed public right-of-way.

3. Off-Site Traffic Mitigations:

a. Prior to approval of the First (1st) Final Map, contribute a fair share to the City of Escondido towards the future upgrade of Hale Avenue to City Local Collector Standards, between West 9th Street and Harmony Grove Road. Upgrade the road to City Local Collector Standards.

b. Prior to approval of the First (1st) Final Map, improve or agree to improve and provide security for an additional Northbound through-lane and a dedicated northbound right-turn lane at the Via Rancho Parkway / Valley Parkway intersection as depicted in Figure 1.1-31 of the Draft Environmental Impact Report dated June 21, 2006.

c. Prior to approval of the First (1st) Final Map, modify the traffic signal at the Citracado Parkway / Valley Parkway intersection to install left-turn phasing on all four approaches to the satisfaction of both the City of Escondido and the County of San Diego.

d. Prior to approval of the First (1st) Final Map, contribute a fair share to the County of San Diego and City of Escondido towards the widening of Valley Parkway between Citracado Parkway and Via Rancho Parkway to 4-lanes to the satisfaction of both the City of Escondido and the County of San Diego.

e. Prior to approval of the First (1st) Final Map, contribute a fair share toward the City of Escondido / Caltrans planned improvement of the SR-78 / Nordahl Road interchange to provide a six-lane bridge with dual left-turn lanes onto the ramps.

f. Prior to approval of the First (1st) Final Map, contribute a fair share toward the City of Escondido's planned widening of Nordahl Road between SR-78 and East Mission Road to six lanes.

g. Prior to approval of the First (1st) Final Map, contribute a fair share to the City of Escondido towards the re-striping of eastbound West 9th Street at Auto Parkway to provide a right-turn lane, a shared through / right-turn lane, and left-turn lane.

h. Prior to approval of the First (1st) Final Map, modify the traffic signal at the West 9th Street / Autopark Way intersection to provide a right-turn overlap phasing at the eastbound approach.

i. Prior to approval of the First (1st) Final Map, contribute a fair share to the City of Escondido and Caltrans towards the future improvements of the I-15 / Via Rancho Parkway interchange.

j. Prior to approval of the First (1st) Final Map, contribute a fair share to the City of Escondido towards the future signalization of the Citracado Parkway / Country Club Drive intersection.

k. Prior to approval of the First (1st) Final Map, agree to construct and provide security for a traffic signal at the Harmony Grove Road / Village Road intersection when signal warrants are met.

l. Prior to approval of the First (1st) Final Map, construct or agree to construct and provide security for an eastbound left-turn lane on Harmony Grove Road at Village Road.

m. Prior to approval of the First (1st) Final Map, construct or agree to construct and provide security for a traffic signal at the Hale Avenue / Harmony Grove Road intersection.

n. Prior to approval of the First (1st) Final Map, contribute a fair share to the City of Escondido towards improvements to the Hale Avenue / Harmony Grove Road intersection (dual eastbound left-turn lanes).

o. Prior to approval of the First (1st) Final Map, construct or agree to construct and provide security for a traffic signal and an eastbound left-turn lane at the Hale Avenue / Avenida Del Diablo intersection to the satisfaction of the City Engineer, or cul-de-sac Avenida Del Diablo just east of Citracado Parkway to the satisfaction of the City Engineer.

p. Prior to approval of the First (1st) Final Map, agree to construct and provide security for a traffic signal at the Harmony Grove Road / 'V' Street (main project entrance) intersection when signal warrants are met.

q. Prior to approval of the First (1st) Final Map, construct or agree to construct and provide security for dedicated left-turn and right-turn lanes on Harmony Grove Road at the Harmony Grove Road / 'V' Street (main project entrance) intersection.

r. Prior to approval of the First (1st) Final Map, construct or agree to construct and provide security for dedicated left-turn and right-turn lanes in the southbound direction on 'V' Street at the Harmony Grove Road / 'V' Street (main project entrance) intersection.

s. Prior to approval of the First (1st) Final Map, provide or agree to provide and secure for the lane configuration depicted on Figure 15-1 of the approved Traffic Impact Analysis by Linscott, Law, and Greenspan dated July 18, 2006 to the Country Club Drive / Village Road road segments. Ensure that County intersection standards are met and agree to install and provide security of the installation of signals when warrants are met to the satisfaction of the Director of Public Works.

t. Prior to approval of the First (1st) Final Map, construct or agree to construct and provide security for an eastbound left-turn pocket on Harmony Grove Road at the Harmony Grove Road / 'A' Street (Wilgen Road) intersection.

u. Prior to approval of the First (1st) Final Map, prepare traffic control plans to manage construction traffic and to identify designated truck routes to the satisfaction of the City of Escondido and Director of Public Works.

v. Prior to approval of the First (1st) Final Map, improve or agree to improve and provide security for **new Village Road**, from the proposed Village Road / Harmony Grove Road intersection to the future extension of Citracado Parkway as shown in Figure 2-3 of the Traffic Impact Analysis by Linscott, Law, and Greenspan, dated July 18, 2006 and Figure 1.1-30 of the Draft Environmental Impact Report dated June 21, 2006, consistent with the City of Escondido's Citracado Parkway Alignment Study to the satisfaction of the City of Escondido and the Director of Public Works.

w. Prior to approval of the First (1st) Final Map, improve or agree to improve and provide security for **Citracado Parkway**, from the future extension of Citracado Parkway to existing Citracado Parkway at Avenida Del Diablo as shown in Figure 2-3 of the Traffic Impact Analysis by Linscott, Law, and Greenspan, dated July 18, 2006 and Figure 1.1-30 of the Draft Environmental Impact Report dated June 21, 2006, consistent with the City of Escondido's Citracado Parkway Alignment Study to the satisfaction of the City of Escondido and the Director of Public Works.

x. Prior to approval of the First (1st) Final Map, improve or agree to improve and provide security for **Country Club Drive (SC 1375)**, from the northerly project boundary at existing Country Club Drive to Kauana Loa Drive, in accordance with Public Road Standards for a Rural Light Collector, to a minimum interim graded width of forty-eight feet (48') and a minimum interim improved width of twenty-eight feet (28') of asphalt concrete pavement over approved base. The existing pavement may remain and shall be widened with asphalt concrete to provide a constant minimum width of twenty-eight feet (28') to the satisfaction of the Director of Public Works. Where infeasible or inappropriate to meet the 40-mph design speed as specified in the Public Road Standards for a Rural Light Collector, the applicant may submit to the Director of Public Works a design speed exception that is in substantial conformance with the "Safety Enhancement Alternative" exhibit submitted to the Board of Supervisors February 7, 2007.

y. Prior to approval of the Final Map for the One Hundredth (100th) Unit, contribute a fair share to the City of Escondido toward the improvement of Harmony Grove Road between Enterprise Street and Howard Avenue to Local Collector Standards, including dedicated left-turn lanes on Harmony Grove Road and Enterprise Street, Howard Avenue and Hale Avenue.

z. Prior to approval of the Final Map for the One Hundredth (100th) Unit, contribute a fair share to the City of Escondido toward the improvement of Harmony Grove Road between Howard Avenue and Hale Avenue to Local Collector Standards, including dedicated left-turn lanes on Harmony Grove Road and Enterprise Street, Howard Avenue and Hale Avenue.

aa. Prior to approval of the Final Map for the One Hundredth (100th) Unit, contribute a fair share to the City of Escondido toward the restriping of eastbound West 9th Street at Auto Park Way to provide a right-turn lane, a shared through / right-turn lane and a left-turn lane.

bb. Prior to approval of the Final Map for the One Hundredth (100th) Unit, modify the signal at the Valley Parkway / Auto Park Way intersection to provide right-turn overlap phasing at the eastbound approach to the satisfaction of the City of Escondido.

cc. Prior to approval of the Final Map for the One Hundredth (100th) Unit, contribute a fair share to the City of Escondido toward the widening of Valley Parkway between West 11th Street and Avenida Del Diablo to 4 lanes.

dd. Prior to approval of the Final Map for the One Hundredth (100th) Unit, contribute a fair share to the County of San Diego toward an additional Northbound through lane and a dedicated Northbound right-turn lane at the Via Rancho Parkway / Valley Parkway intersection.

ee. Prior to approval of the Final Map for the One Hundredth (100th) Unit, contribute a fair share to the City of Escondido toward the signalization of the Hale Avenue / West 11th Street intersection.

ff. Prior to approval of the Final Map for the Two Hundredth (200th) Unit, contribute a fair share to the City of Escondido toward the City's planned widening of Nordahl Road between SR-78 westbound ramps and East Mission Road (including the bridge) to six lanes.

gg. Prior to approval of the Final Map for the Two Hundredth (200th) Unit, contribute a fair share to the City of Escondido toward the City's planned improvements of the Nordahl Road / East Mission Road intersection.

hh. Prior to approval of the Final Map for the Two Hundredth (200th) Unit, contribute a fair share to the City of Escondido toward the widening of West 9th Street to City of Escondido Collector Standards between Hale Avenue and Valley Parkway.

ii. Prior to approval of the Final Map for the Three-hundredth (300th) Unit, contribute a fair share to the City of Escondido towards the widening of Andreason Drive to City of Escondido 4-lane Collector Standards.

jj. Prior to approval of the Final Map for the Three-hundredth (300th) Unit, contribute a fair share to the City of Escondido towards the re-striping of the eastbound approach on West 9th Street at Auto Park Way to a right-turn lane, a shared through / right-turn lane, and a left-turn lane with the provision of a right-turn overlap phasing on the eastbound approach.

kk. Prior to approval of the Final Map for the Three-hundredth (300th) Unit, construct or agree to construct and provide security for a cul-de-sac or turn restrictions on Avenida Del Diablo, from Citracado Parkway to Hale Avenue, east of Citracado Parkway to the satisfaction of the City of Engineer.

ll. Prior to approval of the Final Map for the Three-hundredth (300th) Unit, contribute a fair share to the Caltrans towards the future improvements of SR-78 between Twin Oaks Valley Road and I-15.

mm. Prior to approval of the Final Map for the Five-hundredth (500th) Unit, contribute a fair share to the City of Escondido towards the signalization of the Harmony Grove Road / Enterprise Street intersection, the provision of dedicated left-turn lanes on each approach and northbound right-turn overlap phasing.

nn. Prior to approval of the Final Map for the Six-hundredth (600th) Unit, contribute a fair share to the City of Escondido / Caltrans towards the future improvements of the Valley Parkway / I-15 Interchange.

oo. Prior to approval of the Final Map for the Six-hundredth (600th) Unit, contribute a fair share to Caltrans towards the future improvement of I-15, between SR-78 and SR-56.

(Drainage and Flood Control)

4. Standard Conditions 13 through 18.

5. Specific Conditions:

a. Storm drain systems not within the public right-of-way shall be privately maintained by a private maintenance mechanism such as a homeowners association or other private entity acceptable to the satisfaction of the Director of Public Works.

b. The 100-year flood line of the natural channels crossing all lots with drainage watersheds in excess of twenty-five (25) acres shall be clearly delineated on the non-title information sheet of the Final Map.

c. A flowage easement shall be granted to San Diego County for those portions of all lots subject to inundation by a 100-year flood, from a drainage area in excess of one (1) square mile.

(Grading Plans)

6. Standard Conditions 19(a-e).

7. Specific Conditions:

a. Comply with all applicable stormwater regulations at all times. The activities proposed under this application are subject to enforcement under permits from the San Diego Regional Water Quality Control Board (RWQCB) and the County of San Diego Watershed Protection, Stormwater Management, and Discharge Control Ordinance (Ordinance No. 9424 and Ordinance No. 9426) and all other applicable ordinances and standards. This includes requirements for materials and wastes control, erosion control, and sediment control on the project site. Projects that involve areas 1 acre or greater require that the property owner keep additional and updated information on-site concerning stormwater runoff. This requirement shall be to the satisfaction of the Director of Public Works.

b. All of the work described above pertaining to erosion control, irrigation system, slope protection, drainage systems, desilting basins, energy dissipators, and silt control shall be secured by an Instrument of Credit in a form satisfactory to County Counsel for an amount equal to the cost of this work as determined or approved by the County Department of Public Works. An agreement in a form satisfactory to County Counsel shall accompany the Instrument of Credit to authorize the County Department of Public Works to unilaterally withdraw any part of or all the Instrument of Credit to accomplish any of the work agreed to if it is not accomplished to the satisfaction of the County Department of Public Works by the date agreed. The cash deposit collected for grading, per the grading ordinance, will be used for emergency erosion measures. If said deposit

collected for grading is less than $5,000.00, the developer will supplement the deposit to equal $5,000.00. The developer shall submit a letter to the County Department of Public Works authorizing the use of this deposit for emergency measures.

FAIR HOUSING

8. Standard Condition 20.

SANITATION

9. Standard Conditions 21 and 22 (for Lots 654 and 658).

10. Specific Conditions:

a. Prior to final map recordation, the wastewater collection, treatment and disposal system shall be permitted by appropriate regulatory agencies. The applicant will coordinate with County to obtain all permits required for the design, construction, and operation of the wastewater collection, treatment and disposal system.

b. Prior to final map recordation, applicant shall enter into a secured agreement to the satisfaction of the Director of Public Works that identifies all phases of construction and operation, and delineates responsibilities. Agreement shall include but not be limited to: design and construction of water reclamation plant, pump station, sewage collection system, and recycled water system; permits needed; phased start-up of facility; phased occupancy plan; initial operations and maintenance; discharge requirements; financial responsibilities and sources; terms for transfer of ownership and operational responsibility. Secured agreement at a minimum requires posting security in accordance with Section 7613 of the Zoning Ordinance.

c. Prior to final map recordation a County agency (e.g. County Sewer Maintenance District) must be formed. Applicant shall submit to Department of Public Works, Wastewater Management, all required documentation to form a County Sewer Maintenance District. In addition, the applicant will be required to fund the formation (fees and deposits) of said County Sewer Maintenance District.

d. Prior to recordation of final map, applicant shall submit and obtain approval of Facility Planning and Feasibility Study, including review of available treatment technologies, financing, and alternative rate structures, all to the satisfaction of the Director of Public Works.

e. Prior to recordation of final map, applicant shall submit and obtain approval of plans and specifications for a water reclamation plant, pump station, disposal system, and the installation of a sewer collection system serving each lot to the satisfaction of the Director of Public Works.

f. Prior to recordation of final map, applicant shall dedicate all necessary easements along with that portion of the sewer collection system that is to be public sewer and all required facility components thereof.

g. Prior to recordation of final map, applicant shall submit and obtain approval of a 20-year Operations and Maintenance budget analysis and a Long-Term Funding Source Agreement pertaining to the water reclamation plant, pump station, and collection system which covers two scenarios: 1) Ongoing operations and maintenance done by private contractor under the administration and management of the County Sewer Maintenance District, and 2) Ongoing operations and maintenance done by County Sewer Maintenance District staff. District staffing rates shall be used when addressing these costs. All of the foregoing shall be to the satisfaction of the Director of Public Works.

h. Prior to recordation of final map, applicant shall provide confirmation of owner, operator, and permitting associated with the water reuse project. All components of the recycled water system shall be under the control of the owner and/or operator identified by the applicant, subject to approval by the Director of Public Works.

i. Applicant's water reuse project shall comply with all State and County Health Department Requirements for the use of reclaimed water, including Title 22 requirements for unrestricted reuse. Prior to recordation of final map, compliance with the above shall be verified to the satisfaction of the Director of Public Works.

j. Plans for water reclamation plant must be reviewed and comply with requirements of the Regional Water Quality Control Board, other appropriate agencies and approved by the Director of Public Works in accordance with Board Policy I-78. Project correspondence and/or approval notification must be sent to DPW Wastewater Management.

k. At such time as specified in separate agreement, applicant shall convey to the County Sewer Maintenance District and as defined in the agreement, the owner/operator of the Water Reuse System, all property - including fee title and improvements – associated with the water reclamation plant, pump station and all appurtenant facilities essential to the operation

thereof. In addition, applicant shall dedicate any easements necessary for the operation, maintenance, or repair of these facilities.

l. Prior to recordation of final map, subdivider shall furnish proof that each lot requiring sewer service has separate sewer lateral connections to the public sewer.

m. Applicant may be required to dedicate access easements, and construct access roads within those easements, for maintenance of any public sewers. All to the satisfaction of the Director of Public Works.

FIRE PROTECTION AND WATER SUPPLY

11. Standard Conditions 23.1 and 23.2.

12. Specific Conditions:

a. Prior to approval of any Final Map the applicant shall:

(1) Dedicate the two-acre lot reserved for a fire station to the County of San Diego as a future fire station location.

(2) The details as to the pro-rata funding of the fire station, as well as the fire station size, apparatus, and equipment requirements shall be finalized by CSA 107.

(3) The County shall form a Community Facilities District (CFD) to secure funding for facility construction and staffing of the on-site Harmony Grove Village Fire Station. The CFD will ensure that the appropriate emergency response level is provided via paid staff. (FSM-1)

b. Prior to approval of any Final Map within Phase 3, the applicant shall obtain approval from the Local Agency Formation Commission of a change in the boundary between Elfin Forest/Harmony Grove Fire Protection District (CSA 107) and the San Marcos Fire Protection District so that the entire project area is located within the Elfin Forest/ Harmony Grove Fire Protection District.

PLANNING AND ZONING ADMINISTRATION

13. Specific Conditions:

a. Obtain approval of a Vesting Site Plan (S05-004) from the Board of Supervisors pursuant to Section 81.1206 of the Subdivision Ordinance.

b. Obtain approval of a Major Use Permit (P04-012) from the Board of Supervisors, which pertains to the residential, common open space and recreational lots as required by the Harmony Grove Village Specific Plan (SP 04-003).

c. Obtain approval of a Major Use Permit (P04-013) from the Board of Supervisors for the proposed wastewater treatment facility.

d. Obtain approval of a Major Use Permit (P04-014) from the Board of Supervisors for the proposed Equestrian Ranch.

e. Obtain a Zone Reclassification (R04-010) to the S88 or more restrictive use regulation by the Board of Supervisors. [DPLU – Regulatory Planning Division]

f. Prior to the issuance of a grading permit, the subdivider shall obtain approval from the Director of Planning and Land Use of a detailed Landscape Plan. The Landscape Plan and review fee shall be submitted to the Regulatory Planning Division. Said Plan shall show the types and locations of all landscaping features including planting and irrigation. The landscape material shall not interfere with any required solar access (plans shall show the proposed solar access/solar panel locations). [DPLU - Regulatory Planning Division]

In addition, the Landscape Plan shall address the following concern:

(1) The Landscape Plan shall be consistent with the Conceptual Landscape Plans that are included as part of the Plot Plans for Major Use Permits P04-012, P04-013 and P04-014.

g. Prior to approval of a Final Map, the subdivider shall provide evidence that all existing structures shown on the Tentative Map "to be removed or relocated on the site" have been removed/relocated to the satisfaction of the Director of Public Works.

DEVELOPMENT IMPACT FEES

14. Specific Conditions:

a. Deposit with the County Department of Public Works sufficient funds to cover the cost of inspection of the development improvements.

FINAL MAP RECORDATION

Final Map requirements shall be shown on the Final Map or otherwise accomplished to the satisfaction of the Director of Public Works prior to submittal for approval by the Board of Supervisors:

(Streets and Dedication)

15. Specific Conditions:

a. With the First Final Map, dedicate on-site and cause to be granted off-site, by separate document or on the Final Map, **Harmony Grove Road (SC1370)**, within the project boundary, in accordance with Public Road Standards for a Town Collector to a right-of-way width of seventy-four feet (74') together with right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

b. With the First Final Map, dedicate on-site and cause to be granted off-site, by separate document or on the Final Map, **Harmony Grove Road (SC1370)**, from Country Club Drive easterly and northerly to Village Road east of POA 41, in accordance with Public Road Standards for an interim Rural Light Collector, to a right-of-way width of sixty feet (60') together with right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

c. With the First Final Map, dedicate on-site by separate document or on the Final Map, **Country Club Drive (SC1375)**, within and along the project frontage north of Village Drive, in accordance with Public Road Standards for a Rural Light Collector to a right-of-way width of sixty feet (60') or appropriate right-of-way identified in the "Safety Enhancement Alternative" submitted to the Board of Supervisors on February 7, 2007, together with right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

d. With the First Final Map, dedicate on-site and cause to be granted off-site, by separate document or on the Final Map, Village Road and Country Club Drive (SC1375), from Harmony Grove Road northerly along existing Country Club Drive to the easterly subdivision boundary at existing Harmony Grove Road, in accordance with Public Road Standards for a Town Collector to a right-of-way width of seventy-four feet (74') together with right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

e. Relinquish access rights into **Harmony Grove Road (SC 1390)** except for 'A' Street, 'V' Street and driveways for the Community Equestrian Facility south of Harmony Grove Road as shown on the Tentative Map.

f. Relinquish access rights into Country Club Drive (SC 1375) and Village Road except for 'FF' Street, 'I' Street, 'R' Street, 'Q' Street, the Wastewater Reclamation Facility driveway, and the driveway for Lot 657 as shown on the Tentative Map.

g. **Easements / Right-of-Way shall be provided for roads with the recordation of the Final Map for the Unit the road is within, abuts or provides access to.**

h. With the Final Map for Unit 1, dedicate 'R' Street, from Country Club Drive to 'Q' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

i. With the Final Map for Unit 1, dedicate 'Q' Street, from Village Road to the cul-de-sac southwest of Lot 574, in accordance with Public Road Standards for a modified Residential Road to a width of fifty-one feet (51') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

j. With the Final Map for Unit 2, dedicate 'T' Street, from Alley 8 to 'JJ' Street, in accordance with Public Road Standards for a modified Residential Collector (one way) to a width of thirty-eight feet (38') to the satisfaction of the Director of Public Works.

k. With the Final Map for Unit 2, dedicate 'U' Street, from 'I' Street to 'JJ' Street, in accordance with Public Road Standards for a modified Residential Collector (one-way) to a width of thirty-eight feet (38') to the satisfaction of the Director of Public Works.

l. With the Final Map for Unit 2, dedicate 'I' Street, from 'T' Street to Country Club Drive, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

m. With the Final Map for Unit 2, dedicate 'FF' Street, from 'K' Street to Country Club Drive, in accordance with Public Road Standards for a modified Commercial Road to a width of seventy-nine feet (79') to the satisfaction of the Director of Public Works.

n. With the Final Map for Unit 2, dedicate 'N' Street, from 'JJ' Street to 'K' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty-two feet (62') to the satisfaction of the Director of Public Works.

o. With the Final Map for Unit 2, dedicate 'JJ' Street, from 'U' Street to 'N' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty-two feet (62') to the satisfaction of the Director of Public Works.

p. With the Final Map for Unit 2, dedicate 'K' Street, from 'JJ' Street to 'N' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty-two feet (62') to the satisfaction of the Director of Public Works.

q. With the Final Map for Unit 2, dedicate 'K' Street, from 'N' Street to 'S' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

r. With the Final Map for Unit 2, dedicate 'M' Street, from 'N' Street to 'O' Street, in accordance with Public Road Standards for a modified Residential Collector (one-way) to a width of thirty-eight feet (38') to the satisfaction of the Director of Public Works.

s. With the Final Map for Unit 2, dedicate 'L' Street, from 'N' Street to 'S' Street, in accordance with Public Road Standards for a modified Residential Collector (one-way) to a width of thirty-eight feet (38') to the satisfaction of the Director of Public Works.

t. With the Final Map for Unit 2, dedicate 'S' Street, from 'L' Street to the cul-de-sac in accordance with Public Road Standards for a modified Residential Road to a width of fifty-one feet (51') to the satisfaction of the Director of Public Works.

u. With the Final Map for Unit 2, dedicate 'V' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of seventy-four feet (74') to the satisfaction of the Director of Public Works.

v. With the Final Map for Unit 2, dedicate 'G' Street in accordance with Public Road Standards for a modified Residential Road to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

w. With the Final Map for Unit 3, dedicate 'B' Street, from 'EE' Street to 'LL' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

x. With the Final Map for Unit 3, dedicate 'I' Street, from 'O' Street to Alley 7, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

y. With the Final Map for Unit 3, dedicate 'EE' Street, from 'B' Street to 'JJ' Street, in accordance with Public Road Standards for a modified Residential Collector (one-way) to a width of thirty-eight feet (38') to the satisfaction of the Director of Public Works.

z. With the Final Map for Unit 3, dedicate 'LL' Street, from 'B' Street to 'JJ' Street, in accordance with Public Road Standards for a modified Residential Collector (one-way) to a width of thirty-eight feet (38') to the satisfaction of the Director of Public Works.

aa. With the Final Map for Unit 3, dedicate 'N' Street, from Alley 10 to 'JJ' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

bb. With the Final Map for Unit 3, dedicate 'O' Street, from Lot 519 to 'M' Street in accordance with Public Road Standards for a modified Residential Road to a width of fifty-one feet (51') to the satisfaction of the Director of Public Works.

cc. With the Final Map for Unit 4, offer to dedicated, Country Club Drive (SC 1375), south of Harmony Grove Road, within and along the project boundary, in accordance with Public Road Standards for a Collector Road to a one-half right-of-way width of forty-two (42') together with right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

dd. The desired location of the centerline for Country Club Drive (SC 1375), south of Harmony Grove Road, must be determined, which is shown on the Circulation Element of the County General Plan as a Collector. The following shall be shown on the Final Map:

(1) The centerline location as approved by the Department of Public Works.

(2) Since Country Club Drive (SC 1375) is not required to be constructed to ultimate, the following shall be shown on the Final Map as "nontitle" information:

(a) The width of the right-of-way which is forty-two feet (42') from the centerline and identified by a line drawn at the appropriate location and labeled, "Limit of Proposed Street Widening."

(b) A building line which is seventy-two feet (72') from the centerline of the road, identified by a line drawn at the appropriate location and labeled, "Limit of Building Line."

(c) Show the ultimate slopes and drainage facilities on the Final Map. A profile and cross-sections sufficient to verify these limits shall be submitted to Route Locations of the Department of Public Works for review and approval.

ee. With the Final Map for Unit 4, dedicate or caused to be granted the project half of Country Club Drive, south of Harmony Grove Road, along the project frontage in accordance with Public Road Standards to a one-half right-of-way width of thirty feet (30'), together with right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

ff. With the Final Map for Unit 5, dedicate 'Y' Street, from 'C' Street to 'B' Street in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') and from 'C' Street to 'AA' Street to a width of fifty feet (50') to the satisfaction of the Director of Public Works.

gg. With the Final Map for Unit 5, dedicate 'C' Street, from 'Y' Street to 'D' Street, in accordance with Public Road Standards for a modified Residential Road to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

hh. With the Final Map for Unit 5, dedicate 'T' Street, from 'D' Street to Alley 8, in accordance with Public Road Standards for a modified Residential Collector (one-way) to a width of thirty-eight feet (38') to the satisfaction of the Director of Public Works.

ii. With the Final Map for Unit 5, dedicate 'U' Street, from 'D' Street to 'I' Street, in accordance with Public Road Standards for a modified Residential Collector (one-way) to a width of thirty-eight feet (38') to the satisfaction of the Director of Public Works.

jj. With the Final Map for Unit 5, dedicate 'D' Street, from 'Y' Street to 'U' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

kk. With the Final Map for Unit 5, dedicate 'E' Street, from 'Y' Street to 'T' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

ll. With the Final Map for Unit 5, dedicate 'B' Street, from 'EE' Street to 'T' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

mm. With the Final Map for Unit 5, dedicate 'I' Street, from Alley 7 to 'T' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

nn. With the Final Map for Unit 6, dedicate 'A' Street, from Harmony Grove Road to Lot 184, in accordance with Public Road Standards for a modified Residential Collector to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

oo. With the Final Map for Unit 6, dedicate 'B' Street, from 'LL' Street to 'N' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

pp. With the Final Map for Unit 6, dedicate 'P' Street, from 'A' Street to the cul-de-sac at POA 30, in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

qq. With the Final Map for Unit 6, dedicate 'N' Street, from 'B' Street to Alley 10, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

rr. With the Final Map for Unit 6, dedicate 'O' Street, from the cul-de-sac to Lot 519 in accordance with Public Road Standards for a modified Residential Road to a width of fifty-one feet (51') to the satisfaction of the Director of Public Works.

ss. With the Final Map for Unit 6, dedicate 'KK' Street, in accordance with Public Road Standards for a modified Residential Cul-de-sac to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

tt. With the Final Map for Unit 7, dedicate 'D' Street, from 'U' Street to 'I' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

uu. With the Final Map for Unit 7, dedicate 'F' Street, from 'U' Street to 'D' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

vv. With the Final Map for Unit 7, dedicate 'H' Street, from 'U' Street to 'D' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of sixty feet (60') to the satisfaction of the Director of Public Works.

ww. With the Final Map for Unit 8, dedicate 'AA' Street, from 'A' Street to 'Y' Street, in accordance with Public Road Standards for a modified Residential Collector to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

xx. With the Final Map for Unit 8, dedicate 'DD' Street, in accordance with Public Road Standards for a modified Residential Cul-de-sac to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

yy. With the Final Map for Unit 8, dedicate 'A' Street, from 'AA' Street to Lot 184 in accordance with Public Road Standards for a modified Residential Collector to a width of fifty feet (50') together with the right to construct

and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

zz. With the Final Map for Unit 9, dedicate 'J' Street, in accordance with Public Road Standards for a modified Residential Cul-de-sac to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

aaa. With the Final Map for Unit 9, dedicate 'W' Street, from 'AA' Street to the cul-de-sac in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

bbb. With the Final Map for Unit 9, dedicate 'BB' Street, in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

ccc. With the Final Map for Unit 9, dedicate 'A' Street, from 'J' Street to POA 54 in accordance with Public Road Standards for a modified Residential Collector to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

ddd. With the Final Map for Unit 9, dedicate 'A' Street, from POA 54 to 'AA' Street in accordance with Public Road Standards for a modified Residential Collector to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

eee. With the Final Map for Unit 10, dedicate 'Y' Street, from Lot 68 to the southeast corner of Lot 87, in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

fff. With the Final Map for Unit 10, dedicate 'Y' Street, from the southeast corner of Lot 87 to POA 2, in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

ggg. With the Final Map for Unit 10, dedicate 'Y' Street, from POA 2 to Street 'AA', in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

hhh. With the Final Map for Unit 11, dedicate 'A' Street, from 'X' Street to 'Y' Street in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

iii. With the Final Map for Unit 11, dedicate 'A' Street, from 'Y' Street to 'J' Street in accordance with Public Road Standards for a modified Residential Collector to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works

jjj. With the Final Map for Unit 11, dedicate 'X' Street in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

kkk. With the Final Map for Unit 11, dedicate 'NN' Street in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

lll. With the Final Map for Unit 11, dedicate 'MM' Street, from 'A' Street to 'NN' Street, in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

mmm. With the Final Map for Unit 11, dedicate 'Y' Street, from Lot 68 to the cul-de-sac at Lot 2, in accordance with Public Road Standards for a modified Residential Road to a width of fifty feet (50') together with the right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

nnn. Because private roads are approved as a condition of this subdivision, the following shall apply:

(1) Maintenance shall be provided through a private road maintenance agreement satisfactory to the Director of Public Works.

(2) The Director of Public Works shall be notified as to the final disposition of title (ownership) to all private roads, and place a note on the Final Map as to the final title status of said roads.

(3) Access to each lot shall be provided by private road easement not less than twenty-four feet (24') wide or as shown on the approved Tentative Map.

ooo. Provide a one-foot (1') wide strip placed at the end of all proposed public streets that "stub out" at the subdivision boundary; the one-foot (1') wide strips to be made a portion of the adjacent lots and designated as "reserved for future streets" on the face of the map; access rights in and to the proposed streets shall be granted to the County.

ppp. The subdivider shall sign a covenant agreeing not to oppose the formation of a Landscape Maintenance District (LMD) for maintaining riding and hiking trails.

qqq. If the private roads are separate lots, they shall have lot numbers consecutive with the other lot numbers within each unit. A road lot will have a different lot number in each unit.

rrr. Prior to approval of improvement and/or grading plans, issuance of excavation permits, and issuance of any further grant of approval, the owners of this project will be required to sign a statement that they are aware of the County of San Diego, Department of Public Works, Pavement Cut Policy and that they have contacted all adjacent property owners and solicited their participation in the extension of utilities.

sss. Cause the centerlines of Harmony Grove Road, Village Road, and Country Club Drive to be surveyed and monumented. Monumentation shall consist of street survey monuments, per Drawing M-10 Regional Standard Drawings when the road, as improved, is at ultimate line and grade and 2" x 24" pipe when the road is not at ultimate line and grade.

ttt. The Director of Public Works will assign a road survey number to the off-site public roads being created. If the off-site road is not shown on the Final Map, the developer shall file with the County Recorder a Record of Survey after approval of the Director of Public Works showing the centerline monumentation set with ties to adjacent property.

uuu. The Basis of Bearings for the Subdivision Map shall be in terms of the California Coordinate System Zone 6 NORTH AMERICAN DATUM OF 1983 by use of existing Horizontal Control. To be in compliance with the Public Resources Code, all Subdivision Map surveys performed after January 1, 2000 must use a Basis of Bearings established from existing Horizontal Control Stations with first order accuracy.

vvv. If conducted prior to January 1, 2000, a survey for any Subdivision Map that is to be based on state plane coordinates shall show two measured ties from the boundary of the subject property to existing Horizontal Control station(s) having California coordinate values of Third order accuracy or better, as published in the County of San Diego's Horizontal Control book. These tie lines to the existing control shall be shown in relation to the California Coordinate System (i.e. Grid bearings and Grid distances). All other distances shown on the map are to be shown as ground distances. A combined factor for conversion of Ground-to-Grid distances shall be shown on the map, all to the satisfaction of the Director of Public Works (Ref. San Diego County Subdivision Ordinance Section 81.506(j)).

If conducted after December 31, 1999, a survey for any Subdivision Map that is to be based on state plane coordinates shall show two measured ties from the boundary of the subject property to existing Horizontal Control station(s) having California Coordinate values of first order accuracy or better, as published in the County of San Diego's Horizontal Control book. These tie lines to the existing control shall be shown in relation to the California Coordinate System (i.e. Grid bearings and Grid distances). All other distances shown on the map are to be shown as Ground distances. A combined factor for conversion of Grid-to-Ground distances shall be shown on the map.

For purposes of this section, the date of survey for the field observed connections shall be the date of survey as indicated in the surveyor's/engineer's certificate as shown on the final map.

16. Off-Site Streets and Dedication:

a. With the First Final Map, cause to be granted off-site, **new Village Road,** from the proposed Village Road / Harmony Grove Road intersection to the future extension of Citracado Parkway as shown in Figure 2-3 of the Traffic Impact Analysis by Linscott, Law, and Greenspan, dated July 18, 2006 and Figure 1.1-30 of the Draft Environmental Impact Report dated June 21, 2006, consistent with the City of Escondido's Citracado Parkway

Alignment Study to the satisfaction of the City of Escondido and the Director of Public Works.

b. With the First Final Map, cause to be granted off-site, **Citracado Parkway,** from the future extension of Citracado Parkway to the existing Citracado Parkway at Avenida Del Diablo as shown in Figure 2-3 of the Traffic Impact Analysis by Linscott, Law, and Greenspan, dated July 18, 2006 and Figure 1.1-30 of the Draft Environmental Impact Report dated June 21, 2006, consistent with the City of Escondido's Citracado Parkway Alignment Study to the satisfaction of the City of Escondido and the Director of Public Works.

c. With the First Final Map, cause to be granted off-site **Country Club Drive (SC1375)** from the northerly project boundary at existing Country Club Drive to Kuana Loa Drive, in accordance with Public Road Standards for a Rural Light Collector to a right-of-way width of sixty feet (60') or appropriate right-of-way identified in the "Safety Enhancement Alternative" submitted to the Board of Supervisors on February 7, 2007, together with right to construct and maintain slopes and drainage facilities to the satisfaction of the Director of Public Works.

(Miscellaneous)

17. Specific Conditions:

a. On the Final Map, the applicant shall grant to the County of San Diego a Noise Protection Easement over the entire area of lots 224 through 227, 236, 237, 243 through 248, 425 through 427, 569, 575, 581, 587, 593, 599, 600, 605, 606, 610, 616, 623, 633, 638, 643, and 647 through 650. (Specific lot numbers shall be confirmed/ modified based on modeling of the TM showing a 40 mph design for Country Club Drive between Harmony Grove Road and new Village Road, and new Village Road between Country Club Drive and Harmony Grove Road.) This easement is for the mitigation of present and anticipated future excess noise levels on residential uses of the affected parcels. The easement shall require:

Prior to the issuance of any building permit for any residential use within the noise protection easement, the applicant shall:

(1) Complete to the satisfaction of the Director of Planning and Land Use, an acoustical analysis performed by a County-certified acoustical engineer, demonstrating that the present and anticipated future noise levels for the interior and exterior of the residential dwelling will not exceed the allowable sound level limit of the Noise

Element of the San Diego County General Plan (exterior [60 dB CNEL], interior [45 dB CNEL]). Future traffic noise level estimates for Harmony Grove Road, must utilize a LOS C traffic flow for a four-lane Collector road classification, which is the designated General Plan Circulation Element buildout roadway classification. Future traffic noise level estimates for Country Club Drive must utilize a LOS C traffic flow for a Rural Light Collector road classification, which is the designated General Plan Circulation Element buildout roadway classification.

(2) Incorporate to the satisfaction of the Director of the DPLU all of the recommendations or mitigation measures of the acoustical analysis into the Project design and building plans. Preliminary analysis indicates that five-to-six foot sound walls may be required as mitigation (Figures 2.3-6 and 2.3-7). (NM - 5a)

b. On the Final Map the applicant shall grant to the County of San Diego a Noise Easement over the entire area of Open Space Lot 4. This easement is for the mitigation of present and anticipated future excess noise levels from the daytime testing of the standby generator at the Sewer Lift Station. The easement shall:

(1) Permit the testing of the standby generator once a week between the hours of 9:00 am and 5:00 pm excluding Sundays and holidays as defined by Section 36.410 of the County Noise Ordinance.

(2) Prohibit the issuance of building permits for any structures or facilities including noise sensitive areas or uses on this Lot. (NM-8b)

c. Prior to approval of a Final Map and prior to approval of any grading or improvement plans, a Final Restoration Plan for on-site habitat creation and enhancement shall be submitted to the County and approved by the Director of Planning and Land Use. Said Final Restoration Plan shall implement the following requirements:

(1) Impacts to 0.15 acre of coastal and valley freshwater marsh (Table 3.1-17 of the EIR) shall be mitigated at a 3:1 ratio by 1:1 creation of coastal and valley freshwater marsh and 2:1 enhancement of wetland/riparian habitat in accordance with the draft restoration plan (Appendix I of the EIR) (BR M-1).

(2) Impacts to 0.22 acre of individual sycamore trees shall be mitigated at a 3:1 ratio (Table 3.1-17 of the EIR) with plantings of this same species within the Proposed Project site as shown on the landscape plan. (BRM-2)

(3) Impacts to 1.16 acres of southern willow scrub (Table 3.1-17 of the EIR) shall be mitigated at a 3:1 ratio by 1:1 creation of southern willow scrub and 2:1 enhancement of wetland/riparian habitat on and off site in accordance with the restoration plan (Appendix I of the EIR). (BRM-3)

(4) Impacts to 0.15 acre of mule fat scrub (Table 3.1-17 of the EIR) shall be mitigated at a 3:1 ratio by 1:1 creation of wetland/riparian habitat and 2:1 enhancement of wetland/riparian habitat on and off site in accordance with the restoration plan (Appendix I of the EIR). (BRM-4)

(5) Impacts to 2.39 acres of disturbed wetland and 0.03 acre of tamarisk scrub (Table 3.1-17 of the EIR) shall be mitigated at a 1:1 ratio by creation of mule fat scrub in accordance with the restoration plan (Appendix I of the EIR). Mitigation at a 1:1 ratio for impacts to disturbed wetlands is justified based on the following:

(a) The 3.39 acres of disturbed wetlands within the Harmony Grove Village Project site has very limited vegetation and has been heavily degraded by ongoing agricultural activities;
(b) Mitigation shall occur entirely on-site; and
(c) The on-site mitigation shall provide a higher quality habitat that will function as a wetland providing true value to riparian species. (BRM-5)

(6) Impacts to 0.31 acre of open water (Table 3.1-17 of the EIR) shall be mitigated at a 1:1 ratio by creation of coastal and valley freshwater marsh in accordance with the restoration plan (Appendix I of the EIR). (BRM-6)

(7) Impacts to 4.58 acres of coast live oak woodland (including disturbed coast live oak woodland and individual oak trees) shall be mitigated at a 3:1 ratio through on-site preservation of coast live oak woodland and off-site acquisition at Daley Ranch in the City of Escondido (Table 3.1-17 of the EIR). Impacts to 1.32 acres of coast live oak woodland that is under the jurisdiction of CDFG shall be mitigated at a 3:1 ratio (Table 3.1-19b of the EIR) in accordance with the restoration plan (Appendix I of the EIR; 3.41 acres restored

on-site) and off-site acquisition of 0.55 acre of coast live oak woodland at Daley Ranch. (BRM-8)

(8) Impacts to 30.8 acres of Diegan coastal sage scrub and 4.1 acres of coastal sage-chaparral scrub shall be mitigated at a 2:1 ratio. Impacts to 6.8 acres of disturbed Diegan coastal sage scrub shall be mitigated at a 1:1 ratio (Table 3.1-17 of the EIR). The total mitigation requirement for impacts to disturbed and undisturbed Diegan coastal sage scrub is 68.4 acres. Mitigation shall occur through on-site preservation of 22.0 acres of disturbed Diegan coastal sage scrub, on-site preservation of 10.2 acres of undisturbed Diegan coastal sage scrub, and off-site acquisition of 51.4 acres of Diegan coastal sage scrub. Approximately 15.2 acres of the preserved disturbed Diegan coastal sage scrub exceeds the required mitigation acreage for this habitat type. These excess acres shall be used to partially mitigate for non-native grassland impacts (BR M-11). Mitigation for 8.1 acres of impacts to coastal sage-chaparral scrub shall occur through on-site preservation of 3.2 acres of coastal sage-chaparral scrub, on-site preservation of 2.7 acres of excess southern mixed chaparral and off-site acquisition of 2.2 acres of coastal sage-chaparral scrub (Table 3.1-17). Based on the NCCP Habitat Evaluation Flow Chart, the disturbed Diegan coastal sage scrub provides a more limited long-term conservation value; therefore, a 1:1 mitigation ratio is appropriate in this case. Additionally, because the habitat has such a high weed component, a 1:1 mitigation ratio is warranted. (BRM-9)

(9) Impacts to 3.7 acres of southern mixed chaparral (including disturbed) shall be mitigated at a 0.5:1 ratio through on-site preservation of 5.3 acres of southern mixed chaparral (of which 3.4 acres are preserved in excess; Table 3.1-17 of the EIR). The excess 3.4 acres shall be used to partially mitigate for impacts to coastal sage-chaparral scrub (2.7 acres) and non-native grassland (0.7 acre). (BRM-10)

(10) Impacts to 37.7 acres of non-native grassland (including disturbed) shall be mitigated at a 0.5:1 ratio through on-site preservation of 3.0 acres of non-native grassland, 15.2 acres of excess disturbed Diegan coastal sage scrub, and 0.7 acre of excess southern mixed chaparral (Table 3.1-17). (BRM-11)

d. Prior to approval of a Final Map, the applicant shall provide the Department of Environmental Health Services (DEH) with a layout that shows the locations of all water wells within the boundaries of this Tentative Map. All such wells shall either:

(1) Be properly destroyed using a C57 well driller under permit by DEH; or

(2) Provide a signed statement for each well that states the wells will be put into production within one year. It must be specified how each of the wells will be used.

e. Prior to approval of a Final Map and prior to approval of grading or improvement plans the applicant shall provide a signed statement that all existing septic tanks will be pumped, crushed and backfilled prior to commencement of grading.

f. Prior to issuance of any grading permit or approval of improvement plans, and prior to recordation of the final Map, whichever comes first, the applicant shall:

(1) Implement, to the satisfaction of the Director of Planning and Land Use, the research design detailed in the archaeological extended study, *"A Cultural Resource Study of the Harmony Grove Village Project"* prepared by Brian F. Smith & Associates, dated April 1, 2006. The implementation of the research design constitutes mitigation for the proposed destruction of a portion of archaeological site CA-SDI-8280/H Locus 2. The research design shall include, but is not limited to the following performance standards:

(a) The data recovery program shall include a Native American monitor. The consulting archaeologist shall contract with a Native American monitor to be involved in the data recovery program. The presence of a Native American monitor shall be required for the duration of the excavation portion of the project.

(b) Phase I data recovery shall include mechanical trenching and a 2.5 percent hand excavated sample of the subsurface artifact concentrations for CA-SDI-8280/H.

(c) At the completion of Phase I, a letter report shall be submitted to the Director of the Department of Planning and Land Use. The letter report will evaluate the issues of site integrity, data redundancy, spatial and temporal patterning, features, and other relevant topics in order to assess the adequacy of the initial 2.5 percent sample. Based on this assessment, the letter report shall recommend the need for and scope of a second phase of field investigations, not to exceed a total site hand excavated sample of 10 percent of the subsurface artifact concentrations.

(d) Implement Phase 2 of fieldwork, as necessary.

(e) Conduct artifact analysis, including lithics analysis, ceramics analysis, faunal analysis, floral analysis, assemblage analysis, and radiocarbon dating, as detailed in the archaeological extended study, *"A Cultural Resource Study of the Harmony Grove Village Project"* prepared by Brian F. Smith & Associates, dated April 1, 2006. (CR-M)

(f) Prior to the initiation of any grading associated with Village Road east of Harmony Grove Road or extension of Citracado Parkway north of Avenida del Diablo, the following shall be completed:

(i) The faded rock art panels will be digitally recorded and computer enhanced to illustrate in the archaeological record the image portrayed on the rock.

(ii) A framework of PVC shall be constructed to enclose the boulder with the rock art. The frame shall be no closer than three feet to the actual rock. Canvas sheets shall be placed over the frame for the duration of the grading program along the easterly portion of new Village Road and the extension of Citracado Parkway north of Avenida del Diablo.

g. Prior to recordation of the Final Map, the applicant shall:

(1) Complete and submit the Final Technical Report for CA-SDI-8280/H from the Project Archaeologist to the satisfaction of the Director of Planning and Land Use.

Or

Enter into a Secured Agreement with the County of San Diego, Department of Planning and Land Use, secured by a letter of credit, bond, or cash for 150 percent of the estimated costs associated with the preparation of the Final Technical Report from the Project Archaeologist, and a 10 percent cash deposit not to exceed $30,000. A cost estimate shall be submitted and approved by the Director of Planning and Land Use for the cost of preparing the Final Technical Report that includes artifact analysis, and specialized studies such as lithics analysis, ceramics analysis, faunal analysis, floral analysis, assemblage analysis, and radiocarbon dating as required by the data recovery plan and research design as determined by the Project Archaeologist in consultation with the County Staff Archaeologist.

(2) Provide evidence to the satisfaction of the Director of Planning and Land Use that all archaeological materials recovered during both the significance testing and data recovery phases have been curated at a San Diego facility that meets federal standards per 36 CFR Part 79, and therefore would be professionally curated and made available to other archaeologists and/or researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Evidence shall be in the form of a letter from the curation facility identifying that archaeological materials have been received and that all fees have been paid.

Or

Enter into a Secured Agreement with the County of San Diego, Department of Planning and Land Use, secured by a letter of credit, bond, or cash for 150 percent of the estimated costs associated with the curation of archaeological materials recovered during both the significance testing and data recovery phases, and a 10 percent cash deposit not to exceed $30,000. A cost estimate shall be submitted and approved by the Director of Planning and Land Use for the cost of curation that includes the processing of the archaeological material by the curation facility, and the archiving of the archaeological material in perpetuity as determined by the Project Archaeologist in consultation with the County Staff Archaeologist. (CR-M)

h. Prior to approval of any grading permit or improvement plans, or prior to recordation of the final map, whichever comes first, the applicant shall:

(1) Implement, to the satisfaction of the Director of Planning and Land Use, the research design detailed in the archaeological extended study, *"A Cultural Resource Study of the Harmony Grove Village Project"* prepared by Brian F. Smith & Associates, dated April 1, 2006. The implementation of the research design constitutes mitigation for the proposed destruction of a portion of archaeological site CA-SDI-17838. The research design shall include, but is not limited to the following performance standards:

(a) The data recovery program shall include a Native American monitor. The consulting archaeologist shall contract with a Native American monitor to be involved in the data recovery program. The presence of a Native American monitor shall be required for the duration of the excavation portion of the project.

(b) Phase I data recovery shall include mechanical trenching and a 2.5 percent hand excavated sample of the subsurface artifact concentrations for CA-SDI-17838.

(c) At the completion of Phase I, a letter report will be submitted to the Director of the Department of Planning and Land Use. The letter report will evaluate the issues of site integrity, data redundancy, spatial and temporal patterning, features, and other relevant topics in order to assess the adequacy of the initial 2.5 percent sample. Based on this assessment, the letter report shall recommend the need for and scope of a second phase of field investigations, not to exceed a total site hand excavated sample of 2.5 percent of the subsurface artifact concentrations.

(d) Implement Phase 2 of fieldwork, as necessary.

(e) Conduct artifact analysis, including lithics analysis, ceramics analysis, faunal analysis, floral analysis, assemblage analysis, and radiocarbon dating, as detailed in the archaeological extended study, *"A Cultural Resource Study of the Harmony Grove Village Project"* prepared by Brian F. Smith & Associates, dated April 1, 2006. (CR-M)

i. Prior to recordation of the final map, the applicant shall:

(1) Complete and submit the Final Technical Report for CA-SDI-17838 from the Project Archaeologist to the satisfaction of the Director of Planning and Land Use.

Or

Enter into a Secured Agreement with the County of San Diego, Department of Planning and Land Use, secured by a letter of credit, bond, or cash for 150 percent of the estimated costs associated with the preparation of the Final Technical Report from the Project Archaeologist, and a 10 percent cash deposit not to exceed $30,000. A cost estimate shall be submitted and approved by the Director of Planning and Land Use for the cost of preparing the Final Technical Report that includes artifact analysis, and specialized studies such as lithics analysis, ceramics analysis, faunal analysis, floral analysis, assemblage analysis, and radiocarbon dating as required by the data recovery plan and research design as determined by the Project Archaeologist in consultation with the County Staff Archaeologist.

(2) Provide evidence to the satisfaction of the Director of Planning and Land Use that all archaeological materials recovered during both the significance testing and data recovery phases have been curated at a San Diego facility that meets federal standards per 36 CFR Part 79, and therefore would be professionally curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Evidence shall be in the form of a letter from the curation facility identifying that archaeological materials have been received and that all fees have been paid.

Or

Enter into a Secured Agreement with the County of San Diego, Department of Planning and Land Use, secured by a letter of credit, bond, or cash for 150 percent of the estimated costs associated with the curation of archaeological materials recovered during both the significance testing and data recovery phases, and a 10 percent cash deposit not to exceed $30,000. A cost estimate shall be submitted and approved by the Director of Planning and

Land Use for the cost of curation that includes the processing of the archaeological material by the curation facility, and the archiving of the archaeological material in perpetuity by the Project Archaeologist in consultation with the County Staff Archaeologist. (CR-M)

j. Prior to issuance of any grading permit or approval of improvement plans, and prior to recordation of the final map, whichever comes first, the applicant shall:

(1) Provide evidence to the Department of Planning and Land Use that an Historic Architect or County approved Historian has been contracted to implement the Relocation Program for the Johnston-Ward House to the satisfaction of the Director of Planning and Land Use (DPLU). A letter from the Historic Architect or Historian shall be submitted to the Director of Planning and Land Use. The letter shall include the following performance standards:

(a) An assessment of the proposed site for relocation that addresses structure placement and orientation to ensure all measures possible are taken to place and orient the structure to ensure historical attributes are maintained shall be prepared and submitted to the Director of Planning and Land Use for approval prior to relocation of the Johnston-Ward House.

(b) Supervise the relocation of the Johnston-Ward House to the Village Core Area. The relocation shall be conducted by a professional moving company with experience in the relocation of historic structures.

(c) Any exterior elements removed or damaged during the relocation shall be reconstructed according to the final plans prepared and approved by the Director of Planning and Land Use and shall be based on the Secretary of Interior Standards.

(2) Provide Evidence to the Director of Planning and Land Use that the following notes have been placed on the Grading Plan:

(a) An assessment of the proposed site for relocation to ensure all measures possible are taken to place and orient the structure to ensure historical attributes are maintained shall be prepared and submitted to the Director of Planning and

Land Use for approval prior to relocation of the Johnston-Ward House.

(b) Supervise the relocation of the Johnston-Ward House to the Village Core Area (Lot 652). The relocation shall be conducted by a professional moving company with experience in the relocation of historic structures.

(c) Any elements removed or damaged during the relocation shall be reconstructed according to the Secretary of Interior Standards. (CR-M)

k. Prior to recordation of the Final Map, the applicant shall:

(1) Grant to the County of San Diego a Conservation Easement over the Johnston-Ward House building exterior (Lot 652). This easement is for the protection and conservation of the Johnston-Ward House and prohibits demolition. In addition, any alteration of the structure requires written approval of the Director of Planning and Land Use and shall be consistent with the Secretary of Interior Standards.

The sole exceptions to this prohibition are repairs, restoration, or rehabilitation of the Johnston-Ward House in accordance with the "*Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or *the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Weeks and Grimmer 1995)*". Any plan for such activities shall be designed by a qualified historical architect and approved by the Director of Planning and Land Use, and implemented by a building contractor with demonstrated experience in the renovation and rehabilitation of historic buildings. (CR-M)

l. Prior to Approval of Grading or Improvement plans, the subdivider shall:

(1) Implement a grading monitoring and data recovery program to mitigate potential impacts to undiscovered buried archaeological resources on the Harmony Grove Village Project to the satisfaction of the Planning Director. This program shall include, but shall not be limited to, the following actions:

(a) Provide evidence to the Department of Planning and Land Use that a County approved archaeologist has been contracted to implement a grading monitoring and data recovery program to the satisfaction of the Director of Planning and Land Use (DPLU). A letter from the Project Archaeologist shall be submitted to the Director of Planning and Land Use. The letter shall include the following guidelines:

(i) The consulting archaeologist shall contract with a Native American monitor to be involved with the grading monitoring program.

(ii) The County certified archaeologist and Native American monitor shall attend the pre-grading meeting with the contractors to explain and coordinate the requirements of the monitoring program.

(iii) The consulting archaeologist shall monitor all areas identified for development.

(iv) An adequate number of monitors (archaeological/ historical/Native American) shall be present to ensure that all earth moving activities are observed and shall be on-site during all grading activities.

(v) During the original cutting of previously undisturbed deposits, the archaeological monitor(s) and Native American monitor(s) shall be on-site fulltime to perform inspections of the excavations. Inspections will vary based on the rate of excavation, the materials excavated, and the presence and abundance of artifacts and features. The frequency and location of inspections will be determined by the Principal Investigator in consultation with the Native American monitor.

(vi) Monitoring of previously disturbed areas, graded areas, or areas that contain non-cultural and geologically sterile material, shall be monitored at the discretion of the Principal Investigator as dictated by the potential, or absence of potential, to encounter cultural materials.

(vii) Isolates and clearly non-significant deposits shall be minimally documented in the field and the monitored grading can proceed.

(viii) In the event that previously unidentified potentially significant cultural resources are discovered, the archaeologist shall have the authority to divert or temporarily halt ground disturbance operations in the area of discovery to allow evaluation of potentially significant cultural resources. The archaeologist shall contact the County Archaeologist at the time of discovery. The archaeologist, in consultation with County staff archaeologist, shall determine the significance of the discovered resources. The County Archaeologist must concur with the evaluation before construction activities will be allowed to resume in the affected area. For significant cultural resources, a Research Design and Data Recovery Program to mitigate impacts shall be prepared by the consulting archaeologist and approved by the County Archaeologist, then carried out using professional archaeological methods.

(ix) If any human bones are discovered, the Principal Investigator shall contact the County Coroner. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains.

(x) Before construction activities are allowed to resume in the affected area, the artifacts shall be recovered and features recorded using professional archaeological methods. The Principal Investigator shall determine the amount of material to be recovered for an adequate artifact sample for analysis.

(xi) In the event that previously unidentified cultural resources are discovered, all cultural material collected during the grading monitoring program shall be processed and curated at a San Diego facility that meets federal standards per 36 CFR Part 79, and therefore would be professionally curated and made

available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Evidence shall be in the form of a letter from the curation facility identifying that archaeological materials have been received and that all fees have been paid.

(xii) In the event that previously unidentified cultural resources are discovered, a report documenting the field and analysis results and interpreting the artifact and research data within the research context shall be completed and submitted to the satisfaction of the Director of Planning and Land Use prior to the issuance of any building permits. The report will include Department of Parks and Recreation Primary and Archaeological Site forms.

(xiii) In the event that no cultural resources are discovered, a brief letter to that effect shall be sent to the Director of Planning and Land Use by the consulting archaeologist that the grading monitoring activities have been completed.

(2) Provide Evidence to the Director of Planning and Land Use that the following notes have been placed on the Grading Plan:

(a) The County certified archaeologist/historian and Native American monitor shall attend the pre-construction meeting with the contractors to explain and coordinate the requirements of the monitoring program.

(b) The consulting archaeologist shall monitor all areas identified for development.

(c) During the original cutting of previously undisturbed deposits, the archaeological monitor(s) and Native American monitor(s) shall be on-site full-time to perform inspections of the excavations. Inspections will vary based on the rate of excavation, the materials excavated, and the presence and abundance of artifacts and features. The frequency and location of inspections will be determined by the Principal

Investigator in consultation with the Native American Monitor.

(d) Monitoring of previously disturbed areas, graded areas, or areas that contain non-cultural and geologically sterile material, shall be monitored at the discretion of the Principal Investigator as dictated by the potential, or absence of potential, to encounter cultural materials.

(e) In the event that previously unidentified potentially significant cultural resources are discovered, the archaeological monitor(s) shall have the authority to divert or temporarily halt ground disturbance operation in the area of discovery to allow evaluation of potentially significant cultural resources. The Principle Investigator shall contact the County Archaeologist at the time of discovery. The Principal Investigator, in consultation with County staff archaeologist, shall determine the significance of the discovered resources. The County Archaeologist must concur with the evaluation before construction activities will be allowed to resume in the affected area. For significant cultural resources, a Research Design and Data Recovery Program to mitigate impacts shall be prepared by the consulting archaeologist and approved by the County Archaeologist, then carried out using professional archaeological methods.

(f) If any human bones are discovered, the Principal Investigator shall contact the County Coroner. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains.

(g) Prior to rough grading inspection sign-off, provide evidence that the field grading monitoring activities have been completed to the satisfaction of the Director of Planning and Land Use. Evidence shall be in the form of a letter from the Project Archaeologist.

(h) Prior to Final Grading Release, submit to the satisfaction of the Director of Planning and Land Use, a final report that documents the results, analysis, and conclusions of all

phases of the Archaeological Monitoring Program. The report shall also include the following:

(i) Department of Parks and Recreation Primary and Archaeological Site forms.

(ii) Evidence that all cultural material collected during the grading monitoring program has been curated at a San Diego facility that meets federal standards per 36 CFR Part 79, and therefore would be professionally curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Evidence shall be in the form of a letter from the curation facility identifying that archaeological materials have been received and that all fees have been paid.

In the event that no cultural resources are discovered, a brief letter to that effect shall be sent to the Director of Planning and Land Use by the consulting archaeologist that the grading monitoring activities have been completed.

Or

Enter into a Secured Agreement with the County of San Diego, Department of Planning and Land Use, secured by a letter of credit, bond, or cash for 150 percent of the estimated costs associated with the preparation of the Final Report that documents the results, analysis, and conclusions of all phases of the Archaeological Monitoring Program, and a 10 percent cash deposit not to exceed $30,000. A cost estimate shall be submitted and approved by the Director of Planning and Land Use for the cost of preparing the Final Grading Monitoring Report that includes artifact analysis, and specialized studies such as lithics analysis, ceramics analysis, faunal analysis, floral analysis, assemblage analysis, radiocarbon dating, and curation as determined by the Project Archaeologist in consultation with County Staff Archaeologist. (CR-M)

m. Prior to recordation of the Final Map, the applicant shall:

(a) Complete and submit a final report that documents the results, analysis, and conclusions of all phases of the Archaeological Monitoring Program to the satisfaction of the Director of Planning and Land Use. The report shall also include the following:

(1) Department of Parks and Recreation Primary and Archaeological Site forms.

(2) Evidence that all cultural collected during the grading monitoring program has been curated at a San Diego facility that meets federal standards per 36 CFR Part 79, and therefore would be professionally curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Evidence shall be in the form of a letter from the curation facility identifying that archaeological materials have been received and that all fees have been paid.

In the event that no cultural resources are discovered, a brief letter to that effect shall be sent to the Director of Planning and Land Use by the consulting archaeologist that the grading monitoring activities have been completed.

Or

Enter into a Secured Agreement with the County of San Diego, Department of Planning and Land Use, secured by a letter of credit, bond, or cash for 150 percent of the estimated costs associated with the preparation of the Final Report that documents the results, analysis, and conclusions of all phases of the Archaeological Monitoring Program, and a 10 percent cash deposit not to exceed $30,000. A cost estimate shall be submitted and approved by the Director of Planning and Land Use for the cost of preparing the Final Grading Monitoring that includes artifact analysis, and specialized studies such as lithics analysis, ceramics analysis, faunal analysis, floral analysis, assemblage analysis, radiocarbon dating, and curation as

determined by the Project Archaeologist in consultation with County Staff Archaeologist. (CR-M)

n. Prior to recordation of the Final Map, the applicant shall:

(1) Provide evidence to the satisfaction of the Director of Planning and Land Use that all archaeological materials recovered during the Harmony Grove Village archaeological investigations of the property, including all significance testing as well as grading monitoring activities, have been curated at a San Diego County facility that meets federal standards per CFR Part 79, and would therefore be professionally curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility to be accompanied by payment of the fees necessary for permanent curation. Evidence shall be in the form of a letter from the curation facility identifying that archaeological materials have been received and that all fees have been paid.

Or

Enter into a Secured Agreement with the County of San Diego, Department of Planning and Land Use, secured by a letter of credit, bond, or cash for 150 percent of the estimated costs associated with the curation of archaeological materials recovered during both the significance testing and data recovery phases, and a 10 percent cash deposit not to exceed $30,000. A cost estimate shall be submitted and approved by the Director of Planning and Land Use for the cost of curation that includes the processing of the archaeological material by the curation facility, and the archiving of the archaeological material in perpetuity. (CR-M)

o. Prior to issuance of grading permits or construction permits, or on the Final Map, whichever comes first, the applicant shall:

(1) Grant to the County of San Diego Biological Open Space Easements as shown and labeled as "Biological Open Space" on Figure 1.1-15 of the Draft Environmental Impact Report on file with the Department of Planning and Land Use as Environmental Review Number 04-08-011. These easements are for the protection of biological resources and prohibits all of the following on any portion of the land subject to said easements: grading; excavation; placement of soil, sand, rock, gravel, or other material;

clearing of vegetation; construction, erection, or placement of any building or structure; vehicular activities; trash dumping; or use for any purpose other than as open space. Granting of these open spaces authorizes the County and its agents to periodically access the land to perform management and monitoring activities for the purposes of species and habitat conservation.

The sole exceptions to this prohibition are:

(a) Selective clearing of vegetation by hand to the extent required by written order of the fire authorities for the express purpose of reducing an identified fire hazard. While clearing for fire management is not anticipated with the creation of this easement, such clearing may be deemed necessary in the future for the safety of lives and property. All fire clearing shall be pursuant to the Uniform Fire Code and the Memorandum of Understanding dated February 26, 1997, between the wildlife agencies and the fire districts and any subsequent amendments thereto.

(b) Activities conducted pursuant to a Revegetation, Restoration, or Habitat/Resource Management Plan approved by the Director of Planning and Land Use.

(c) Vegetation removal or application of chemicals for vector control purposes where expressly required by written order of the Department of Environmental Health of the County of San Diego. (BR-M)

(2) Grant to the County of San Diego an Agricultural Open Space Easement over 16.1 acres of existing agriculture in the northwest corner of the project site as shown on Figure 1.1-15 of the Draft Environmental Impact Report on file with the Department of Planning and Land Use as Environmental Review Number 04-08-011. The purpose of this easement is to prohibit the construction or placement of any residence, garage, accessory structure, or recreational amenities such as tennis courts or swimming pools, designed or intended for occupancy by humans or animals to ensure that the land remains available for agricultural use. The only exceptions to this prohibition are:

(a) Fences, and similar structures, no higher than 6 feet.
(b) Sheds and detached garages, less than 250 square feet in total floor area

(c) Agricultural orchards
(d) Percolation and observation test holes.
(e) Activities conducted pursuant to a Revegetation, Restoration, or Habitat/Resource Management Plan approved by the Director of Planning and Land Use.
(f) Spray of reclaimed water for the purpose of orchard operation and fire suppression. (BR-M)

(3) Grant to the County of San Diego Limited Building Zone Easements as shown on the Fire Protection Plan Vegetation Management Zones Exhibit 1.1-17 in the Draft Environmental Impact Report and further described in the final Fire Protection Plan on file with the Department of Planning and Land Use as Environmental Review Number 04-08-011. The purpose of these easements are to limit the need to clear or modify vegetation for fire protection purposes within the adjacent biological open space easement and to prohibit the construction or placement of any structure designed or intended for occupancy by humans or animals. The only exceptions to this prohibition are:

(a) Decking, fences, and similar facilities.

(b) Sheds, gazebos, and detached garages, less than 250 square feet in total floor area, that are designed, constructed and placed so that they do not require clearing or fuel modification within the biological open space easement, beyond the clearing/fuel modification required for the primary structures on the property. (BR-M)

p. Grading and/or improvement plans shall include the requirement that temporary fences shall be placed to protect all open space easements shown on the Open Space Easement Map which preclude grading, or brushing or clearing. The applicant shall submit to the Department of Planning and Land Use a statement from a California Registered Engineer, or licensed surveyor that temporary fences have been placed in all locations of the project where proposed grading or clearing is within 100 feet of an open space easement boundary. The temporary fence location shall be identified in the field by a California Registered Engineer or licensed surveyor and positioned between the open space easement boundary and any area of proposed disturbance. The temporary fencing shall be removed after the conclusion of such activity. (BR-M)

q. Prior to approval of grading and/or improvement plans, and prior to approval of a Final Map, the applicant shall provide evidence to the satisfaction of the Director of Planning and Land Use that the following "Specific Notes" and items have been placed on the grading and/or improvement plans:

(1) Permanent fences or walls shall be placed delineating open space easement areas shown on the Proposed Wall and Fencing Plan, Figure 1.1-22 of the Draft Environmental Impact Report on file with the Department of Planning and Land Use as Environmental Review Number 04-08-011. The fence or wall shall be a minimum of four (4) high. Placement of permanent fencing or walls is required at the conclusion of the grading activity and prior to rough grading sign-off. The permanent fence location(s) shall be identified in the field by a California Registered Engineer or licensed surveyor and positioned just outside of the open space easement. The property owner shall submit to the Director, Department of Planning and Land Use a signed, stamped statement from a California Registered Engineer, or licensed surveyor that the permanent fences or walls have been placed to protect the dedicated open space from inadvertent disturbance by grading, brushing or clearing. Photographs and a brief description of design and materials used shall be submitted with the statement from the California Registered Engineer. (BR-M)

(2) Permanent signs shall be placed to protect all Open Space Easements in accordance with the Proposed Wall and Fencing Plan, Figure 1.1-22 of the Draft Environmental Impact Report on file with the Department of Planning and Land Use as Environmental Review Number 04-08-011. Open Space Easement signage shall be placed at approximately 100-foot intervals along all Biological Open Space Easement boundaries. Placement of permanent signs is required at the conclusion of the grading activity and prior to rough grade sign-off. Evidence shall include photographs of a sign placed on the project site and a stamped, signed statement from a California Registered Engineer, or licensed surveyor that permanent signs have been placed on the open space easement boundaries in accordance with the requirements of this condition. The signs must be corrosion resistant, a minimum of 6" x 9" in size, on posts not less than three (3) feet in height from the ground surface, and must state the following:

"Sensitive Environmental Resources
Disturbance Beyond this Point is Restricted
by Easement

Information:
Contact County of San Diego, Department of Planning and Land Use
Ref: ER 04-08-011" (BR-M)

r. Prior to the approval of grading or improvement plans and prior to the approval of the Final Map, the applicant shall:

(1) Provide for the approval of the Director of Planning and Land Use evidence that 0.18 acres of **NATIVE GRASSLAND** habitat credit has been secured in a County approved mitigation bank located in North County. Evidence of purchase shall include the following information to be provided by the mitigation bank:

(a) A copy of the purchase contract referencing the project name and numbers for which the habitat credits were purchased.

(b) If not stated explicitly in the purchase contract, a separate letter must be provided identifying the entity responsible for the long-term management and monitoring of the preserved land.

(c) To ensure the land will be protected in perpetuity, evidence must be provided that a dedicated conservation easement or similar land constraint has been placed over the mitigation land.

(d) An accounting of the status of the mitigation bank. This shall include the total amount of credits available at the bank, the amount required by this project and the amount remaining after utilization by this project.

-OR-

Provide for the conservation and habitat management of a minimum of 0.18 acres of **NATIVE GRASSLAND** habitat located in North County. A Habitat Management Plan (HMP) for the native grassland habitat must be submitted and approved by the Director of the Department of Planning and Land Use. An open space easement over the acquired

habitat must be dedicated to the County of San Diego prior to or immediately following the approval of the HMP. (BR-M)

(2) Provide for the approval of the Director of the Department of Planning and Land Use evidence that 14.19 acres of **COAST LIVE OAK WOODLAND** habitat credit has been secured in a County approved mitigation bank located in North County. Evidence of purchase shall include the following information to be provided by the mitigation bank:

(a) A copy of the purchase contract referencing the project name and numbers for which the habitat credits were purchased.
(b) If not stated explicitly in the purchase contract, a separate letter must be provided identifying the entity responsible for the long-term management and monitoring of the preserved land.
(c) To ensure the land will be protected in perpetuity, evidence must be provided that a dedicated conservation easement or similar land constraint has been placed over the mitigation land.
(d) An accounting of the status of the mitigation bank. This shall include the total amount of credits available at the bank, the amount required by this project and the amount remaining after utilization by this project.

-OR-

Provide for the conservation and habitat management of a minimum of 14.19 acres of **COAST LIVE OAK WOODLAND** habitat located in North County. A Habitat Management Plan (HMP) for the coast live oak woodland habitat must be submitted and approved by the Director of the Department of Planning and Land Use. An open space easement over the acquired habitat must be dedicated to the County of San Diego prior to or immediately following the approval of the HMP. (BR-M)

(3) Provide for the approval of the Director of the Department of Planning and Land Use evidence that 53.8 acres of **COASTAL SAGE SCRUB** habitat credit has been secured in a County approved mitigation bank located in North County. Evidence of purchase shall include the following information to be provided by the mitigation bank:

(a) A copy of the purchase contract referencing the project name and numbers for which the habitat credits were purchased.

(b) If not stated explicitly in the purchase contract, a separate letter must be provided identifying the entity responsible for the long-term management and monitoring of the preserved land.

(c) To ensure the land will be protected in perpetuity, evidence must be provided that a dedicated conservation easement or similar land constraint has been placed over the mitigation land.

(d) An accounting of the status of the mitigation bank. This shall include the total amount of credits available at the bank, the amount required by this project and the amount remaining after utilization by this project.

-OR-

Provide for the conservation and habitat management of a minimum of 53.8 acres of **COASTAL SAGE SCRUB** habitat located in North County. A Habitat Management Plan (HMP) for the coastal sage scrub habitat must be submitted and approved by the Director of the Department of Planning and Land Use. An open space easement over the acquired habitat must be dedicated to the County of San Diego prior to or immediately following the approval of the HMP. (BR-M)

(4) Provide for the approval of the Director of the Department of Planning and Land Use evidence that 8.2 acres of **COASTAL SAGE /CHAPARRAL SCRUB OR COASTAL SAGE SCRUB** habitat credit has been secured in a County approved mitigation bank located in North County. Evidence of purchase shall include the following information to be provided by the mitigation bank:

(a) A copy of the purchase contract referencing the project name and numbers for which the habitat credits were purchased.

(b) If not stated explicitly in the purchase contract, a separate letter must be provided identifying the entity responsible for the long-term management and monitoring of the preserved land.

(c) To ensure the land will be protected in perpetuity, evidence must be provided that a dedicated conservation easement or similar land constraint has been placed over the mitigation land.

(d) An accounting of the status of the mitigation bank. This shall include the total amount of credits available at the bank, the amount required by this project and the amount remaining after utilization by this project.

-OR-

Provide for the conservation and habitat management of a minimum of 8.2 acres of **COASTAL SAGE /CHAPARRAL SCRUB OR COASTAL SAGE SCRUB** habitat located in North County. A Habitat Management Plan (HMP) for the coastal sage / chaparral scrub habitat must be submitted and approved by the Director of the Department of Planning and Land Use. An open space easement over the acquired habitat must be dedicated to the County of San Diego prior to or immediately following the approval of the HMP. (BR-M)

(5) Provide for the approval of the Director of the Department of Planning and Land Use evidence that 0.55 acres of **SOUTHERN MIXED CHAPARRAL** credit has been secured in a County approved mitigation bank located in North County. Evidence of purchase shall include the following information to be provided by the mitigation bank:

(a) A copy of the purchase contract referencing the project name and numbers for which the habitat credits were purchased.

(b) If not stated explicitly in the purchase contract, a separate letter must be provided identifying the entity responsible for the long-term management and monitoring of the preserved land.

(c) To ensure the land will be protected in perpetuity, evidence must be provided that a dedicated conservation easement or similar land constraint has been placed over the mitigation land.

(d) An accounting of the status of the mitigation bank. This shall include the total amount of credits available at the bank, the amount required by this project and the amount remaining after utilization by this project.

-OR-

Provide for the conservation and habitat management of a minimum of 0.55 acres of **SOUTHERN MIXED CHAPARRAL** habitat located in North County. A Habitat Management Plan (HMP) for the southern mixed chaparral habitat must be submitted and approved by the Director of the Department of Planning and Land Use. An open space easement over the acquired habitat must be dedicated to the County of San Diego prior to or immediately following the approval of the HMP. (BR-M)

(6) Provide for the approval of the Director of the Department of Planning and Land Use evidence that 2.2 acres of **UPLAND HABITAT (NON-NATIVE GRASSLAND OR COASTAL SAGE SCRUB)** credit has been secured in a County approved mitigation bank located in North County. Evidence of purchase shall include the following information to be provided by the mitigation bank:

(a) A copy of the purchase contract referencing the project name and numbers for which the habitat credits were purchased.

(b) If not stated explicitly in the purchase contract, a separate letter must be provided identifying the entity responsible for the long-term management and monitoring of the preserved land.

(c) To ensure the land will be protected in perpetuity, evidence must be provided that a dedicated conservation easement or similar land constraint has been placed over the mitigation land.

(d) An accounting of the status of the mitigation bank. This shall include the total amount of credits available at the bank, the amount required by this project and the amount remaining after utilization by this project.

-OR-

Provide for the conservation and habitat management of a minimum of 2.2 acres of **UPLAND HABITAT (NON-NATIVE GRASSLAND OR COASTAL SAGE SCRUB)** habitat located in North County. A Habitat Management Plan (HMP) for the upland habitat must be submitted and approved by the Director of the Department of Planning and Land Use. An open space easement over the acquired habitat must be dedicated to the County of San

Diego prior to or immediately following the approval of the HMP. (BR-M)

s. Cause to be placed on grading and/ or improvement plans and on the Final Map, the following: "Restrict all brushing, clearing and/or grading such that none will be allowed within 300 feet of Diegan coastal sage scrub habitat during the breeding season, 300 feet of least Bell's vireo habitat during the breeding season, 500 feet of occupied tree-nesting raptor habitat during the breeding season, or 800 feet of ground-nesting raptor habitat during the breeding season. Breeding seasons are defined as: California gnatcatcher - February 15 and August 31; least Bell's vireo - March 15 through September 15; raptors - February 1 and July 15. The Director of Planning and Land Use may waive this condition through one of the following:

(1) Written concurrence from the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG), that no California gnatcatchers, least Bell's vireo, or nesting raptors are present in the vicinity of the brushing, clearing or grading.

(2) If clearing or grading would occur within 300 feet of nesting California gnatcatchers between February 15 and August 31, within 300 feet of nesting least Bell's vireos between March 15 and September 15, and/or within 500 feet of tree-nesting raptors and/or 800 feet of ground-nesting raptors between February 1 and July 15, a County-certified biologist shall conduct a pre-construction survey to determine if any nesting birds of these species occur within the areas impacted by noise. If any of these birds are observed nesting or displaying breeding/nesting behavior within the area, one of the two following measures shall be implemented.

(3) Construction shall be postponed until after the breeding season ends (California gnatcatcher - August 31; least Bell's vireo - September 15; raptors - July 15); or

(4) A temporary noise barrier or berm shall be constructed at the edge of the development footprint (not within the proposed open space) to reduce the noise levels to below 60 dB(A) Leq." (BR-M)

t. Cause to be placed on grading and/ or improvement plans and on the Final Map, the following: "Prior to building/structure demolition, a County-certified biologist shall conduct a pre-construction survey to determine if any breeding or roosting bats or breeding owls occur within the structures.

If bat nursery sites or active owl nests are observed within the building/structure, demolition shall be postponed until after the nursery/nesting activity ends. Bat exclusion activities performed by a qualified biologist shall take place after breeding or at any other time of the year, the night before demolition is scheduled, to the satisfaction of the DPW." (BR-M)

u. Prior to the issuance of grading permits or other County permit, submit for approval to the Department of Planning and Land Use evidence of a contract with a biological consultant to perform focused surveys to determine presence or absence of bat colonies, bat nursery sites and/or owl nests within any structures on the project site to be demolished/removed. Surveys will begin a maximum of seven days prior to demolition or removal of the structures and one survey will be conducted the day immediately prior to the initiation of work. If any bat colonies, bat nursery sites and/or active owl nests are found within any structure, demolition or removal of the structure(s) shall be postponed until the nursery/breeding activity ends. If bat roosting sites are found, demolition or removal or the structure(s) shall be postponed until the bats are excluded from the structure(s).

Prior to the issuance of grading permits or other County permit, submit for approval to the Department of Planning and Land Use a copy of the survey results in report format prior to the demolition or removal of any structure(s) on the project site. (BR-M)

v. Prior to approval of grading or construction permits, and prior to approval of the Final Map, the applicant shall:

(1) Provide the Director of Planning and Land Use with a copy of the Clean Water Act Section 401 and 404 permits issued by the California Regional Water Quality Control Board and U.S. Army Corps of Engineers, respectively, for all project related disturbances of Waters of the U.S. and/or associated wetlands or provide evidence satisfactory to the Director of Planning and Land Use that such permits are not required.

(2) Provide the Director of the Department of Planning and Land Use with a copy of the California Fish and Game Code Section 1602 Streambed Alteration Agreement issued by CDFG for all project related disturbances of any streambed or provide evidence satisfactory to the Director of the Department of Planning and Land Use that such an agreement is not required. (BR-M)

w. Prior to approval of grading or improvement plans, and prior to approval of the Final Map, the applicant shall:

(1) Submit to and receive approval from the Director of the Department of Planning and Land Use a Restoration Plan which mitigates impacts to on- and off-site wetlands by creation and enhancement of 11.29 acres of wetlands. The restoration shall occur in accordance with the Conceptual Restoration Plan contained in the Draft Environmental Impact Report. The Restoration Plan shall include (but not be limited to) the following to ensure the establishment of the vegetation: objectives, 24"x 36" map showing the revegetation areas, site preparation information, type of planting materials (e.g. species ratios, source, size material, etc.), planting program, 80 percent vegetative cover success criteria, 5-year monitoring plan and detailed cost estimate. The cost estimate shall include planting, plant materials, irrigation, maintenance, monitoring, and report preparation. The report shall be prepared by a County-approved biologist and a State of California Licensed Landscape Architect. Habitat created pursuant to the Restoration Plan must be placed within an open space easement dedicated to the County of San Diego prior to or immediately following the approval of the Restoration Plan.

(2) Enter into a Secured Agreement with the County of San Diego Department of Planning and Land Use consisting of a letter of credit, bond, or cash for 100 percent of the estimated costs associated with the implementation of the Restoration Plan and a 10 percent cash deposit not to exceed $30,000. A cost estimate based on a 3 percent annual inflation rate shall be submitted and approved by the Director of Planning and Land Use which includes the cost of the plant stock and its installation, irrigation system and installation, cost of monitoring, and maintenance of the revegetation area for the required five year period, and report preparation and staff time to review. This agreement is intended to guarantee commitment to project completion and success. The monitoring time and the length of time the Secured Agreement and cash deposit will be in effect starts at the time the installation is accepted by a County staff representative. The Secured Agreement and cash deposit shall be released upon completion of the Restoration Plan implementation provided the installed vegetation is in a healthy condition and meets the 80 percent success criteria. Eighty percent vegetative cover shall be considered satisfactory completion of the Restoration Plan. (BR-M)

x. Prior to approval of grading or improvement plans, and prior to approval of the Final Map, the applicant shall:

(1) Submit to and receive approval from the Director of the Department of Planning and Land Use a Restoration Plan which mitigates impacts to on- and off-site wetlands by creation and enhancement of 6.96 acres of wetlands. The Restoration Plan shall include (but not be limited to) the following to ensure the establishment of the vegetation: objectives, 24"x 36" map showing the revegetation areas, site preparation information, type of planting materials (e.g. species ratios, source, size material, etc.), planting program, 80 percent success criteria, 5-year monitoring plan and detailed cost estimate. The cost estimate shall include planting, plant materials, irrigation, maintenance, monitoring, and report preparation. The report shall be prepared by a County-approved biologist and a State of California Licensed Landscape Architect. Habitat created pursuant to the Restoration Plan must be placed within an open space easement dedicated to the County of San Diego prior to or immediately following the approval of the Restoration Plan.

(2) Enter into a Secured Agreement with the County of San Diego Department of Planning and Land Use consisting of a letter of credit, bond, or cash for 100 percent of the estimated costs associated with the implementation of the Restoration Plan and a 10 percent cash deposit not to exceed $30,000. A cost estimate based on a 3 percent annual inflation rate shall be submitted and approved by the Director of Planning and Land Use which includes the cost of the plant stock and its installation, irrigation system and installation, cost of monitoring, and maintenance of the revegetation area for the required five year period, and report preparation and staff time to review. This agreement is intended to guarantee commitment to project completion and success. The monitoring time and the length of time the Secured Agreement and cash deposit will be in effect starts at the time the installation is accepted by a County staff representative. The Secured Agreement and cash deposit shall be released upon completion of the Restoration Plan implementation provided the installed vegetation is in a healthy condition and meets the 80 percent success criteria. Eighty percent vegetative cover shall be considered satisfactory completion of the Restoration Plan. (BR-M)

y. Prior to issuance of grading or construction permits, and prior to approval of the Final Map, the applicant shall:

(1) Submit and have approved by the Director of Planning and Land Use (DPLU), a Resource Management Plan (RMP) for the perpetual habitat management of the on-site preservation areas shown on Figure 1.1-15 of the Draft Environmental Impact Report on file with the Department of Planning and Land Use as Environmental Review Number 04-08-011. The RMP shall be prepared by a County-approved consultant, with a minimum of 5 years of experience in San Diego County biological resource management. The plan shall be prepared in accordance with DPLU approved guidelines (if any exist), shall be consistent with the Draft Habitat Management Plan prepared for the project, and shall contain the following elements and minimum performance standards:

(a) Designation of the resource manager with:

(i.) A minimum of five years of experience in San Diego County biological resource management, at least a B.S. or B.A. degree in wildlife management, ecology, zoology, botany, biology, or related field, experience dealing with community groups,

(ii.) Experience in similar projects or in projects including similar skills,

(iii) Experience with the biological resources extant in the management area, and

(iv) Designation of the affiliated conservancy with (i) a mission statement which includes an emphasis of protection and management of biological resources, and (ii) a good resource management track record as demonstrated by documentation/submittal of appropriate founding documents, knowledgeable/experienced conservancy directors, a list and description of lands currently managed, latest audit results, and examples of annual reports documenting accepted resource management principles;

(b) A signed Agreement among the applicant, the County and the conservancy, whereby the applicant agrees to implement the RMP, which includes a financing mechanism that provides perpetual funding (such as a non-wasting

endowment or funding through a Community Facilities District) adequate to pay the costs of all RMP management activities. The Agreement shall be signed prior to issuance of a Grading Permit. The amount of funding shall be based upon a DPLU approved Property Assessment Record (PAR) or equivalent estimation to DPLU's satisfaction. The Agreement shall provide for the funding to transfer to the County in the event of the failure of the conservancy to perform. The PAR and RMP funding shall be provided or the funding mechanism established within 6 months of issuance of a Grading Permit.

(c) A detailed description of the management activities, to include at a minimum:

(i) Monthly stewardship visits;
(ii) Twice yearly removal of exotics or more as needed;
(iii) Yearly resource assessment of the management area;
(iv) Maintenance of fencing and signage;
(v) Resident education regarding access, control of domestic animals, irrigation control, and sensitive habitats;
(vi) Monitoring and management of brown-headed cowbirds and European starlings;
(vi) Yearly review of the effectiveness of the management plan;
(vii) Early amendments to the plan for implementation of remedial measures, as needed.

(d) Submittal of the annual report to DPLU and to the Wildlife Agencies, each February for the previous calendar year.

(e) Regular review and revision of the RMP in accordance with generally accepted adaptive management procedures. (BR-M)

(2) Submit, concurrently with the Resource Management Plan, a deposit as specified by the County fee schedule for review of the Plan and subsequent reports. The account shall be maintained at or above $1,000 for review of annual reports and for contingencies. (BR-M)

(3) Demonstrate to the satisfaction of the Director of Planning and Land Use (DPLU) that the applicant has executed a work contract with a qualified biological consultant to monitor the project clearing, grubbing, grading and construction. The monitor shall perform the following duties: (1) prepare a California gnatcatcher monitoring program to the satisfaction of DPLU and the Wildlife Agencies; (2) weekly inspection of fencing and erosion control measures (daily during rain events) in the vicinity of proposed preservation areas and report deficiencies immediately to the DPW Construction Inspector; (3) periodically monitor the work area for excessive dust generation in compliance with the County grading ordinance and report deficiencies immediately to the DPW Construction Inspector; (4) train contractors and construction personnel, including the purpose for resource protection, a description of the gnatcatcher and its habitat, and the conservation measures that should be implemented during project construction; (5) periodically monitor construction lighting to ensure lighting is the lowest illumination possible allowed for safety, selectively placed, shielded, and directed away from preserved habitat; (6) periodically monitor equipment maintenance, staging, and fuel dispensing areas to ensure there is no runoff to Waters of the US; (7) halt work when deficiencies require mediation and notify DPW Construction Inspector within 24 hours; (8) produce periodic (monthly during grading) and final reports and submit to the Wildlife Agencies and the DPLU (final report will release bond); (9) confer with the Wildlife Agencies within 24 hours any time protected habitat or gnatcatchers are being affected by construction; (10) be responsible for notification and oversee remediation if impacts to preserved habitat should occur; (11) attend preconstruction meetings and other meetings as necessary; and (12) prepare and submit monthly reports to the Wildlife Agencies and DPLU. (BR-M)

(4) Post a bond for the amount required for monitoring by the Biological Monitor and the Qualified Acoustician. Upon acceptance of the final report by the Director of Planning and Land Use, the bond shall be released. (BR-M)

(5) Cause to be placed on the face of the grading and improvement plans the following: "The biological monitor shall be on-site daily during clearing and rough grading in or adjacent to sensitive habitat, and weekly after clearing and rough grading have been completed adjacent to sensitive habitat to check that all measures are adequately and fully implemented." (BR-M)

18. Standard Conditions 25, 26, 27.1, 28 and 29.

19. Specific Conditions:

    a. No lot shall contain a net area of less than 2,200 square feet. [DPLU - Regulatory Planning Division]

    b. The width of the panhandle for Lots 147, 243 and 246 shall not exceed 35 feet as set forth in Section 1110 of the Zoning Ordinance under the definition of "Lot, Panhandle".

WAIVER AND EXCEPTIONS

Said subdivision is hereby approved pursuant to the provisions of the State Subdivision Map Act, the County Subdivision Ordinance, the County Public and Private Road Standards, and all other required Ordinances of San Diego County except for a waiver or modification of the:

1. Standard Conditions for Tentative Maps:

    a. Standard Condition 23.3: This condition pertains to projects that are subject to requirements provided by the California Department of Forestry and Fire Protection. Said Department has no such requirements.

    b. Standard Condition 24: This condition pertains to projects that are outside the boundaries of a fire protection agency. Most of the project area is within the boundaries of the Elfin Forest/Harmony Grove Fire Protection District (CSA 107). A relatively small portion of the project site is within the boundaries of the San Marcos Fire Protection District. Conditions of project approval require the boundaries between the two districts to be changed so that the entire project area is located within the Elfin Forest/ Harmony Grove Fire Protection District.

    c. Standard Condition 27: Said condition states that the Final Map shall include the entire area shown on the tentative map and shall not be filed as units or groups of units. The Final map for this Tentative Map may be filed in units.

The following shall be the Mitigation Monitoring or Reporting Program for Harmony Grove Village, TM 5365RPL^2.

Public Resources Code Section 21081.6 requires the County to adopt a Mitigation Reporting or Monitoring Program for any project that is approved on the basis of a mitigated Negative Declaration or an Environmental Impact Report for which findings

order to mitigate or avoid significant effects on the environment. The program must be designed to ensure compliance during project implementation.

The Mitigation Monitoring Program is comprised of all the environmental mitigation measures adopted for the project. The full requirements of the program (such as what is being monitored, method and frequency, who is responsible, and required time frames) are found within the individual project conditions. These conditions are referenced below by category under the mechanism which will be used to ensure compliance during project implementation.

A. Design Features

Standard measures are proposed during the grading and construction phase of this project that will reduce environmental effects and impacts to transportation and circulation, air quality, noise, aesthetics and landform alteration, biological resources, land use and planning, fire protection, geology, hazards, public services and utilities, water resources, and agricultural resources. The environmental design measures proposed as part of the Project description that address each of the above topics are set forth in Section 8.2 of the Project EIR.

B. Subsequent Project Permits

Compliance with the following conditions is assured because specified subsequent permits or approvals required for this project will not be approved until the conditions have been satisfied:

2a. through 2aaaaa.; 3a. through 3oo.; 5a. through c.; 7a. and 7b.; 10a. through 10.m; 12a; 15a. through 15ccc.; 16a. through 16c.; 17a. through 17y.

NOTICE - The 90 day period in which the applicant may file a protest of the fees, dedications or exactions begins on February 7, 2007.

NOTICE - The subject property is known to contain Coastal sage scrub plant community. Such plant community is habitat for the coastal California gnatcatcher. The Federal government recently listed the gnatcatcher as a threatened species under the Federal Endangered Species Act of 1973 (16 U.S.C. Section 1531 et seq.). THE LISTING MAY RESULT IN AN APPLICANT'S INABILITY TO PROCEED WITH HIS/HER PROJECT WITHOUT A PERMIT FROM THE FEDERAL GOVERNMENT IF THE SPECIES OR ITS HABITAT ARE PRESENT ON THE PROJECT SITE. It is advisable to contact the United States Fish and Wildlife Service to determine the applicability of the prohibitions under the Act to each applicant's property.

THE ISSUANCE OF THIS PERMIT BY THE COUNTY OF SAN DIEGO DOES NOT AUTHORIZE THE APPLICANT FOR SAID PERMIT TO VIOLATE ANY FEDERAL,

THE ISSUANCE OF THIS PERMIT BY THE COUNTY OF SAN DIEGO DOES NOT AUTHORIZE THE APPLICANT FOR SAID PERMIT TO VIOLATE ANY FEDERAL, STATE, OR COUNTY LAWS, ORDINANCES, REGULATIONS, OR POLICIES INCLUDING, BUT NOT LIMITED TO, THE FEDERAL ENDANGERED SPECIES ACT AND ANY AMENDMENTS THERETO.

NOTICE: Fish and Game Fees have been paid in the amount of $875 for the review of the EIR, Receipt number 267820, date paid May 22, 2006.

BOARD07\02-07\TM5365-RES;jcr

APPROVED AS TO FORM AND LEGALITY
COUNTY COUNSEL
By Thomas J Harris
CHIEF DEPUTY COUNTY COUNSEL

ON MOTION of Supervisor Horn, seconded by Supervisor Jacob, the above Resolution was passed and adopted by the Board of Supervisors, County of San Diego, State of California, on this 7th day of February, 2007, by the following vote:

AYES: Cox, Jacob, Slater-Price, Roberts, Horn

- - -

STATE OF CALIFORNIA)
County of San Diego)SS

I hereby certify that the foregoing is a full, true and correct copy of the Original Resolution entered in the Minutes of the Board of Supervisors.

THOMAS J. PASTUSZKA
Clerk of the Board of Supervisors

By: _____
Alex Fialho, Deputy

Elfin Forest/
Harmony Grove
Town Council

...to a continuing rural atmosphere

20223 Elfin Forest Rd., Elfin Forest, CA 92029

Diana Delgadillo, Associate Planner
City of Escondido Department of Public Works
201 North Broadway
Escondido, CA 92025-2798

May 8, 2007

Dear Ms. Delgadillo,

The Elfin Forest Harmony Grove Town Council appreciates the opportunity to comment on the proposed Citracado Parkway Extension and Annexation Project. We will address both the road extension and the property annexation in this letter.

Citracado Extension

We note that the county-approved Village Road that will intersect with the proposed segment of Citracado Parkway is not shown on any NOP maps nor mentioned in any associated literature. This oversight should be corrected in the EIR, and traffic to and from this source should be included in any analyses.

All of the alternatives with either a raised berm or a bridge at the intersection of the proposed Citracado Parkway extension and the current Harmony Grove Rd./Kauana Loa Dr. require a re-alignment of Kauana Loa Drive and Harmony Grove Road. The proposed road re-alignment impinges on residential properties in Harmony Grove and will require acquisition via eminent domain. The re-alignment can be expected to increase traffic and vehicle speeds near a pedestrian/equestrian/bicycle pathway planned for Kauana Loa Drive as shown on the San Diego County Master Trails Plan Map. This trail will provide a vital connection with the ERTC perimeter trail and leads ultimately to Harmony Grove Village. We ask that impacts of the proposed re-alignment to the surrounding rural community and to the county network of linking trails be studied in the EIR.

The impacts of the bridge over the Escondido Creek upon native flora and fauna should be carefully analyzed.

The impacts of this road extension and related construction activities on native American artifacts and possible ancient burial sites known to be in this area should be evaluated.

The surrounding unincorporated community is rural in nature with many private and several large commercial equestrian ranches located nearby. The impacts of this construction, especially during grading and blasting, and of the resultant changes in traffic patterns from the alternate road alignments on large animal keeping and equestrian activities such as horse training and trail riding should be studied.

We suggest two additional alternatives be studied in the EIR:

1) A raised berm at the intersection of Citracado Parkway and the current Harmony Grove Rd./Kauana Loa Dr. and a termination of both road segments at either side of the parkway berm. Because Village Road will connect Harmony Grove Road with Citracado Parkway a few hundred feet to the south, the intersection of Harmony Grove Road and Citracado parkway is redundant. Traffic on Kauana Loa Drive can continue to either County Club Drive to the north or Village Road to the south to access Citracado Parkway. This alternative avoids the need for property acquisition by eminent domain. It also avoids the expense and adverse environmental impacts of construction of a second bridge and of roadway re-alignment. It may allow a safer public access to the ERTC trail. Lastly, it will reduce traffic near the neighboring rural properties and the multiuse trail.

2) A bridge at the intersection of Citracado Parkway and the current Harmony Grove Rd./Kauana Loa Dr. as shown in the current NOP but with no modifications or re-alignment of the existing Harmony Grove Road and Kauana Loa Drive. This alternative will also address most of the concerns associated with increased traffic and property acquisition noted in number 1 above.

Annexation of Harmony Grove Properties

The three properties being considered for annexation to Escondido in this NOP are within the area that was recently removed from the Escondido Sphere of Influence (SOI) by LAFCO at the request of the local residents of unincorporated Harmony Grove, Eden Valley, and Elfin Forest. At that time, LAFCO expressed the wish to protect established rural communities. The properties are part of a 111-year-old community and form a critical buffer area between rural and urban lifestyles and habitat. The impacts of removal of this buffer area on the erosion of the formal development model accepted for this rural community, the Village Development Pattern, should be carefully and thoughtfully analyzed.

Annexation of this area is to be followed by industrial development. Prevention of this intensive land use is precisely the reason that county residents petitioned LAFCO to remove this area from the Escondido SOI. The impacts of this intensive land use immediately adjacent to an established rural residential community should be analyzed, with special attention to noise, pollution, traffic, aesthetics, community character, and environmental aspects.

The Escondido Creek courses directly through the two largest of the three parcels. Local and downstream impacts of industrial land use so close to a year-round freshwater route and surrounding riparian area should be carefully and thoughtfully analyzed.

The parcels are within the floodplain of the Escondido Creek. Adverse environmental and other effects of any efforts to raise construction sites above the floodplain should be analyzed.

We hope that the City of Escondido will work cooperatively with the County of San Diego and the residents of Harmony Grove and Elfin Forest while pursuing City goals so that neighboring communities can continue to enjoy their established lifestyles while supporting smart growth in our area. We ask that information regarding this project be sent to Mid Hoppenrath, Chair, Citracado Extension/Annexation Committee, 1962 Country Club Drive, Harmony Grove, CA 92029 (Tel: 760-747-1145) and that information of general concern to our area be sent in a timely manner to the Elfin Forest Harmony Grove Town Council, care of Chairman Jeff Swenerton, 20223 Elfin Forest Rd., Elfin Forest, CA 92029.

Sincerely,

Jeff R. Swenerton

Jeff Swenerton
Chair, Elfin Forest Harmony Grove Town Council

Cc: Mike Ott, Executive Director, LAFCO; County Supervisor 5th District Bill Horn; County Supervisor 3rd District Pam Slater; San Diego County Planner Stephanie Gaines; San Dieguito Planning Group Vice Chair Doug Dill

The Escondido Creek Conservancy

P.O. Box 460791
Escondido, CA 92046-0791
www.escondidocreek.org
information@escondidocreek.org
760.471.9354

May 13, 2007

Diana Delgadillo
Associate Planner
City of Escondido
Fax: 760.839.4313

To Whom it May Concern:

TECC is in receipt of the notice of preparation of the EIR for the proposed extension of Citracado Parkway. We would appreciate being kept on the mailing list for this project, including the draft and final EIR.

Please note our correct mailing address on the header, above.

The Escondido Creek has been significantly impacted by bridge crossings over its 26-mile long course. More than 35 bridge crossings already impact the creek. A regional shopping center has been built on top of it. The entire reach within the city limits of Escondido has been channelized in concrete. The creek is an impaired water body. Clearly, such significant impacts should be dealt with in a proactive manner, and decisions to construct additional crossings must be considered in the context of pre-existing impacts (cumulative impacts.)

Our Scoping comments follow:

Your map makes no reference to the proposed **Harmony Grove Village** development, and the associated connector road '**Village Drive**' which would connect to Citracado. This potential significant impact needs to be considered.

Stationary, idling vehicles are a significant source of pollution. The use of **traffic circles** instead of traffic signals should be considered. Traffic circles are a proven means of improving traffic flow and reducing congestion, and they do not require expensive electronic equipment or maintenance. Traffic circles should be considered in this document.

The impacts to the creek of substantial volume of traffic with associated pollutants and discarded trash needs to be considered.

Pedestrian, equestrian and bicycle trail access, both on the bridge and beneath it, need to be considered.

Destruction of significant open space coincident with the proposed road project needs to be considered.

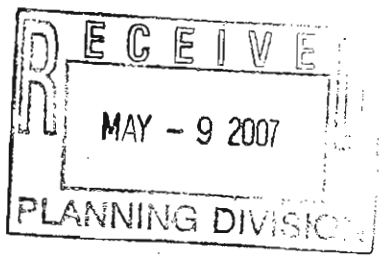
Quality of life degradation associated with the structure, noise, pollution and traffic congestion need to be considered.

Thank you for the opportunity to comment.

Geoffrey D. Smith, MA
Executive Director
The Escondido Creek Conservancy

DAVID H. JACKSON
1750 W. Citracado Parkway, # 159, Escondido, CA 92029
(760) 480-9015 Fax (760)480-2830
email dajackso@sbcglobal.net

May 8, 2007



City of Escondido
Planning Division
201 N. Broadway
Escondido, CA 92025-2798
Attn: Diana Delgadillo

Subj: Proposed Citracado Parkway Project

Dear Ms. Delgadillo,

On April 26th I attended the workshop for this project and have the following comments.

1. General: The widening and extending of Citracado Parkway from W. Valley to Andreason will have the effect of turning a relatively quiet, pleasant street which presently serves only residential areas into a noisy, dusty thoroughfare. My property is located directly along the parkway. Of particular concern is the possibility of ambulances and other emergency vehicles using their sirens during the night time hours.

   Eventually, the plan is to extend Citracado and connect all of the sections from I-15 to Vineyard. This will provide a short cut around the I-15/78 bridge for motorists traveling North on I-15 and then going in the direction of Oceanside. Needless to say, the traffic on Citracado will become quite heavy. I suggest that the city of Escondido, rethink this idea which is already in the general plan.

2. Sewer: Under the center of the parkway is a sewer line owned and operated by the city of San Diego and just a few feet from Avenida Del Diablo is an appurtenance on that sewer line which is intended to provide some pressure relief within the sewer line itself. This appurtenance is filled with a material which is supposed to eliminate foul odors - particularly hydrogen sulfide gas which is one of the hazardous gases specified in the Clean Air Act of 1989. Accordingly, the city of San Diego maintenance personnel have frequently been prevailed upon in recent times to properly service that unit. To do this, they use large equipment. Judging by the maps/plans provided at the workshop, it appears that some consideration needs to be given to the location of this appurtenance, its servicing needs and the space required for maintenance vehicles as these issues relate to traffic flow on the parkway and the close proximity to the proposed traffic light at Avenida Del Diablo.

3. Landscaping: Also on the tentative plans were shown trees to be located over the center of the remaining median strip. I do not believe that it is a good idea to place trees directly over the existing sewer line.

4. Noise. In order to cut down on the ordinary traffic noise, it was suggested that sound attenuating walls be constructed along the parkway between W. Valley and Avenida Del Diablo. This idea was given by myself and others at the workshop to the representative from Boyle Engineering. Construction of such walls will require that consideration will need to be given to the existing underground utility boxes located just outside of the mobile home park property lines in the grass strip alongside of the sidewalk.

5. Access and Egress. A block up from Avenida Del Diablo on Citracado are the entrances to two mobile home parks The mobile home park at 1750 W. Citracado has about 170 units and the senior park directly across the street at 1751 W. Citracado has 40 or more units. There is a significant amount of auto traffic in and out of these parks and some consideration needs to be given to traffic control when the volume of traffic on Citracado increases. One of the representatives from Boyle Engineering suggested a traffic light. Even today, there are times at about 7:00 AM when getting out of the park at 1750 is difficult because of the large numbers of trucks and cars trying to enter W. Valley at the traffic light with Citracado. However, presently, the traffic is generally light during the daytime hours on Citracado.

6. Dust and Dirt. During the construction phase I suggest that appropriate personnel from the City of Escondido require that the contractor diligently provide for dust control. After the project is completed, the street sweepers need to use water when sweeping the street. It has been my observation that very often, street sweepers use as little water as possible with the result that most of the dust was simply thrown into the air or just moved around a bit!

7. Future construction: It was mentioned by one of the attendees at the workshop that there is a large tract of homes being contemplated for an open area west of the proposed Citracado extension and to the south of Harmony Grove Road. I know nothing about such plans but it seems that such significant traffic generated by a large tract of houses needs to be taken into consideration for the design of the Citracado extension with some of the Citracado cost to be borne by the developers.

8. Open Space: It seems to this writer that Escondido is being paved over with a lot of new building construction. In my opinion, many of the new housing developments are jammed with as many units as possible creating major difficulties for the fire department in case of a fire. High density housing also brings with it crime as well as increased pressure on the infra structure of the city. Years ago when developers constructed single family residences, the city planned its infrastructure accordingly. Today, many single family residences are occupied with several families and instead of having a family of four or five - or

less. Now, there are as many as thirteen or more persons living in single family house, with a one car garage together with six or more cars. The situation is such that the City Council is considering no on street parking over night. Just exactly where will all of the extra vehicle go at night I wonder. Probably on lawns, thereby creating more eyesores! Does Escondido's planning department have any guidelines or policies that relate to preservation of "open space"?

I also notice that there doesn't seem to be much consistency in architectural design and as a result, new construction is pretty much whatever the developer/investors wish to have. Much of the newer construction is bereft of landscaping to make otherwise bland architecture a little more attractive. One example was the condominiums located on Escondido Blvd. close to Mission Avenue which caught fire and burned a few months ago. I often thought that they were Escondido's version of the infamous Chicago "projects." Hopefully, when they are rebuilt the owner will give a little more thought to the esthetics.

Thank you for allowing me to comment on the Citracado project and if there are further questions, please do not hesitate to contact me.

Yours truly,

David Jackson

LAFCO
San Diego Local Agency Formation Commission

1600 Pacific Highway • Room 452 • San Diego, CA 92101
(619) 531-5400 • FAX (619) 557-4190
Website: www.sdlafco.org

May 11, 2007

Diana Delgadillo
City of Escondido Planning Division
201 North Broadway
Escondido, CA 92025-2798

SUBJECT: Notice of Preparation of an EIR for the Citracado Parkway Extension and Annexation Project

Dear Diana:

Thank you for allowing the San Diego LAFCO to provide comments on the above-referenced project. LAFCO is responsible for encouraging the efficient provision of public services and has purview over changes to local government organization and any associated sphere of influence actions. Usually, LAFCO is a responsible agency for environmental review when jurisdictional changes and/or sphere amendments are proposed.

Within its discretionary review, LAFCO can only utilize environmental documents that contain a discussion of the ability of existing agencies to provide services, a description of existing infrastructure, how the project area is proposed to receive public services, and the associated jurisdictional, sphere of influence, and municipal service review changes. Therefore, we offer the following comments:

- The Notice of Preparation Annexation Map (Figure 2) describes the proposed project area as including three parcels (APNs 235-040-15, 235-040-50, and 235-051-05) that are located within the unincorporated territory of San Diego County. Accordingly, the proposed project would require Commission approval for annexation of the subject parcels to the City of Escondido. Because the proposed project requires changes to local governmental organization, San Diego LAFCO would be a responsible agency for environmental review.

  After staff review of the proposed annexation territory, it appears that APN 235-051-05 is currently located within the City of Escondido incorporated boundary. The unincorporated parcel indicated on the Annexation Map (Figure 2) as APN 235-051-05 is actually APN 235-040-05. The approximate total acreage of the affected parcels is 30.06 acres.

- The three unincorporated parcels are adjacent to the City's boundary, but are not located within the City's adopted sphere of influence. Commission adoption of an amendment to the City's sphere to include the subject territory would be required prior to the proposed annexation.
- Annexation of the subject territory would necessitate the following jurisdictional changes: annexation to the City of Escondido; detachment from County Service Area (CSA) No. 135 (San Diego Regional Communications System); detachment of APN 235-040-50 from CSA No. 107 (Elfin Forest/Harmony Grove Volunteer Fire Department); and detachment of APNs 235-040-05, and -15 from the San Marcos Fire Protection District. A discussion of the City's and affected agency's fire station locations and comparative response times to the proposed project area should be included in the project's EIR.
- As the proposed annexation would require more that one jurisdictional change, it should be termed a *reorganization* to the City of Escondido.

Should you have any questions, or if San Diego LAFCO may be of any further assistance, please contact me at (619) 531-5409.

Sincerely,

ROBERT BARRY
Local Governmental Analyst

RB:tl

David C. Mishalof
1750 W. Citracado Pkwy. Spc. 91
Escondido, CA 92029
760-294-1225 mishalof@cox.net

May 1, 2007

Project ER 2007-10 Citracado Pkwy Extension

Dear City of Escondido Planning Division;

I was unable to attend the scheduled meeting on April 26, 2007 but hope that you will accept my comments in writing.

I'm in favor of the extension of Citracado Pkwy to Andreason Drive, however I do have several concerns that I hope that you will be able to address:

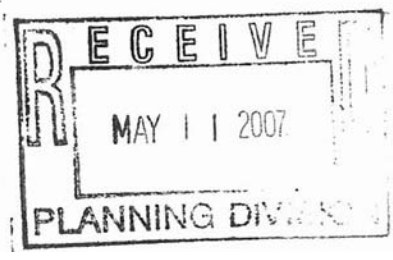
a. Speed Control on both Citracado and Avenida Del Diablo resulting from this project. Currently vehicles traveling these two roads drive in excess of the posted speed limits and they are forced to make a 90 degree turn at the intersection of these two roads which forces the traffic to slow down briefly. I believe that there is a need for some method of speed control such as speed bumps in order to force the traffic to stay within the posted speed limits on both Citracado and Diablo.
b. There are numerous children, who either live in Mountain Shadows, or visit friends living in Mountain Shadows. These children travel using skateboards, running and bicycles. The Citracado Extension will certainly increase traffic on Avenida Diablo because you are creating a shortcut to the 78 Fwy. From Del Dios Pkwy. Something must be done to safeguard these children and allow them a safe way to cross Diablo and avoid fast moving traffic.
c. The section of Valley Parkway/ Del Dios between Citracado and 11th is one of the worst paved roads in Escondido, and needs to repaved immediately. This section of road will surely incur more traffic as Avenida Del Diablo will become a connector for access to Citracado which will become the most direct way of reaching the 78 Fwy. This section of Valley Parkway/ Del Dios needs to be completed so that it is a two lane road from Citracado to 11th St. This project, which is way past due, is certainly part of the resulting impact of extending Citracado to Andreason. This section of road is an important gateway to the City of Escondido and should be included in the Citracado Extension planning.

In summary I am in favor of this needed extension of Citracado IF provisions are made to control the speed of the resulting increased traffic and impact on the surrounding streets. Thank you.

David C. Mishalof

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
www.nahc.ca.gov
ds_nahc@pacbell.net



May 8, 2007

Ms. Diana Delgadillo
CITY OF ESCONDIDO
201 North Broadway
Escondido, CA 92025-2798

Re: SCH# 2007041061; CEQA Notice of Preparation (NOP) draft Environmental Impact Report (DEIR) for **Citracado Parkway Extension**; City of Escondido; San Diego County, California

Dear Ms. Delgadillo:

Thank you for the opportunity to comment on the above-referenced document. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR per CEQA guidelines § 15064.5(b)(c). In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE),' and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

√ Contact the appropriate California Historic Resources Information Center (CHRIS). Contact information for the 'Information Center' nearest you is available from the State Office of Historic Preservation in Sacramento (916/653-7278). The record search will determine:

- **If a part or the entire (APE) has been previously surveyed for cultural resources.**
  If any known cultural resources have already been recorded in or adjacent to the APE.
  If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.

√ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
- The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

√ Contact the Native American Heritage Commission (NAHC) for:

* A Sacred Lands File (SLF) search of the project area and information on tribal contacts in the project vicinity who may have information on cultural resources in or near the APE. Please provide us site identification as follows: USGS 7.5-minute quadrangle citation with name, township, range and section. This will assist us with the SLF.

- Also, we recommend that you contact the Native American contacts on the attached list to get their input on the effect of potential project (e.g. APE) impact.

√ Lack of surface evidence of archeological resources does not preclude their subsurface existence.

- Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.

√ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.

* CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens.

√ Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the CEQA Guidelines mandate procedures to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

√ Lead agencies should consider avoidance, as defined in § 15370 of the CEQA Guidelines, when significant cultural resources are discovered during the course of project planning.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: List of Native American Contacts

Native American Contacts
San Diego County
May 8, 2007

Pala Band of Mission Indians
Robert Smith, Chairperson
12196 Pala Mission Road, PMB 50 Luiseno
Pala , CA 92059 Cupeno
(760) 742-3784
(760) 742-1411 Fax

San Luis Rey Band of Mission Indians
Carmen Mojado, Co-Chair
1889 Sunset Dr. Luiseno
Vista , CA 92081

Rincon Band of Mission Indians
Angela Veltrano, Rincon Culture Committee
P.O. Box 68 Luiseno
Valley Center , CA 92082
council@rincontribe.org
(760) 749-1051
(760) 749-8901 Fax

San Luis Rey Band of Mission Indians
Mark Mojado, Cultural Resources
P.O. Box 1 Luiseno
Pala , CA 92059 Cupeno
(760) 742-4468
(760) 586-4858 (cell)

San Luis Rey Band of Mission Indians
Henry Contreras, Most Likely Descendent
1763 Chapulin Lane Luiseno
Fallbrook , CA 92028
(760) 728-6722 - Home
(760) 207-3618 - Cell

Cupa Cultural Center (Pala Band)
Shasta Gaughen, Assistant Director
35008 Pala-Temecula Rd.PMB Box 445 Luiseno
Pala , CA 92059
cupa@palatribe.com
(760) 742-1590
(760) 742-4543 - FAX

San Luis Rey Band of Mission Indians
Russell Romo, Chairman
12064 Old Pomerado Road Luiseno
Poway , CA 92064
(858) 748-1586

Charles Devers, Chair
Cultural Committee; Pauma & Yuima Reservations
P.O. Box 369 Luiseno
Pauma Valley , CA 92061
(760) 742-1289
(760) 742-4543 FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American with regard to cultural resources for the proposed SCH#2007041061; CEQA Notice of Preparation (NOP) ; draft Environmental Impact Report (DEIR) for Citracado Parkway "Extension; City of Escondido; San Diego County, California.

May 8, 2007

N C T D

Diana Delgadillo
City of Escondido
201 North Broadway
Escondido, CA 92025

RE: Citracado Parkway Extension and Annexation Project

Dear Ms. Delgadillo:

Thank you for the opportunity to review the Notice of Preparation of an Environmental Impact Report for the Citracado Parkway Extension and Annexation Project, which includes an extension and improvements on Citracado Parkway from West Valley Parkway to Andreasen Drive, and annexation of three parcels within the project area.

The North County Transit District (NCTD) currently operates fixed route bus service (Route 348) along a portion of Citracado Parkway that connects the area with regional and local bus service at the Escondido Transit Center.

REQUESTED BUS STOP & OTHER IMPROVEMENTS

After reviewing the Notice of Preparation, NCTD requests that the City upgrade the bus stop infrastructure at one existing and four future bus stop locations within the proposed project area. This request is made to ensure that these bus stops meet the standards required under the Americans with Disabilities Act and meet the likely future needs to transit passengers in this neighborhood. The locations listed are approximate, NCTD can provide further guidance once more detailed plans are developed. These locations are at:

- **Northbound Citracado Parkway @ north of entrance to Mountain Shadows Mobile Home Park.** Specific improvements that should be designed and built at this existing bus stop location include:

  1. ADA-Compliant Boarding Pad –At approximately 90-feet north of the end of the curb radius of the intersection with the entrance to the Mountain Shadows Mobile Home Park, an ADA-compliant concrete boarding pad should be constructed so that wheelchair passengers can load and unload safely. This concrete pad should measure 10-feet wide from the face of the curb by 24-feet long. If the existing sidewalk is 5-feet wide, then this concrete boarding pad will only need to be an additional 5-feet in width behind the sidewalk for a length of 24-feet. This concrete boarding pad should also be sloped slightly toward the street for drainage purposes, but should not exceed the standard 2% cross-slope for sidewalks. Information on typical pad dimensions has been included with this letter.

2. Passenger Waiting Bench – To meet the current and future passenger demand in this area, the City should install a new 8-foot long, blue Wabash Valley wire-grill, non-advertising bench with back (model # PP307D) and a third center leg at the rear of the above mentioned ADA-compliant boarding pad, and centered in the middle of the 24' length. Information on the Wabash Valley bench has also been included with this letter.

3. Trash Can – To keep the bus stop area free of litter and debris, the City should install a trash can on the far northeast corner of the above mentioned ADA-complaint boarding pad. Please check with the City of Escondido Public Works Department to determine which automated trash can they feel is appropriate at this location.

- **Southbound Citracado Parkway @ south of entrance to Mountain Shadows Mobile Home Park.** Specific improvements that should be designed and built at this existing bus stop location include:

4. ADA-Compliant Boarding Pad –At approximately 85-feet south of the end of the curb radius of the intersection with the entrance to the Mountain Shadows Mobile Home Park, an ADA-compliant concrete boarding pad should be constructed so that wheelchair passengers can load and unload safely. This concrete pad should measure 10-feet wide from the face of the curb by 24-feet long. If the existing sidewalk is 5-feet wide, then this concrete boarding pad will only need to be an additional 5-feet in width behind the sidewalk for a length of 24-feet. This concrete boarding pad should also be sloped slightly toward the street for drainage purposes, but should not exceed the standard 2% cross-slope for sidewalks. Information on typical pad dimensions has been included with this letter.

- **Southbound Citracado Parkway @ approximately 140-feet south of Johnston Road.** Specific improvements that should be designed and built at this existing bus stop location include:

5. ADA-Compliant Boarding Pad –At approximately 140-feet south of the end of the curb radius of the Citracado Parkway and Johnston Drive intersection, an ADA-compliant concrete boarding pad should be constructed so that wheelchair passengers can load and unload safely. This concrete pad should measure 10-feet wide from the face of the curb by 24-feet long. If the existing sidewalk is 5-feet wide, then this concrete boarding pad will only need to be an additional 5-feet in width behind the sidewalk for a length of 24-feet. This concrete boarding pad should also be sloped slightly toward the street for drainage purposes, but should not exceed the standard 2% cross-slope for sidewalks. Information on typical pad dimensions has been included with this letter.

- **Northbound Citracado Parkway (extension) @ approximately 40-feet south of Andreasen Drive.** Specific improvements that should be designed and built at this future bus stop location include:

  6. ADA-Compliant Boarding Pad –At this location, an ADA-compliant concrete boarding pad should be constructed so that wheelchair passengers can load and unload safely. This concrete pad should measure 10-feet wide from the face of the curb by 24-feet long. If the proposed sidewalk is 5-feet wide, then this concrete boarding pad will only need to be an additional 5-feet in width behind the sidewalk for a length of 24-feet. This concrete boarding pad should also be sloped slightly toward the street for drainage purposes, but should not exceed the standard 2% cross-slope for sidewalks. Information on typical pad dimensions has been included with this letter.

- **Southbound Citracado Parkway (extension) @ approximately 80-feet south of Andreasen Drive.** Specific improvements that should be designed and built at this future bus stop location include:

  7. ADA-Compliant Boarding Pad –At this location, an ADA-compliant concrete boarding pad should be constructed so that wheelchair passengers can load and unload safely. This concrete pad should measure 10-feet wide from the face of the curb by 24-feet long. If the proposed sidewalk is 5-feet wide, then this concrete boarding pad will only need to be an additional 5-feet in width behind the sidewalk for a length of 24-feet. This concrete boarding pad should also be sloped slightly toward the street for drainage purposes, but should not exceed the standard 2% cross-slope for sidewalks. Information on typical pad dimensions has been included with this letter.

Once the City's review of this Notice of Preparation has been completed, please contact NCTD so that we may collectively review and site future bus stops along this regionally significant street before construction plans are finalized.

Thank you again for the opportunity to review the Notice of Preparation for this project. If you have any questions regarding my comments, please contact me at (760) 966-6546 or email me at kluhrsen@nctd.org.

Sincerely,

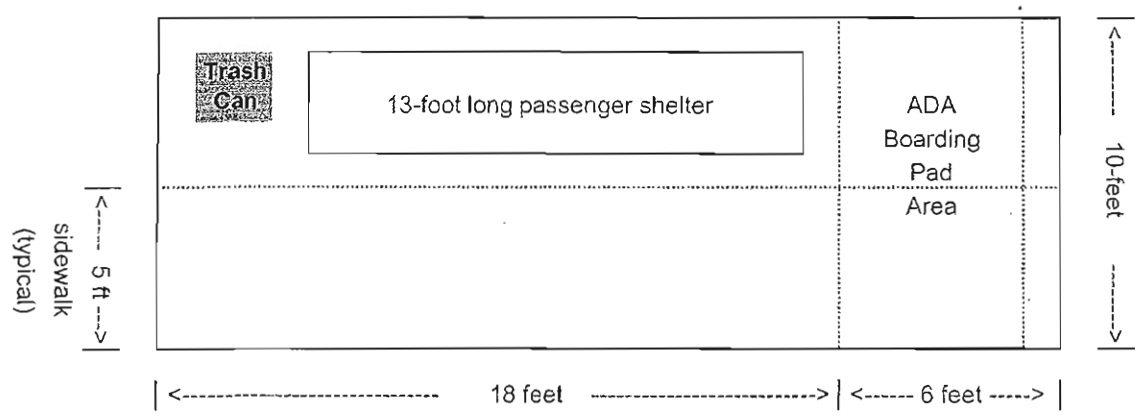
Kurt Luhrsen

Kurt Luhrsen
Principal Planner

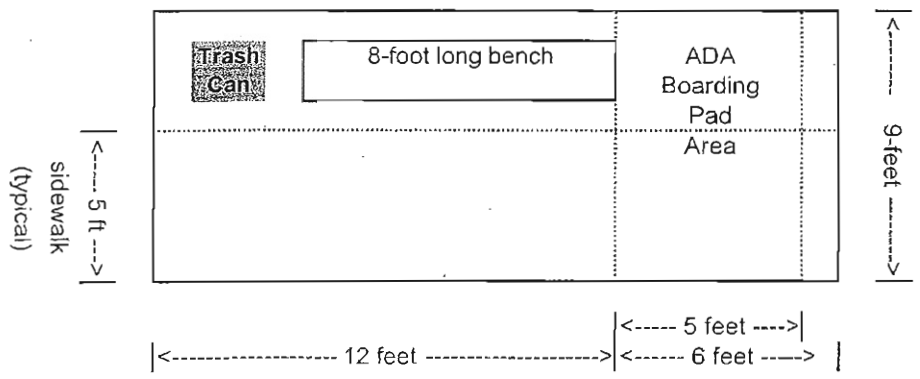
Attachments

NCTD's Bus Stop Pad Dimensions

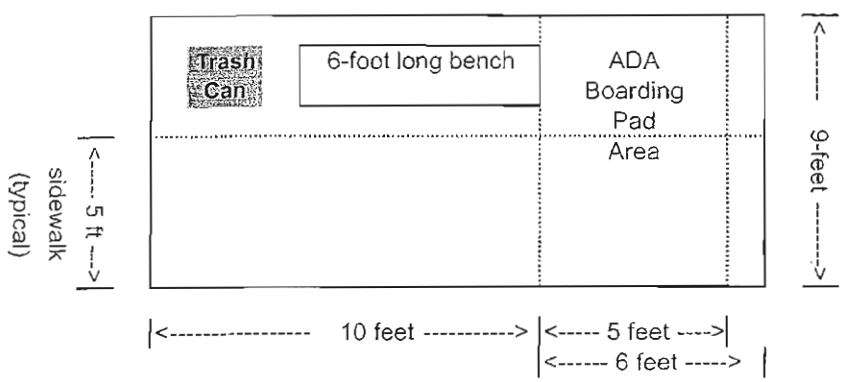
OPTION 1: Desired Shelter Pad Dimension for a 13-foot Shelter



OPTION 2: Desired Bench Pad Dimension for an 8-foot Bench



OPTION 3: Desired Bench Pad Dimension for a 6-foot Bench



NOTE 1: The minimum pad depth (from face of curb) to be compliant with the Americans with Disabilities Act (1990) is 8-feet.

NOTE 2: No street furniture (benches, shelters, or trash cans) should be installed within 2 1/2 feet of the curb to avoid being hit by passing buses or trucks.

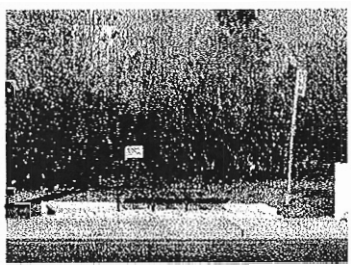
Street Furniture

In attempts to standardize the look of street furniture, we have chosen specific benches and shelters to be installed at NCTD bus stops. All new stops should incorporate 13-foot Tolar non-advertising shelters with a dome roof, or Wabash Valley metal benches. If the requested bus stop locations are not currently lit (i.e. located under or near a streetlight) we would also request that a solar panel be installed on the bus shelter to light the structure at night.

Developers are required to purchase, install and clean all bus benches and shelters. NCTD recommends that developers and the eventual owner/operator are required to clean all bus benches and shelters installed as part of their development. These bus stop facilities typically are dedicated to the Jurisdiction. Replacement of bus stop facilities are typically the responsibility of NCTD and the Jurisdiction though this varies with each Jurisdiction.

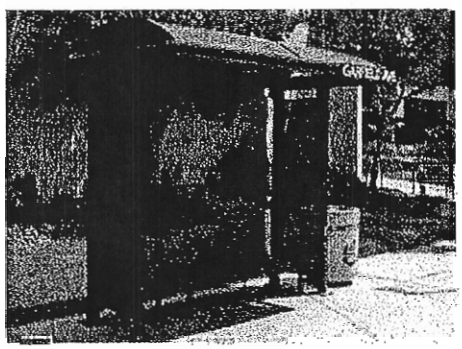
NCTD understands that in some cases the installation of a custom bench or shelter is desirable. District staff does not discourage the use of custom facilities, although all designs MUST be approved by NCTD staff prior to installation.

Bus Stops with Benches



- Wabash Valley 8-foot metal bench with back & 3rd center leg
- Model number PP307D (surface mounted legs)
- Royal Blue in color*
- Wabash Valley Manufacturing, Inc.
  P.O. Box 5, 505 E. Main Street
  Silver Lake, IN 46982
  1-800-253-8619
  www.wabashvalley.com

Bus Stops with Shelters



- Tolar 9-foot, 13-foot or 17-foot dome roof non-advertising shelter (size to be specified by NCTD)**
- Model 9NALD-PM NCTD Drawing Number 3345
- Model 13NALD-PM NCTD Drawing Number 3343
- Model 17NALD-PM NCTD Drawing Number 3346
- Solar panels for lighting
- Wire grill bench with vagrant bars
- Signal Blue in color (RAL 5005)*
- Tolar Manufacturing Company, Inc.
  258 Mariah Circle
  Corona, CA 92879
  1-800-339-6165
  www.tolarmfg.com

* Check with City staff, as some jurisdictions prefer the use of other colors.

** In some cases, the Tolar shelter is not preferred. Check with City staff, as some jurisdictions prefer that shelters be designed to meet neighborhood or community architectural themes.

CUPA CULTURAL CENTER
Pala Band of Mission Indians

April 19, 2007

City of Escondido
Planning Division
201 North Broadway
Escondido, California 92025
ATTN: Jay Petrek

Re: Notice of Preparation of an Environmental Impact Report for the Citracado Parkway Extension and Annexation Project

Mr. Petrek,

The Pala Band of Mission Indians recently established a tribally recognized Tribal Historic Preservation Office to address consultation issues surrounding historic preservation. We have received your notification of the project as above. This letter constitutes our response on behalf of Robert Smith, Tribal Chairman.

We have consulted our maps and have determined that the project as described is neither within the boundaries of the recognized Pala Indian Reservation, nor is it within the territory that the Tribe considers its Traditional Use Area. It is, however, situated in close proximity to the Reservation and information generated would likely be useful in better understanding the regional cultural sequence. Therefore, we request as a courtesy to be kept in the information loop as the project progresses and would appreciate being maintained on the receiving list for project updates, reports of investigations and/or any documentation that might be generated regarding previously reported or newly discovered sites.

Further, if the project boundaries are modified to extend beyond the currently proposed limits, we do request updated information and the opportunity to respond to your changes.

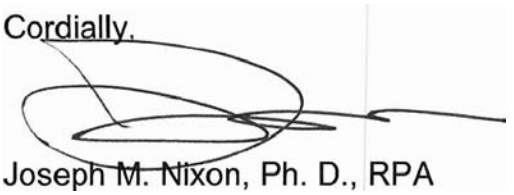
Finally, we recommend that Approved Cultural Monitors be present on site during all survey and all ground disturbing activities. If you do not have access to an Approved Cultural Resource Monitor, contact us and we will work with you to identify appropriately trained individuals.

35008 Pala Temecula Road
PMB 445
Pala, CA 92059

760-742-1590 [phone]
760-742-4543 [fax]

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact Joseph M. Nixon at 1 (760) 891 3592 or at e.mail jnixon@palatribe.com.

Cordially,



Joseph M. Nixon, Ph. D., RPA
Cultural Resource Coordinator
Pala Band of Mission Indians

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Rincon del Diablo Municipal Water District

April 24, 2007

Ms. Diana Delgadillo
Associate Planner
City of Escondido
Planning Division
201 North Broadway
Escondido, CA 92025

Subject: Notice of Preparation of an Environmental Impact Report for the Citracado Parkway Extension and Annexation Project

Dear Ms. Delgadillo:

Thank you for the opportunity to comment on the Notice of Preparation for the above referenced Environmental Impact Report (EIR).

Please be advised that the Rincon del Diablo Municipal Water District (Rincon) has an existing water main located in the proposed Citracado Parkway alignment. The main, which varies in size from 14-inch to 18-inch, is within a dedicated easement. This is a major transmission main and is a critical part of the Rincon water system.

In addition, a portion of the main runs under the existing creek. Rincon would like to discuss the possibility of constructing the main through the proposed bridge.

The following people may be contacted regarding this project:

David Keller	(760) 745-5522
John Christopher	(858) 716-2669

If you have any questions or require additional information, please call.

Sincerely,

David L. Keller
Engineering Manager

Cc Mitch Dion, RDDMWD
Clint Baze, RDDMWD
John Christopher, RW Beck

\\Rinconsrv01\User Folders\DKeller\Letters\EIR-NOP Response.doc

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011
(760) 431-9440
FAX (760) 431-5902 + 9618

California Department of Fish & Game
South Coast Region
4949 Viewridge Avenue
San Diego, California 92123
(858) 467-4201
FAX (858) 467-4299

In Reply Refer To:
FWS-SDG-5324.1

MAY 1 1 2007

Ms. Diana Delgadillo
Planning Department
City of Escondido
201 North Broadway
Escondido, California 92025-2798

Subject: Comments on the Notice of Preparation of an Environmental Impact Report for the Citracado Parkway Extension (SCH# 2007041061)

Dear Ms. Delgadillo:

The U.S Fish and Wildlife Service (Service) and the California Department of Fish and Game (Department), hereafter collectively referred to as the Wildlife Agencies, have reviewed the above-referenced Notice of Preparation (NOP) dated April 11, 2007. The Wildlife Agencies have identified potential effects of this project on wildlife and sensitive habitats. The comments provided herein are based on the information provided in the NOP, our knowledge of sensitive and declining vegetation communities, and our participation in regional conservation planning efforts.

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and endangered animals and plants occurring in the United States. The Service is also responsible for administering the federal Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act (CEQA; Sections 15386 and 15381, respectively) and is responsible for ensuring appropriate conservation of the state's biological resources, including rare, threatened, and endangered plant and animal species, pursuant to the California Endangered Species Act (CESA) and other sections of the Fish and Game Code. The Department also administers the Natural Community Conservation Planning (NCCP) Program. The City of Escondido (City) is currently participating in the NCCP program through the preparation of a Multiple Habitat Conservation Program (MHCP) Subarea Plan (Subarea Plan).

Ms. Diana Delgadillo (FWS-SDG-5324.1)

The City proposes to extend and improve Citracado Parkway from West Valley Parkway to Andreasen Drive. The proposed Citracado Parkway roadway extension would require a new structure crossing at Escondido Creek and may include landform alterations at the proposed intersection, or interchange, with Harmony Grove Road. Minor street realignments and/or grade adjustments may also be proposed for the intersection of Kauana Loa Drive and Harmony Grove Road. The city is also considering annexation of three parcels crossed by or in proximity to the proposed roadway extension. One of the parcels is owned by the City and is currently located within the County of San Diego jurisdictional boundaries. All three parcels are outside the City's Sphere of Influence.

We offer our comments and recommendations in the attached enclosure to assist the City in avoiding, minimizing, and adequately mitigating project-related impacts to biological resources, and to ensure that the project is consistent with ongoing regional habitat conservation planning efforts. In summary, our comments address the following issues: (1) compliance with CEQA and the Act; (2) protocol-level species surveys for listed species with potential to occur in the project area; (3) habitat assessment for burrowing owls (*Athene cunicularia*); (4) application of best management practices and fuel modification zones; (5) the use of native plants in landscaped areas adjacent to native habitats; and (6) general information to be included in the draft EIR.

We appreciate the opportunity to comment on this NOP. If you have questions or comments regarding this letter, please contact Janet Stuckrath of the Department at (858) 637-5510 or Julie Kirker of the Service (760) 431-9440.

Sincerely,

Therese O'Rourke
Assistant Field Supervisor
U.S. Fish and Wildlife Service

FOR Michael J. Mulligan
Deputy Regional Manager
California Department of Fish and Game

Enclosure(s) 3
- Wildlife Agency Comments
- Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities
- Sensitivity of Top Priority Rare Natural Communities in Southern California

cc: State Clearinghouse

Wildlife Agency Comments and Recommendations on the Notice of Preparation of a Draft Environmental Impact Report for the Citracado Parkway Extension

Specific Comments

1. Take authorization pursuant to CESA and the federal ESA must be obtained if the project has the potential to result in "take" of state and/or federally listed species of plants or animals (e.g., coastal California gnatcatcher [*Polioptila californica californica*; gnatcatcher], least Bell's vireo [*Vireo bellii pusillus*; vireo], thread-leaved brodiaea [*Brodiaea filifolia*; brodiaea], San Diego ambrosia [*Ambrosia pumila*; ambrosia]), either during construction or over the life of the project. Permits authorizing take are issued to conserve, protect, enhance, and restore listed threatened or endangered species and their habitats. Early consultation is encouraged, as modification to the project and mitigation measures may be required in order to obtain take authorization. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of a CESA permit unless the project CEQA document addresses all project impacts to state listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of CESA.

2. To guide project planning to avoid/minimize impacts to listed species (e.g., gnatcatcher, vireo, ambrosia) and other sensitive species, we recommend that protocol-level surveys be conducted for any such species with the potential to occur within the project site. Surveys should be performed no more than one year prior to an application for a permit from the Wildlife Agencies, and the draft EIR should include the survey results.

3. Burrowing owls (*Athene cunicularia*) are a small, ground-nesting bird that in some areas have adapted to human-altered habitat such as non-native grassland, agricultural fields, and the margins of dirt roads. They nest in burrows dug by burrowing mammals, in Southern California primarily ground squirrels and gophers. Aerial photos in the NOP of the footprint of the proposed Citracado Parkway extension appear to show blocks of either non-native grassland or agricultural fields. Therefore, we recommend that a habitat assessment be conducted for burrowing owls. If appropriate habitat is determined to be present, focused presence/absence surveys should be conducted. If burrowing owls or the presence of them is observed, the City should contact the Wildlife Agencies about measures to include in the DEIR.

4. The proposed project is located outside the Focused Planning Area (FPA) for the City's draft Subarea Plan; however, portions of the parcels proposed for annexation to the City in association with the extension of Citracado Parkway are included in the Pre-Approved Mitigation Area (PAMA) of the draft North County MSCP. The EIR should include a

discussion of how the proposed project will affect regional planning and how the project will meet preserve adjacency requirements.

5. All construction and post-construction best management practices (BMPs), as well as fuel modification zones, should be located within the development footprint (i.e., included in the impact analysis as loss of habitat). The draft EIR should include a figure depicting the location of all the BMPs and fuel modification zones.

6. Native plants should be used to the greatest extent feasible in landscaped areas adjacent to and/or near mitigation/open space areas and/or wetland/riparian areas. The applicant should not plant, seed, or otherwise introduce invasive exotic plant species to landscaped areas adjacent and/or near native habitat areas. Exotic plant species not to be used include those species listed on the California Invasive Plant Council's (Cal-IPC) Invasive Plant Inventory. This list includes such species as: pepper trees, pampas grass, fountain grass, ice plant, myoporum, black locust, capeweed, tree of heaven, periwinkle, sweet alyssum, English ivy, French broom, Scotch broom, and Spanish broom.[1] Furthermore, landscaping adjacent to native habitat areas should not use plants that require intensive irrigation, fertilizers, or pesticides. Water runoff from landscaped areas should be directed away from mitigation/open space and/or wetland/riparian areas and contained and/or treated within the development footprint. In addition, if the project site is free of insectivorous pests, particularly Argentine ants (*Iridomyrmex humil*) and fire ants (*Solenopsis invicta*), any planting stock to be brought onto the project site for landscaping should be first inspected by a qualified pest inspector to ensure it is free of pest species that could invade natural areas. Infested stock should not be allowed on the project site and should be quarantined, treated, or disposed of according to best management principles by qualified experts in a manner that precludes invasions into natural habitats.

General Comments

To enable the Wildlife Agencies to adequately review and comment on the proposed project from the standpoint of the protection of plants, fish, wildlife, and other biological resources, we recommend the following information be included in the draft EIR.

1. A complete discussion of the purpose and need for, and description of, the proposed project, including all staging areas and access routes to the construction and staging areas.

2. Analyses of a range of feasible alternatives to ensure that alternatives to the proposed project are fully considered and evaluated. The analyses must include alternatives that avoid or

[1] A copy of the complete list can be obtained by contacting the California Invasive Plant Council at 1442-A Walnut Street, Suite 462, California 94709, or by accessing their web site at http://www.cal-ipc.org.

otherwise minimize impacts to sensitive biological resources, particularly wetlands. Specific alternative locations should be evaluated in areas with lower resource sensitivity, where appropriate.

3. A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis on identifying state and federally listed endangered, threatened, rare, or proposed candidate species, California Species of Special Concern and/or Protected or Fully Protected species, and locally unique species and sensitive habitats. Specifically, the draft EIR should include the following.

   a) Discussions regarding the regional setting, pursuant to CEQA Guidelines, § 15125(c), with special emphasis on resources that are rare or unique to the region that would be affected by the project. This discussion is critical to an assessment of environmental impacts.

   b) A thorough assessment of rare plants and rare natural communities, following the Department's May 1984 Guidelines for Assessing Impacts to Rare Plants and Rare Natural Communities (Enclosure 2, revised May 2000).

   c) A current inventory of the biological resources (to include rare, threatened, and endangered as defined by CEQA Guidelines, §15380, and other sensitive species) associated with each habitat type on site and within the area of potential effect. This should include sensitive fish, wildlife, reptile, and amphibian species. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

   d) Discussions regarding seasonal variations in use of the project area and vicinity by sensitive species, and acceptable species-specific survey procedures as determined through consultation with the Wildlife Agencies. The results of focused species-specific surveys, conducted in conformance with established protocols at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Wildlife Agencies.

4. A thorough discussion of direct, indirect, and cumulative project-related impacts expected to adversely affect biological resources. All facets of the project should be included in this assessment. Specifically, the draft EIR should include the following.

a) Specific acreages and descriptions of the types of wetlands, coastal sage scrub, and other habitats that would potentially be affected by the proposed project or project alternatives. Maps and tables should be used to summarize such information.

b) Detailed discussions, including both qualitative and quantitative analyses, of potential direct effects on listed and other sensitive species (fish, wildlife, plants) and their habitats within the area of impact of the proposed and alternative projects.

c) Discussions regarding indirect project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any proposed or existing reserve lands (*e.g.*, preserve lands associated with a NCCP).

   i) Impacts to wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated.

   ii) Discussions of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address: project-related changes on drainage patterns on and downstream of the project site; the volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site.

   iii) If applicable, a discussion of the effects of any project-related dewatering or ground water extraction activities to the water table and the potential resulting impacts on the wetland/riparian habitat, if any, supported by the surface and groundwater.

d) Discussions regarding possible conflicts resulting from wildlife-human interactions at the interface between the development project and natural habitats.

e) An analysis of the effect that the project may have on completion and/or implementation of regional or subregional conservation programs (e.g., the City's draft MHCP Subarea Plan, the North County MSCP Subarea Plan). Under § 2800 - § 2840 of the Fish and Game Code, the Department, through the NCCP program, is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity. The Department recommends that the Lead Agency ensure that the development of this project does not preclude long-term preserve planning options and conforms with other requirements of the NCCP program (e.g., mitigation for loss of coastal sage scrub should occur at minimum of a 2:1 compensation ratio).

permits and construction documents should be immediately brought to the attention of the Lead Agency and the Wildlife Agencies.

f) Plans for restoration and revegetation, to be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria (e.g.., percent cover of native and non-native species; species richness); (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

g) Measures to protect, in perpetuity, the targeted habitat values of proposed preservation and/or restoration areas from direct and indirect negative impacts. These should include a legal mechanism (e.g., conservation easement) by which the mitigation areas would be preserved in perpetuity. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Permanent fencing should be installed between the impact area and biological open space and be designed to minimize intrusion into the sensitive habitats from humans and domestic animals, particularly cats. There should be no gates that would allow access between the development and biological open space. Additional issues that should be addressed include proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, etc.

h) Development and implementation of a management and monitoring plan (MMP), including a funding commitment, for any on- and/or off-site biological open space easements, if applicable. An appropriate natural lands management organization, subject to approval by the Wildlife Agencies, should be identified. The MMP should outline biological resources on the site, provide for monitoring of biological resources, address potential impacts to biological resources, and identify actions to be taken to eliminate or minimize those impacts. A Property Analysis Record (PAR) should be completed to determine the amount of funding needed for the perpetual management, maintenance, and monitoring of the biological conservation easement areas by the natural lands management organization. It should be demonstrated that the proposed funding mechanism would ensure that adequate funds would be available on an annual basis to implement the MMP. The natural lands management organization should submit a draft MMP, PAR results, and proposed funding mechanism to the Wildlife Agencies for review and approval prior to initiating construction activities; the final plan should be submitted to the Wildlife Agencies and the funds for implementing the MMP transferred within 90 days of receiving approval of the draft plan.

i) To avoid impacts to nesting birds, the draft EIR should require that all clearing and grubbing occur outside the avian breeding season. The general breeding season for nesting birds occurs approximately February 15 through September 15; however raptors may begin breeding as early as January. If project construction, other than clearing and grubbing, is necessary during the avian breeding season, a qualified biologist should conduct a survey for nesting birds within three days prior to the work in the area to ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), shall be delineated by temporary fencing, and shall remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be affected by the construction.

Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities

State of California
THE RESOURCES AGENCY
Department of Fish and Game
December 9, 1983
Revised May 8, 2000

The following recommendations are intended to help those who prepare and review environmental documents determine **when** a botanical survey is needed, **who** should be considered qualified to conduct such surveys, **how** field surveys should be conducted, and **what** information should be contained in the survey report. The Department may recommend that lead agencies not accept the results of surveys that are not conducted according to these guidelines.

1. Botanical surveys are conducted in order to determine the environmental effects of proposed projects on all rare, threatened, and endangered plants and plant communities. Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare, threatened, and/or endangered under the following definitions:

A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

Rare natural communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities may be used as a guide to the names and status of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or to the extent that, rare, threatened, or endangered plants will be affected by a proposed project when:

a. Natural vegetation occurs on the site, it is unknown if rare, threatened, or endangered plants or habitats occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking.

3. Botanical consultants should possess the following qualifications:

a. Experience conducting floristic field surveys;
b. Knowledge of plant taxonomy and plant community ecology;
c. Familiarity with the plants of the area, including rare, threatened, and endangered species;
d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
e. Experience with analyzing impacts of development on native plant species and communities.

4. Field surveys should be conducted in a manner that will locate any rare, threatened, or endangered species that may be present. Specifically, rare, threatened, or endangered plant surveys should be:

a. Conducted in the field at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Usually, this is when the plants are flowering.

When rare, threatened, or endangered plants are known to occur in the type(s) of habitat present in the project

area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey.

b. Floristic in nature. A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. In addition, a sufficient number of visits spaced throughout the growing season are necessary to accurately determine what plants exist on the site. In order to properly characterize the site and document the completeness of the survey, a complete list of plants observed on the site should be included in every botanical survey report.

c. Conducted in a manner that is consistent with conservation ethics. Collections (voucher specimens) of rare, threatened, or endangered species, or suspected rare, threatened, or endangered species should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit requirements. A collecting permit from the Habitat Conservation Planning Branch of DFG is required for collection of state-listed plant species. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.

d. Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas.

e. Well documented. When a rare, threatened, or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5 minute topographic map with the occurrence mapped, should be completed and submitted to the Natural Diversity Database. Locations may be best documented using global positioning systems (GPS) and presented in map and digital forms as these tools become more accessible.

5. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations and mitigated negative declarations, Timber Harvesting Plans (THPs), EIR's, and EIS's, and should contain the following information:

a. Project description, including a detailed map of the project location and study area.
b. A written description of biological setting referencing the community nomenclature used and a vegetation map.
c. Detailed description of survey methodology.
d. Dates of field surveys and total person-hours spent on field surveys.
e. Results of field survey including detailed maps and specific location data for each plant population found. Investigators are encouraged to provide GPS data and maps documenting population boundaries.
f. An assessment of potential impacts. This should include a map showing the distribution of plants in relation to proposed activities.
g. Discussion of the significance of rare, threatened, or endangered plant populations in the project area considering nearby populations and total species distribution.
h. Recommended measures to avoid impacts.
i. A list of all plants observed on the project area. Plants should be identified to the taxonomic level necessary to determine whether or not they are rare, threatened or endangered.
j. Description of reference site(s) visited and phenological development of rare, threatened, or endangered plant(s).
k. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.
l. Name of field investigator(s).
m. References cited, persons contacted, herbaria visited, and the location of voucher specimens.

S2.1	Venturan Coastal Sage Scrub Diegan Coastal Sage Scrub Riversidean Upland Coastal Sage Scrub Riversidean Desert Sage Scrub Sagebrush Steppe Desert Sink Scrub Mafic Southern Mixed Chaparral San Diego Mesa Hardpan Vernal Pool San Diego Mesa Claypan Vernal Pool Alkali Meadow Southern Coastal Salt Marsh Coastal Brackish Marsh Transmontane Alkali Marsh Coastal and Valley Freshwater Marsh Southern Arroyo Willow Riparian Forest Southern Willow Scrub Modoc-Great Basin Cottonwood Willow Riparian Modoc-Great Basin Riparian Scrub Mojave Desert Wash Scrub Engelmann Oak Woodland Open Engelmann Oak Woodland Closed Engelmann Oak Woodland Island Oak Woodland California Walnut Woodland Island Ironwood Forest Island Cherry Forest Southern Interior Cypress Forest Bigcone Spruce-Canyon Oak Forest
S2.2	Active Coastal Dunes Active Desert Dunes Stabilized and Partially Stabilized Desert Dunes Stabilized and Partially Stabilized Desert Sandfield Mojave Mixed Steppe Transmontane Freshwater Marsh Coulter Pine Forest Southern California Fellfield White Mountains Fellfield
S2.3	Bristlecone Pine Forest Limber Pine Forest

APPENDIX C

AIR QUALITY DATA AND CALCULATIONS

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Citracado Parkway Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	13.4	58.5	109.2	104.8	4.8	100.0	25.2	4.4	20.8	10,625.4
Grading/Excavation	10.8	55.1	74.9	104.1	4.1	100.0	24.5	3.7	20.8	8,187.0
Drainage/Utilities/Sub-Grade	6.4	25.5	38.5	102.4	2.4	100.0	23.0	2.2	20.8	4,156.0
Paving	7.0	26.7	35.8	3.2	3.2	-	2.9	2.9	-	3,632.4
Maximum (pounds/day)	13.4	58.5	109.2	104.8	4.8	100.0	25.2	4.4	20.8	10,625.4
Total (tons/construction project)	1.8	8.5	12.5	17.5	0.7	16.8	4.1	0.6	3.5	1,340.1

Notes:

Project Start Year ->	2011
Project Length (months) ->	18
Total Project Area (acres) ->	25
Maximum Area Disturbed/Day (acres) ->	10
Total Soil Imported/Exported (yd^3/day)->	150

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Citracado Parkway Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	6.1	26.6	49.6	47.6	2.2	45.5	11.4	2.0	9.5	4,829.7
Grading/Excavation	4.9	25.1	34.1	47.3	1.8	45.5	11.1	1.7	9.5	3,721.3
Drainage/Utilities/Sub-Grade	2.9	11.6	17.5	46.5	1.1	45.5	10.4	1.0	9.5	1,889.1
Paving	3.2	12.2	16.3	1.4	1.4	-	1.3	1.3	-	1,651.1
Maximum (kilograms/day)	6.1	26.6	49.6	47.6	2.2	45.5	11.4	2.0	9.5	4,829.7
Total (megagrams/construction project)	1.7	7.8	11.3	15.9	0.6	15.3	3.8	0.6	3.2	1,215.5

Notes:

Project Start Year ->	2011
Project Length (months) ->	18
Total Project Area (hectares) ->	10
Maximum Area Disturbed/Day (hectares) ->	4
Total Soil Imported/Exported (meters ^{3}/day)->	115

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Road Construction Emissions Model

Version 6.3.2

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a
yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Citracado Parkway	
Construction Start Year	2011	Enter a Year between 2005 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	18.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	2	miles
Total Project Area	24.5	acres
Maximum Area Disturbed/Day	10.0	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.0	yd^3/day
Soil Exported	150.0	yd^3/day
Average Truck Capacity	14.0	yd^3 (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of Construction Months	Program Calculated Months	2005	%	2006	%	2007	%
Grubbing/Land Clearing		1.80	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation		8.10	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade		5.40	0.00	0.00	0.00	0.00	0.00	0.00
Paving		2.70	0.00	0.00	0.00	0.00	0.00	0.00
Totals	0.00	18.00						

Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions	User Override of Soil Hauling Defaults	Default Values
User Input		
Miles/round trip		30
Round trips/day		11
Vehicle miles traveled/day (calculated)		321.4285714

Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	1.02	13.03	6.99	0.49	0.43	1861.89
Emission rate (grams/trip)	11.39	8.02	196.83	0.02	0.01	217.22
Pounds per day	1.3	9.6	14.2	0.3	0.3	1328.5
Tons per contruction period	0.11	0.86	1.27	0.03	0.03	118.37

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values
Miles/ one-way trip		20
One-way trips/day		2
No. of employees: Grubbing/Land Clearing		13
No. of employees: Grading/Excavation		15
No. of employees: Drainage/Utilities/Sub-Grade		13
No. of employees: Paving		15

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.149	0.263	2.686	0.034	0.019	426.620
Emission rate - Grading/Excavation (grams/mile)	0.149	0.263	2.686	0.034	0.019	426.620
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.139	0.246	2.528	0.033	0.018	426.632
Emission rate - Paving (grams/mile)	0.132	0.235	2.427	0.033	0.018	426.640
Emission rate - Grubbing/Land Clearing (grams/trip)	0.878	0.372	8.574	0.130	0.012	191.860
Emission rate - Grading/Excavation (grams/trip)	0.878	0.372	8.574	0.130	0.012	191.860
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.836	0.354	8.172	0.130	0.012	192.117
Emission rate - Paving (grams/trip)	0.809	0.343	7.916	0.130	0.012	192.280

Pounds per day - Grubbing/Land Clearing	0.261	0.331	3.902	0.052	0.022	490.976
Tons per const. Period - Grub/Land Clear	0.005	0.007	0.077	0.001	0.000	9.721
Pounds per day - Grading/Excavation	0.261	0.331	3.902	0.052	0.022	490.976
Tons per const. Period - Grading/Excavation	0.023	0.029	0.348	0.005	0.002	43.746
Pounds per day - Drainage/Utilities/Sub-Grade	0.245	0.310	3.684	0.051	0.022	491.017
Tons per const. Period - Drain/Util/Sub-Grade	0.015	0.018	0.219	0.003	0.001	29.166
Pounds per day - Paving	0.264	0.297	3.545	0.051	0.021	585.018
Tons per const. Period - Paving	0.008	0.009	0.105	0.002	0.001	17.375
tons per construction period	0.051	0.063	0.749	0.010	0.004	100.009

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust		2		80		
Grading/Excavation - Exhaust		2		80		
Drainage/Utilities/Subgrade		1		40		
	ROG	**NOx**	**CO**	**PM10**	**PM2.5**	**CO2**
Emission rate - Grubbing/Land Clearing (grams/mile)	1.02	13.03	6.99	0.49	0.43	1861.89
Emission rate - Grading/Excavation (grams/mile)	1.02	13.03	6.99	0.49	0.43	1861.89
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.96	12.15	6.51	0.46	0.40	1865.99
Pounds per day - Grubbing/Land Clearing	0.36	4.59	2.46	0.17	0.15	656.17
Tons per const. Period - Grub/Land Clear	0.03	0.41	0.22	0.02	0.01	58.46
Pound per day - Grading/Excavation	0.36	4.59	2.46	0.17	0.15	656.17
Tons per const. Period - Grading/Excavation	0.03	0.41	0.22	0.02	0.01	58.46
Pound per day - Drainage/Utilities/Subgrade	0.08	1.07	0.57	0.04	0.03	164.40
Tons per const. Period - Drainage/Utilities/Subgrade	0.01	0.06	0.03	0.00	0.00	9.77

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		10	100.0	2.0	20.8	0.4
Fugitive Dust - Grading/Excavation		10	100.0	8.9	20.8	1.9
Fugitive Dust - Drainage/Utilities/Subgrade		10	100.0	5.9	20.8	1.2

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	2	Rubber Tired Dozers	3.40	16.32	30.13	1.29	1.18	2491.58
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	4	Scrapers	7.37	30.58	69.16	2.79	2.57	6495.03
	4	Signal Boards	2.03	5.20	5.01	0.49	0.45	491.64
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	12.8	52.1	104.3	4.6	4.2	9478.2
	Grubbing/Land Clearing	tons per phase	0.3	1.0	2.1	0.1	0.1	187.7

Grading/Excavation	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	2	Excavators	1.43	6.54	10.89	0.65	0.60	1094.72
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	2	Graders	1.83	7.75	14.17	0.82	0.75	1295.74
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
	1	Other Construction Equipment	0.47	1.93	3.08	0.26	0.24	287.78
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
	2	Rubber Tired Loaders	1.28	5.46	9.95	0.57	0.53	917.73
	1	Scrapers	1.84	7.65	17.29	0.70	0.64	1623.76
	4	Signal Boards	2.03	5.20	5.01	0.49	0.45	491.64
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	8.9	34.5	60.4	3.5	3.2	5711.4
	Grading	tons per phase	0.8	3.1	5.4	0.3	0.3	508.9

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	1	Graders	0.85	3.86	6.57	0.38	0.35	647.87
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	2	Plate Compactors	0.03	0.18	0.22	0.01	0.01	29.65
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	1	Scrapers	1.74	6.98	16.03	0.64	0.59	1623.76
	4	Signal Boards	1.85	5.00	4.91	0.46	0.42	491.64
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
	2	Trenchers	1.54	5.21	9.35	0.80	0.74	707.67
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	6.0	21.2	37.1	2.3	2.1	3500.6
	Drainage	tons per phase	0.4	1.3	2.2	0.1	0.1	207.9

Paving	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	2	Pavers	1.64	5.70	9.81	0.87	0.80	772.36
	2	Paving Equipment	1.23	4.28	7.39	0.65	0.60	583.92
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	4	Rollers	2.15	8.34	13.47	1.17	1.08	1199.44
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	4	Signal Boards	1.73	4.88	4.84	0.44	0.41	491.63
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	6.8	23.2	35.5	3.1	2.9	3047.4
	Paving	tons per phase	0.2	0.7	1.1	0.1	0.1	90.5
Total Emissions all Phases (tons per construction period) =>			1.6	6.1	10.7	0.6	0.6	995.0

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

Equipment		Default Values Horsepower		Default Values Load Factor		Default Values Hours/day
Aerial Lifts		60		0.46		8
Air Compressors		106		0.48		8
Bore/Drill Rigs		291		0.75		8
Cement and Mortar Mixers		10		0.56		8
Concrete/Industrial Saws		19		0.73		8
Cranes		399		0.43		8
Crushing/Proc. Equipment		142		0.78		8
Excavators		168		0.57		8
Forklifts		145		0.30		8
Generator Sets		549		0.74		8
Graders		174		0.61		8
Off-Highway Tractors		267		0.65		8
Off-Highway Trucks		479		0.57		8
Other Construction Equipment		75		0.62		8
Other General Industrial Equipment		238		0.51		8
Other Material Handling Equipment		191		0.59		8
Pavers		100		0.62		8
Paving Equipment		104		0.53		8
Plate Compactors		8		0.43		8
Pressure Washers		1		0.60		8
Pumps		53		0.74		8
Rollers		95		0.56		8
Rough Terrain Forklifts		93		0.60		8
Rubber Tired Dozers		357		0.59		8
Rubber Tired Loaders		157		0.54		8
Scrapers		313		0.72		8
Signal Boards		20		0.78		8
Skid Steer Loaders		44		0.55		8
Surfacing Equipment		362		0.45		8
Sweepers/Scrubbers		91		0.68		8
Tractors/Loaders/Backhoes		108		0.55		8
Trenchers		63		0.75		8
Welders		45		0.45		8

0

END OF DATA ENTRY SHEET

APPENDIX D

BIOLOGICAL TECHNICAL REPORT (BTR)

BIOLOGICAL TECHNICAL REPORT
FOR THE
CITRACADO PARKWAY EXTENSION PROJECT

Prepared for:

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June 2011

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EXECUTIVE SUMMARY

The City of Escondido (City) has identified the need to complete planned transportation facility improvements because Escondido's rapid growth and development has resulted in an intensification of land uses and increased traffic generation. The proposed Citracado Extension Project (project) would provide an arterial connection between Citracado Parkway's existing northern terminus at Avenida Del Diablo and its existing southern terminus at Andreasen Drive. The proposed project would also provide roadway improvements along Citracado Parkway between West Valley Parkway and Avenida Del Diablo. The proposed roadway extension would addresses needed transportation facility improvements and would also implement a planned component of the Circulation Element.

The proposed project is located approximately 2 miles west of Interstate 15 and 0.25 mile south of State Route 78 and includes land within Escondido and unincorporated areas of San Diego County. The proposed project is located both within the County of San Diego Multiple Species Conservation Program (MSCP) and the Multiple Habitat Conservation Program (MHCP) planning areas. The draft North County MSCP (County of San Diego 2009) and Escondido Subarea Plans (City of Escondido 2001) serve as the guiding regulatory documents for the proposed project. The Biological Study Area (BSA) includes approximately 30 acres that would be disturbed (limits of disturbance [LOD]) by project construction and operation plus an approximate 500-foot buffer around the LOD for a total of approximately 207 acres. Due to revisions to the alignment in order to avoid and minimize environmental impacts, the buffer surrounding the project is not a uniform 500 foot buffer and ranges from approximately 450 feet to 550 feet from the LOD.

The fieldwork focused on rare plant surveys, delineation of jurisdictional areas, focused tree inventory, protocol surveys for least Bell's vireo (*Vireo bellii pusillus*; LBV) and western burrowing owl (*Athene cunicularia;* BUOW), and a general wildlife inventory. AECOM conducted vegetation, tree, and jurisdictional water mapping in spring 2007. In spring 2009 surveys were conducted to confirm 2007 survey results and to perform surveys in areas not surveyed during 2007. AECOM conducted surveys in spring 2009 to determine the presence or absence of special-status plant and wildlife species in areas not surveyed during 2007. Additionally, federal and state agencies require that survey results be completed within 2 years of consultation/environmental review, particularly when results are negative (as was the case in 2007). Thus, in spring 2009, special-status plant and wildlife surveys were repeated in areas

surveyed in 2007. These surveys were conducted in accordance with applicable regulations and in accordance with established survey protocols for various special-status species.

Ten vegetation communities were mapped within the BSA: coast live oak woodland, coastal sage scrub, southern willow riparian forest, southern willow scrub, eucalyptus woodland, nonnative grassland, ornamental, open water (Escondido Creek), developed habitat, and disturbed habitat. The majority of the BSA is developed; however, there is contiguous southern willow riparian forest and southern willow scrub habitat associated with Escondido Creek. Coast live oak woodland, eucalyptus woodland, and nonnative grassland are dominant in the upland habitats. Sensitive vegetation communities include coast live oak woodland, southern willow riparian forest, southern willow scrub, open water, coastal sage scrub, and nonnative grassland.

Jurisdictional waters delineations indicate approximately 0.85 acre of waters within the LOD considered jurisdictional by the U.S. Army Corps of Engineers (USACE) and California Department of Fish and Game (CDFG). There is approximately 0.55 acre of state jurisdictional waters within the LOD.

Two rare plant species, Palmer's sagewort (*Artemisia palmeri*) and Englemann oak (*Quercus englemannii*), were documented as occurring within the BSA. Palmer's sagewort, a California Native Plant Society (CNPS) List 4.2, was found in the buffer. Englemann oak, a CNPS List 4.2, was found in both the LOD and buffer. Additionally, 71 mature and/or protected trees, as defined under the City's Municipal Code, were identified and mapped within the LOD. The project's impact on nonlisted special-status plant species and mature and/or protected trees will be mitigated to less than significant through implementation of avoidance, minimization, and mitigation measures.

The federally and state listed LBV was not detected during protocol surveys. BUOW, a CDFG Species of Special Concern, was not detected during protocol surveys. Three sensitive wildlife species were detected within the BSA during surveys: Cooper's hawk (*Accipiter cooperii*), a CDFG Watch List species, and yellow warbler (*Dendroica petechia brewsteri*) and yellow-breasted chat (*Icteria virens*), both CDFG Species of Special Concern. The project's impact on nonlisted special-status wildlife species will be mitigated to less than significant through implementation of avoidance, minimization, and mitigation measures.

CHAPTER 1.0
INTRODUCTION

1.1 PURPOSE OF STUDY

The purpose of this study is to analyze the effects on biological resources from the proposed Citracado Parkway Extension Project (project) and improvements from West Valley Parkway to Andreasen Drive, in Escondido, California. AECOM conducted general biological surveys, rare plant surveys, focused tree surveys, a jurisdictional wetland delineation, U.S. Fish and Wildlife Service (USFWS) protocol surveys for least Bell's vireo (*Vireo belli pusillus*; LBV), and western burrowing owl (*Athene cunicularia*; BUOW) surveys pursuant to the protocol established by the California Burrowing Owl Consortium (1993) and accepted by the California Department of Fish and Game (CDFG). The purpose of the surveys was to inventory and evaluate biological resources found or with the potential to occur within the Biological Study Area (BSA). The BSA includes approximately 30 acres that would be disturbed by project construction and operation (limits of disturbance [LOD]) plus an approximate 500-foot buffer (buffer) around the LOD for a total of approximately 207 acres. Due to revisions to the alignment in order to avoid and minimize environmental impacts, the buffer surrounding the project is not a uniform 500 foot buffer and ranges from approximately 450 feet to 550 feet from the LOD.

1.2 LIMITS AND PURPOSE OF PROJECT

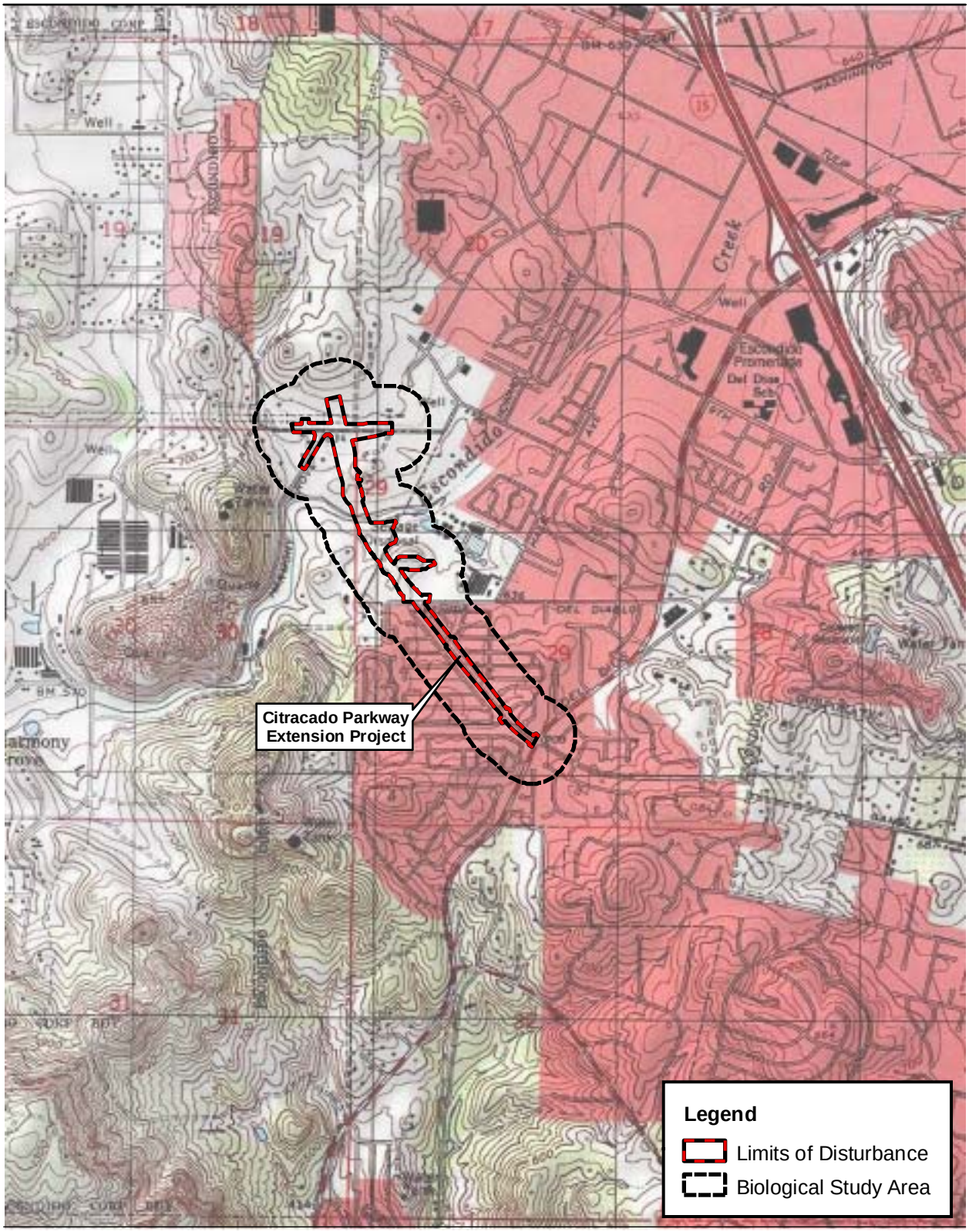
1.2.1 Limits of the Project

The project BSA lies in San Diego County, California. The proposed project BSA is located approximately 2 miles west of Interstate 15 and 0.25 mile south of State Route 78 and includes land within Escondido plus unincorporated areas of San Diego County (Figure 1). The City of Escondido (City) proposes to extend and improve Citracado Parkway from West Valley Parkway to Andreasen Drive (Figure 2).

1.2.2 Purpose of the Project

The purpose this project is to address the continued growth of Escondido and the corresponding increased traffic generation derived from this growth. The proposed project is also intended to upgrade an existing transportation infrastructure deficiency, consistent with the City's General

Figure 1
Regional Location Map



Source: USGS 7.5' Quadrangles, Escondido 1975, Valley Center 1975, Rancho Santa Fe 1983, San Marcos 1983; AECOM 2010

2,000 1,000 0 2,000 Feet

Scale: 1 = 24,000; 1 inch = 2,000 feet

Figure 2
Vicinity Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2010_mxds\BTR\Summer 2010\vicinity_map.mxd, 07/09/10, LeeJ

Plan Circulation Element. The proposed project would implement this planned component of the Circulation Element and address existing and projected traffic congestion.

1.2.3 Project Description

The City proposes to improve and extend Citracado Parkway from West Valley Parkway to Andreasen Drive. The proposed Citracado Parkway roadway extension would require a new structure crossing at Escondido Creek. The new structure may require landform alterations, cut slopes, and fill slopes. Minor street realignments and/or grade adjustments would also be proposed for the intersection of Kuana Loa Drive with Harmony Grove Road. In addition, the proposed roadway extension would be built to accommodate the pending extension of Lariat Drive from the west. This project has four primary construction components, which are described below.

Citracado Parkway: West Valley Parkway to Avenida Del Diablo

The existing segment of Citracado Parkway proposed for improvement extends from West Valley Parkway to Avenida Del Diablo. The proposed improvements include adding an additional travel lane in each direction through median width reduction (35 feet to 14 feet) resulting in a four-lane roadway. The proposed improvements also include a full four-way signalization of the mobile home park entrance intersection, a southbound left-turn-only pocket and a right-in/right-out-only operational restriction at Yankee Court, a northbound Citracado Parkway left-turn-only pocket and a right-in/right-out-only operational restriction at Johnston Road, and a northbound Citracado Parkway left-turn-only pocket and a right-in/right-out-only operational restriction at Avenida Del Diablo. In addition, a Class 2 striped bicycle lane would accommodate bicyclists on the roadway shoulder. Sound walls are also proposed along this existing stretch of Citracado Parkway; the height and locations of the walls will be determined after a noise study is completed.

Citracado Parkway: Avenida Del Diablo to Andreasen Drive

The proposed extension of Citracado Parkway would be 1,320 feet (0.25 mile) in length between Avenida Del Diablo and Andreasen Drive. The typical cross section of the roadway extension would be 110 feet across including sidewalks, a planted parkway between the sidewalks and the travel lanes, two lanes each in the northbound and southbound direction, and a landscaped median (14 feet wide) between the travel lanes. In addition, a Class 2 striped bicycle lane would accommodate bicyclists on the roadway shoulder. The planted parkway would not be continued on the proposed bridge at Escondido Creek. The roadway extension would be built on an

elevated roadbed with embankments varying in height up to 22 feet. With the embankments, the total cross section width would measure up to 180 feet.

Escondido Creek Bridge

The bridge crossing at Escondido Creek is proposed as a three-span, cast-in-place, prestressed, concrete box girder structure with a total of four columns. The bridge would be a total of 450 feet in length with spans at 149 feet, 9 inches in length for the two outside spans and 162 feet, 6 inches in length for the middle span. The bridge would be approximately 106 feet in width with an open median. The approximate bridge height would be 24 feet, with a structure depth of 6 feet, 6 inches. In addition, a Class 2 striped bicycle lane would accommodate bicyclists on the roadway shoulder.

Traffic signals are proposed at the following intersections along the Citracado Parkway corridor, including:

- Accommodating a signalized intersection with Lariat Drive
- Mobile Home Park Entrance Intersection

Harmony Grove Village - Lariat Drive Connection

Lariat Drive, an engineering feature of the approved Harmony Grove Village residential development, would intersect Citracado Parkway approximately 400 feet north of Avenida Del Diablo. The proposed roadway extension would be built to accommodate an intersection with Lariat Drive. This new intersection would be signalized and would provide full access from Lariat Drive to Citracado Parkway and from Citracado Parkway to Lariat Drive. In addition, there would be a controlled access roadway on the east side of Citracado Parkway sited at an appropriate point between the Lariat Drive and Avenida Del Diablo intersection. This controlled access roadway would be gated and provide Escondido with an improved secondary access point into the Hale Avenue Resource Recovery Facility (HARRF).

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CHAPTER 2.0
METHODS

2.1 BIOLOGICAL STUDY AREA

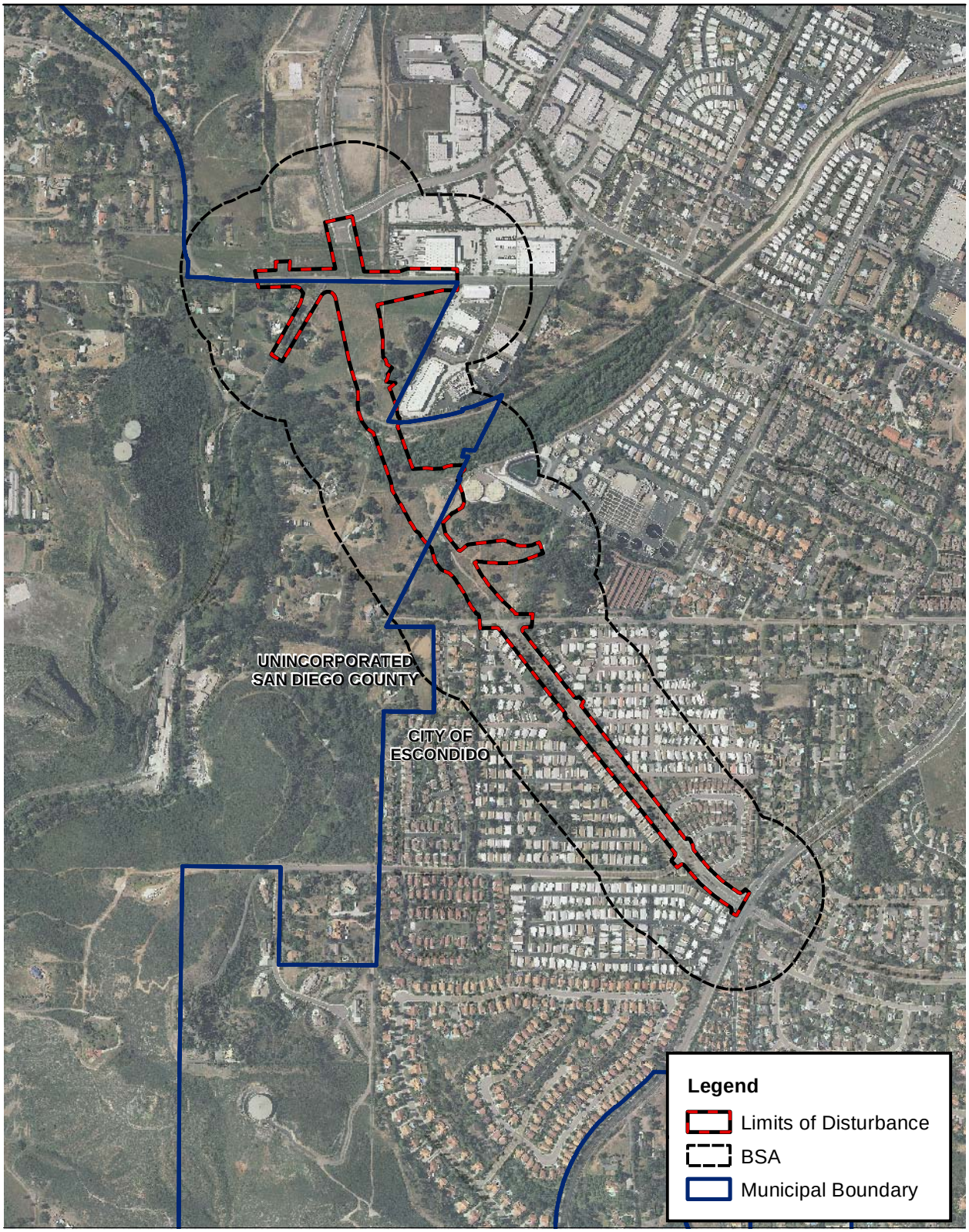
The BSA occurs between West Valley Parkway and Andreasen Drive and crosses Escondido Creek. The BSA includes all areas that may be directly impacted by construction of the proposed project (LOD), plus an approximate 500-foot buffer to assess any potential indirect impacts. The BSA is approximately 207 acres. The various components that comprise the BSA are depicted in Figure 3.

The BSA spans two regional planning areas: the North County Multiple Species Conservation Program (NCMSCP) and the Multiple Habitat Conservation Program (MHCP) (Figure 4). The NCMSCP Subarea Plan is the Multiple Species Conservation Program (MSCP) implementing document for the proposed project and is currently in preliminary draft form. Portions of the BSA are within conservation areas referred to as the Pre-Approved Mitigation Area (PAMA) under the draft NCMSCP (County of San Diego 2009). The MHCP implementing document is the City of Escondido Subarea Plan, which is also currently in draft form. The BSA is outside of any conservation areas under the draft Escondido Subarea Plan (City of Escondido 2001).

2.2 BIOLOGICAL FIELD SURVEYS

Biological field surveys completed on-site include vegetation mapping, rare plant surveys, general wildlife reconnaissance surveys, focused surveys for the LBV and BUOW, a jurisdictional delineation survey, and a tree survey. For the purposes of this report, species are considered to have special status if they meet at least one of the following criteria:

- Covered under the federal Endangered Species Act or the California Endangered Species Act (CDFG 2009);
- CDFG Species of Special Concern (CDFG 2009);
- CDFG fully protected species (CDFG 2009);
- Listed as sensitive by California Native Plant Society (CNPS 2009);
- Covered under the draft NCMSCP (County of San Diego 2009) and/or Escondido Subarea Plan; or



Source: Landiscor 2010; AECOM 2011

1,000 500 0 1,000 Feet

Scale: 1 = 12,000; 1 inch = 1,000 feet

Figure 3
Limits of Disturbance and Biological Study Area

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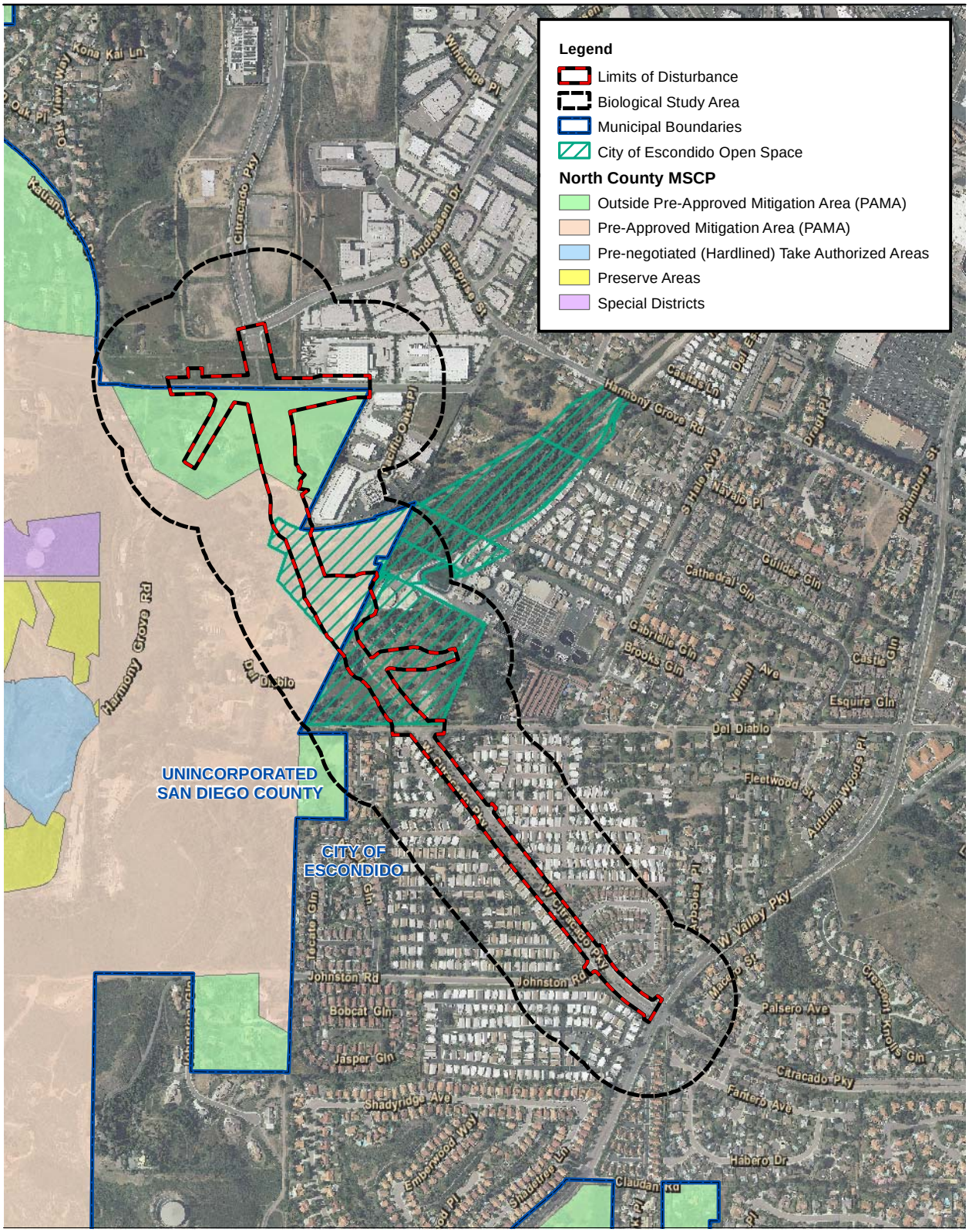

Source: SanGIS 2011; Landiscor 2010

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Scale: 1 = 12,000; 1 inch = 1,000 feet

Figure 4
Regional Planning Areas

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2010_mxds\EIR\MSCP_PAMA.mxd, 5/25/2011, LeeJ

- Covered as a mature and/or protected tree under the City of Escondido Municipal Code (Chapter 33, Article 55).

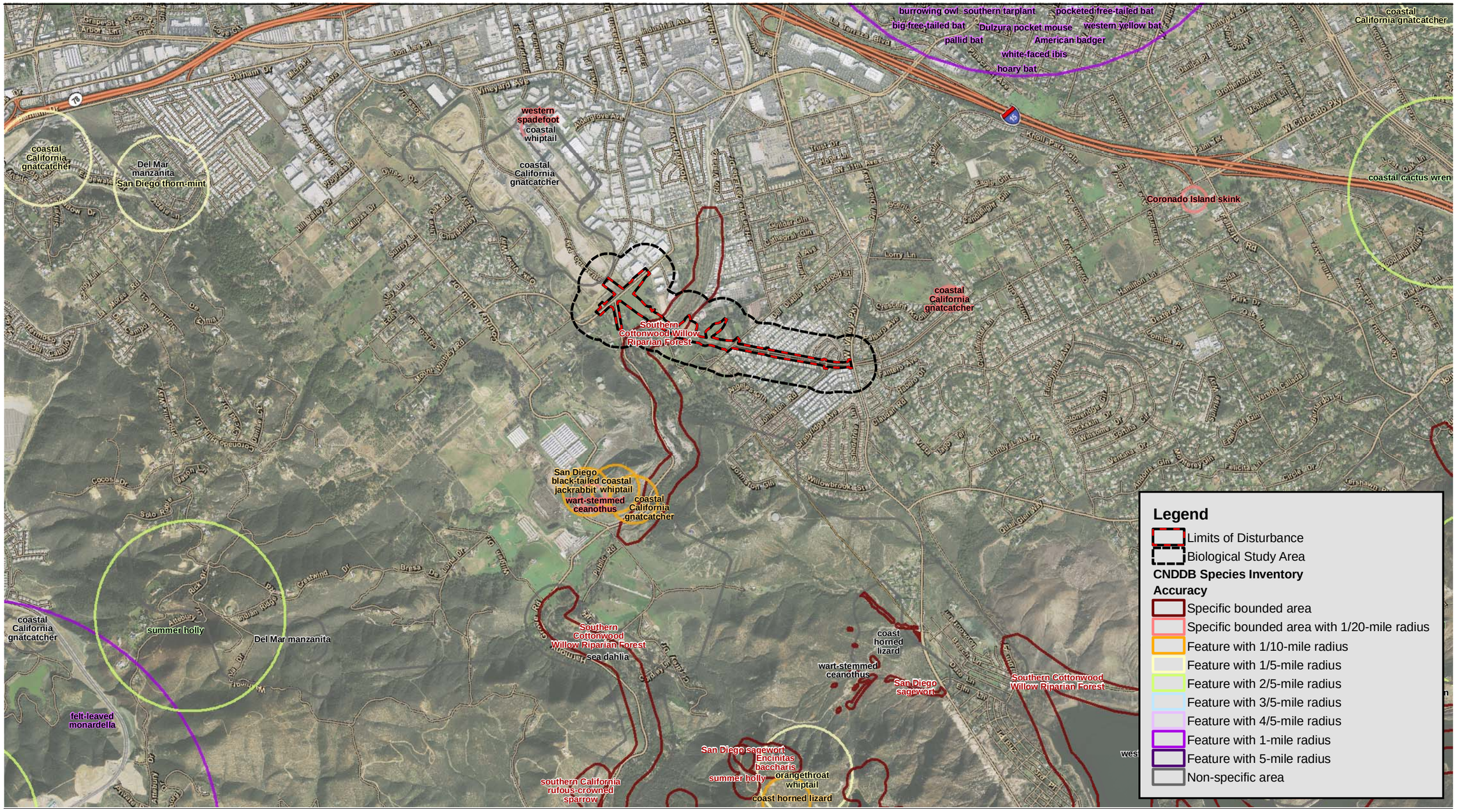
Prior to the initiation of biological field surveys, existing data were compiled and reviewed for the BSA. This process included a review of the available databases from CNPS, California Natural Diversity Database (CNDDB), and SanGIS (CNPS 2009; CDFG 2009). Figure 5 shows the results of a 5-mile radius CNDDB query around the BSA. Additionally, USFWS and CDFG provided a letter on May 11, 2007, detailing special-status species that they require to be considered. Species mentioned in the letter include thread-leaved brodiaea (*Brodiaea filifolia*), San Diego ambrosia (*Ambrosia pumila*), LBV, BUOW, and coastal California gnatcatcher (*Polioptila californica californica*).

Habitat conditions for special-status species were evaluated with respect to conditions in the BSA, and surveys were initiated to determine presence/absence of species with the potential to occur on or near the BSA. Special status species identified as having the potential to occur on or near the BSA are discussed in Chapter 3.

AECOM conducted vegetation, tree, and jurisdictional water mapping in spring 2007. In spring 2009 surveys were conducted to confirm 2007 survey results and to perform surveys in areas not surveyed during 2007. AECOM conducted surveys in spring 2009 to determine the presence or absence of special-status plant and wildlife species in areas not surveyed during 2007. In spring 2009, special-status plant and wildlife surveys were updated in areas surveyed in 2007. These surveys were conducted in accordance with applicable regulations and in accordance with established survey protocols for various special-status species and are discussed below.

2.2.1 Vegetation Mapping

Vegetation communities were mapped within the BSA during April 2007, May 2009, and January 2010 (1 inch = 100-foot scale aerial photograph). Habitats were classified based on the dominant and characteristic plant species, plant physiognomy, and soils in accordance with Holland's description of natural communities (1986) and as modified by Oberbauer et al. (2008). Rare plants if present were documented during vegetation mapping. The minimum mapping unit was 0.10 acre for riparian areas and 1.0 acre for all other cover types within the LOD. Within the buffer, the minimum mapping unit for all land cover types, including riparian, was 1.0 acre.



Source: CDFG 2009; DigitalGlobe 2008

2,000 1,000 0 2,000 Feet

Scale: 1 = 24,000; 1 inch = 2,000 feet

Figure 5
CNDDB Species Inventory

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2.2.2 Jurisdictional Waters and Wetlands Delineation Surveys

Delineation of jurisdictional wetlands and an evaluation of waters potentially under the jurisdiction of the U.S. Army Corps of Engineers (USACE), CDFG, and/or the Regional Water Quality Control Board (RWQCB) were performed within the project LOD. Waters of the U.S. and state were not delineated outside of the LOD. This survey was completed in April 2007 and January 2010. Presurvey investigations of web-based information systems (i.e., National Wetlands Inventory), soil survey data, and U.S. Geological Survey topographic quadrangles were conducted to collect pertinent information about the project area, such as previously mapped riparian areas, wetlands, waters, and/or hydric soils that may suggest the potential or presence of wetlands at the time of the study.

Field surveys followed the presurvey investigations and involved the use of transects (typically with four data points each) and field examinations for the presence of wetland indicators of hydrophytic vegetation, hydric soils, and wetland hydrology, as well as vegetation mapping. *The Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory 2008) were used to determine the jurisdictional limits of wetlands and waters of the U.S. A positive wetland determination was made for those observation points that exhibited positive wetland field indicators for each of the three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. A positive nonwetland jurisdictional water of the U.S. determination was made for areas that did not meet all three criteria but are within the lateral extent of the ordinary high water mark (OHWM), as applied in practice for the purpose of this delineation.

Where possible, field data points and upland/jurisdictional waters boundaries were surveyed using submeter Global Positioning System (GPS) equipment. Transect corridors and field data points of the jurisdictional/nonjurisdictional boundaries along each transect were marked with both flagging tape and pin flags.

Field methodologies in determining jurisdictional waters of the U.S. are described in detail in the *Citracado Parkway Extension Jurisdictional Delineation Letter Report* (AECOM 2010a).

2.2.3 Tree Surveys

The City requires that a grading permit applicant conduct a formal tree survey and prepare a site plan showing the location and type of existing mature or protected trees. The City (2001) defines mature trees as “any self-supporting woody perennial plant, native or ornamental, with a single

well-defined stem or multiple stems supporting a crown of branches. The single stem, or one of the multiple stems of any mature oak tree (*Quercus* sp.), shall have a diameter four (4) inches or greater when measured at four and one-half (4.5) feet (diameter at breast height [DBH]) above the tree's natural grade. All other mature trees shall have a diameter of eight (8) inches DBH, or greater, for a single stem or one of the multiple stems." Furthermore, the City defines protected trees as "any oak (*Quercus* sp.) which has a ten (10) inch or greater DBH, or any other species or individual specimen listed on the local historic register, or determined to substantially contribute to the historic character of a property or structure listed on the local historic register, pursuant to Article 40 of the Escondido Zoning Code (2001)."

The BSA was surveyed for tree species in April 2007 and January 2010. The following methods and criteria were applied in conducting this tree survey.

- All trees with a diameter of four (4) inches or more at a height of 54 inches above natural grade (DBH) were surveyed within the LOD. No shrubs or tree stumps were recorded. If any portion of a tree crown encroached the LOD the tree would be considered to occur within the LOD. Exceptions on minimum diameter criteria were made only for installed landscape trees.

- Tree locations were mapped by utilizing a Trimble submeter GPS handheld receiver unit. Occasionally, high tree crown density obstructed satellite signals to the GPS handheld unit. When satellite signals were obstructed, the AECOM arborist recorded GPS points at select reference points within the project BSA in addition to recording the approximate locations of trees by hand-mapping on aerial photographs.

The following information was recorded and provided for each tree recorded in the survey:

- Assigned tree number (tree identifier)
- Tree species
- Trunk diameter (in inches) at 54 inches above natural grade (DBH)
- Number of codominant stems (with the largest being measured and the number of codominant stems noted)
- Tree crown radius (in feet)
- Tree height (in feet [± 5 feet])

- Rating for tree limb and branch structure
- Rating for tree health and vigor
- Observation of nests in canopy
- Special considerations (e.g., what the tree exhibits in terms of ambient health at the time of the tree survey)

2.2.4 Sensitive Plant Surveys

The BSA was surveyed during the appropriate blooming period for the presence of sensitive plant species in April and June 2007 and May 2009. The potentially occurring sensitive plants were determined by current CNDDB searches during each of the surveys. Surveys conducted by AECOM botanists involved searching for target sensitive species expected in the region by walking meandering transects through all habitats within and immediately surrounding the BSA. Sensitive plant species found were quantified, mapped, and documented. All of the potentially occurring sensitive plant species would have been detectable during these surveys because their blooming periods overlap these months or they are perennial shrubs species.

2.2.5 General Wildlife Surveys

General wildlife surveys coincided with times when the species determined to potentially occur in the BSA would be more conspicuous or readily observable in the field (e.g., breeding season). All vegetated areas within the BSA were surveyed for wildlife. The suitability of habitats for nonlisted sensitive wildlife species was also evaluated during the general wildlife surveys. These surveys occurred concurrently with focused protocol surveys during spring and summer of 2007 and 2009. AECOM biologists walked accessible areas of each habitat type within the BSA and recorded wildlife sign, track, or direct observations of wildlife species detected.

2.2.6 Least Bell's Vireo Surveys

AECOM biologists experienced with conducting LBV surveys conducted focused surveys to determine the presence or absence of LBV within the BSA, in 2007 and 2009. Surveys were conducted in accordance with the most recent survey guidelines issued by USFWS (USFWS 2001). Eight surveys were conducted at least 10 days apart within the designated survey period from April 10 through July 31, and occurred between dawn and 11:00 a.m. Approximately 6.2 acres of suitable LBV habitat were surveyed within the BSA in 2007 (Figure 6). Approximately 9.3 acres of suitable LBV habitat were surveyed within the BSA in 2009 (Figure 6). These areas

were considered a reasonable area to survey in 1 day. Due to a project LOD change following the completion of the 2009 surveys, a small portion of LBV habitat near the eastern edge of the buffer is outside the 2009 survey area. This area in the buffer was within the biologist's range of detecting audible calls for the LBV and if LBV were present in this area there is a high potential that they would have been detected. AECOM biologists walked meandering transects in all habitats with potential to support LBV. Survey data were recorded during each survey including date of survey, survey number, time, weather conditions, field biologists, and LBV observations. All wildlife species observed during surveys were also recorded. A 45-day report for each survey (2007 and 2009) was submitted to USFWS and CDFG on November 27, 2007, and September 15, 2009, and can be found in Appendix A.

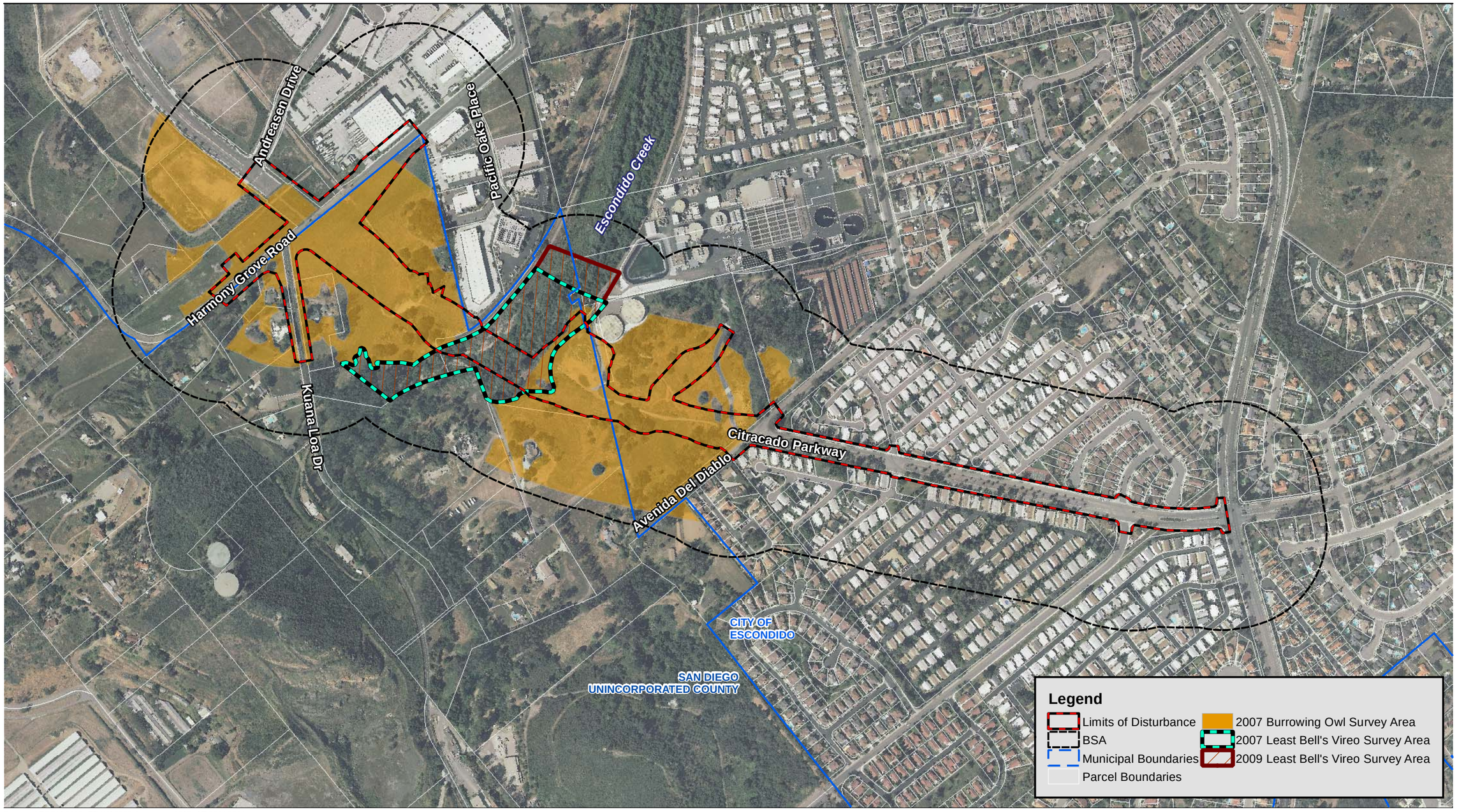
2.2.7 Western Burrowing Owl Surveys

AECOM qualified biologists conducted focused surveys to determine the presence or absence of BUOW within the BSA June through July 2007. BUOW surveys were performed according to the protocol established by CBOC (1993) and accepted by CDFG. Per the current protocol, suitable habitat within the BSA was surveyed four times during the 2007 breeding season (April 15–July 15, as defined in the CBOC protocol). Surveys were conducted at least 10 days apart. Approximately 46.6 acres of habitat were considered suitable for BUOW within the project BSA, an area reasonable to survey in 1 day (Figure 6). AECOM biologists conducted passive surveillance (i.e., looking for the species or sign of the species) in all habitats with potential to support BUOW. Burrows detected were approached by surveyors and presence or absence of BUOW at the burrows was verified. All burrows were mapped using GPS units. Survey data were recorded during each survey including date of survey, survey number, time, weather conditions, field biologists, and BUOW observations. All wildlife species observed during surveys were also recorded. A 45-day report was submitted to USFWS and CDFG on November 27, 2007, and can be found in Appendix B.

Habitat identified as suitable for BUOW in 2007 was determined to be no longer suitable in 2009 because the habitat had been disced, mowed, and disturbed to the point that it no longer contained suitable burrows and/or habitat. As a result, no BUOW surveys occurred in 2009.

2.3 PERSONNEL AND SURVEY DATES

A list of the survey personnel and dates of survey activity for the project is provided in Appendix C.



Source: AECOM 2010; EDAW 2009; Landiscor 2010; AECOM 2011

500 250 0 500 Feet

Scale: 1 = 6,000; 1 inch = 500 feet

Figure 6
Burrowing Owl and Least Bell's Vireo Survey Areas

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2011_mxds\BTR_2011\2007_2009_surveyareas.mxd, 6/7/2011, LeeJ

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2.4 AGENCY COORDINATION

Prior to conducting field surveys, CDFG and USFWS were contacted to request a current list of any endangered, threatened, proposed, or sensitive species, pursuant to the ESA of 1985 and the ESA of 1973 as amended, respectively, that may be affected within the vicinity of the proposed project. In addition, a focused protocol survey preactivity notification letter was sent to the USFWS to state the intent to conduct protocol surveys for LBV in suitable habitats within the BSA in 2007.

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CHAPTER 3.0
EXISTING CONDITIONS

This section describes the existing environmental setting of the BSA, including the regional context of the site, vegetation communities, plant species, wildlife species, rare and sensitive plant and wildlife species either known or potentially occurring in the proposed project site, jurisdictional waters, and wildlife corridors. The information provided in the following sections is based upon the biological surveys conducted within the BSA in 2007, 2009, and 2010.

3.1 VEGETATION COMMUNITIES

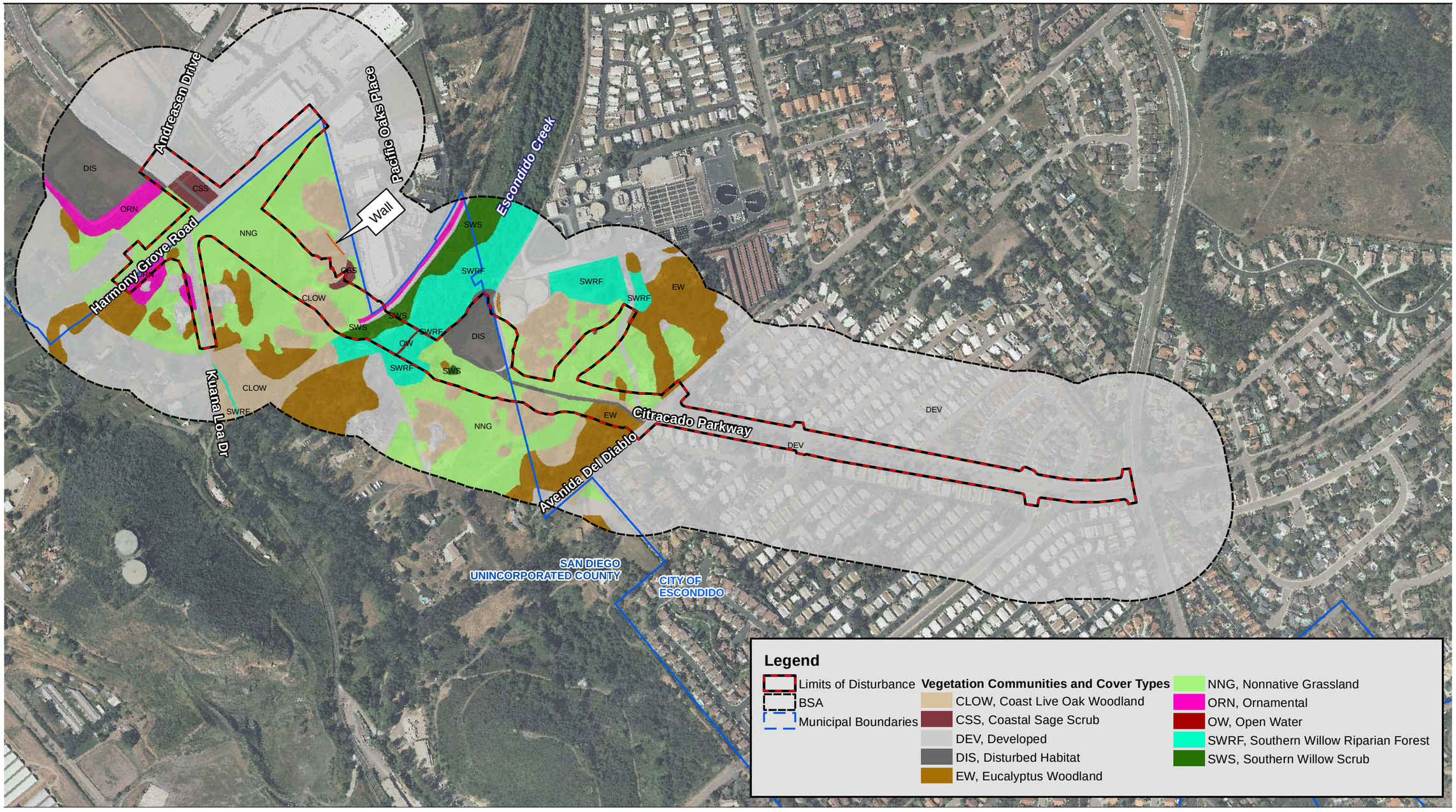
Vegetation communities are assemblages of plant species that usually coexist in the same area. These vegetation communities also provide habitat for wildlife species. The classification of vegetation communities is based upon the life form of the dominant species within that community and the associated flora. Descriptions of these vegetation communities and other cover types are provided in the following discussion. Table 1 shows total acreage of each vegetation community/habitat within the BSA. Figure 7 shows the vegetation communities found in the BSA.

Vegetation communities and other land cover types classified as "sensitive" within this report were determined by applying the following regulatory context. Guidance for determining sensitive vegetation communities is provided by the resource agencies including CDFG, and CNPS, as well as supporting documentation such as the CNDDB. These federal, state, and local agencies and related publications are typically in concurrence on the classification of sensitive vegetation communities and other land cover types. For example, vegetation communities or other cover types that are considered potential jurisdictional U.S. and state waters typically result in the vegetation community or nonvegetated area being considered sensitive. For this proposed project, these waters are regulated by Sections 401 and 404 of the Clean Water Act (CWA), Sections 1600 et seq. of the California Fish and Game Code, and the Porter-Cologne Water Quality Control Act. Additionally, the occurrence of suitable habitat for special-status plant and animal species also raises the sensitivity of a vegetation community. Biologically, the vegetation communities that provide the highest habitat values within the BSA are the structurally diverse riparian communities and the native upland communities.

Table 1
Vegetation Communities and Cover Types within the BSA (Acres)

Vegetation Community	Holland Code[1]	LOD				500-ft. Buffer			BSA Total
		PAMA Lands[2]	Non-PAMA Lands[2]	MHCP (City)	*LOD Subtotal*	NCMSCP[3]	MHCP (City)	*Buffer Subtotal*	
Riparian and Wetlands									
Open Water (Escondido Creek)	64100	0.04	-	-	0.04	-	-	-	0.04
Southern Willow Riparian Forest	61330	0.90	-	-	0.90	3.55	3.65	7.20	8.11
Southern Willow Scrub	63320	0.51	-	-	0.51	1.21	0.78	2.0	2.51
Subtotal Riparian and Wetlands		***1.45***	-	-	***1.45***	***4.76***	***4.43***	***9.2***	***10.66***
Uplands									
Coast Live Oak Woodland	71160	0.66	0.51	0.60	1.77	7.35	3.29	10.64	12.40
Coastal Sage Scrub	32500	0.07	0.02	0.57	0.66	0.11	0.00	0.11	0.77
Eucalyptus Woodland	79100	0.04	0.10	0.70	0.84	6.75	6.75	13.50	14.34
Nonnative Grassland	42200	2.35	5.32	3.41	11.08	11.78	6.26	18.04	29.12
Subtotal Uplands		***3.12***	***5.95***	***5.28***	***14.35***	***25.99***	***16.30***	***42.29***	***56.63***
Other Cover Types									
Developed	12000	0.12	0.53	10.55	11.20	10.72	109.23	119.94	131.14
Disturbed	11300	1.76	-	0.50	2.26	0.10	4.07	4.17	6.43
Ornamental	n.a.	0.06	0.35	0.05	0.46	0.78	1.35	2.13	2.59
Subtotal Other Cover Types		***1.94***	***0.88***	***11.10***	***13.92***	***11.6***	***114.65***	***126.24***	***140.16***
Total		**6.51**	**6.83**	**16.38**	**29.72**	**42.35**	**135.38**	**177.73**	**207.45**

[1] Based on the *Draft Vegetation Communities of San Diego County* (Oberbauer 2008).
[2] Based on Draft NCMSCP.
[3] Includes both PAMA and non-PAMA lands.
Note: Totals may not sum due to rounding.



Source: EDAW 2009; Landiscor 2010; AECOM 2011

500 250 0 500 Feet

Scale: 1 = 6,000; 1 inch = 500 feet

Figure 7
Vegetation Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2011_mxds\BTR_2011\veg_LOD.mxd, 6/7/2011, LeeJ

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3.1.1 Riparian and Wetland Vegetation Communities

Open water, southern willow riparian forest, and southern willow scrub are considered sensitive by the County (2009) and City (2001). Riparian and wetland habitats are considered sensitive due to extensive historic losses of wetlands nationwide and the value of these habitats for sensitive species and wildlife movement. Woodland overstory provides valuable roosting, foraging, and breeding areas, while foraging birds and mammals utilize the understory. The trees themselves provide extensive foliage and bark surface for foraging, insectivorous birds. Although overall wildlife diversity is generally greater where vertical vegetation structure is well developed, species-specific occurrence can frequently be linked to the quality or presence of one component of the vertical structure. Riparian areas usually harbor greater wildlife diversity and abundance than upland areas and frequently serve as wildlife corridors due to their linear nature and the cover they provide.

Open Water

This habitat type consists of any open water body, including lakes, reservoirs, bays, flowing water within a river channel, and small ponds. Open water bodies provide important habitat for a variety of aquatic organisms and water fowl. The open water found in the project area is Escondido Creek, which flows east to west through the LOD.

Approximately 0.04 acre of open water occurs within the BSA. At the time of survey, open water occurred only as a narrow band (approximately 3 feet wide) in the center of the Escondido Creek floodway within the LOD. During flood events, this open water may widen considerably for a temporary duration to approximately the entire floodway.

Southern Willow Riparian Forest

Southern willow riparian forest is a tall, densely vegetated riparian forest dominated by arroyo willow (*Salix lasiolepis*), and other willow species, such as Goodding's black willow (*Salix gooddingii*), red willow (*Salix laevigata*), and narrow-leaved willow (*Salix exigua*), and Western cottonwood (*Populus fremontii*). This community is generally greater than 6 meters high and occupies drainages and floodplains supporting perennially wet streams. Understory species, such as mule fat (*Baccharis salicifolia*), mugwort (*Artemisia douglasiana*), and stinging nettle (*Urtica dioica* ssp. *holosericea*), may also be present (Holland 1986). This community is sometimes dominated almost exclusively by arroyo willow (Oberbauer 2008). Escondido Creek in the project and buffer area is mostly dominated by this community.

Approximately 8.11 acres of southern willow riparian forest occur within the BSA. Within the LOD, southern willow riparian forest occurs in the floodway of Escondido Creek along the northern bank. In the buffer, southern willow riparian forest extends upstream east of this occurrence.

Southern Willow Scrub

Southern willow scrub occurs on the northern bank of Escondido Creek. Typical species found in this community near the site include arroyo willow, Goodding's black willow, and red willow. Understory species found here include mulefat, mugwort, evening primrose (*Oenothera elata*), cattails (*Typha* sp.), bulrush (*Scirpus americanus*), water cress (*Rorippa nasturtium-aquaticum*), hoary nettle (*Urtica dioica* ssp. *holosericea*), and yerba mansa (*Anemopsis californica*). This scrub community consists of a sparse density of the willow species of shrub-height and other shrub and herbaceous plants in varying densities.

Approximately 2.51 acres of southern willow scrub occur within the BSA. Within the LOD, southern willow scrub occurs in the floodway of Escondido Creek along the northern bank. In the buffer, southern willow scrub extends upstream east of this occurrence.

3.1.2 Upland Vegetation Communities

Many upland vegetation communities are considered sensitive because they provide valuable nesting, breeding, and/or foraging habitat for many special-status wildlife species. In addition, some upland vegetation communities such as coast live oak woodland and coastal sage scrub are rapidly in decline due to development. Unlike riparian corridors, which are linear (in association with riverine systems), upland habitats typically form a large matrix and provide a broad variety of species structure and composition. Dense sage scrub vegetation or dense-canopied woodlands provide useful habitat and movement corridors for wildlife. Nonnative grasslands are considered sensitive because they provide important foraging habitat for raptors and may support other sensitive wildlife and plant species. Coast live oak woodland, coastal sage scrub, and nonnative grasslands are considered sensitive by the County (2009) and City (2001).

Coast Live Oak Woodland

Coast live oak woodland is an open to dense tree community with coast live oak as the dominant overstory species. Coast live oak woodland can occur on mesic north-facing slopes and in canyon bottoms. This community is well represented in the cismontane, interior valleys, and

foothills of the Peninsular Ranges (Beauchamp 1986; Barbour 1988). The understory consists of primarily low grasses, including mostly ripgut grass (*Bromus diandrus*), poison oak (*Toxicodendron diversilobum*), Mexican elderberry (*Sambucus mexicana*), redberry (*Rhamnus crocea*), and laurel sumac (*Malosma laurina*) comprising the shrubby component.

This habitat is associated with large granite boulders at most of the locations in the BSA. In some portions of the site, eucalyptus trees (*Eucalyptus* sp.) have invaded and degraded the habitat value and integrity of the coast live oak woodland. Throughout the site, coast live oak dominates the tree canopy. There are a total of six individual Engelmann oak (*Quercus engelmannii*) scattered in portions of the woodland that is mapped under this community.

Approximately 12.40 acres of coast live oak woodland occur within the BSA. Within the LOD, portions of several groves of coast live oak woodland occur approximately 100 to 500 feet north and south of Escondido Creek within nonnative grassland outside of the riparian habitat. Within the buffer, these groves are more extensive and extend to the east and west among rocky outcrops.

Coastal Sage Scrub

Coastal sage scrub is composed of low, soft-woody subshrubs to about 1 meter high, and is one of the major shrub-dominated (scrub) communities within California. This community occurs on xeric sites with shallow soils or on dry sites, such as steep, south-facing slopes or clay-rich soils that are slow to release stored water. Sage scrub species are typically drought-deciduous plants with shallow root systems. Both of these adaptations allow for the occurrence of sage scrub species on these xeric sites. Dominant species include flat-topped buckwheat (*Eriogonum fasciculatum* ssp. *fasciculatum*), California sagebrush (*Artemisia californica*), and nonnative species such as ripgut brome and short-pod mustard (*Hirschfeldia incana*). On the site, this plant community is low in shrub species diversity and is highly invaded by nonnative grasses.

Approximately 0.77 acre of coastal sage scrub occurs within the BSA. Within the LOD, a highly disturbed patch of coastal sage scrub habitat occurs on a south-facing rocky slope, north of Escondido Creek adjacent to coast live oak woodland within the project site.

Eucalyptus Woodland

The nonnative woodland consists primarily of eucalyptus trees. Much of the understory is composed of sparse grasses and exotic forbs. Within the project area, this community occurs in

the southeastern portion of the project and buffer area and directly north of Escondido Creek along the western border of the project and buffer area.

Approximately 14.34 acres of eucalyptus woodland occur within the BSA. Within the LOD, eucalyptus woodland occurs north of Avenida Del Diablo. Within the buffer, eucalyptus woodland occurs widely throughout the upland areas of the site.

Nonnative Grassland

Nonnative grasses were common throughout the project area and were frequent components of the understory herb layer. This community forms the matrix between patches of other habitat types. Dominant species include common ripgut brome and bull thistle (*Cirsium vulgare*). Other representative species include soft chess (*B. hordeaceus*), western ragweed, and short-pod mustard.

Approximately 29.12 acres of nonnative grassland occur within the BSA. Nonnative grassland is the most prevalent vegetation community type in the project area. Within the LOD, nonnative grassland occurs between Avenida Del Diablo and Escondido Creek and from Harmony Grove Road to Escondido Creek. Within the buffer, nonnative grassland occurs extensively throughout the upland areas to the east and west of the nonnative grassland in the LOD.

3.1.3 Other Cover Types

Developed

Developed land cover exists within the project area, including the HARRF, several residences, and commercial buildings. Also included under this nonnative community is a drainage basin that is artificially maintained for flood and sediment control.

Approximately 131.14 acres of developed land occur within the BSA. Within the LOD and buffer, developed land is mostly limited to the area south of Avenida Del Diablo and near Harmony Grove Road, Andreasen Drive, and Kuana Loa Drive.

Disturbed

Disturbed areas are those affected by human activities. Vegetation does not usually become reestablished due to frequent disturbances. Disturbed habitat includes the dirt roads and trails and a previously graded area within the 100-year floodplain of Escondido Creek used as a staging area for the HARRF Equalization Tanks Project.

Approximately 6.43 acres of disturbed land occur within the BSA. Within the LOD, disturbed habitat occurs on the south side of Escondido Creek. Within the buffer, some disturbed habitat occurs in graded areas along the west side of Citracado Parkway on the northernmost part of the project area.

Ornamental

Ornamental vegetation is composed of exotic shrubs and trees that are planted for ornamental purposes. Ornamental vegetation is found near residences and in landscaped areas.

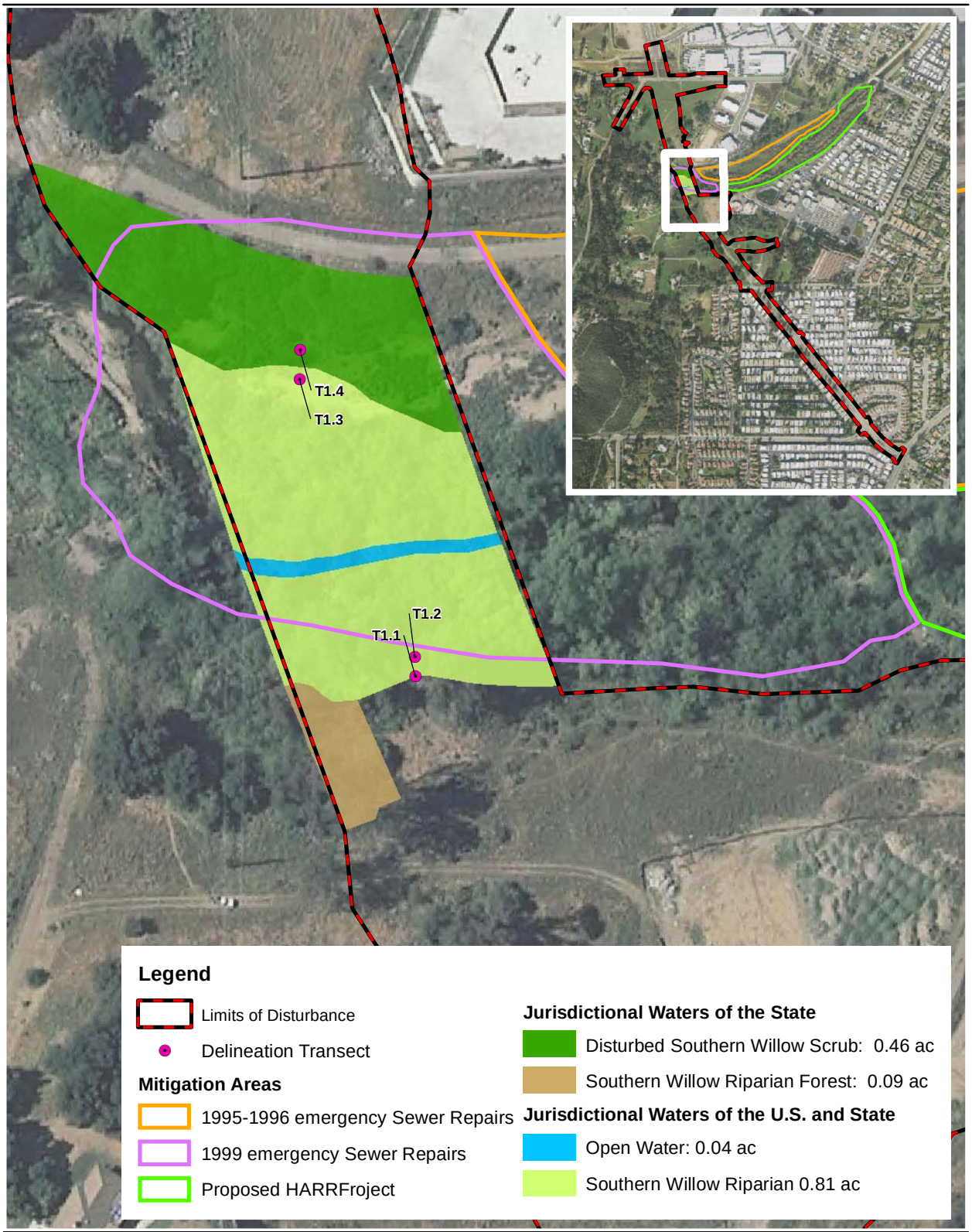
Approximately 2.59 acres of ornamental plantings occur within the BSA. Within the LOD, ornamental plantings occur on the west edge of Citracado Parkway on the northern terminus of the project area and extend west from there into the buffer.

3.2 JURISDICTIONAL WATERS AND WETLANDS

Open water and southern willow riparian forest within the LOD were delineated as waters of the U.S. and state (Figure 8). Southern willow scrub within the LOD was delineated as waters of the state (Figure 8). A detailed analysis of the jurisdictional waters is in the *Citracado Parkway Extension Jurisdictional Delineation Letter Report* (AECOM 2010a). These jurisdictional waters of the U.S. are located within a deed restricted mitigation area. This mitigation area, as shown on Figure 8 was deed restricted by the City of Escondido in August 2002. While a deed restriction on the property exists, it was acknowledged at that time and in the deed use restrictions 2.1.3, that the Citracado Parkway Extension Project may overlap this mitigation area. Efforts were made, within the restrictions of the City of Escondido (City of Escondido Design Standards and Standard Drawings, May 6, 2009) and Caltrans design standards (Caltrans Highway Design Manual, 6th Edition) to move the roadway westerly in an effort to minimize environmental impacts. However, even with this effort, the alignment still intersects the deed restricted area.

Within the LOD, there is 0.85 acre of potential jurisdictional waters of the U.S.[1] (composed of 0.81 acre of southern willow riparian forest wetland and 0.04 acre of unvegetated water) and an

[1] Jurisdictional waters of the U.S. are relevant to both U.S. Army Corps of Engineers (USACE) and California Department of Fish and Game regulatory permitting. Final acreages of jurisdictional waters of the U.S. are based on the jurisdictional determination (JD) process per the March 30, 2007, USACE Jurisdictional Determination Form Guidebook; the June 5, 2007, Approved JD Form; the June 5, 2007, Joint Guidance Memorandum, the December 2, 2008, Guidance Memorandum; and Regulatory Guidance Letter (RGL) 08-02 (if RGL 08-02 is deemed applicable and appropriate [i.e., the permit applicant or other "affected party" can decline to request and obtain an Approved JD and elect to use a Preliminary JD instead] for this jurisdictional determination).



Source: DigitalGlobe 2008; AECOM 2010

100 50 0 100 Feet

Scale: 1 = 1,200; 1 inch = 100 feet

Figure 8
Jurisdictional Waters

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2011_mxds\BTR_2011\JD_waters_v3.mxd, 6/7/2011, LeeJ

additional 0.55 acre (composed of 0.46 southern willow scrub and 0.09 southern willow riparian forest) that would be considered jurisdictional waters of the state exclusively,[2] for a total of 1.40 acres of potential jurisdictional waters (Table 2). An additional 0.05 acre of southern willow scrub is present within the LOD that is not jurisdictional waters because it is an isolated patch of willows disjoint from the other riparian and wetland vegetation communities.

Table 2
Summary of Potential Jurisdictional Waters of the U.S. and State Occurring within the LOD

Type of Potential Jurisdictional Waters	Type of Habitat (Holland 1986)[1]	Type of Habitat (Cowardin et al. 1979)	Area of Aquatic Resource in LOD (acres)[2]
Potential Jurisdictional Waters of the U.S. and State			
Wetland	Southern Willow Riparian Forest (61330)	Palustrine; Forested; Broad-leaved Deciduous, Seasonally Flooded/Saturated, Fresh	0.81
Other Waters (Unvegetated Waters [OHWM])	Fresh Water (64140)	Riverine; Streambed, Sand, Permanently Flooded, Fresh	0.04
Subtotal Jurisdictional Waters of the U.S. and State			***0.85***
Potential Jurisdictional Waters of the State			
Wetland	Southern Willow Scrub (63320)	Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh	0.46
Wetland	Southern Willow Riparian Forest (61330)	Palustrine; Forested; Broad-leaved Deciduous, Seasonally Flooded/Saturated, Fresh	0.09
Subtotal Jurisdictional Waters of the State			***0.55***
Grand Total Jurisdictional Waters			**1.40**

[1] The *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) does not provide classifications for abiotic features. These habitat codes are based on Holland's descriptions suggested by Oberbauer (2008).

[2] Jurisdictional waters acreage within the project area was determined by utilizing ArcGIS. All acreages are rounded to the nearest hundredth.

Wetlands and other aquatic environments and habitats occurring within California are regulated under the following federal and state laws, as applicable to the project.

[2] Relevant to CDFG permitting only.

Federal Regulations

Pursuant to Section 404 of the CWA, USACE is authorized to regulate any activity that would result in the discharge of dredged or fill material into jurisdictional waters of the U.S., which include those waters listed in 33 Code of Federal Regulations (CFR) 328.3 (Definitions). USACE, with oversight by the U.S. Environmental Protection Agency (USEPA), has the principal authority to issue CWA Section 404 Permits.

Pursuant to Section 401 of the CWA, RWQCB certifies that any discharge into jurisdictional waters of the U.S. will comply with state water quality standards. RWQCB, as delegated by USEPA, has the principal authority to issue a CWA Section 401 water quality certification or waiver.

State Regulations

Pursuant to Section 1600 et seq. of the California Fish and Game Code, CDFG is authorized to regulate any activity that would alter the flow, bed, channel, or bank of streams and lakes. Jurisdictional waters of the state include the channel, bed, or bank of a lake, river, or stream. In practice, CDFG usually extends its jurisdictional limit to the top of the bank of a stream or lake, or to the continuous outer edge of its riparian extent, whichever is wider.

Pursuant to Section 13000 et seq. of the California Water Code (the 1969 Porter-Cologne Water Quality Control Act), RWQCB is authorized to regulate activity that would result in discharges of waste and fill material to waters of the state, including "isolated" waters and wetlands. Waters of the state include any surface or groundwater within the boundaries of the state (CA Water Code § 13050[e]).

3.3 FLORA

This section discusses plant species detected within the BSA or with potential to occur on-site. In total, 88 plant species were detected in the BSA during vegetation mapping, tree surveys, and rare plant surveys (Appendix D). Based on a CNDDB search and habitat assessments, 25 special-status plant species have potential to occur within the BSA (Table 3). Two of these species, Palmer's sagewort and Englemann oak, were observed within the BSA (Figure 9). Palmer's sagewort is a CNPS List 4.2 species and Englemann oak is a CNPS List 4.2 species and a species covered under the Escondido Subarea Plan. No other federally listed, state listed, or other state sensitive special-status plant species were observed within the BSA.

Table 3
Sensitive Plant Species with Potential to Occur within the BSA

Common Name *Scientific Name*	Sensitivity Status [1]	General Habitat Description	Findings [2]	Probability of Occurrence
Plants				
California adolphia (*Adolphia californica*)	CNPS List 2.1	Chaparral, coastal scrub, valley and foothill grassland (clay soils). Grows at elevations 148–984 feet. Blooms December–May.	ND	Low: Carlsbad south to Imperial Beach to Baja California, Mexico. The nearest known site is 4.0 miles northwest in San Marcos.
San Diego ambrosia (*Ambrosia pumila*)	USFWS: Endangered NCMSCP: Covered City: Covered CNPS List 1B.1	Chaparral, coastal scrub, valley and foothill grasslands, vernal pools (disturbed areas), floodplains. Grows at elevations of 66–1,362 feet. Blooms May–September.	ND	Moderate: However the site is considered to be marginal for this species because of disturbance. The nearest known site is 3.7 miles to the southeast at Lake Hodges.
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)	USFWS: Endangered NCMSCP: Covered City: Covered CNPS List 1B.1	Chaparral (maritime, sandy). Grows at elevations 0–1,198 feet. Blooms December–April.	ND	Low: The nearest known site is 3.7 miles to the southeast.
Palmer's sagewort (*Artemisia palmeri*)	CNPS List 4.2	Chaparral, coastal scrub, riparian scrub, riparian woodland. Grows at elevations 49–3,002 feet. Blooms May–September.	P	Four individuals were found in the buffer immediately south of the HARRF.
Encinitas baccharis (*Baccharis vanessae*)	USFWS: Threatened CDFG: Endangered NCMSCP: Covered City: Covered CNPS List 1B.1	Grows in chaparral (maritime, sandstone) at elevations of 197–2,362 feet. Blooms August–November.	ND	Low: The nearest known occurrence is 3.3 miles south of the site at Lake Hodges.
San Diego goldenstar (*Bloomeria clevelandii*)	USFWS: Species of Concern NCMSCP: Covered CNPS List 1B.1	Clay soils of chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Blooms in May–June.	ND	Moderate: The nearest occurrence is 5 miles west in San Marcos in San Elijo Hills.

Common Name *Scientific Name*	Sensitivity Status [1]	General Habitat Description	Findings [2]	Probability of Occurrence
Orcutt's broadiaea (*Brodiea orcuttii*)	NCMSCP: Covered CNPS List 1B.1	Closed-cone coniferous forests, chaparral, cismontane woodland, meadows and seeps, valley and foothill grasslands, vernal pools (mesic, clay, serpentine soils). Grows at elevations 98–5,300 feet. Blooms May–July.	ND	Moderate: The nearest occurrence is 5 miles west in San Marcos.
wart-stemmed ceanothus (*Ceanothus verrucosus*)	CNPS List 2.2 NCMSCP: Covered City: Covered	Grows in chaparral at elevations ranging from 3–1,247 feet. Blooms December–April.	ND	Low: Habitat not present on-site. The nearest known occurrence is 5 miles north of the site in San Marcos.
thread-leaved brodiaea (*Brodiaea filifolia*)	USFWS: Threatened CDFG: Endangered NCMSCP: Covered City: Covered CNPS List 1B.1	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools/often clay. Grows at elevations 131–4,003 feet. Blooms March–June.	ND	Low: This species occurs on clay soils, which are not found on-site. The nearest known occurrence is 5 miles west of the site in San Marcos.
southern tarplant (*Centromadia parryi* ssp. *australis*)	CNPS List 1B.1	Marshes and swamps, valley and foothill grassland, and vernal pools, alkaline grassland. Grows at elevations of 0–1,394 feet. Blooms May–November.	ND	Moderate: The nearest known occurrence is 5 miles east of the site at Lake Hodges.
smooth tarplant (*Centromadia pungens* ssp. *laevis*)	CNPS List 2.2	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grasslands (alkaline soils). Grows at elevations 0–1,575 feet. Blooms April–September.	ND	Moderate: The nearest known occurrence is 20 miles south of the site in Mission Gorge.
Campo or delicate clarkia (*Clarkia delicata*)	CNPS List 1B.2	Chaparral, cismontane coast live oak woodlands. Grows at elevations 771–3,281 feet. Blooms April–June.	ND	High: The nearest known occurrence is 10 miles east of the site in San Pasqual Valley.
summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	City: Covered CNPS List 1B.2	Chaparral habitat. Grows at elevations 98–1,804 feet. Blooms April–June.	ND	Low: No suitable habitat on-site. The nearest known occurrence is 5 miles north of the site in San Marcos.

Common Name *Scientific Name*	Sensitivity Status [1]	General Habitat Description	Findings [2]	Probability of Occurrence
sea dahlia (*Coreopsis maritime*)	CNPS List 2.2	Coastal bluff scrub, coastal scrub. Grows at elevations 16–492 feet. Blooms March–May.	ND	Low: The nearest known occurrence is 12 miles southeast of the site at Solana Beach.
variegated dudleya (*Dudleya variegate*)	NCMSCP: Covered CNPS List 1B.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grasslands, vernal pools (clay soils). Grows at elevations 10–1,804 feet. Blooms May–June.	ND	Low: The nearest known occurrence is 5 miles south of the site south of Lake Hodges.
sticky dudleya (*Dudleya viscida*)	CNPS List 1B.2	Coastal bluff scrub, chaparral, coastal sage scrub. Grows at elevations 33–1,804 feet. Blooms May–June.	ND	Low: Habitat not present on-site. The nearest known occurrence is 22 miles northwest of the site in Oceanside.
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)	USFWS: Endangered CDFG: Endangered NCMSCP: Covered CNPS List 1B.1	Vernal pools in coastal scrub, valley and foothill grassland. Grows at elevation 66–2,034 feet. Blooms April–June.	ND	Low: Habitat not present on-site. The nearest known occurrence is 12 miles southeast of the site in Poway.
San Diego barrel cactus (*Ferocactus viridescens*)	NCMSCP: Covered City: Covered CNPS List 2.1	Chaparral, coastal scrub, valley and foothill grasslands, vernal pools. Grows at elevations 10–1,476 feet. Blooms May–June.	ND	Low: Habitat not present on-site. The nearest known occurrence is 5 miles north of the site in San Marcos.
San Diego marsh-elder (*Iva hayesiana*)	City: Covered CNPS List 2.2	Grows in marshes, swamps, and playas, margins of intermittent often alkaline streams. Grows at elevations ranging from 33–1,640 feet. Blooms May–December.	ND	High: The nearest known occurrence is 4.5 miles southeast of the site at Lake Hodges.
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	CNPS List 2.2	Chaparral, coastal scrub Grows at elevations 3–1,640 feet. Blooms January–July.	ND	High: It is widespread south of the Los Angeles basin. The nearest known occurrence is 4.5 miles southeast of the site along Del Dios highway.
felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*)	CNPS List 1B.2	Chaparral, cismontane woodland, rocky montane ridgelines. Grows at elevations 984–3,904 feet. Blooms June–August.	ND	Low: The nearest known occurrence is 5.5 miles southeast of the site at Lake Hodges.

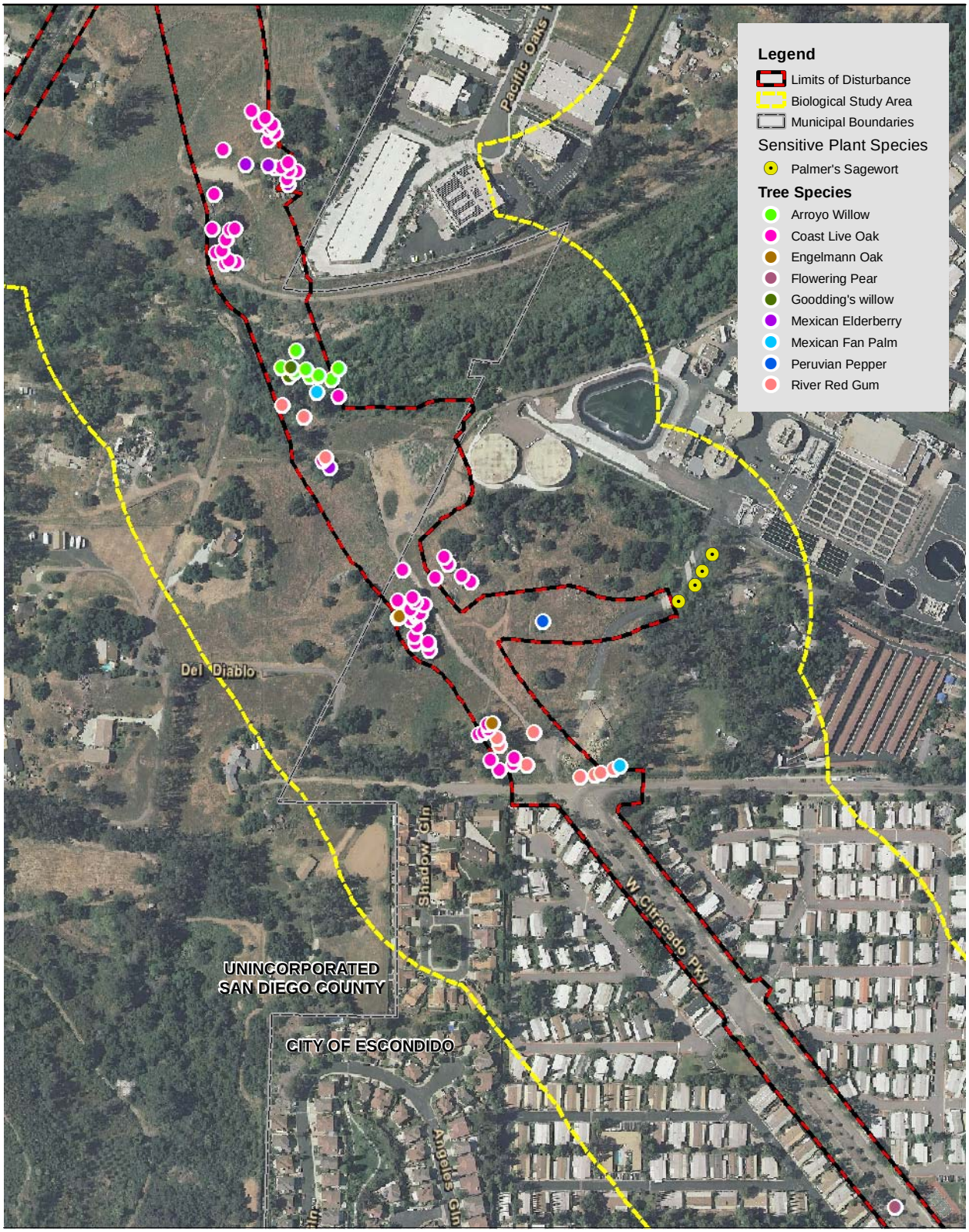
Common Name *Scientific Name*	Sensitivity Status [1]	General Habitat Description	Findings [2]	Probability of Occurrence
spreading navarretia (*Navarretia fossalis*)	USFWS: Threatened CNPS List 1B.1	Vernal pools associated with chenopod scrub, marshes and swamps (assorted shallow freshwater, playas.	ND	Low: Habitat not present on-site. The nearest known occurrence is 19 miles northwest of the site in Oceanside.
Engelmann oak (*Quercus engelmannii*)	City: Covered CNPS List 4.2	Found in chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Grows at elevations 394–4,265 feet. Blooms March–May.	P	Three Engelmann oak trees occur within the LOD and three occur in the buffer.
chaparral ragwort (*Senecio aphanactis*)	CNPS List 2.2	Chaparral, cismontane woodland, coastal scrub/alkaline, rocky or barren sites in shrublands along the coast. Grows at elevations 49–2,625 feet. Blooms January–April.	ND	Low: The nearest known occurrence is 19 miles northwest of the site along the Santa Margarita River.
purple stemodia (*Stemodia durantifolia*)	CNPS List 2.1	Sonoran desert scrub, riparian habitats (often mesic, sandy) Grows at elevations 591–984 meters Blooms January–December.	ND	Moderate: The nearest known occurrence is 5.0 miles south of the site along the San Dieguito River.

[1] Sensitivity Status Key

Federal U.S. Fish and Wildlife Service (USFWS)
State California Department of Fish and Game (CDFG)
Other California Native Plant Society (CNPS)
1B: Plants rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which we need more information - a review list
4: Plants of limited distribution – a watch list
Decimal notations: .1 - Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California
City: Covered Draft City of Escondido Subarea Plan Proposed Covered Species
Coverage for the species within the Escondido Subarea may be contingent on other MHCP cities that control major/critical locations or the majority of the species or its habitat. If no city is listed as a contingency, then the species will be covered within the Escondido Subarea when Escondido meets all Section 10(a), Natural Community Conservation Planning (NCCP), and MHCP criteria within its boundaries.
NCMSCP: Covered Draft North County MSCP Proposed Covered Species

[2] Findings:

P (Present) – Species detected during project surveys.
ND (Not Detected) – Species not detected during project surveys.



Source: Landiscor 2010; AECOM 2011

400 200 0 400 Feet

Scale: 1 = 4,800; 1 inch = 400 feet

Figure 9
Sensitive Plant Species and Mature and/or Protected Trees

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2010_mxds\EIR\sensitive_plants_trees.mxd, 5/25/2011, LeeJ

3.3.1 Trees

A total of 71 mature and protected trees were identified and mapped within the LOD (Figure 9). Of these, 38 trees are considered mature and 33 trees (oaks) are considered protected. A summary of the species observed and the total quantity for each is included in Table 4. A detailed spreadsheet and figure documenting each tree are included in Appendix E.

Table 4
Mature and Protected Trees Recorded in the LOD

Scientific Name	Common Name	Native/Nonnative	Total Count
Mature			
Eucalyptus camaldulensis	river red gum	Nonnative but naturalized to the region (considered an invasive species) [a]	10
Pyrus calleryana	flowering pear	Ornamental nonnative	1
Quercus agrifolia	coast live oak	Native	13
Salix gooddingii	Goodding's willow	Native	2
Salix lasiolepis	arroyo willow	Native	7
Sambucus mexicana	Mexican elderberry	Native	3
Schinus molle	Peruvian pepper	Nonnative but naturalized to the region (considered an invasive species) [a]	1
Washingtonia robusta	Mexican fan palm	Nonnative but naturalized to the region (considered an invasive species)[a]	1
Mature Subtotal			38
Protected			
Quercus agrifolia	coast live oak	Native	30
Quercus engelmanii	Engelmann Oak	Native[b]	3
Protected Subtotal			33
Total			71

[a] California Invasive Plant Council (2009).
[b] CNPS List 4 (considered rare or uncommon)

3.3.2 Sensitive Plant Species

As mentioned previously, Palmer's sagewort and Englemann oak were observed within the BSA (Figure 9). Palmer's sagewort is a CNPS List 4.2 species and Englemann oak is a CNPS List 4.2 species and a species covered under the Escondido Subarea Plan. No other federally listed, state listed, or other state sensitive special-status plant species were observed within the BSA.

Palmer's Sagewort

Palmer's sagewort is frequent and widespread in riparian habitats in coastal and foothill areas although it is endemic to San Diego County and Baja California, Mexico. It is at the northern extent of its recorded range in the vicinity of Escondido where it has been collected and documented along Del Dios Highway, Lake Hodges, and in the San Dieguito River area. This species occurs in riparian woodlands frequently as an understory of perennial streams that also support willows, western sycamore, and riparian phases of coast live oak.

Palmer's sagewort was not recorded in the LOD. Four individual Palmer's sagewort were found in the buffer immediately south of the HARRF. This species was planted in this location as part of the Escondido HARRF wetland/riparian mitigation project in 2006. This plant species is considered sensitive by CNPS and is classified as List 4.2.

Englemann Oak

Engelmann oak occurs from the southern base of the San Gabriel Mountains in Los Angeles County; disjunctly east to San Bernardino County; south into the foothills of Orange and west-central Riverside counties (Santa Rosa Plateau in the Santa Ana Mountains); and south through the Santa Margarita, Palomar, Cuyamaca, and Laguna mountains to Tecate, Baja California, Mexico (Roberts 1995). This species is locally common on alluvial fans and interior valleys, and occasional on slopes in southern oak woodland, oak savannah, and chaparral communities (Roberts 1995).

Engelmann oak is present in both the LOD and buffer. Three Engelmann oak trees occurs within the LOD; one occurs 200 feet north of Avenida Del Diablo and two Engelmann oaks occur approximately 700 feet north of Avenida Del Diablo. This species is considered sensitive by CNPS and is classified as List 4.2. It is also a species covered under the Escondido Subarea Plan.

3.4 WILDLIFE

This section discusses wildlife species detected within the BSA or with potential to occur on-site. In total, 88 wildlife species were detected in the BSA during project surveys (Appendix C). Based on a CNDDB search and habitat assessments, 26 special-status wildlife species have potential to occur within the BSA (Table 5).

Table 5
Sensitive Wildlife Species with Potential to Occur within the BSA

Common Name *Scientific Name*	Sensitivity Status [1]	General Habitat Description	Findings [2]	Probability of Occurrence
Invertebrates				
San Diego fairy shrimp (*Brachinecta sandiegonensis*)	USFWS: Endangered NCMSCP: Covered City: Covered	Restricted to shallow and small vernal pools, hardpan and claypan pools. Found in Orange and San Diego Counties, and Baja California.	ND	This species was not observed on-site and is not expected to occur within the survey area due to the lack of suitable habitat within the BSA.
Reptiles				
northern red-diamond rattlesnake (*Crotalus ruber ruber*)	CDFG: Species of Special Concern NCMSCP: Covered	Chaparral, coastal sage scrub, along creek banks, and in rock outcrops or piles of debris. Habitat preferences include dense vegetation in rocky areas.	ND	This species has a high potential to occur within the BSA due to the presence of highly suitable habitat.
San Diego coast horned lizard (*Phrynosoma coronatum* (*blainvillei*)	CDFG: Species of Special Concern NCMSCP: Covered	A variety of habitats including sage scrub, chaparral, coniferous and broadleaf woodlands (Stebbins 2003). Found on sandy or friable soils with open scrub. Requires open areas, bushes, and fine loose soil.	ND	This species has a moderate potential to occur within the BSA due to the presence of moderately suitable habitat.
coast patch-nosed snake (*Salvadora hexalepis virgultea*)	CDFG: Species of Special Concern	A variety of habitats including coastal sage scrub, chaparral, riparian, grasslands, and agricultural fields (Stebbins 2003). Prefers open habitats with friable or sandy soils, burrowing rodents for food, and enough cover to escape predation.	ND	This species has a moderate potential to occur within the BSA due to the presence of moderately suitable habitat.

Common Name *Scientific Name*	Sensitivity Status [1]	General Habitat Description	Findings [2]	Probability of Occurrence
Coronado skink (*Eumeces skitonianus interparietalis*)	CDFG: Species of Special Concern	Most commonly found in open areas, sparse brush, and in oak woodlands, usually under rocks, leaf litter, logs, debris, or in the shallow burrows it digs (Stebbins 2003).	ND	This species has a high potential to occur within the BSA due to the presence of highly suitable habitat.
orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	CDFG: Species of Special Concern NCMSCP: Covered City: Covered	A variety of habitats including sage scrub, chaparral, coniferous and broadleaf woodlands (Stebbins 2003). Found on sandy or friable soils with open scrub. Requires open areas, bushes, and fine loose soil.	ND	This species has a moderate potential to occur within the BSA due to the presence of moderately suitable habitat.
southwestern pond turtle (*Actinemys marmorata pallid*)	CDFG: Species of Special Concern NCMSCP: Covered City: Covered	Associated with permanent water or nearly permanent water from sea level to 6,000 feet. Prefers habitats with basking sites such as floating mats of vegetation, partially submerged logs, rocks, or open mud banks.	ND	This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat. The section of Escondido Creek that occurs within the BSA is thickly vegetated and has very limited open water available for basking sites.
Amphibians				
western spadefoot toad *Spea* (*Sacphiopus*) *hammondii*	CDFG: Watch List NCMSCP: Covered City: Covered	Temporary ponds, vernal pools, and backwaters of slow-flowing creeks. Also upland habitats such as grasslands and coastal sage scrub where burrows are constructed.	ND	This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat.
Birds				
Cooper's hawk (*Accipiter cooperii*)	CDFG: Watch List City: Covered	Usually in oak woodlands, but occasionally in willow or eucalyptus woodlands.	P	Four Cooper's hawks were encountered within the central portion of the BSA near the riparian and wetland area.

Common Name ***Scientific Name***	**Sensitivity Status** [1]	**General Habitat Description**	**Findings** [2]	**Probability of Occurrence**
coastal California gnatcatcher (*Polioptila californica californica*)	USFWS: Threatened CDFG: Species of Special Concern NCMSCP: Covered City: Covered	Diegan coastal sage scrub dominated by California sagebrush (*Artemisia californica*) and flat-topped buckwheat (*Eriogonum fasciculatum*) below 2,500 feet elevation in Riverside County and below 1,000 feet elevation along the coastal slope; generally avoids steep slopes above 25 percent and dense, tall vegetation for nesting.	ND	This species has a very low potential to occur within the BSA due to very limited and fragmented coastal sage scrub habitat within the BSA.
yellow warbler (*Dendroica petechia brewsteri*)	CDFG: Species of Special Concern	A fairly common summer breeding resident found along mature riparian woodlands that consist of cottonwood, willow, alder, and ash trees. It is restricted to this increasingly patchy habitat.	P	Yellow warblers were routinely found throughout the riparian areas of the BSA.
yellow-breasted chat (*Icteria virens*)	CDFG: Species of Special Concern NCMSCP: Covered City: Covered	Riparian woodland, with a dense undergrowth.	P	Yellow-breasted chats were detected throughout riparian and wetland habitat in the BSA.
Bell's sage sparrow (*Amphispiza belli belli*)	CDFG: Watch List NCMSCP: Covered City: Covered	Occurs mainly in coastal sage scrub and chaparral habitats.	ND	This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat.
burrowing owl (*Athene cunicularia*)	CDFG: Species of Special Concern NCMSCP: Covered	Found mainly in grassland and open scrub from the seashore to foothills. Strongly associated with California ground squirrel (*Spermophilus beecheyi*) burrows.	ND	This species was not observed during protocol-level surveys in 2007; it is not expected to occur within the BSA due to lack of suitable habitat.
coastal cactus wren (*Campylorhynchus brunneicapillus couesi*)	CDFG: Species of Special Concern NCMSCP: Covered City: Covered	Coastal sage scrub with extensive stands of tall prickly pear or cholla cacti (*Opuntia* sp.).	ND	This species is not expected to occur within the BSA due to the lack of suitable habitat. There is very limited and fragmented coastal sage scrub habitat within the BSA.

Common Name *Scientific Name*	Sensitivity Status [1]	General Habitat Description	Findings [2]	Probability of Occurrence
least Bell's vireo (*Vireo bellii pusillus*)	USFWS: Endangered CDFG: Endangered NCMSCP: Covered City: Covered	Riparian woodland with understory of dense young willows or mulefat and willow canopy. Nests often placed along internal or external edges of riparian thickets (USFWS 1986).	ND	This species was not observed during protocol-level surveys in 2007 and 2009. This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat.
southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	CDFG: Species of Special Concern NCMSCP: Covered City: Covered	Grassy or rocky slopes with open scrub at elevations from sea level to 1,969 feet. Occurs mainly in coastal sage scrub.	ND	This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat.
white faced ibis (*Plegadis chihi*)	CDFG: Species of Special Concern NCMSCP: Covered City: Covered	Found in shallow areas of freshwater marshes and wet grass. Colonial nesters, with two known colonies in San Diego County, along Guajome Lake and near a pond in San Luis Rey River valley.	ND	This species is not expected to occur within the BSA due to the lack of suitable habitat.
Mammals				
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	CDFG: Species of Special Concern NCMSCP: Covered City: Covered	Typical habitats include early stages of chaparral, open coastal sage scrub, and grasslands near the edges of brush.	ND	This species is not expected to occur within the BSA due to the lack of suitable habitat.
San Diego desert woodrat (*Neotoma lepida intermedia*)	CDFG: Species of Special Concern	Common to abundant in Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats.	ND	This species is not expected to occur within the BSA due to the lack of suitable habitat.
American badger (*Taxidea taxus*)	CDFG: Species of Special Concern NCMSCP: Covered	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas and sandy soils.	ND	This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat.

Common Name *Scientific Name*	Sensitivity Status [1]	General Habitat Description	Findings [2]	Probability of Occurrence
Dulzura California pocket mouse (*Chaetodipus califonicus femoralis*)	CDFG: Species of Special Concern	Slopes covered with chaparral and live oaks.	ND	This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat.
northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	CDFG: Species of Special Concern City: Covered	Open sandy habitats grown to weeds.	ND	This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat.
pallid bat (*Antrozous pallidus*)	NCMSCP: Covered	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect them from high temperatures.	ND	This species has a moderate potential to occur within the BSA due to the presence of moderately suitable habitat.
California (western) mastiff bat (*Eumops perotis californicus*)	CDFG: Species of Special Concern	Chaparral, live oaks, and arid, rocky regions. Requires downward-opening crevices.	ND	This species has a moderate potential to occur within the BSA due to the presence of moderately suitable habitat.
western yellow bat (*Lasiurus xanthinus*)	CDFG: Species of Special Concern	Found in valley foothills riparian, desert riparian, desert wash, and palm oases. Forages among trees and over water. Roosts in trees.	ND	This species has a low potential to occur within the BSA due to the presence of marginally suitable habitat.

[1] **Sensitivity Status Key**

Federal U.S. Fish and Wildlife Service (USFWS)

State California Department of Fish and Game (CDFG)

City: Covered Draft City of Escondido Subarea Plan Proposed Covered Species

Coverage for the species within the Escondido Subarea may be contingent on other MHCP cities that control major/critical locations or the majority of the species or its habitat. If no city is listed as a contingency, then the species will be covered within the Escondido Subarea when Escondido meets all Section 10(a), Natural Community Conservation Planning (NCCP), and MHCP criteria within its boundaries.

NCMSCP: Covered Draft North County MSCP Proposed Covered Species

[2] **Findings**:

P (Present) – Species detected during project surveys.

ND (Not Detected) – Species not detected during project surveys.

As mentioned above, focused protocol surveys were conducted in the BSA for the BUOW in 2007 and the LBV in 2007 and 2009 (Figure 5). No LBV were detected in the BSA in 2007 or 2009. LBV has a low potential to occur within the BSA due to the presence of marginally suitable habitat. No BUOW were detected in the BSA in 2007. In 2007, suitable habitat was present; however, no BUOW were detected throughout the BSA during the survey period. No evidence or sign of BUOW was detected around any of the burrows on-site. Several of the burrows appeared to be inactive. Other burrows appeared to be in use by California ground squirrels (*Spermophilus beecheyi*) and other small rodents. Habitat identified as suitable for BUOW in 2007 was determined to be no longer suitable in 2009 because the habitat had been disced, mowed, and disturbed to the point that it no longer contained suitable burrows and/or habitat. BUOW is not expected to occur within the BSA due to lack of suitable habitat.

A small patch of coastal sage scrub exists within the project BSA (0.77 acre) however potential for California gnatcatcher to occur on-site is low because the disturbed coastal sage scrub patch is small and isolated from a contiguous area of suitable habitat.

Three sensitive wildlife species were detected within the BSA during surveys: Cooper's hawk (Accipiter cooperii), a CDFG Watch List species, and yellow warbler (Dendroica petechia brewsteri) and yellow-breasted chat (Icteria virens), both CDFG Species of Special Concern (Figure 10). These species are discussed below. Additionally, a red-tailed hawk (*Buteo jamaicensis*) nest with two juveniles was detected in a eucalyptus tree in the buffer on the west side of the BSA along Escondido Creek (Figure 10).

Cooper's Hawk

The Cooper's hawk is a designated animal on the CDFG Watch List. The species is a breeding resident throughout most of the wooded portion of California. In San Diego County, the Cooper's hawk occurs as a year-long resident and a winter migrant. Cooper's hawks nest primarily in oak woodlands but occasionally in willows or eucalyptus. The species prefers dense stands of oak, riparian deciduous, or other forest habitat near water. The species usually nests and forages near open water or riparian vegetation. The Cooper's hawk will catch small birds, especially young during nesting season, and small mammals. They will also take reptiles and amphibians.

During the surveys, four Cooper's hawks were encountered within the central portion of the BSA near the riparian and wetland area (Figure 10). Observations of Cooper's hawks were incidental, although infrequent, during focused surveys for LBV in 2007 and 2009 and BUOW in 2007.

Thus, this species is expected to occur within suitable riparian and wetland habitat throughout the BSA.

Yellow Warbler

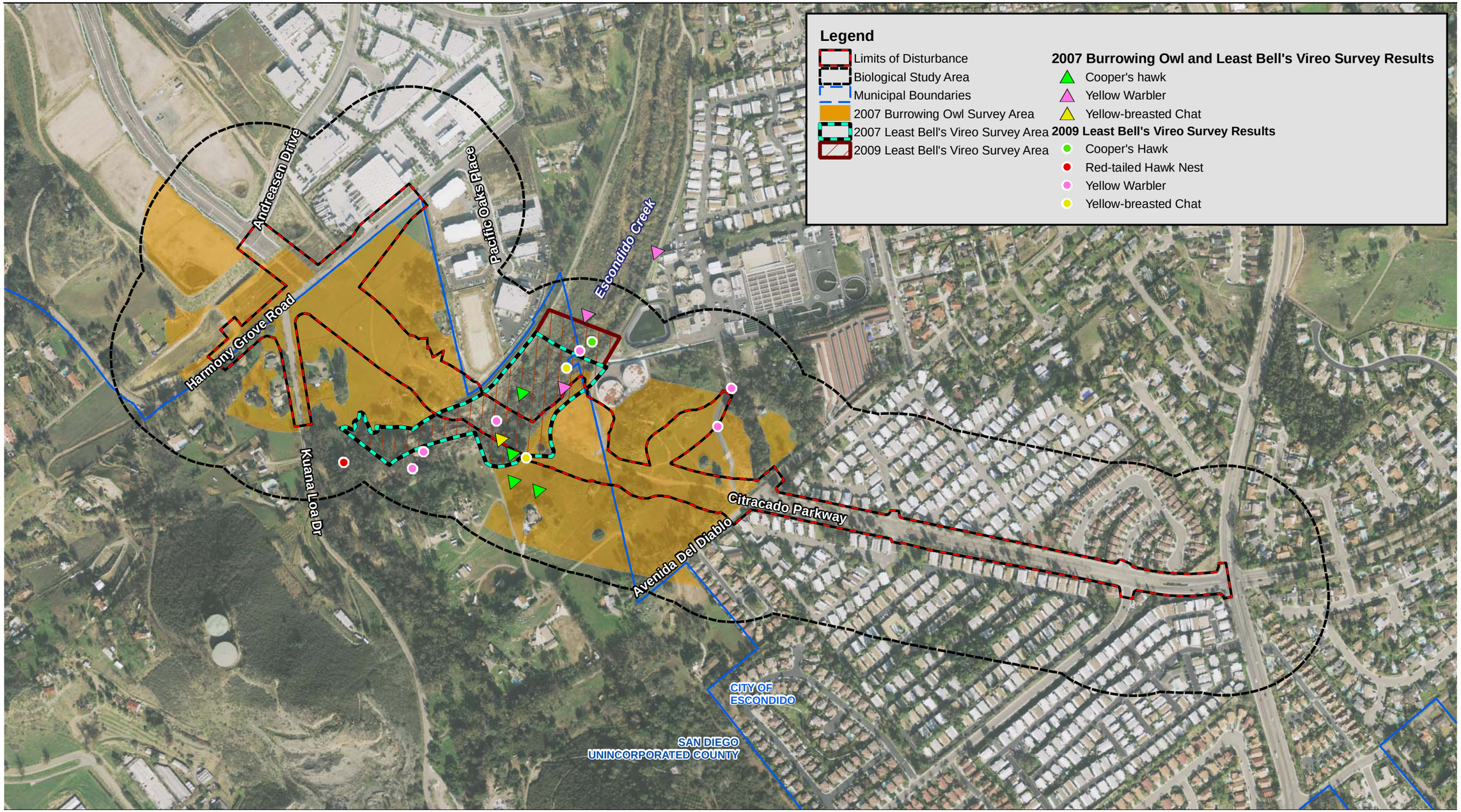
The yellow warbler is a CDFG Species of Special Concern. The yellow warblers nesting in San Diego County and most migrants are *D. p. morcomi* (Unitt 2004). However, per the American Ornithologists' Union (AOU), *D. p. brewsteri* is considered not separable from *D. p. morcomi* (AOU 1953); therefore, they have been addressed as sensitive herein.

The yellow warbler breeds from northern Alaska and Canada southward to the middle United States and in the western United States southward into Mexico. This warbler winters in Mexico, and Central and South America. Nest building may occur as early as April in San Diego County, with fledglings reaching independence by August (Unitt 2004). This species occurs most commonly in riparian woodlands dominated by willows.

Yellow warblers were routinely found throughout the riparian areas of the BSA during focused protocol surveys for LBV in 2007 and 2009 and BUOW in 2007 (Figure 10). Observations of yellow warblers were incidental and frequent during focused surveys for LBV and BUOW. Differentiating a female from an immature yellow warbler can be challenging; therefore, with the male yellow warblers singing throughout most of the survey periods and the visual detections of immature/female yellow warblers during the later survey periods, breeding was assumed to be successful on the survey site.

Yellow-breasted Chat

The yellow-breasted chat is a CDFG Species of Special Concern. This species breeds across the central and eastern United States and southern Canada from South Dakota to New Hampshire and southward to eastern Texas and northern Florida. It also occurs in scattered regions across the western United States from southern Canada to very northern Mexico. In San Diego County, nest building typically occurs in May and fledging is completed by August (Unitt 2004). In California, chats require dense riparian thickets associated with watercourses, saturated soils, or standing water (lakes or ponds). They typically occur in riparian woodland/scrub with dense undergrowth. In San Diego County, this species occurs in the coastal lowlands and is strongly concentrated in the northwest portion of the county (i.e., Santa Margarita River and San Luis Rey River) (Unitt 2004).



Source: AECOM 2010; EDAW 2009; DigitalGlobe 2008

500 250 0 500 Feet

Scale: 1 = 6,000; 1 inch = 500 feet

Figure 10
Sensitive Wildlife Species

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Yellow-breasted chats were detected throughout riparian and wetland habitat during focused protocol surveys for LBV in 2007 and 2009 and BUOW in 2007 (Figure 10). Observations of chats were incidental and frequent during focused surveys for LBV and BUOW. Thus, this species is expected to nest within suitable riparian habitat throughout the BSA.

3.5 WILDLIFE MOVEMENT

Connectivity, or the ability of organisms to move through a landscape, is essential in heterogeneous landscapes, especially in increasingly urban settings, for the persistence of healthy and genetically diverse animal communities. Corridors can facilitate connectivity on different temporal and spatial scales. Corridors are linear landscape features that allow for species movement over time between two patches that would otherwise be disconnected (Beier and Noss 1998; Lidicker and Peterson 1999; Beier et al. 2008). Because many wildlife species have species-specific habitat requirements for survival and dispersal, corridors may also be species specific. At a minimum, corridors promote local colonization or recolonization of distinct habitat patches and potentially increase genetic variability within and between populations. Isolation of populations can have harmful effects on both population genetics and metapopulation dynamics. In addition, increased exposure to an inhospitable urban matrix due to reductions in connectivity can increase general mortality. All of these factors can contribute significantly to local species extinctions. Thus, corridors help species populations, distributed in and among habitat patches, to persist over time.

Wildlife corridors are linear landscape features that allow animal movement between two patches of comparatively undisturbed habitat, or between a patch of habitat and some vital resources. Regional corridors link two or more large areas of natural open space. Local corridors allow resident animals to access critical resources (food, water, and cover) in other areas that might otherwise be isolated.

A wildlife movement study was not conducted; however, due to the development to the north, south, and east of the BSA, the area is likely only important to local wildlife movement. In general, wildlife species are likely to use habitat in the BSA for movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). Movement would likely be concentrated in the riparian and wetland habitat because these areas may provide greater foraging opportunities and cover.

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CHAPTER 4.0
IMPACT ANALYSIS

This section addresses project-related impacts on vegetation communities and special-status plant and wildlife species that would occur during project construction and operation. Direct and indirect impacts may be either permanent or temporary. These impact categories are defined below.

Direct: Direct impacts are caused by the project and occur at the same time and place as the project. Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Direct impacts would include direct losses to native habitats, potential jurisdictional waters, wetlands, and sensitive species; and diverting natural surface water flows. Direct impacts could include injury, death, and/or harassment of listed and/or sensitive species. Direct impacts could also include the destruction of habitats necessary for species breeding, feeding, or sheltering. Direct impacts to plants can include crushing of adult plants, bulbs, or seeds.

Indirect: As a result of project-related activities, biological resources may also be affected in a manner that is not direct. Indirect impacts may occur later in time or at a place that is farther removed in distance from the project than direct impacts, but they are still reasonably foreseeable and attributable to project-related activities. Examples include habitat fragmentation; elevated noise, dust, and lighting levels; changes in hydrology, runoff, and sedimentation; decreased water quality; soil compaction; increased human activity; and the introduction of invasive wildlife (domestic cats and dogs) and plants.

Permanent: All impacts that result in the irreversible removal of biological resources are considered permanent. For the purposes of this project, impacts are irreversible if filling activities result in an elevation (gradient) change or an impervious surface. Examples include constructing a building or permanent road on an area containing biological resources.

Temporary: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. For the purpose of this project, if preconstruction contours are maintained and the area can be revegetated in place, then the impact is considered temporary. Examples include the generation of fugitive dust during construction, or removing vegetation for underground pipeline trenching activities and allowing the natural vegetation to recolonize the impact area.

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the project would result in a significant impact. These thresholds of significance are based on Appendix G of the State California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387). A biological resources impact is considered significant if implementation of the proposed project would do any of the following:

- 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 CDFG or USFWS;

- 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 CDFG or USFWS;

- Have a substantial adverse effect on federal protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, and coastal areas) or any state-protected jurisdictional areas not subject to regulation under Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;

- 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;

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy, or ordinance;

- Conflict with the provisions of an adopted habitat conservation plan; natural community conservation plan; or other approved local, regional, or state habitat conservation plan; or

- 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; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

A detailed project description for the proposed project was provided in Section 1.2.3. Permanent and/or temporary direct and indirect impacts would occur as a result of implementation of the

proposed project. For the purposes of the following evaluation of the project's impacts on biological resources, all impacts from bridge pilings, bridge shading, and bioswales and all impacts within the grading area would be considered direct permanent impacts (Figure 11). However, considering the potential habitat value of the postdevelopment condition of shaded areas, bridge shading impacts have been analyzed separately from other grading area impacts, including impacts from the installment of bridge pilings. Areas within the LOD outside of the grading area (e.g., staging areas and access areas) are considered direct, temporary impact areas (Figure 11). Finally, the 500-foot buffer surrounding the site is considered an area that may experience indirect temporary and/or permanent impacts during project construction and/or operation (Figure 11).

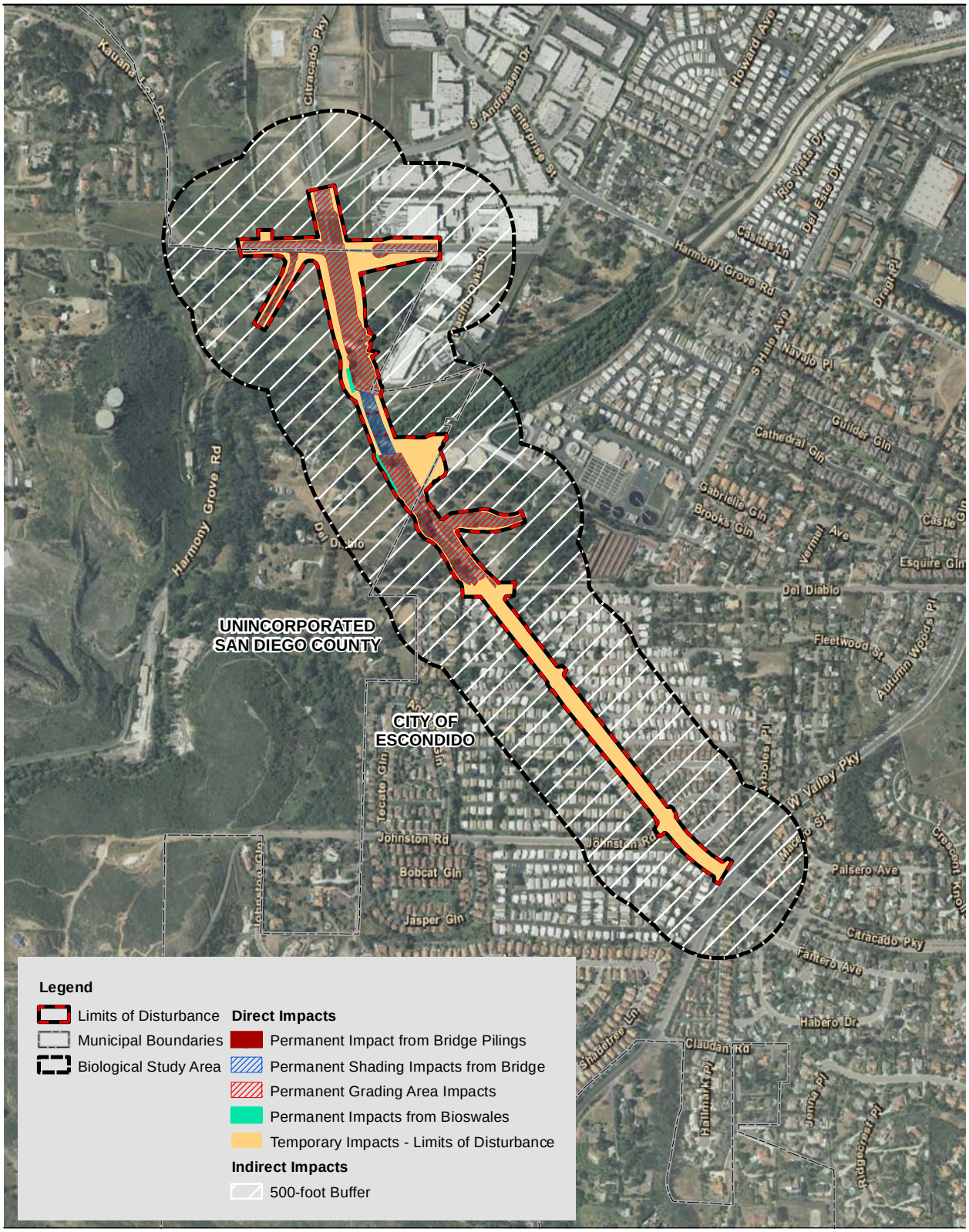
4.1 VEGETATION COMMUNITIES

Sensitive vegetation communities and other land cover types are defined in Section 3.1. Impacts to sensitive vegetation communities would be considered significant. All potential jurisdictional waters, including southern willow riparian forest, southern willow scrub, and open water, are considered sensitive vegetation communities by the state. In addition, coast live oak woodland, coastal sage scrub, and nonnative grassland are considered sensitive by the County (2009) and City (2001). Impacts to nonsensitive vegetation communities and cover types would not be considered significant.

Direct Impacts

Permanent direct impacts to both nonsensitive and sensitive vegetation communities within the LOD would occur as a result of construction activities. The permanent direct impacts would be a result of grading and installation of bridge pilings and bioswales, which would result in the permanent removal of vegetation within the LOD. Table 6 provides a summary of potential direct impacts that would occur to vegetation communities and other cover types coincident with each project component (i.e., graded area, bridge pilings, bioswales, bridge shading) within the LOD.

Project implementation would directly and permanently impact less than 0.01 acre of southern willow riparian forest; 0.06 acre of southern willow scrub; 0.94 acre of coast live oak woodland; 0.60 acre of coastal sage scrub, and 6.18 acres of nonnative grassland.



Source: Aerials Express 2010; AECOM 2011

1,000 500 0 1,000 Feet

Scale: 1 = 12,000; 1 inch = 1,000 feet

Figure 11
Impact Zones

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Table 6
Direct Impacts to Vegetation Communities and Cover Types within the LOD (acres)

Vegetation Community	Sensitive Habitat	Permanent				Permanent Shading (All within PAMA Lands)	Temporary			
		PAMA Lands[1]	Non-PAMA Lands[1]	MHCP (City)	*Permanent Total*		PAMA Lands[1]	Non-PAMA Lands[1]	MHCP (City)	*Temporary Total*
Riparian and Wetlands (jurisdictional waters)										
Open Water (Escondido Creek)[2]	Yes	-	-	-	-	0.02[5]	0.02	-	-	*0.02*
Southern Willow Riparian Forest[2]	Yes	<0.01	-	-	*<0.01*[4]	0.44[5]	0.45	-	-	*0.45*
Southern Willow Scrub[3]	Yes	0.06	-	-	*0.06*	0.18	0.28	-	-	*0.28*
Subtotal Riparian and Wetlands		***0.07***	-	-	***0.07***	***0.64***	***0.75***	-	-	***0.75***
Uplands										
Coast Live Oak Woodland	Yes	0.28	0.18	0.48	*0.94*	-	0.38	0.33	0.12	*0.83*
Coastal Sage Scrub	Yes	0.05	-	0.55	*0.60*	-	0.02	0.02	0.02	*0.06*
Eucalyptus Woodland	No	0.03	0.02	0.42	*0.47*	0.01	-	0.08	0.28	*0.36*
Nonnative Grassland	Yes	1.69	2.46	2.03	*6.18*	0.26	0.40	2.86	1.38	*4.64*
Subtotal Uplands		***2.05***	***2.66***	***3.48***	***8.19***	***0.27***	***0.80***	***3.29***	***1.8***	***5.89***
Other Cover Types										
Developed	No	0.09	0.38	1.77	*2.24*	-	0.03	0.15	8.77	*8.95*
Disturbed	No	0.25	-	0.38	*0.63*	-	1.51	-	0.12	*1.63*
Ornamental	No	0.05	0.10	0.02	*0.17*	-	0.01	0.25	0.03	*0.29*
Subtotal Other Cover Types		***0.39***	***0.48***	***2.17***	***3.04***	-	***1.55***	***0.40***	***8.92***	***10.87***
Total		**2.51**	**3.14**	**5.65**	***11.23***	**0.91**	**3.10**	**3.69**	**10.72**	***17.51***

[1] Based on Draft NCMSCP.
[2] 0.37 acre Waters of the U.S. and state, and 0.08 acre Waters of the state.
[3] Waters of the state (Note that 0.05 acre of permanent impacts to this community within PAMA lands is not jurisdictional waters because it is an isolated patch of willows disjoint from the other riparian and wetland vegetation communities).
[4] The 0.03-acre impact represents the area of placement of pilings in waters of the U.S. Placement of pilings that does not have or would not have the effect of a discharge of fill material does not require a Section 404 permit. Placement of pilings for linear projects, such as bridges, generally does not have the effect of a discharge of fill material and is, therefore, not considered a regulated activity by USACE and USEPA (33 CFR Part 323.3[c][2] and 40 CFR Part 232.2).
[5] Shading is not considered a regulated activity in jurisdictional waters of the U.S. by the USACE.
Note: Totals may not sum due to rounding.

Shading from bridge construction would directly and permanently impact 0.02 acre of open water; 0.44 acre southern willow riparian forest; 0.18 acre of southern willow scrub; and 0.26 acre of nonnative grassland (Table 6). Shading impacts are unique because they are permanent, yet they do not completely remove the affected habitat. Shading will affect the native vegetation below the bridge by permanently altering ambient conditions. However, shading would not permanently alter the streambed itself. Thus, despite changes in plant species composition, structure, and diversity due to the shading, native vegetation will ultimately persist in this area.

Temporary direct impacts would occur as a result of stockpiling, access, and staging areas created outside the grading area. Project implementation would directly and temporarily impact 0.02 acre of open water; 0.45 acre of southern willow riparian forest; 0.28 acre of southern willow scrub; 0.83 acre of coast live oak woodland; 0.06 acre of coastal sage scrub, and 4.64 acres of nonnative grassland.

Direct impacts to sensitive vegetation communities would be considered a significant impact (BIO-1).

Indirect Impacts

Potential temporary and permanent, indirect impacts to the vegetation communities surrounding the LOD would occur as a result of project construction and operation. Grading activities have the potential to create airborne dust, sedimentation, and erosion. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Runoff, sedimentation, and erosion can adversely impact plant populations by damaging individuals or by altering site conditions sufficiently to favor other species (native and exotic nonnatives) that would competitively displace native plants. The potential spread of exotic species into the surrounding vegetation communities would be considered a permanent, indirect impact. Exotic species are opportunistic and could occupy disturbed soils within the LOD and spread into adjacent vegetation communities.

Operation of the project may result in permanent indirect impacts to vegetation communities surrounding the LOD. Permanent, indirect impacts to sensitive vegetation communities may include edge effects and increased exposure to exotic plants. Erosion and stormwater contaminant runoff may degrade adjacent sensitive vegetation communities. Exotic plant species are opportunistic and often occupy disturbed soils such as those that will be present within the temporary direct impact area. Once introduced, these exotic plant species often outcompete natives for resources resulting in a reduction in growth, future dispersal, and recruitment of native species and the eventual degradation of the vegetation community.

Potential indirect impacts to sensitive vegetation communities would be considered a significant impact (BIO-2).

4.2 JURISDICTIONAL WATERS

Direct Impacts

All potential impacts (both permanent and temporary) to jurisdictional waters are listed in Table 6. Within the LOD, construction and placement of the Escondido Creek bridge would result in 0.01 acre of permanent direct impacts to potential jurisdictional waters (0.004 acre of potential jurisdictional waters of the U.S. and state and 0.003 acre of potential jurisdictional waters of the state only). Temporary direct impacts to jurisdictional waters within the LOD would occur to 0.75 acre (0.39 acre of potential jurisdictional waters of the U.S. and state [0.02 acre open water and 0.37 acre southern willow riparian forest] and 0.36 acre of potential jurisdictional waters of the state only [0.28 acre southern willow scrub and 0.08 acre southern willow riparian forest]). Shading from bridge construction would directly and permanently impact 0.64 acre (0.45 acre of potential waters of the U.S. and state [0.02 acre open water and 0.43 acre southern willow riparian forest] and 0.19 acre of potential waters of the state [0.18 southern willow scrub and 0.01 southern willow riparian forest]).

Direct impacts to jurisdictional waters would be considered a significant impact (BIO-3).

These impacts to jurisdictional waters would occur within a deed restricted mitigation area. Implementation of the proposed project would require amendment to the deed to remove the bridge area from the restriction. The deed restriction acknowledged that the future Citracado Parkway extension project may involve impacts to this mitigation area, and identified it as an allowable use.

Project impacts to a deed restricted mitigation site would be considered a significant impact (BIO-4).

Indirect Impacts

Potential temporary and permanent, indirect impacts to the jurisdictional waters surrounding the LOD would occur as a result of project construction. Potential temporary, indirect impacts would occur as a result of grading activities creating airborne dust and potentially off-site erosion and sedimentation. Potential permanent, indirect impacts to the jurisdictional waters surrounding the

LOD could result from the alteration of drainage patterns on-site from changes in surface hydrology and installation of bioswales. This could result in off-site jurisdictional waters receiving lower or higher volumes and rates of water than current conditions. Additionally, operation of the roadway may result in erosion and stormwater contaminant runoff that may degrade adjacent jurisdictional waters.

Indirect impacts to jurisdictional waters would be considered a significant impact (BIO-5).

4.3 TREES

Direct Impacts

Direct permanent impacts would occur to 18 mature and 24 protected trees in the planned grading areas (Table 7). There are 11 mature and nine protected trees that would be directly temporarily impacted by removal or trimming associated with construction activities (e.g., staging areas) in the temporary impact zone (Table 7). There are nine mature trees that would be permanently shaded as a result of bridge construction, which is a direct impact.

Direct impacts to mature and protected trees would be considered a significant impact (BIO-6).

Table 7
Direct Impacts to Mature and Protected Trees within the LOD

Common Name	Permanent Impact	Permanent Shading	Temporary Impact	Total Count
Mature				
River Red Gum	6	1	3	**10**
Flowering Pear	-	-	1	**1**
Coast Live Oak	8	-	5	**13**
Goodding's Willow	-	2	-	**2**
Arroyo Willow	-	5	2	**7**
Mexican Elderberry	3	-	-	**3**
Peruvian Pepper	1	-	-	**1**
Mexican Fan Palm	-	1	-	**1**
Mature Subtotal	***18***	***9***	***11***	***38***
Protected				
Coast Live Oak	23	-	7	**30**
Engelmann Oak	1	-	2	**3**
Protected Subtotal	***24***	-	***9***	***33***
Total	**42**	**9**	**20**	**71**

Indirect Impacts

Mature and/or protected trees were not surveyed in the buffer; however, indirect impacts may occur to those adjacent to the LOD. Potential temporary, indirect impacts to mature and/or protected trees would arise during project construction as a result of runoff and sedimentation, erosion, and fugitive dust. Runoff, sedimentation, and erosion can adversely impact plant populations by damaging individuals or by altering site conditions sufficiently to favor other species (native and exotic nonnatives) that would competitively displace native trees. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration.

Potential permanent indirect impacts to mature and/or protected trees may occur during project operation. Erosion and stormwater contaminant runoff may degrade adjacent habitat. Potential indirect impacts to mature and/or protected trees would be considered a significant impact (BIO-7).

4.4 SENSITIVE PLANTS

Direct Impacts

Palmer's sagewort was not detected within the LOD; therefore, no direct impacts to this species would result from project construction and/or operations.

Three Engelmann oaks were detected in the LOD. Direct permanent impacts would occur to three Engelmann oak that occurs in the planned grading areas.

Direct impacts to Engelmann oaks would be considered a significant impact (BIO-8).

Indirect Impacts

Potential temporary, indirect impacts to Palmer's sagewort and Engelmann oak would arise during project construction as a result of runoff and sedimentation, erosion, and fugitive dust. Runoff, sedimentation, and erosion can adversely impact plant populations by damaging individuals or by altering site conditions sufficiently to favor other species (native and exotic nonnatives) that would competitively displace the special-status species. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. In addition, the introduction and establishment of exotic species

within, or adjacent to, these plants can adversely affect native species by reducing growth in addition to dispersal and recruitment.

Potential permanent indirect impacts to Palmer's sagewort and Engelmann oak may occur during project operation. Erosion and stormwater contaminant runoff may degrade adjacent habitat. Introduced exotic plant species are opportunistic and often outcompete natives for resources resulting in a reduction in growth, future dispersal, and recruitment of native species. Potential indirect impacts to Palmer's sagewort and Engelmann oak would be considered a significant impact (BIO-9).

4.5 SENSITIVE WILDLIFE

Direct Impacts

Suitable Cooper's hawk, yellow warbler, and yellow-breasted chat habitat present in the LOD would be directly impacted by construction of the project. Yellow warblers and yellow-breasted chats were found in the riparian habitat present on-site and are likely breeding on-site. Cooper's hawks were found in the riparian and oak woodland habitat present on-site and are also potentially breeding on-site. Operation of the project may temporarily directly impact these species when tree trimming is necessary during routine maintenance.

Direct impacts to Cooper's hawk, yellow warbler, and yellow-breasted chat, as well as their habitat, would be considered a significant impact (BIO-10).

Indirect Impacts

Temporary, indirect impacts are likely to arise from construction-generated fugitive dust accumulation on surrounding vegetation and/or noise resulting in destruction and/or avoidance of habitat by wildlife. Indirect impacts from potential deposition of sediment loads during heavy rain events and flooding downstream of the site would impact existing habitat for Cooper's hawk, yellow warbler, and yellow-breasted chat.

Operation of the project may result in permanent, indirect impacts to Cooper's hawk, yellow warbler, and yellow-breasted chat, which includes edge effects, where the project would lead to increased lighting, noise, and exotic plant and wildlife invasion. Nighttime lighting could disrupt species and/or cause increased predation rates. Street lighting along Citracado Parkway would be installed consistent with the City of Escondido Design Standards and Standard Drawings (City of

Escondido 2009) for Major Roads. The lighting would consist of ornamental street lights, utilizing 180-watt low pressure sodium luminaires, with a maximum spacing distance of 90 feet, staggered back and forth on each side of the street.

A noise study was prepared for the proposed project (AECOM 2010b) that describes anticipated noise levels with project operation (vehicular traffic). Based on the noise study, noise levels in the riparian habitat are expected to be 65 dBA L_{eq} or greater within 110 feet from the centerline of the roadway and 60 dBA L_{eq} or lower at distances of 230 feet or greater from the centerline of the roadway. These noise levels are based on standard propagation over a soft (vegetated) site and do not include reduction due to topographic features. Noise levels on this order have the potential to reduce the use of this habitat for breeding and nesting adjacent to the bridge.

Any potential indirect lighting and noise impacts to off-site Cooper's hawk, yellow warbler, and yellow-breasted chat breeding habitat and adjacent foraging habitat would be considered significant (BIO-11).

4.6 MIGRATORY BIRDS

Direct Impacts

The project would result in direct construction-related impacts to bird populations on-site in the form of habitat destruction, and potentially death, injury, or harassment of nesting birds, their eggs, and their young. "Take" under the Migratory Bird Treaty Act (MBTA) is generally interpreted as the direct death or injury of birds from collisions with vehicles and other machinery. This most frequently occurs during the vegetation clearing stage of construction and involves eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Other direct impacts on bird populations using the site are the same as those identified above for listed and nonlisted special-status species. Operation of the project may temporarily directly impact these species when tree trimming is necessary during routine maintenance. Direct impacts to migratory birds would be considered significant (BIO-12).

Indirect Impacts

Temporary, indirect impacts are likely to arise from construction-generated fugitive dust accumulation on surrounding vegetation and construction-related erosion, runoff, and sedimentation into plant communities resulting in destruction and/or avoidance of migratory bird habitat. Additionally, construction-related noise is likely to cause migratory bird nest abandonment in areas adjacent to construction in the LOD. Indirect impacts from these

construction-related activities would be temporary, as these impacts would end with cessation of project construction.

Operation of the project may result in permanent, indirect impacts to migratory birds, which includes edge effects, where the project would lead to increased lighting, noise, and exotic plant and wildlife invasion. Nighttime lighting could disrupt species and/or cause increased predation rates.

Indirect impacts to migratory birds would be considered significant (BIO-13).

4.7 WILDLIFE MOVEMENT

Direct Impacts

The proposed project may result in direct impacts to local wildlife movement; however, the BSA is not critical to regional habitat connectivity due to the development to the north, south, and east of the BSA. Some local movement may be disrupted by the extension of the roadway; however, most movement is likely concentrated in the riparian and wetland habitat and construction of the bridge would allow wildlife to continue to use this area as a local movement corridor. For these reasons, potential direct impacts to wildlife movement are not considered significant.

Indirect Impacts

The project would potentially result in permanent indirect impacts to local wildlife movement. Potential indirect impacts of the proposed project and associated edge effects include, but are not limited to, altered behavior due to environmental stressors and changes in daily activity patterns. However, the BSA is adjacent to developed areas and other roadways. Species that use this area for local movement are likely habituated to anthropogenic indirect impacts already present in the BSA. For these reasons, potential indirect impacts to wildlife movement are not considered significant.

CHAPTER 5.0
RECOMMENDED MITIGATION MEASURES

Resource-specific impact avoidance, minimization, and mitigation measures for project impacts that were determined to be potentially significant are discussed below. The NCMSCP and Escondido Subarea Plan were utilized as guiding regulatory documents when approaching mitigation for the proposed project. Incorporation of these measures shall reduce potentially significant impacts to below a level of significance.

MM-BIO-1: Direct Impacts to Sensitive Vegetation Communities

MM-BIO-1.1: To avoid incidental loss of sensitive habitat types during construction activities, Environmentally Sensitive Area fencing shall be installed along the limits of disturbance prior to the start of construction. In addition, grading limits shall be flagged or fenced and grading shall not occur beyond this flagging/fencing. Location of fencing shall be confirmed by a qualified biological monitor. Construction crews shall be made fully aware of this boundary.

MM-BIO-1.2: Temporary impacts to sensitive upland and wetland habitats shall be mitigated through replacement on-site at a ratio of 1:1 for a total of 6.28 acres of habitat restoration, as shown in Table 8a. In addition to the 6.28-acre area, any bareground post-construction (e.g. areas of ornamental, disturbed, and eucalyptus woodland habitat impacted during construction) shall be planted post-construction, for erosion control purposes.

MM-BIO-1.3: A restoration maintenance and monitoring plan for the 6.28 acres of habitat restoration, as described in MM-BIO-1.2, shall be prepared by a qualified restoration ecologist and shall incorporate an appropriate native species planting palette to blend in with the existing and surrounding habitats. Preference for habitat community restoration shall be determined, by a qualified restoration ecologist, based on the existing and surrounding habitats. Areas of nonnative grassland and eucalyptus woodland shall be restored in the form of native grassland and/or open oak woodland habitats. No nonnative species shall be incorporated into the restoration plan. This plan shall include details of site preparation, and implementation and planting specifications, as well as maintenance and monitoring procedures. The plan shall also outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria.

Table 8a
Mitigation for Temporary Direct Impacts to Sensitive Vegetation Communities and Land Cover Types within the LOD (acres)

Sensitive Vegetation Community[1]	Impacted Acreage	Mitigation Ratio	Total Mitigation
Riparian and Wetlands (jurisdictional waters)			
Open water (Escondido Creek)	0.02	1:1	**0.02**
Southern willow riparian forest	0.45	1:1	**0.45**
Southern willow scrub	0.28	1:1	**0.28**
Subtotal Wetlands	***0.75***		***0.75***
Uplands			
Coast live oak woodland	0.83	1:1	**0.83**
Coastal sage scrub	0.06	1:1	**0.06**
Nonnative grassland	4.64	1:1	**4.64**
Subtotal Uplands	***5.53***		***5.53***
Total	**6.28**		**6.28**

MM-BIO-1.4: Permanent impacts to sensitive upland habitats shall be mitigated off-site through drawdown of mitigation credits from the Daley Ranch Mitigation Bank. Mitigation shall be completed, as shown in Table 8b, at ratios in accordance with the NCMSCP and Escondido Subarea Plan as the guiding regulatory documents for the proposed project. Coast live oak woodland shall be mitigated at 2:1 inside PAMA and 1:1 outside PAMA for a total of 1.70 acres of mitigation. Coastal sage scrub shall be mitigated at 1.5:1 inside PAMA and 1:1 outside PAMA for a total of 0.63 acre of mitigation. Nonnative grassland shall be mitigated at a ratio of 1:1 inside PAMA and 0.5:1 outside PAMA for a total of 4.20 acres of mitigation. Total mitigation credit to be drawn down from the Daley Ranch Mitigation Bank shall be 6.53 acres.

Table 8b
Mitigation for Permanent Direct Impacts to Sensitive Vegetation Communities and Cover Types within the LOD (acres)

Vegetation Community	NCMSCP						City of Escondido Subarea Plan				Total Mitigation
	NCMSCP Tier	Impacted Acreage (PAMA)	Impacted Acreage (Non-PAMA)	Shaded Area (PAMA Lands)	Mitigation Ratio (PAMA/Non-PAMA)	*Subtotal NCMSCP*	MHCP Group	Impacted Acreage	Mitigation Ratio	*Subtotal City*	
Riparian and Wetlands (jurisdictional waters)											
Open water (Escondido Creek)	I	-	-	0.02	2:1/1:1	*0.04*	Group A	-	1:1 to 3:1	-	**0.04**
Southern willow riparian forest	I	0.01	-	0.44	2:1/1:1	*0.90*	Group A	-	1:1 to 3:1	-	**0.90**
Southern willow scrub	I	0.06	-	0.18	2:1/1:1	*0.48*	Group A	-	1:1 to 3:1	-	**0.48**
Subtotal Wetlands		***0.07***		***0.64***		***1.42***					***1.42***
Uplands											
Coast live oak Woodland	I	0.28	0.18	-	2:1/1:1	*0.74*	Group B	0.48	2:1	*0.96*	**1.70**
Coastal sage Scrub	II	0.05	-	-	1.5:1/1:1	*0.08*	Group C	0.55	1:1	*0.55*	**0.63**
Nonnative grassland	III	1.69	2.46	0.26	1:1/0.5:1	*3.18*	Group E	2.03	0.5:1	*1.02*	**4.20**
Subtotal Uplands		***2.02***	***2.64***	***0.26***		***4.00***					***6.53***
Total		**2.09**	**2.64**	**0.90**		***5.42***		**3.06**		***2.53***	**7.95**

MM-BIO-1.5: Permanent impacts to riparian and wetland habitats shall be mitigated at a ratio of 2:1 for a total of 1.42 acres of mitigation required. All permanent shaded areas shall be mitigated at a ratio of 2:1 with the first 0.64 acre occurring through restoration on-site, and the remaining 0.64 acre occurring off-site. All other permanent impacts (0.07 acre) shall be mitigated for off-site at 2:1 for a total of 0.78 acre off-site (0.64+0.14). Off-site mitigation in the amount of 0.78 acre shall occur directly adjacent to the project site at the SE portion of the HARRF Expansion Parcel.

MM-BIO-1.6: A mitigation maintenance and monitoring plan for both on-site and off-site riparian and wetland mitigation, as described in MM-BIO-1.5, shall be prepared by a qualified restoration ecologist and shall incorporate an appropriate native species planting palette to blend in with the existing and surrounding habitats. This plan shall include details of site preparation, and implementation and planting specifications, as well as maintenance and monitoring procedures. The plan shall also outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria.

MM-BIO-2: Indirect Impacts to Sensitive Vegetation Communities

MM-BIO-2.1: Storage of soil or fill material from the project site shall be within the LOD or developed areas. The Contractor shall delineate stockpile areas on the grading plans, for review by the City.

MM-BIO-2.2: Construction access shall utilize existing developed areas or be within the right-of-way of proposed road improvements. If unauthorized new or temporary access routes are determined to be necessary, these areas shall be surveyed for biological resources prior to their use. Contractors shall clearly mark all access routes (i.e., flagged and/or staked) prior to the onset of construction. Implementation of erosion and sedimentation control measures as identified in MM-BIO-5 would also be required to reduce any potential indirect impacts to sensitive vegetation communities to less than significant.

MM-BIO-2.3: The Contractor shall periodically monitor the work area to ensure that construction-related activities do not generate excessive amounts of fugitive dust. Water shall be applied to the construction right-of-way, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion.

MM-BIO-3: Direct Impacts to Jurisdictional Waters

MM-BIO-3.1: Mitigation Measure BIO-1 requires mitigation for all permanent wetland habitat impacts at a ratio of 2:1. In addition, in accordance with resource agency policies, the mitigation should not result in a net loss of wetland habitat or wetland functions and values. Therefore, a minimum of 1:1 of the final mitigation replacement ratio should be accomplished by wetland/riparian restoration at the SE portion of the HARRF Expansion Parcel (0.78 acre). The proposed mitigation is subject to the resource agencies' review and discretion; thus, the mitigation obligations for the impacts to jurisdictional wetland habitats may change from those presented here.

MM-BIO-3.2: Impacts to riparian habitats and wetlands, as well as jurisdictional waters, shall require the following permits by regulatory federal and state agencies: (1) USACE, CWA, Section 404 permit for placement of dredged or fill material within waters of the U.S., (2) RWQCB, CWA, Section 401 state water quality certification/waiver for an action that may result in degradation of waters of the state, and (3) CDFG, California Fish and Game Code, Section 1602 agreement for alteration of a streambed. The mitigation could occur in the form of wetland/riparian creation or restoration (which both result in a gain of wetland/riparian area); or creation or restoration combined with enhancement.

MM-BIO-4: Direct Impacts to a Deed Restricted Mitigation Area

The deed restriction shall be removed from the area underneath the bridge. In kind, a deed restriction shall be placed on all mitigation acreage proposed at the SE portion of the HARRF expansion parcel. In addition, an area of equal acreage to the area being removed from the deed restriction to the west of the bridge shall be placed under deed restriction in the vicinity of the now proposed mitigation location on the HARRF expansion parcel.

MM-BIO-5: Indirect Impacts to Jurisdictional Waters

MM-BIO-5.1: As identified in MM-BIO-1, Environmentally Sensitive Area fencing shall be installed at the LOD to ensure no unintentional impacts to sensitive habitats. In the area of the HARRF access road connection, the limits of potentially jurisdictional southern willow riparian forest shall be flagged for avoidance by a qualified biological monitor, and silt fence shall be installed in this location to avoid any indirect impacts to this potentially jurisdictional habitat.

MM-BIO-5.2: A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared to comply with RWQCB requirements. The SWPPP shall identify the design features and best management practices (BMPs) that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during construction. Erosion control measures shall be regularly checked by the Contractor, the project Biologist, and/or City. Specific BMP plans shall be reviewed by the City and the project Biologist and modified, if necessary, prior to implementation. Fencing and erosion control measures of all project areas shall be inspected a minimum of once per week.

MM-BIO-5.3: Activities, including staging areas, equipment access, and disposal or temporary placement of excess fill, shall be prohibited within off-site drainages. Implementation of measures as identified in MM-BIO-2 would also be required to reduce any potential indirect impacts to jurisdictional waters to less than significant.

MM-BIO-6: Direct Impacts to Mature and Protected Trees

MM-BIO-6.1: Prior to the start of construction, all *mature* and/or *protected* trees as defined in Section 2.2.3 of this report, shall be identified by a qualified biological monitor within the temporary and permanent work areas. Impacts to trees in the temporary work area shall be avoided to the extent feasible. Trees in the temporary work area that can be avoided shall be temporarily fenced off at the drip line of the tree to prevent impacts during construction.

MM-BIO-6.2: If *mature* and/or *protected* trees cannot be preserved on-site, then impacts shall be mitigated as required under the City of Escondido Municipal Code (Chapter 33, Article 55). Where *mature* and *protected* trees occur in open oak woodland and/or riparian habitat, habitat based mitigation as required under MM-BIO-1 and MM-BIO-3 will reduce impacts to less than significant. Of the 38 *mature* trees, a total of 16 *mature* trees are not associated with riparian and oak woodland habitats on site. These 16 *mature* trees that cannot be preserved on-site, shall be replaced at a minimum 1:1 ratio. Of the 33 *protected* trees, a total of 12 *protected* trees are not associated with riparian and oak woodland habitats on site. These 12 *protected* trees that cannot be preserved on-site shall be replaced at a minimum 2:1 ratio. The number, size, species, and location of replacement trees shall be determined on a case-by-case basis by the City of Escondido Planning Department. Replacement trees shall be incorporated into the on-site revegetation plan, as required in MM-BIO-1.

MM-BIO-7: Indirect Impacts to Mature and Protected Trees

Implementation of measures as identified in MM-BIO-2 would reduce any potential indirect impacts to Mature and Protected Trees to less than significant.

MM-BIO-8: Direct Impacts to Sensitive Plant Species (Engelmann Oaks)

Impacts to two Engelmann oak trees shall be avoided in the temporary impact area to the extent feasible, as required in MM-BIO-5. Permanent impacts to one Engelmann Oak tree (and temporary impacts to the two Engelmann oak trees, if they cannot be avoided) shall be mitigated as required for *protected* trees under the City of Escondido Municipal Code (Chapter 33, Article 55). Engelmann oaks shall be replaced at a minimum 2:1 ratio at an on-site location, or elsewhere in the City, as determined by the City Director of Planning.

MM-BIO-9: Indirect Impacts to Sensitive Plant Species (Palmer's Sagewort and Engelmann Oaks)

MM-BIO-9.1: In the project buffer, the four individuals of Palmer's sagewort shall be flagged for avoidance and further impacts shall be avoided through implementation of the following: no unnecessary or unauthorized trespass by workers and equipment in the project buffer; and prohibiting staging and storage of equipment and materials, refueling activities, and littering or dumping debris in areas known to contain Palmer's sagewort outside the LOD. Palmer's sagewort shall also be planted within the project's potential on-site wetland/riparian restoration area.

MM-BIO-9.2: Implementation of measures identified in MM-BIO-2 would reduce any potential indirect impacts to Engelmann oaks to less than significant.

MM-BIO-10: Direct Impacts to Cooper's Hawk, Yellow Warbler, and Yellow-Breasted Chat and Other Migratory Birds

Under Fish and Game Code Division 4, Part 2, Chapter 1, Section 3503.5, "it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto," where "take" is defined under Division 0.5, Chapter 1, Section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." In addition, the MBTA restricts the killing of migratory birds or destruction of active migratory bird nests and/or eggs. Therefore, vegetation clearing should occur outside of the typical breeding season for raptors and migratory birds (February 1 through September 1). If this is not possible, then a qualified biologist shall conduct a survey for nesting birds no more than 5 calendar days prior to construction to determine the presence or absence of nests in the LOD, and the potential need for additional project mitigation measures. If construction is halted for more than 5 calendar days during the breeding season, then nest surveys must be repeated prior to any additional vegetation clearing.

MM-BIO-11: Indirect Impacts to Cooper's Hawk, Yellow Warbler, and Yellow-Breasted Chat and Birds and Other Migratory Birds

MM-BIO-11.1: If nesting birds, including but not limited to special-status species and those species protected by the MBTA, are detected in the LOD or project buffer, the nest shall be flagged and no construction activity shall take place within 500 feet of the nest until nesting is complete (nestlings have fledged or nest has failed) or a project biologist and noise specialist have confirmed that construction noise levels are less than 60 dBA L_{eq} at the nest site.

MM-BIO-11.2: If construction activities occur at night, all construction lighting (e.g., staging areas, equipment storage sites, roadway) shall be directed onto the roadway or construction site and away from sensitive habitat. Light glare shields shall also be used to reduce the extent of illumination into adjoining areas.

MM-BIO-11.3: Final construction plans shall detail all operational street light locations and shall be provided to the City of Escondido Planning Department for review. Operational street lights shall be directed onto the roadway and away from open space areas. When considering spacing of lighting along the roadway, special consideration shall be given to the lighting along the new bridge and in the vicinity of the riparian habitat in Escondido Creek. Lighting in the area of Escondido Creek should be avoided if possible. If lighting is necessary for safe roadway operations in the vicinity of the creek, filters, shields, automatic dusk-to-dawn sensors, and/or other commercially available devices shall be implemented so that lighting is not reflecting into the adjacent riparian habitat. Final Construction Plans detailing lighting shall include specifications for all proposed devices to avoid lighting impacts within the riparian habitat adjacent to the bridge. These lighting specifications shall be reviewed and approved by the City of Escondido Planning Department, prior to project implementation.

MM-BIO-11.4: Operational traffic noise may reduce breeding potential for the yellow warbler, yellow-breasted chat and Cooper's hawk within 230 feet of the centerline of the bridge and/or roadway. Noise levels shall be considered when preparing the restoration plan, to allow for the planting of mature and protected trees, as required in MM-BIO-6, in areas where traffic noise levels would not be expected to impact breeding and nesting activities of foraging raptors, including coopers hawk. Implementation of habitat based mitigation for direct impacts as described in MM-BIO-1 and MM-BIO-3 would result in an overall increase in suitable habitat for yellow warbler and yellow-breasted chat, and would reduce any potential indirect noise impacts to less than significant.

MM-BIO-11.5: Implementation of measures as identified in MM-BIO-2 would also reduce any potential indirect impacts to sensitive wildlife species and birds protected under MBTA to less than significant.

MM-BIO-12: Direct Impacts to Migratory Birds

Implementation of measures as identified in MM-BIO-10 would reduce any potential direct impacts to migratory bird populations to less than significant.

MM-BIO-13: Indirect Impacts to Migratory Birds

Implementation of measures as identified in MM-BIO-11.1, BIO-11.2, and BIO-11.3 would reduce any potential indirect impacts to migratory birds to less than significant.

Mitigation has been identified for impacts to sensitive vegetation communities, jurisdictional waters/wetlands, sensitive plant species, trees, and sensitive wildlife. With implementation of the above mitigation measures, impacts to all biological resources would be considered less than significant.

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CHAPTER 6.0
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APPENDIX A

45-DAY REPORTS FOR THE LEAST BELL'S VIREO

EDAW Inc
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November 27, 2007

Ms. Sandra Marquez
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

Mr. L. Breck McAlexander
California Department of Fish and Game
4949 Viewridge Avenue
San Diego, California 92123

RE: 45-Day Report Summarizing Results of Protocol Surveys for the Least Bell's Vireo for the Citracado Parkway Extension Project, Escondido, California

Dear Ms. Marquez and Mr. McAlexander:

This letter summarizes results of protocol surveys conducted by EDAW, Inc. (EDAW) to determine the presence or absence of the least Bell's vireo (*Vireo bellii pusillus*; LBV) within the proposed Citracado Parkway extension project area in San Diego County (Figure 1). Surveys were conducted on behalf of the City of Escondido.

Project Description

The City of Escondido proposes to extend and improve Citracado Parkway from West Valley Parkway to Andreasen Drive (Figure 2). The proposed Citracado Parkway extension would require a new structure crossing at Escondido Creek and may include landform alterations at the proposed intersection, or interchange, with Harmony Grove Road. Minor street realignments and/or grade adjustments may also be proposed for the intersection of Kuana Loa Drive with Harmony Grove Road. Traffic signals will be considered at various intersections with Citracado Parkway along the corridor being studied such as Citracado Parkway at Harmony Grove Road and/or Citracado Parkway at Avenida Del Diablo (see Figure 3 for additional street references).

The City is also considering the annexation of three parcels crossed by or in proximity to the proposed roadway extension. One of the parcels is owned by the City and is currently located within the County of San Diego jurisdictional boundaries. All three parcels are outside the City's Sphere of Influence.

Site Description

The project area occurs between West Valley Parkway and Andreasen Drive and crosses Escondido Creek. The project area (91.6 acres) extends approximately 4,000 feet north to south and approximately 1,000 to 1,300 feet east to west, including a 500-foot buffer surrounding the proposed project footprint. Urban development occurs adjacent to the project area to the north, east, and south, and a mosaic of open space and developed land occurs to the northwest, west, and southwest of the project area. In the vicinity, riparian

vegetation associated with Escondido Creek begins approximately 1,800 feet east of the project area and continues west-southwest through and past the project area.

Topography of the project area is relatively flat with scattered small, rocky hills, and elevation ranges from 600 to 850 feet above sea level. Soils in the project area are various types of sandy loam, with slopes from 2 to 30 percent. Visalia sandy loam with slopes of 2 to 5 percent and Vista coarse sandy loam with slopes of 5 to 9 percent occur within the area surveyed. Visalia sandy loam is moderately well-drained, very deep soil formed on granitic alluvium. Vista coarse sandy loam is well-drained, moderately deep soil formed in material weathered from decomposed granitic rocks. Several vegetation communities occur within the project area. The dominant vegetation communities are nonnative grassland, coast live oak woodland, developed and disturbed areas, and southern willow riparian forest. Small stands of eucalyptus woodland, ornamental vegetation, disturbed coastal sage scrub, and southern willow scrub also occur.

The portion of the project area that occurs within County of San Diego jurisdiction, which includes the riparian corridor and transitional habitats adjacent to it, have been designated as Pre-approved Mitigation Areas by the Draft North County Multiple Species Conservation Plan (NCMSCP).

Background Information

The LBV was listed as endangered by the U.S. Fish and Wildlife Service (USFWS) on May 2, 1986 (Federal Register 51(85):16474-16481) with a critical habitat listing (Federal Register 59(22):4845-4867). This listing status applies to the entire population of LBV. A draft recovery plan was written by the USFWS and circulated for review in 1998 (USFWS 1998). In September 2006, a 5-Year Review Summary and Evaluation was published by the USFWS, recommending that the subspecies be downlisted to threatened status (USFWS 2006). The California Department of Fish and Game listed this subspecies as endangered on October 2, 1980.

Historically, this subspecies was a common summer visitor to riparian habitat throughout much of California. Currently, the LBV is found only in riparian woodlands in southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside counties. Substantial vireo populations are currently found on five rivers in San Diego County including the Tijuana, Sweetwater, San Diego, San Luis Rey, and Santa Margarita rivers, with smaller populations on other drainages. Over 460 breeding pairs or territorial males were recorded in San Diego County in 1991. The LBV is restricted to riparian woodland and is most frequent in areas that combine an understory of dense young willows or mulefat with a canopy of tall willows. Since LBVs build their nests in dense shrubbery 3 to 4 feet above the ground (Salata 1984), they require young successional riparian habitat or older habitat with a dense understory. Therefore, riparian plant succession is an important factor in maintaining vireo habitat. Nests are also often placed along edges of riparian thickets (Unitt 2004). The LBV is migratory and arrives in San Diego County in late March/early April and leaves for its wintering grounds in September.

The LBV's decline is attributed to loss, degradation, and fragmentation of riparian habitat combined with brood/nest parasitism by the brown-headed cowbird (*Molothrus ater*; BHCO). Due to concerted programs focused on preserving, enhancing, and creating suitable nesting habitat, the LBV population has steadily increased in population size along several of its breeding drainages in southern California. Significant increases in breeding populations have occurred along the Santa Ana River at Prado Basin, and on the Santa Margarita River on Marine Corps Base Camp Pendleton, as well as at several other sites throughout the region.

Survey Methodology

Prior to conducting protocol LBV surveys in 2007, vegetation and general wildlife habitats were mapped by qualified EDAW biologists within the project area. These survey results were analyzed to determine areas of suitable LBV habitat within and adjacent to the project area. Approximately 6.2 acres of habitat were considered suitable for LBV within the project area, an area reasonable to survey in 1 day (Figure 3).

Protocol-level LBV surveys occurred between April 18 and July 23, 2007, within the survey area (Table 1). These surveys followed the current USFWS survey protocol for the species, dated January 19, 2001 (USFWS 2001). The survey consisted of walking meandering transects through potential LBV habitat, including all riparian willow forest and riparian willow scrub associations, as well as upland and wetland habitats adjacent to areas of scrub. EDAW biologists conducted passive surveillance (i.e., listening and looking for the species) in all habitats with potential to support LBV. Per the current USFWS protocol, suitable habitat within the project area was surveyed eight times during the 2007 breeding season. Surveys were conducted at least 10 days apart.

Table 1
Least Bell's Vireo Protocol Surveys
Dates, Personnel, Weather Conditions, and Results

Date	Survey Number	Surveyors	Time	Weather Conditions	LBV Observed
04/18/07	1	Suellen Lynn, Mason Ryan	0720 – 0840	Start: 53°F, wind 1 mph, 80% cover End: 58°F, wind 1.8 mph, 40% cover	None
05/01/07	2	Suellen Lynn	0730 – 0850	Start: 60°F, wind 1.3 mph, 100% cover End: 62°F, wind 0 mph, 100% cover	None
05/16/07	3	Suellen Lynn, Paul Moreno	0652 – 0812	Start: 60°F, wind 0 mph, 100% cover End: 60°F, wind 1.5 mph, 100% cover	None
06/07/07	4	Barbra Calantas, Chris Ward	0615 – 0720	Start: 52°F, wind 0 mph, 0% cover End: 63°F, wind 0.7 mph, 0% cover	None
06/18/07	5	Barbra Calantas	0550 – 0730	Start: 54°F, wind 1.6 mph, 0% cover End: 56°F, wind 0.7 mph, 100% cover	None
07/02/07	6	Erin Riley, Chris Ward	0650 – 0855	Start: 73°F, wind 0.5 mph, 0% cover End: 82°F, wind 0.8 mph, 0% cover	None
07/12/07	7	Mason Ryan, Paul Moreno	0714 – 0815	Start: 65°F, wind 0 mph, 100% cover End: 68°F, wind 0 mph, 100% cover	None
07/23/07	8	Erin Riley, Katie Hall	0700 - 0845	Start: 66°F, wind 1.5 mph, 90% cover End: 70°F, wind 1.5 mph, 85% cover	None

Results

A summary of survey data is presented in Table 1, including date of survey, survey number, time, weather conditions, field biologists, and LBV observations. Field notes are available in Attachment A. A complete list of all wildlife species detected during LBV surveys is included in Attachment B.

No LBVs were detected throughout the survey area during the survey period. BHCOs were detected throughout the survey area during the survey season (Figure 3), with a maximum number of 10 observed on July 2. A summary of the BHCOs detected is provided in Table 2.

Table 2
Summary of Brown-headed Cowbird Observations by Survey Period

Survey Period	Survey Dates	Number of BHCOs Detected
1	04/18/07	4 individuals
2	05/01/07	6 individuals
3	05/16/07	6 individuals
4	06/07/07	6 individuals
5	06/18/07	1 individual
6	07/02/07	10 individuals
7	07/12/07	0 individuals
8	07/23/07	1 individual

Three sensitive wildlife species were detected during LBV surveys: Cooper's hawk (*Accipiter cooperii*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*), all California Special Concern Species (Figure 3). Cooper's hawk is covered under the NCMSCP.

If you have any comments or questions regarding this letter report, please feel free to contact me at (619) 233-1454.

Yours sincerely,

Suellen Lynn
Wildlife Biologist

I certify that the information in this survey report and attached exhibits fully and accurately represent the work performed by EDAW personnel.

Suellen Lynn	Barbra Calantas	Erin Riley	Mason Ryan
Wildlife Biologist	Biologist	Wildlife Biologist	Wildlife Biologist

Attached: Figure 1 – Regional Location Map
Figure 2 – Vicinity Map
Figure 3 – Least Bell's Vireo Survey Results Map
Attachment A – Field Data Sheets
Attachment B – Wildlife Species Detected during Least Bell's Vireo Surveys

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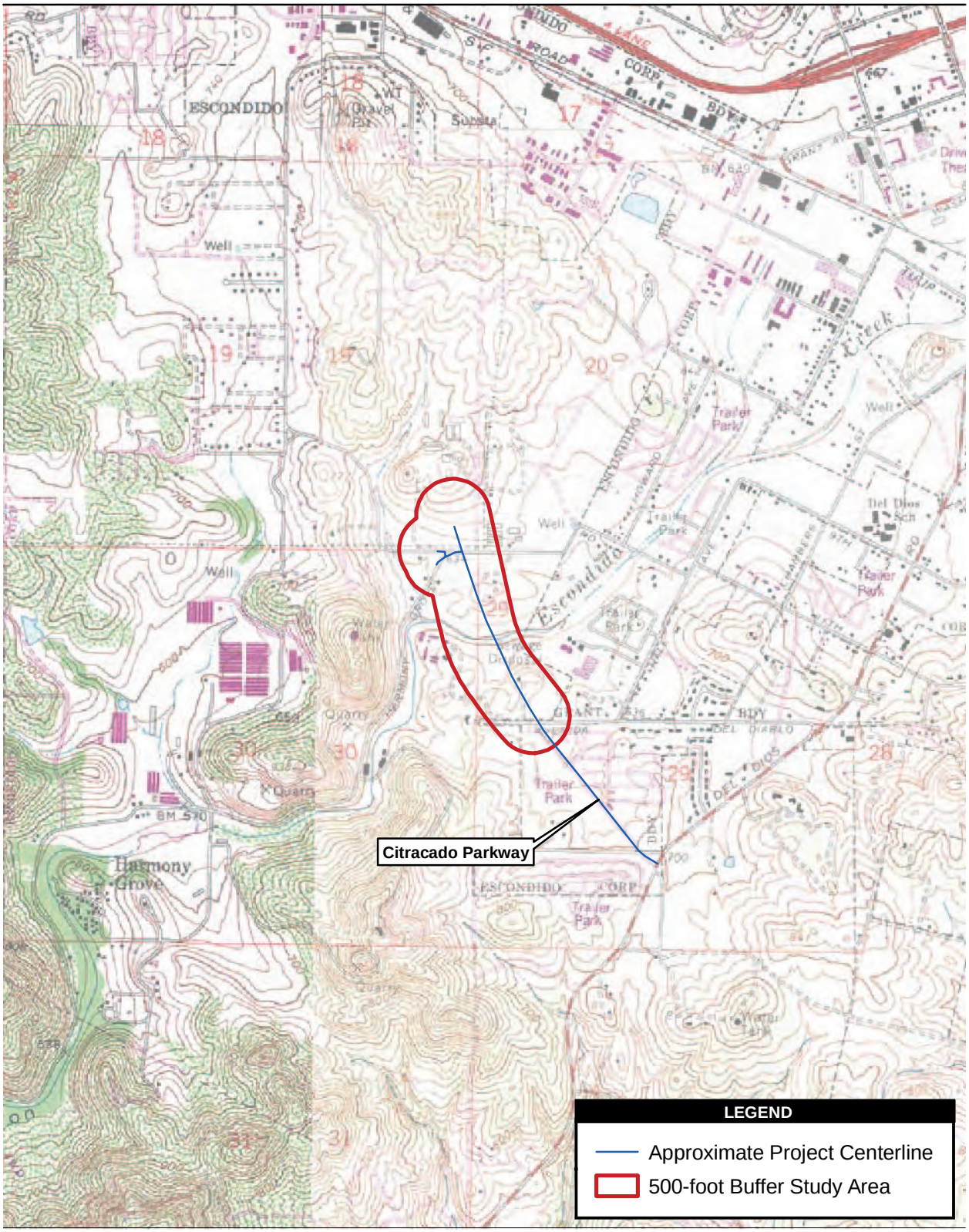
FIGURES

Figure 1
Regional Location Map



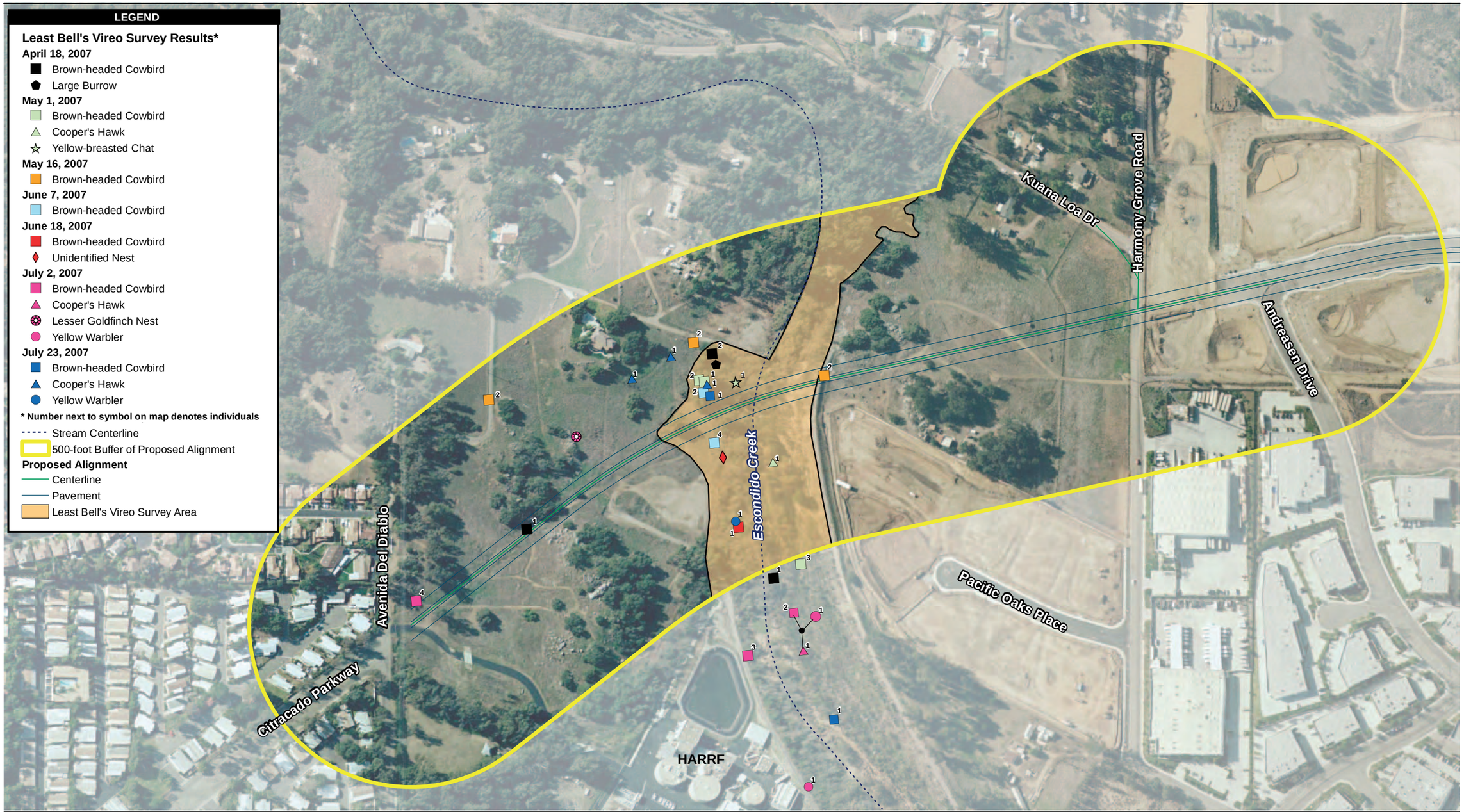
Source: USGS 7.5' Quadrangles, Escondido 1975, Valley Center 1975, Rancho Santa Fe 1983, San Marcos 1983

2,000 1,000 0 2,000 Feet

Scale: 1:24,000; 1 inch = 2,000 feet

Figure 2
Vicinity Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\Bio\LBV45day\Fig 2 Vicinity Map.mxd, 09/18/07, marraccinib



Source: EDAW 2007; Dokken 2007; AirPhotoUSA 2006

300 150 0 300 Feet

Scale: 1:3,600; 1 inch = 300 feet

Figure 3
Least Bell's Vireo Survey Results Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\Bio\LBV45day\Fig 3 Survey Results.mxd, 09/18/07, marraccinib

ATTACHMENT A

FIELD DATA SHEETS

Entered SL 4/18/07

LBVI SURVEYS

Recorder: S. Lynn Add'l Person: M. Ryan GPS Unit: Garmin 2
Project: Citracado Pkway Survey Section: A1 Map #: 1
Date: 4/18/07 Survey Type: LBVI Survey 1 of 8
Time Start: 0720 Time End: 0840

Start: T: 53° CC: 20% Wind Sp/Dir: 1.0/W General Weather Condition: mostly cloudy

Map/ GPS #	Time	Species	Age	Sex	Vegetation Type	Comments
CISLCB 01	0732	BHCO	(A) J U	(M) F U	Oak	~100m S of riparian
		SPTO	A J U	M F U		
		COVE	A J U	M F U		
		BHGR	A J U	M F U		
		ANHU	A J U	M F U		
		ACWO	A J U	M F U		
		HOWR	A J U	M F U		
		MODO	A J U	M F U		
		WIWA	A J U	M F U		
		WESJ	A J U	M F U		
CISLCB 02	0743	BHCO	(A) J U	(M) (F) U	Eucalyptus	Hell No Property W/ ♀
		NOOR	A J U	M F U		
		SOSP	A J U	M F U		
		WAVI	A J U	M F U		
		DOWO	A J U	M F U		
		BUSH	A J U	M F U		
		RWBL	A J U	M F U		
		TOWA	A J U	M F U		
		CALT	A J U	M F U		
		BEWR	A J U	M F U		
		LEGO	A J U	M F U		
		ATPL	A J U	M F U		

Comments:
CISLBURR01 - no new tracks
CISLBRIG01 = bridge across creek

S. Willow Scrub = SWS Upland = UPL
Tamarisk = TAM
Arundo = ARU

End: T: 57.5 CC: 40% Wind Sp/Dir: 1-8/N General Weather Condition: breezy, p. cloudy

LBVI SURVEYS

Recorder: Slynn Project: Citrucado Survey Section: All
Date: 4/18/07 Survey Type: LBVI Map #: 1

Map/ GPS #	Time	Species	Age	Sex	Vegetation Type	Comments
		LEGD	A J U	M F U		
CBSCB 03	0819	BHCO	(A) J U	M (F) U	Riparian	Flew S
		NWWD	A J U	M F U		
		KILL	A J U	M F U		
		CLSW	A J U	M F U		
		YEWA	A J U	M F U		
		WTSW	A J U	M F U		
		NRWS	A J U	M F U		
		CCWA	A J U	M F U		
		AMCR	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

S. Willow Scrub = SWS Upland = UPL
Tamarisk = TAM
Arundo = ARU

End: T: _____ CC: _____ Wind Sp/Dir : _____ General Weather Condition: _____

Entered sc 7/20/07

LBVI SURVEYS

Recorder: S. Lynn Add'l Person: — GPS Unit: Garmin 2
Project: Cibracado Survey Section: All Map #: 1
Date: 5/1/2007 Survey Type: LBVI Survey 2 of 8
Time Start: 0730 Time End: 0850

Start: T: 59.6 CC: 100 Wind Sp/Dir: 1.3, WSW General Weather Condition: ~~dr~~ showers

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		BLSH	A J U	M F U		
		BHGR	A J U	M F U		
		HOWR	A J U	M F U		
		SPTO	A J U	M F U		
		ATFL	A J U	M F U		
C1S1CB04	0745	BHCO	(A) J U	(M) (F) U	pair	rip to oaks
C1S1CB05	0745	BHCO	(A) J U	M (F) U	indiv	riparian
		SOSP	A J U	M F U		
		NUWO	A J U	M F U		
		MODO	A J U	M F U		
		PSFL	A J U	M F U		
		ANHU	A J U	M F U		
		WESJ	A J U	M F U		carry nest material near lg burrow
		WIWA	A J U	M F U		
		CORA	A J U	M F U		
		EUST	A J U	M F U		
		BLGR	A J U	M F U		
		LAZB	A J U	M F U		
		COVE	A J U	M F U		
		YBCH	A J U	M F U		
C1S1CB06	0800	BHCO	(A) J U	(M) (F) U	pair +	3 (♀ + 2 ♂)
		CLSW	A J U	M F U		
		HOFI	A J U	M F U		
		NRWS	A J U	M F U		
		AMCR	A J U	M F U		
		Bullfrog	A J U	M F U		@ COHA
C1S1CH01	0811	COHA	A (J) U	M (F) U	SY indiv	eating ground squirrel
~~C1S1CH01~~	~~0811~~	MALL	A J U	M F U		
		WAVI	A J U	M F U		
		BEWR	A J U	M F U		

End: T: 62.2 CC: 100 Wind Sp/Dir: 0 — General Weather Condition: sprinkles

LBVI SURVEYS

Recorder: Slynn
Project: Citracado
Survey Section: All
Date: 5/1/07
Survey Type: LBVI
Map #: 1

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		LEGO	A J U	M F U		
		BUOR	A J U	M F U		on "hell no" property
		CALT	A J U	M F U		
		ACWO	A J U	M F U		nest cavity in pole
		Alligator lizard	A J U	M F U	dead in grass	
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

End: T: _____ CC: ______ Wind Sp/Dir :_____________ General Weather Condition:_______________

Page 2 of 2

Entered SE 7/20/07

LBVI SURVEYS

Recorder: S. Lynn Add'l Person: P. Moreno GPS Unit: Garmin 2
Project: Citracado Survey Section: All Map #:
Date: 5/16/07 Survey Type: LBVI Survey 3 of 8
Time Start: 0652 Time End: 0812

Start: T: 60.2 CC: 100 Wind Sp/Dir: Ø General Weather Condition: overcast

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		MODO	A J U	M F U		
		AMCR	A J U	M F U		
		LEGO	A J U	M F U		
		HOFI	A J U	M F U		
		Skunk	A J U	M F U		
CIPMCB01 (PM)	0657	BHCO	(A) J U	(M) (F) U	pair	
		BUSH	A J U	M F U		
		CALT	A J U	M F U		
		SPTO	A J U	M F U		
		HOWR	A J U	M F U		
		BLPH	A J U	M F U		
		CLSW	A J U	M F U		
		RTHA	A J U	M F U		
		BHGR	A J U	M F U		
		ANHU	A J U	M F U		
		ATFL	A J U	M F U		
		PSFL	A J U	M F U		
		BUOR	A J U	M F U		
CIPMCB02	0714	BHCO	(A) J U	(M) (F) U	pair	
		RWBL	A J U	M F U		
		Burrow	A J U	M F U	still smells like something dead, (PM) smoothed dirt	
		NRWS	A J U	M F U		
		ACWO	A J U	M F U		
		BEWR	A J U	M F U		
		MALL	A J U	M F U		
		SOSP	A J U	M F U		
		COYE	A J U	M F U		
		WAVI	A J U	M F U		
		BLGR	A J U	M F U		
		LAGO	A J U	M F U		

End: T: 57.7 CC: 100 Wind Sp/Dir: 1.5/2.5 SW General Weather Condition: overcast

LBVI SURVEYS

Recorder: S.Lynn Project: Citracado Survey Section: All
Date: 5/16/07 Survey Type: LBVI Map #:

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
CIPMCB03	0744	BHCO	(A) J U	(M) F U	2 ♂	
		~~WEFA~~	A J U	M F U		
		HOOR	A J U	M F U		
		NUWO	A J U	M F U		
		Woodrat	A J U	M F U	scat	
		KILL	A J U	M F U		
		WEKI	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

End: T: _____ CC: _____ Wind Sp/Dir : _____ General Weather Condition: _____

Entered 52 7/20/07

LBVI SURVEYS

Recorder: B Calantas Add'l Person: C. Ward GPS Unit: none
Project: Citracado Pkwy Survey Section: All Map #: CP - LBV 4
Date: 06/07/07 Survey Type: LBVI Survey 4 of 8
Time Start: 0615 Time End: 0720

Start: T: 52.0 CC: 0 % Wind Sp/Dir : 0 wind General Weather Condition: clear

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		HOFI	A J U	M F U		
		CALT	A J U	M F U		
		EUST	A J U	M F U		
		LEGO	A J U	M F U		very dull color
		BHGR	A J U	M F U		
		WTSW	A J U	M F U		
		SPTO	A J U	M F U		
		AMCR	A J U	M F U		
CPBCCB01		BHCO	A J U	(M) (F) U	pair	
		ACWO	A J U	M F U		
		BUSH	A J U	M F U		
		YRWA	A J U	M F U		
		BEWR	A J U	M F U		
		SNEG	A J U	M F U		
		ANHU	A J U	M F U		
		OLSW	A J U	M F U		
		ottontail	A J U	M F U		
CPBLCB02		BHCO	A J U	M F U	flock	4 individual ♂'s
		BUSH	A J U	M F U		
		Gull sp.	A J U	M F U		
		ATFL	A J U	M F U		
		COYE	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

End: T: 63.1 CC: 01. Wind Sp/Dir : 0-7 / 1-0 General Weather Condition: clear

Entered SE 7/20/07

LBVI SURVEYS

Recorder: B. Calantas Add'l Person: — GPS Unit: Garmin 2
Project: Citracado Pkwy Survey Section: A1 Map #: CP-LBV4
Date: 06/10/07 Survey Type: LBVI Survey 5 of 8
Time Start: 0550 Time End: 0730

Start: T: 54.2 CC: 100 Wind Sp/Dir: 1-6/2.3 W General Weather Condition: overcast/foggy

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		WESJ	A (J) U	M F U		
		AMCR	A J U	M F U		
		coyote	A J U	M F U	ind.	
		MODO	A J U	M F U		
		ATFL	A J U	M F U		
		CLSW	A J U	M F U		
		LEGO	A J U	M F U		
		SPTO	A J U	M F U		
		EUST	A J U	M F U		
		BHGR	A J U	M F U		
		PSFL	A J U	M F U		
		BLGR	A J U	M F U		
		ASHTA	A J U	M F U		
		HOFI	A J U	M F U		
		BLPH	A J U	M F U		
		WREN	A J U	M F U		
		MODO	A J U	M F U		
		CALT	A J U	M F U	2 juvs	
		Bullfrog	A J U	M F U		calling in creek
		BUSH	A J U	M F U		
		CATH	A J U	M F U		
		ANHU	A J U	M F U		
		OCWA	A J U	M F U		
		WEKI	A J U	M F U		
CPBCNE01		nest?	A J (U)	M F (U)	nest	unknown passerine sitting
			A J U	M F U		in nest. Bush hopping
			A J U	M F U		around but not Bush nest
		CORA	A J U	M F U	.	
CPBCCB01		BHCO	(A) J U	(M) F U	ind.	
		SNEG	A J U	M F U		

End: T: _____ CC: _____ Wind Sp/Dir: _____ General Weather Condition: _____

LBVI SURVEYS

Recorder: B. Calantas Project: Citracado Pkwy Survey Section: A1
Date: 06/16/07 Survey Type: LBVI Map #: CP-LBV4

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		SOSP	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:
≈3 transients in creek. All males immigrants?

End: T: 55.5 CC: 100 Wind Sp/Dir: 0.7/1.4/W General Weather Condition: overcast.

LBVI SURVEYS

Entered 8L 7/20/07

Recorder: ER1 Add'l Person: CWA GPS Unit: 2
Project: Citracado Survey Section: — Map #: 2
Date: 070207 Survey Type: LBVI Survey 6 of 8 LBVI
Time Start: 0650 Time End: 0855 32 of 4 BUOW

Start: T: 73.2°F CC: 0 Wind Sp/Dir: 0.5/0.9max General Weather Condition: clear

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		HOFI	A J U	M F U		
		BUOR	A J U	M F U		
		CA Grd Squirrel	A J U	M F U		
		WWPW	A J U	M F U		
		ANHU	A J U	M F U		
		BHGB	A J U	M F U		
		NWWO	A J U	M F U		
		NOMO	A J U	M F U		
		BUSH	A J U	M F U		
		BHCB	A J U	M (F) U	1 indiv	
		MODO	A J U	M F U		
		ACWO	A J U	M F U		
		PSFL	A J U	M F U		
		WRWS	A J U	M F U		
		LEGO	A J U	M F U		
		COYE	A J U	M F U		
CPERYW01		YEWA	A J U	M F U		
CPERCB01		BHCB	(A) J U	(M) (F) U	2 indivs - pair	
		SPTO	A J U	M F U		
		CALT	A J U	M F U		
		HUVI	A J U	M F U		
		CLSW	A J U	M F U		
		Western Fence Lizard	A J U	M F U		
		GRAR	A (J) U	M F U		
CPERCB03 not GPS'd		BEWR	A J U	M F U		
		BHCB	A J U	M F U	4 indivs	@ entrance
		bullfrog	A J U	M F U		
		coyote	A J U	M F U	scat, tracks	
		BLPH	A J U	M F U		
		AMCR	A J U	M F U		

End: T: _____ CC: _____ Wind Sp/Dir: _____ General Weather Condition: _____

LBVI SURVEYS

Recorder: ERI Project: C.I. Prkwy Survey Section: _____
Date: 07027 Survey Type: LBVI Map #: _____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
CPERCH01		COHA	A J U	M F U		
		PHAIN	A J U	M F U		
		WEKI	A J U	M F U		
		OATI	A J U	M F U		
		COTEND	A J U	M F U		
		RSHA	A J U	M F U		
CPERLG01		LEGO	A J U	M F U	(NEST)	w/2 fledglings
		HOWR	A J U	M F U		
		SOSP	A J U	M F U		
		RTHA	A J U	M F U		
		KILL	A J U	M F U		
		SOSP	A J U	M F U	fledglings being fed	
CPERCB02		BHCR	(A) J U	(M) F U	Bi.Bi.rs	
		MALL	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:
*Burrows = all ground squirrel + some older s/c holes

End: T: 81.6F CC: 0 Wind Sp/Dir: 0.8/1.6 max General Weather Condition: warm, clear

Entered 8/1/07 BL

LBVI SURVEYS

Recorder: M. Ryan Add'l Person: P. Moreno GPS Unit: MR's Garmin
Project: Citracado Survey Section: All Map #: CITBUØ3
Date: 7/12/07 Survey Type: LBVI Survey 7 of 8 LBVI
Time Start: Ø714 Time End: Ø815 3 of 4 BUOW

Start: T: 65 CC: 100% Wind Sp/Dir: Ø General Weather Condition: cool, calm
End: T: 68 CC: 100% Wind Sp/Dir: Ø General Weather Condition: cool, calm

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		AMCR	A J U	M F U		
		WESJ	A J U	M F U		
		MODO	A J U	M F U		
		NOMO	A J U	M F U		
		BUSH	A J U	M F U		
		HOFI	A J U	M F U		
		UNFL	A J U	M F U		unidentified flycatcher
		RSHA	A J U	M F U		
		SPTO	A J U	M F U		
		CLSW	A J U	M F U		
		BHGR	A J U	M F U		
		ANHU	A J U	M F U		
		CAEG	A J U	M F U		
		RWBL	A J U	M F U		
		cottontail	A J U	M F U		
		bullfrog	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Entered 8/1/07 SL

LBVI SURVEYS

Recorder: ERI Add'l Person: KHL GPS Unit: NONE
Project: Colorado Survey Section: — Map #: 3
Date: 072307 Survey Type: LBVI + BUOW Survey 8 of 8 LBV
Time Start: 0700 Time End: 0845 4 of 4 BUOW

Start: T: 66 CC: 90 Wind Sp/Dir: 0-3mph General Weather Condition: overcast, warm

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		HOFI	A J U	M F U		
		LEGO	A J U	M F U		
		AMCR	A J U	M F U		
		CALT	A J U	M F U		
		cottontail	A J U	M F U		
		MODO	A J U	M F U		
		MOBO	A J U	M F U		
		ATFL	A J U	M F U		
~~OPERCOOP~~		HOWR	A J U	M F U		
		BHCB	A J U	M F U	mapped, no GPS	
OPERCHOK		COHA	A J U	M F U	mapped, no GPS	
		RSFL	A J U	M F U		
		SWEG	A J U	M F U		
		SOSP	A J U	M F U		
		OATI	A J U	M F U		
		WEST	A J U	M F U		
		Coyote	A J U	M F U	Scat	
OPERCHOK TWO		YEWA	A J U	M F U	mapped,	no GPS
		raccoon	A J U	M F U	tracks	
		opossum	A J U	M F U	tracks	
		AMGO	A J U	M F U		
		BLPH	A J U	M F U		burrows - no owl sign detected, all burrows = either cobwebs or ground squ active
		LESW	A J U	M F U		
		BEWR	A J U	M F U		
		Skunk	A J U	M F U	tracks	
		ground sq	A J U	M F U	tracks	
		SPTO	A J U	M F U		
		BUSH	A J U	M F U		
		~~MODO~~	A J U	M F U		
burrows		~~Owl~~	A J U	M F U	Singing	

End: T: 70 CC: 85 Wind Sp/Dir: 0-3 General Weather Condition: warm, overcast

ATTACHMENT B

WILDLIFE SPECIES DETECTED DURING LEAST BELL'S VIREO SURVEYS

APPENDIX B
Wildlife Species Detected during Least Bell's Vireo Surveys

Scientific Names	Common Names
Amphibians	
Order Anura	Lizards and Snakes
Family Ranidae	
Lithobates (=Rana) catesbeiana	bullfrog
Reptiles	
Order Squamata	Lizards and Snakes
Family Phrysonomatidae	
Sceloporus occidentalis	western fence lizard
Family Anguidae	
Elgaria multicarinata	southern alligator lizard
Birds	
Order Anseriformes	Ducks and Geese
Family Anatidae	
Anas platyrhynchos	mallard
Order Ciconiiformes	Herons, Storks, Vultures, and Relatives
Family Ardeidae	
Egretta thula	snowy egret
Bubulcus ibis	cattle egret
Order Falconiformes	Diurnal Birds of Prey
Family Accipitridae	
Accipiter cooperii	Cooper's hawk *
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
Order Charadriiformes	Shorebirds and Allies
Family Charadriidae	
Charadrius vociferous	killdeer
Order Columbiformes	Doves and Pigeons
Family Columbridae	
Zenaida macroura	mourning dove
Order Cuculiformes	Cuckoos and Relatives
Family Cuculidae	
Geococcyx californianus	greater roadrunner
Order Apodiformes	Swifts and Hummingbirds
Family Apodidae	
Aeronautes saxatalis	white-throated swift
Family Trochilidae	
Calypte anna	Anna's hummingbird
Order Piciformes	Woodpeckers
Family Melanerpes	
Melanerpes formicivorus	acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker
Picoides pubescens	downy woodpecker
Order Passeriformes	Perching Birds
Family Tyrannidae	
Contupus sordidulus	western wood-pewee
Empidonax difficilis	pacific-slope flycatcher
Sayornis nigricans	black phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus verticalis	western kingbird
Family Vireonidae	
Vireo huttoni	Hutton's vireo
Vireo gilvus	warbling vireo

Scientific Names	Common Names
Family Corvidae	
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Family Hirundinidae	
Stelgidopteryx serripennis	northern rough-winged swallow
Petrochelidon pyrrhonota	cliff swallow
Family Paridae	
Baeolophus inornatus	oak titmouse
Family Aegithalidae	
Psaltriparus minimus	bushtit
Family Troglodytidae	
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Family Timaliidae	
Chamaea fasciata	wrentit
Family Mimidae	
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
Family Sturnidae	
Sturnus vulgaris	European starling
Family Ptilogonatidae	
Phainopepla nitens	phainopepla
Family Parulidae	
Vermivora celata	orange-crowned warbler
Dendroica petechia	yellow warbler *
Dendroica coronata	yellow-rumped warbler
Dendroica townsendi	Townsend's warbler
Geothlypis trichas	common yellowthroat
Wilsonia pusilla	Wilson's warbler
Icteria virens	yellow-breasted chat *
Family Emberzidae	
Pipilo maculates	spotted towhee
Pipilo crissalis	California towhee
Melospiza melodia	song sparrow
Family Cardinalidae	
Pheucticus melanocephalus	black-headed grosbeak
Passerina caerulea	blue grosbeak
Passerina amoena	lazuli bunting
Family Icteridae	
Agelaius phoeniceus	red-winged blackbird
Molothrus ater	brown-headed cowbird
Icterus cucullatus	hooded oriole
Icterus bullockii	Bullock's oriole
Family Fringillidae	
Carpodacus mexicanus	house finch
Carduelis psaltria	lesser goldfinch
Carduelis lawrencei	Lawrence's goldfinch
Carduelis tristis	American goldfinch
Mammals	
Order Didelphimorphia	Marsupials
Family Didelphidae	
Didelphis virginiana	opossum
Order Carnivora	Flesh-eaters
Family Canidae	
Canis latrans	coyote

Scientific Names	Common Names
Family Mephitidae	
Mephitis mephitis	striped skunk
Family Procyonidae	
Procyon lotor	raccoon
Order Lagomorpha	Rabbits, Hares, and Pikas
Family Leporidae	
Sylvilagus audubonii	desert cottontail
Order Rodentia	Gnawing Mammals
Family Sciuridae	
Spermophilus beecheyi	California ground squirrel
Family Cricetidae	
Neotoma sp.	unidentified woodrat

* indicates California Special Concern species

2009 45-DAY REPORT FOR THE LEAST BELL'S VIREO

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October 27, 2009

Ms. Sandra Marquez
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

Mr. L. Breck McAlexander
California Department of Fish and Game
4949 Viewridge Avenue
San Diego, California 92123

RE: 45-Day Report Summarizing Results of Protocol Surveys for the Least Bell's Vireo for the Citracado Parkway Extension Project, Escondido, California

Dear Ms. Marquez and Mr. McAlexander:

This letter summarizes results of protocol surveys conducted by EDAW, Inc. (EDAW) to determine the presence or absence of the least Bell's vireo (*Vireo bellii pusillus*; LBV) within the proposed Citracado Parkway extension project area in San Diego County (Figure 1). Surveys were conducted on behalf of the City of Escondido (City).

Project Description

The City proposes to extend and improve Citracado Parkway from West Valley Parkway to Andreasen Drive (Figure 2). The proposed Citracado Parkway extension would require a new structure crossing at Escondido Creek and may include landform alterations at the proposed intersection, or interchange, with Harmony Grove Road. Minor street realignments and/or grade adjustments may also be proposed for the intersection of Kuana Loa Drive with Harmony Grove Road. Traffic signals will be considered at various intersections with Citracado Parkway along the corridor being studied such as Citracado Parkway at Harmony Grove Road and/or Citracado Parkway at Avenida Del Diablo (see Figure 3 for additional street references).

Site Description

The biological survey area (BSA) occurs between West Valley Parkway and Andreasen Drive and crosses Escondido Creek. The BSA includes the outermost limit of the combined proposed project footprint alternatives (combined limits or project footprint) and a 500-foot buffer (buffer) around the combined limits. The BSA is approximately 236.79 acres and extends approximately 2,500 feet, north to south, and approximately 1,000 to 1,300 feet, east to west. Urban development occurs adjacent to the survey area to the north, east, and south, and a mosaic of open space and developed land occurs to the northwest, west, and southwest of the survey area. In the vicinity, riparian vegetation associated with Escondido Creek begins approximately 1,800 feet east of the BSA and continues west-southwest

through and past the survey area. At the time of the survey, a business park was being proposed on the northern end of the BSA. This area was included in the project footprint; however, after surveys were completed, the business park was removed from the project.

Topography of the area is relatively flat with scattered small, rocky hills, and elevation ranges from 600 to 850 feet above sea level. Soils in the survey area include Visalia sandy loam, with slopes of 2 to 5 percent, and Vista coarse sandy loam, with slopes of 5 to 9 percent. Visalia sandy loam is moderately well-drained, very deep soil formed on granitic alluvium. Vista coarse sandy loam is well-drained, moderately deep soil formed in material weathered from decomposed granitic rocks. Several vegetation communities occur within the survey area. The dominant vegetation communities and land cover types are nonnative grassland, coast live oak woodland, and southern willow riparian forest, as well as developed and disturbed areas. Small stands of eucalyptus woodland, ornamental vegetation, diegan coastal sage scrub, diegan coastal sage scrub/chaparral, and southern willow scrub also occur.

The portion of the BSA that occurs within County of San Diego jurisdiction, which includes the majority of the LBV survey limits, has been designated as a Pre-approved Mitigation Area (PAMA) in the Draft North County Multiple Species Conservation Plan (Figure 4).

Background Information

The LBV was listed as endangered by the U.S. Fish and Wildlife Service (USFWS) on May 2, 1986 (Federal Register 51[85]:16474–16481), with designated critical habitat (Federal Register 59[22]:4845–4867). This listing status applies to the entire population of LBV. A draft recovery plan was written by USFWS and circulated for review in 1998 (USFWS 1998). No critical habitat occurs within the BSA. The California Department of Fish and Game listed this subspecies as endangered on October 2, 1980.

Historically, this subspecies was a common summer visitor to riparian habitat throughout much of California. Currently, the LBV is found only in riparian woodlands in southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside counties. Substantial vireo populations are currently found on five rivers in San Diego County (the Tijuana, Sweetwater, San Diego, San Luis Rey, and Santa Margarita rivers), with smaller populations on other drainages. During 1996, a total of 1,423 territorial males were recorded within San Diego County (Unitt 2004). From 2001–2005, a total of 1,609 pairs were recorded in San Diego County, which accounts for approximately 54 percent of the total LBV population within California (USFWS 2006).

The LBV is migratory and arrives in San Diego County in late March/early April and leaves for its wintering grounds in September. The LBV primarily occupies riparian woodlands that include dense cover within 3 to 7 feet of the ground and a dense, stratified canopy. The subspecies inhabits low, dense riparian growth along water or along dry parts of intermittent streams. The understory is typically dominated by species of willow (*Salix* sp.) and mulefat (*Baccharis salicifolia*). Overstory species typically include cottonwood (*Populus* sp.), western sycamore (*Platanus racemosa*), and mature willows. The subspecies typically builds nests in vegetation 3 to 4 feet above the ground (Salata 1984) where there is moderately open midstory cover with an overstory of willows, cottonwoods, sycamores, or coast live oaks (*Quercus agrifolia*). Nests are also often placed along internal or external edges of

riparian thickets at an average of 3.3 feet above the ground (Unitt 2004). Riparian plant succession is an important factor in maintaining vireo habitat.

The LBV's decline is attributed to loss, degradation, and fragmentation of riparian habitat combined with brood/nest parasitism by the brown-headed cowbird (*Molothrus ater*; BHCO). LBVs are known to be sensitive to many forms of disturbance including noise, night-lighting, and consistent human presence. Due to concerted programs focused on preserving, enhancing, and creating suitable nesting habitat, the LBV population has steadily increased in population size along several of its breeding drainages in southern California. Significant increases in breeding populations have occurred along the Santa Ana River at Prado Basin, and on the Santa Margarita River on Marine Corps Base Camp Pendleton, as well as at several other sites throughout the region.

In 2007, EDAW conducted surveys for nearly the identical area and no LBVs were detected within the BSA (EDAW 2007). The project was put on hold and surveys needed to be repeated in 2009. The 2009 surveys included approximately 3 more acres of habitat upstream of the Escondido Creek due to a widening of the project footprint.

Survey Methodology

Prior to conducting protocol LBV surveys in 2009, qualified EDAW biologists reviewed previous vegetation and general wildlife habitats that were mapped within the BSA during 2007. These survey results were analyzed to determine areas of suitable LBV habitat within the BSA. The 2009 LBV survey limits included approximately 9.34 acres of habitat suitable for LBV within the BSA, an area reasonable to survey in 1 day (Figure 3).

Protocol-level LBV surveys followed the current USFWS survey protocol for the species, dated January 19, 2001 (USFWS 2001). The surveys consisted of walking meandering transects through potential LBV habitat, including all riparian willow forest and riparian willow scrub associations, as well as upland and wetland habitats adjacent to areas of scrub. EDAW biologists conducted passive surveillance (i.e., listening and looking for the species) in all habitats with potential to support LBV. Per the current USFWS protocol, suitable habitat within the BSA was surveyed eight times during the 2009 breeding season. Surveys were conducted at least 10 days apart. All wildlife species detected were recorded, and non-listed sensitive species and BHCO were mapped upon their initial sighting in an area.

Results

Protocol-level LBV surveys occurred between May 18 and July 31, 2009, within the BSA (Table 1). A summary of survey data is presented in Table 1, including date of survey, survey number, time, weather conditions, field biologists, and LBV observations. Field notes are presented in Attachment A. A complete list of all wildlife species detected during LBV surveys is included in Attachment B.

No LBVs were detected within the BSA during the survey period. BHCOs were detected throughout the BSA (Figure 3), with a maximum number of five to six individuals observed in June and early July. A summary of the BHCOs detected is provided in Table 2.

Table 1
Least Bell's Vireo Protocol Surveys
Dates, Personnel, Weather Conditions, and Results

Date	Survey Number	Surveyors	Time	Weather Conditions	LBV Observed
05/18/09	1	Andrew Fisher, Michael Anguiano	0630–0940	Start: 65°F, wind 0 mph, 100% cover End: 73°F, wind 1 mph, 0% cover	None
05/28/09	2	James McMorran, Michael Anguiano	0631–0930	Start: 63°F, wind 0 mph, 100% cover End: 65°F, wind 0–2 mph, 100% cover	None
06/08/09	3	James McMorran, Michael Anguiano	0710–0850	Start: 67°F, wind 0–1mph, 100% cover End: 69°F, wind 0–2 mph, 90% cover	None
06/19/09	4	James McMorran, Michael Anguiano	0715–0845	Start: 62°F, wind 0–5 mph, 100% cover End: 68°F, wind 0–5 mph, 100% cover	None
06/29/09	5	James McMorran, Michael Anguiano	0730–0900	Start: 65°F, wind 0–1 mph, 90% cover End: 79°F, wind 0–1 mph, 75% cover	None
07/09/09	6	Michael Anguiano, The' Kyi Soe	0740–0930	Start: 63°F, wind 0 mph, 100% cover End: 77°F, wind 0–2 mph, 0% cover	None
07/20/09	7	Michael Anguiano, Barbra Calantas	0734–0837	Start: 73°F, wind 0 mph, 0% cover End: 82°F, wind 0 mph, 0% cover	None
07/31/09	8	James McMorran, Shirley Innecken	0730–0920	Start: 68°F, wind 0 mph, 100% cover End: 70°F, wind 0 mph, 0% cover	None

Table 2
Summary of Brown-headed Cowbird Observations
by Survey Period

Survey Period	Survey Dates	Number of BHCOs Detected
1	05/18/09	2 individuals
2	05/28/09	2 individuals
3	06/08/09	5 individuals
4	06/19/09	5–6 individuals
5	06/29/09	5–6 individuals
6	07/09/09	5–6 individuals
7	07/20/09	2 individuals
8	07/31/09	0 individuals

Three sensitive wildlife species were detected during LBV surveys: Cooper's hawk (*Accipiter cooperii*) a California Watchlist species; and yellow warbler (*Dendroica petechia*) and yellow-breasted chat (*Icteria virens*), both California Species of Special Concern (Figure 3). Yellow-breasted chat is also covered under the North County Multiple Species Conservation Program (NCMSCP). A single Cooper's hawk was observed during three survey periods in the BSA; however, it is not known if this was the same individual each time or if the species was breeding on-site. Yellow warblers were routinely found throughout the riparian areas of the BSA during nearly every survey. Their activity decreased during the later survey periods. This is likely due to post-breeding behavior as both adult males and immature/female yellow warblers were visually detected during this period, but in lower numbers. Differentiating a female from an immature yellow warbler can be challenging; therefore, with the male yellow warblers singing throughout most of the survey periods and the visual detections of immature/ female yellow warblers during the later survey periods, breeding was assumed to be successful on the survey site. Yellow-breasted chats were seen in the same general area of the creek during three survey periods (2, 3, and 4). These species were also found in the same general areas during 2007 LBV surveys (EDAW 2007). Additionally, during the first survey, a red-tailed hawk nest with two juveniles was detected in a eucalyptus tree (Figure 3).

Certification

Qualified EDAW biologists who conducted LBV surveys at the Citracado Parkway extension project area certify that the information in this survey report fully and accurately represents the work performed by EDAW biologists. Signatures of current EDAW biologists (Michael Anguiano, James McMorran, Barbra Calantas, and Andrew Fisher) who conducted surveys (May 18–July 31, 2009) are included below. The results of focused surveys for listed species are typically considered valid for 1 year by the resource agencies. If you have any comments or questions regarding this letter report, please feel free to contact me at (619) 233-1454.

Sincerely,

Michael Anguiano	James McMorran	Barbra Calantas	Andrew Fisher
Wildlife Biologist	Biologist	Wildlife Biologist	Wildlife Biologist

Attached: Figure 1 – Regional Location Map
Figure 2 – Vicinity Map
Figure 3 – Least Bell's Vireo Survey Results Map
Figure 4 – North County PAMA Lands
Attachment A – Field Data Sheets
Attachment B – Wildlife Species Detected during Least Bell's Vireo Surveys

Literature Cited

EDAW, Inc. 2007. 45-Day Summary Report of Focused Surveys for the Least Bell's Vireo for the Citracado Parkway Extension Project, Escondido, California. November 27.

Salata, L. R. 1984. Status of the least Bell's vireo on Camp Pendleton, California: Report on Research Done in 1984. Unpublished Report. U.S. Fish and Wildlife Service, Laguna Niguel, California.

Unitt, Phillip. 2004. San Diego County Bird Atlas. San Diego Natural History Museum, P.O. Box 121390 San Diego, California 92112-1390. Ibis Publishing Company.

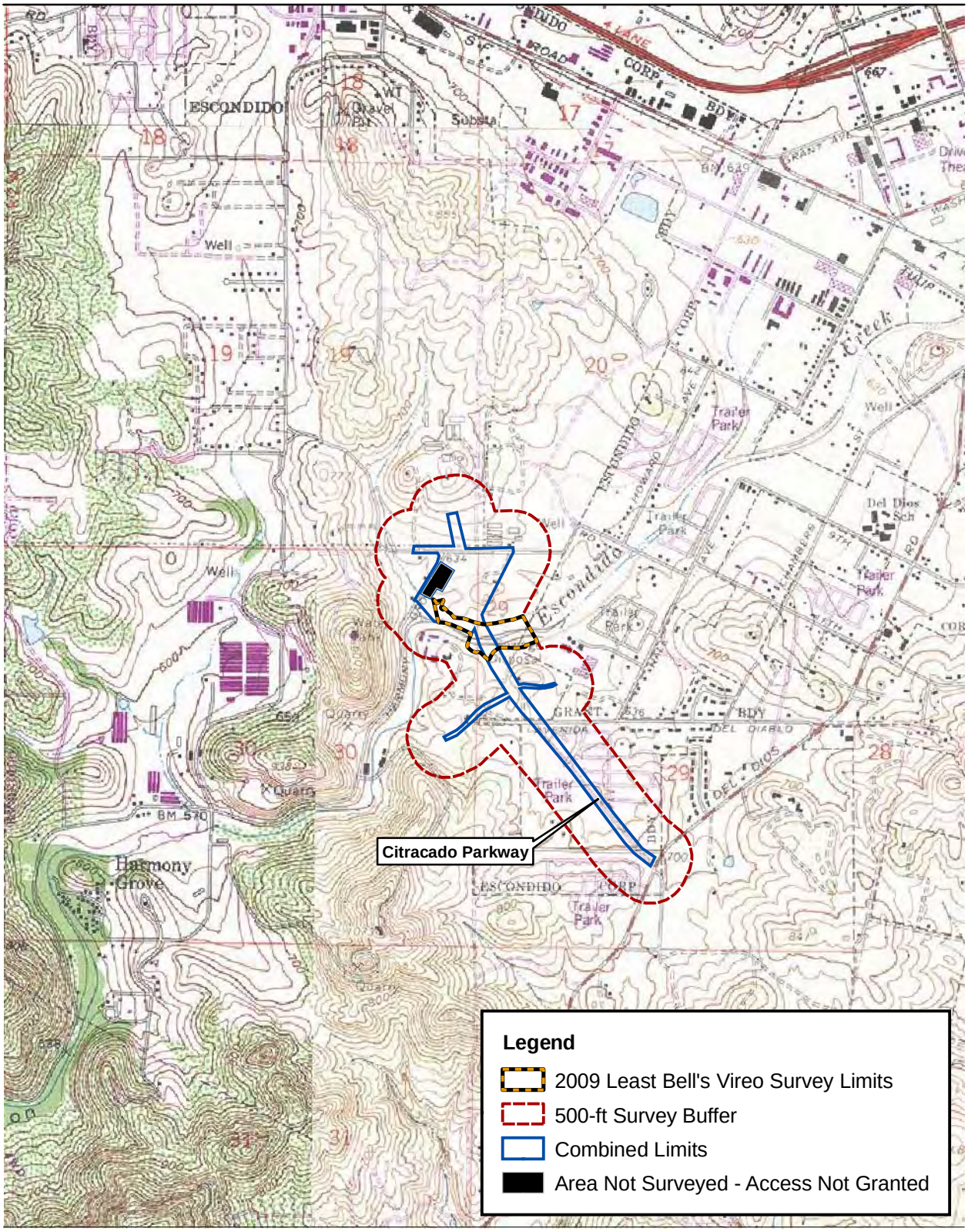
U.S. Fish and Wildlife Service (USFWS). 1998. Draft Recovery Plan for the Least Bell's Vireo. Fish and Wildlife Service, Portland, Oregon. 139 pp.

U.S. Fish and Wildlife Service (USFWS). 2001. Least Bell's Vireo Survey Guidelines. Carlsbad Fish and Wildlife Office. January 19, 2001.

U.S. Fish and Wildlife Service (USFWS). 2006. Least Bell's Vireo (*Vireo bellii pusillus*) 5-year Review Summary and Evaluation. Carlsbad Fish and Wildlife Office, Carlsbad, California. September.

FIGURES

Figure 1
Regional Location Map



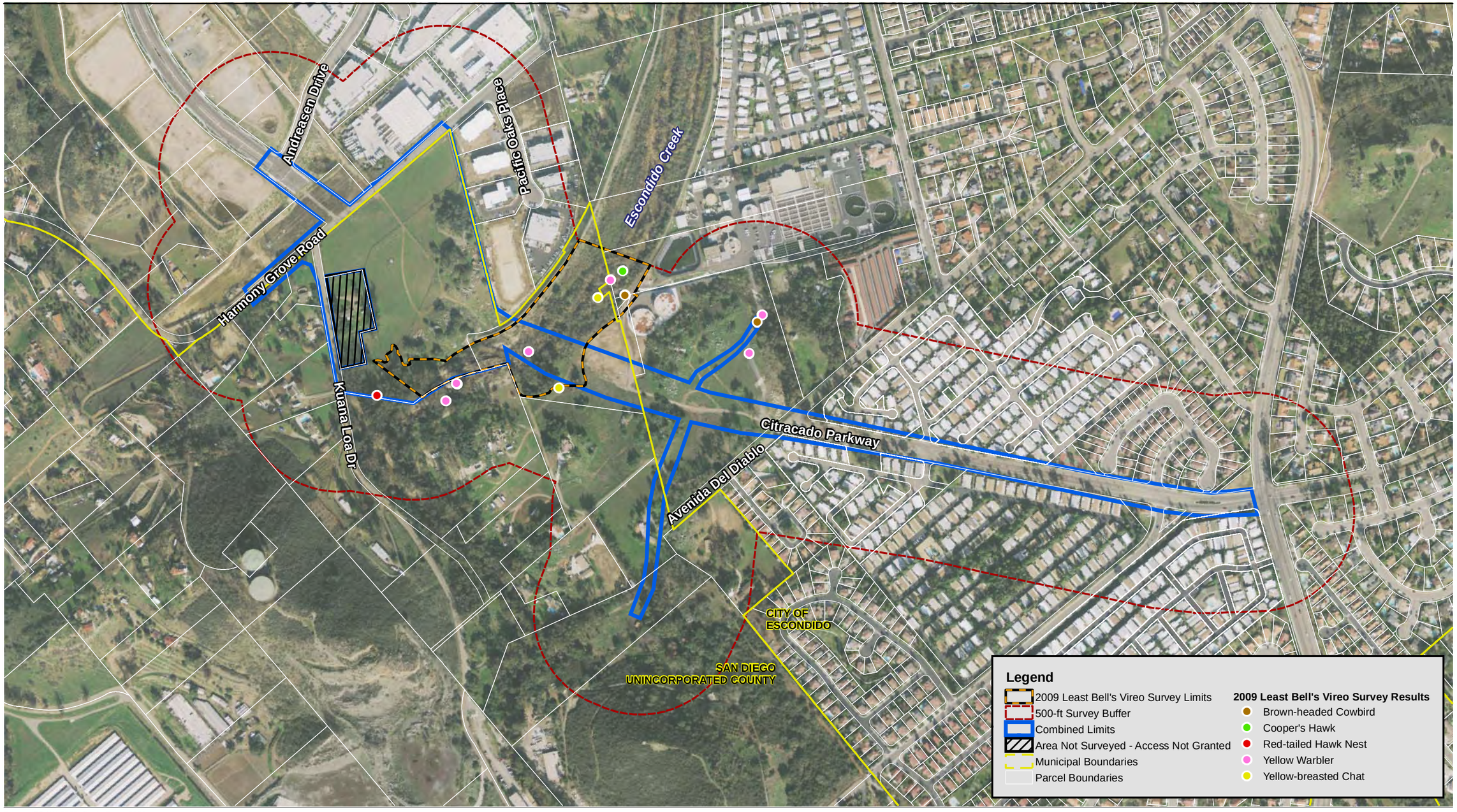
Source: USGS 7.5' Quadrangles, Escondido 1975, Valley Center 1975, Rancho Santa Fe 1983, San Marcos 1983

2,000 1,000 0 2,000 Feet

Scale: 1 = 24,000; 1 inch = 2,000 feet

Figure 2
Vicinity Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2009_mxds\45_Day_Report\Fig 2 Vicinity Map.mxd, 09/02/09, LeeJ



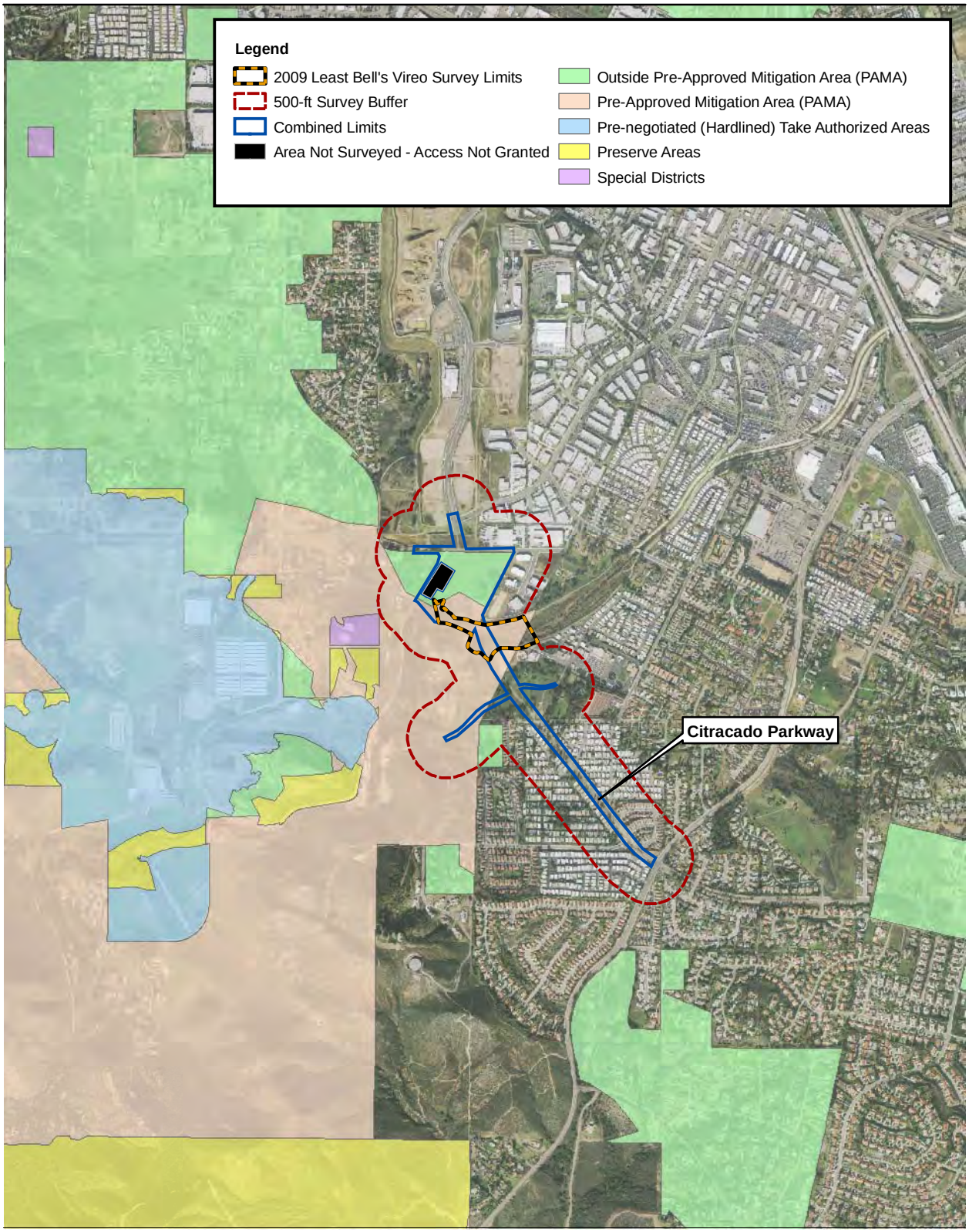
Source: EDAW 2009; DigitalGlobe 2008

500 250 0 500 Feet

Scale: 1 = 6,000; 1 inch = 500 feet

Figure 3
Least Bell's Vireo Survey Results Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2009_mxds\45_Day_Report\Survey Results_2009.mxd, 09/14/09, LeeJ



Source: DigitalGlobe 2008; SanGIS 2009

2,000 1,000 0 2,000 Feet

Scale: 1 = 24,000; 1 inch = 2,000 feet

Figure 4
North County PAMA Lands

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2009_mxds\45_Day_Report\MSCP_PAMA_lands.mxd, 09/14/09, LeeJ

ATTACHMENT A

FIELD DATA SHEETS

LBVI SURVEYS

Recorder: AFI Add'l Person: MAN GPS Unit: GDF 4
Project: Cibiacoa Pkwy Survey Section: _____ Map #: _____
Date: 5-18-09 Survey Type: LBVI Survey 1 of 8
Time Start: 0630 Time End: 0940

Start: T: 65°F CC: 100 Wind Sp/Dir : 0 General Weather Condition: Overcast

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		DOWO	A J U	M F U		
		CAKI	A J U	M F U		
		EAST	A J U	M F U		
		NOMO	A J U	M F U		
		CORA	A J U	M F U		
		MOBO	A J U	M F U		
		CALT	A J U	M F U		
		HOOR	A J U	M F U		
		NOFI	A J U	M F U		
		WSJA	A J U	M F U		
		BUSH	A J U	M F U		
		NUWO	A J U	M F U		
		HOWR	A J U	M F U		
		Rabbit	A J U	M F U	tracks	
CPYRAF001		YEWA	(A) J U	(M) F U		
		SOSP	A J U	M F U		
		ACWO	A J U	M F U		
		BCPH	A J U	M F U		
		MALL	A J U	M F U		
		ANHU	A J U	M F U		
		AMCR	A J U	M F U		
		CLSW	A J U	M F U		
		PSFL	A J U	M F U		
		BEWR	A J U	M F U		
		LEGO	A J U	M F U		
		SPTO	A J U	M F U		
CPYRAF002		YEWA	(A) J U	(M) F U		
		BHGR	A J U	M F U		
		SAPH	A J U	M F U		
		COLA	A J U	M F U		

End: T: 73 CC: 0 Wind Sp/Dir : 1.0 mph L General Weather Condition: Sunny, warm

LBVI SURVEYS

Recorder: AFJ Project: Citracado Phase Survey Section: NW
Date: 5-18-09 Survey Type: LBVI Map #: 1

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		COYE	A J U	M F U		
		RTHA	A J U	M F U		
		PHAIN	A J U	M F U		
		NSFL	A J U	M F U		
		ATFL	A J U	M F U		
		OCWA	A J U	M F U		
		WREN	A J U	M F U		
		WWPE	A J U	M F U		
CPBCAF001		BHCO	(A) J U	(M) F U	2 ind	
		RSHA	A J U	M F U		
CPYWAF003		YEWA	(A) J U	(M) F U		
	CA Ground sq.		A J U	M F U		
	Bullfrog.		A J U	M F U		
		KIC	A J U	M F U		
CPRTHANEAF001		RTHA	A J U	M F U	w/ 2 juv.	
		OATI	A J U	M F U		
		LASP	A J U	M F U		
		RWBB	A J U	M F U		
	SC, decided to leave		A J U	M F U		
	Raccoon		A J U	M F U	tracks	
		NRWS	A J U	M F U		
	Coyote		A J U	M F U	SCAD	
	Side-blotched		A J U	M F U		
			A J U	M F U		

Comments:
Burrow habitat: grassland is highly disturbed & frequently plowed. Many tall weeds. RTHA nest nearby & other aerial & ground predators (dogs) may deter BUOW from using the site.

End: T: 73 CC: 0 Wind Sp/Dir: light W General Weather Condition: Sunny, warm

LBVI SURVEYS

Recorder: MAM Add'l Person: JMC GPS Unit: _____
Project: CITRACADO PKWY Survey Section: _____ Map #: _____
Date: 5/28/09 Survey Type: LBVI Survey 2 of 3
Time Start: 0631 Time End: 9:30

Start: T: 63 CC: 100% Wind Sp/Dir : CALM General Weather Condition: OVERCAST + CALM WINDS

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
	0631	AMCR	A J U	M F U		
		HOFI	A J U	M F U		
		EUCD	A J U	M F U		
		ACWO	A J U	M F U		
		CAKI	A J U	M F U		
		HOWR	A J U	M F U		
		EUST	A J U	M F U		
		WEBL	A J U	M F U		
		LEGO	A J U	M F U		
		BUSH	A J U	M F U		
		CALT	A J U	M F U		
		MODO	A J U	M F U		
		CLSW	A J U	M F U		
		BLPH	A J U	M F U		
		WESJ	A J U	M F U		
		HOOR	A J U	M F U		
		SPTO	A J U	M F U		
		YWAR	A J U	M F U		
		SOSP	A J U	M F U		
		WWPE	A J U	M F U		
		BHGO	A J U	M F U		
		ANHU	A J U	M F U		
		LARE	A J U	M F U		
		PSFL	A J U	M F U		
		NWWO	A J U	M F U		
		BCHU	A J U	M F U		
		BHCO	A J U	M F U		x2
		Squirrel	A J U	M F U		
		Gopher	A J U	M F U		
		ATFL	A J U	M F U		

End: T: 65 CC: 100% Wind Sp/Dir : 0-2 General Weather Condition: Overcast

LBVI SURVEYS

Recorder: MAN/TAL Project: Citrabelle Pkwy Survey Section: _____
Date: 5-29-09 Survey Type: LBVI Map #: _____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		Rubb#	A J U	M F U		
		YBCH	A J U	M F U		
		RSHA	A J U	M F U		
		RTHA	A J U	M F U		
		COHA	A J U	M F U		
		COYE	A J U	M F U		
		SAPH	A J U	M F U		
		WIWA	A J U	M F U		
		PHAI	A J U	M F U		
		BUOR	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

No Vireo

End: T: 65 CC: 100% Wind Sp/Dir : 0-2 General Weather Condition: Overcast

LBVI SURVEYS

Recorder: MAN/JMC Add'l Person: _____ GPS Unit: _____
Project: Citricado Survey Section: _____ Map #: _____
Date: 6-9-09 Survey Type: LBVI Survey 3 of 8
Time Start: 7:10 Time End: 8:50

Start: T: 67 CC: 100% Wind Sp/Dir: 0-1 mph General Weather Condition: Overcast skies

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		RSHA	(A) J U	M F U		
	WEST	~~SWTA~~	A J U	M F U		
		EVST	A J U	M F U		
		AMCR	A J U	M F U		
		HTO FI	A J U	M F U		
		HTOO R	A J U	M F U		
		BLPH	A J U	M F U		
		LEGO	A J U	M F U		
		ACWO	A J U	M F U		
		~~NFCA~~ CALT	A J U	M F U		
YWAR 6-8 CITPKWY		YEWA	A J U	M F U		XX2 Pair
		NUWO	A J U	M F U		
		MODO	A J U	M F U		
		Kinglait	A J U	M F U		
		SOSP	A J U	M F U		
	PSFL	~~PSFL~~ S	A J U	M F U		
	AMHG		A J U	M F U		
		BHGR	A J U	M F U		
		OATI	A J U	M F U		
MALL	~~MALL~~	~~H~~	A J U	M F U		
		SUTA	A J U	M F U		
YBCH 6-8 CITPKWY	~~YBCH~~	YBCH	A J U	M F U		
		WEBL	A J U	M F U		
		COYE	A J U	M F U		
		SPTO	A J U	M F U		
		NRWS	A J U	M F U		
		WIWA	A J U	M F U		
BHCO 6-8 CITPKWY		BHCO	A J U	M F U		X 5
	BUSH	~~BUSH~~ I	A J U	M F U		
YBCH 01 6-8 CITPKWY		YBCH	A J U	M F U		

End: T: _____ CC: _____ Wind Sp/Dir: _____ General Weather Condition: _____

LBVI SURVEYS

Recorder: MAM / JMC Project: Citrus Cove Survey Section: _____
Date: 6-8-09 Survey Type: LBVI Map #: _____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		RTHA	A J U	M F U		
		HOWR	A J U	M F U		
YWAR016-8 CITPKWY		YEWA	A J U	M F U		Pair
		PAIA	A J U	M F U		
YWAR026-8 CITPKWY		YEWA	A J U	M F U		Pair
		WWPE	A J U	M F U		
		BLGR	A J U	M F U		
		CAKI	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

No Vireo

End: T: 88.2 CC: 0% Wind Sp/Dir : 0-2 General Weather Condition: Overcast

LBVI SURVEYS

Recorder: JMC/MAN Add'l Person: _____ GPS Unit: _____
Project: Citracabo Survey Section: _____ Map #: _____
Date: 6-19-09 Survey Type: LBVI Survey 4 of 8
Time Start: 7:15 Time End: 8:45

Start: T: 62 CC: Mostly Wind Sp/Dir: 0-5 General Weather Condition: Overcast

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
	RSHA	~~RSHA~~	A J U	M F U		
		LEGO	A J U	M F U		
		HOFI	A J U	M F U		
		EUST	A J U	M F U		
		HOSP	A J U	M F U		
		AMCR	A J U	M F U		
		BUOR	A J U	M F U		
		ACWO	A J U	M F U		
		RNUWO	A J U	M F U		
		CAKI	A J U	M F U		
		BUSH	A J U	M F U		
		CAIO	A J U	M F U		
	→	Rebla 7	A J U	M F U		
		Groundsquirrel	A J U	M F U		
		AMKE	A J U	(M) F U		
		OATI	A J U	M F U		
		PSFL	A J U	M F U		
		WEST	A J U	M F U		
		BHCO	A J U	M F U	S 6	GPS - BHCO ~~4~~ 7/001
		CLSW	A J U	M F U		
		YEWA	A J U	M F U		
		HOWR	A J U	M F U		
		RTHA	A J U	M F U		
		DOWO	A J U	M F U		
		mopo	A J U	M F U		
		BHGR	A J U	M F U		
		COYE	A J U	M F U		
		YBCH	A J U	M F U		
		WFIB	A J U	M F U		
		BLGR	A J U	M F U		

End: T: _____ CC: _____ Wind Sp/Dir: _____ General Weather Condition: _____

LBVI SURVEYS

Recorder: MAN / JMC Project: Citrucado Survey Section: _____
Date: 6-19-09 Survey Type: LBVI Map #: _____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		SPTO	A J U	M F U		
		NOMO	A J U	M F U		
		AMHU	A J U	M F U		
		COHA	A J U	M F U		
		BCNH	A J U	M F U		
		PHAI	A J U	M F U		
		SOSP	A J U	M F U		
	Am.	Bullfrog	A J U	M F U		
		BLPH	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

End: T: ~~1125~~ CC: 100% Wind Sp/Dir : 0-5 General Weather Condition: Hazy

~~BHS~~ 68

LBVI SURVEYS

Recorder: MAN / JMC Add'l Person: _____ GPS Unit: _____
Project: Eltracado Survey Section: _____ Map #: _____
Date: 6-29-09 Survey Type: LBVI Survey 5 of 8
Time Start: 7:30 Time End: 9:09

Start: T: 65 CC: 90 Wind Sp/Dir: 0-1 General Weather Condition: Overcast

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		CAKI	A J U	M F U		
		CALT	A J U	M F U		
		NOMO	A J U	M F U		
		BLPH	A J U	M F U		
		HOFI	A J U	M F U		
		Squirrel	A J U	M F U		
		MODO	A J U	M F U		
		AMCR	A J U	M F U		
		NOFL	A J U	M F U		
		WEBL	A J U	M F U		
		HOOR	A J U	M F U		
		BHOR	A J U	M F U		
		PASL	A J U	M F U		
		DATI	A J U	M F U		
		HOWR	A J U	M F U		
		ACWP	A J U	M F U		
		BNSH	A J U	M F U		
		ANHU	A J U	M F U		
		NWWP	A J U	M F U		
		LEGO	A J U	M F U		
		BHCO	A J U	M F U		5-6
		BHGR	A J U	M F U		
		Rabbit	A J U	M F U		
Lizard —		SCOL	A J U	M F U		
		BEWR	A J U	M F U		
		RSHA	A J U	M F U		
		Dog	A J U	M F U		
		YWAR	A J U	M F U		
		SPTO	A J U	M F U		
		COYE	A J U	M F U		

End: T: 79 CC: 75 Wind Sp/Dir: 0-1 General Weather Condition: Partly

LBVI SURVEYS

Recorder: MAN/JMC Project: Citrucado Survey Section: _____
Date: 6-29-09 Survey Type: LBVI Map #: _____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
	WEST	SCJA	A J U	M F U		
		DOWP	A J U	M F U		
		PHAI	A J U	M F U		
		BCNH	A J U	M F U		
		BLGR	A J U	M F U		
		EUST	A J U	M F U		
		RWBL	A J U	M F U		
		SOSP	A J U	M F U		
		CLSW	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

End: T: 79 CC: 75 Wind Sp/Dir : 0 / 1 General Weather Condition: _____

LBVI SURVEYS

Recorder: MAN Add'l Person: The Soe GPS Unit: _____
Project: Citracado Survey Section: _____ Map #: _____
Date: 7-9-09 Survey Type: LBVI Survey 6 of 8
Time Start: 7:40 Time End: 9:30

Start: T: 63 CC: 100% Wind Sp/Dir: 0 General Weather Condition: Overcast

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		MODO	A J U	M F U		
		Rabbit	A J U	M F U		
		ACWP	A J U	M F U		
		RSHA	A J U	M F U		
		BLPH	A J U	M F U		
		CALT	A J U	M F U		
		HOFI	A J U	M F U		
		NOMO	A J U	M F U		
		AMCR	A J U	M F U		
		CAKI	A J U	M F U		
		RTHA	A J U	M F U		
		BHGB	A J U	M F U		
		HOWR	A J U	M F U		
		DOVE	A J U	M F U		
	Pair	YWAR	A J U	M F U		
		ANHU	A J U	M F U		
		BHCO	A J U	M F U		5-6
		LEGO	A J U	M F U		
		Gopher	A J U	M F U		
		~~UNTA~~	A J U	M F U		
		COYE	A J U	M F U		
		SPTO	A J U	M F U		
	WSTA	EUTA	A J U	M F U		Chipmunk Scrub Jay
		NWHP	A J U	M F U		
		Mallard	A J U	M F U		
		OAKT	A J U	M F U		OAK Titmouse
		DSFL	A J U	M F U		
		Squirrel	A J U	M F U		
		SOSP	A J U	M F U		
		PHAE	A J U	M F U		Phone-pepl

End: T: ~~80~~ 77 CC: 0 Wind Sp/Dir: 0-2 General Weather Condition: Sunny Clear

SOC Fence 12x40

~~TA~~ RC Soe

LBVI SURVEYS

Recorder: MAN/~~[illegible]~~ Project: Citracado Survey Section: ____
Date: 7-9-09 Survey Type: LBVI Map #: ____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		SCdC	A J U	M F U		Face Cam
		AMKE	A J U	M F U		
	?	~~SAPH~~/K	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

End: T: ____ CC: ____ Wind Sp/Dir: ____ General Weather Condition: ____

LBVI SURVEYS

Recorder: MA/MBCA Add'l Person: _____ GPS Unit: _____
Project: Citracado Survey Section: _____ Map #: _____
Date: 7-20-09 Survey Type: LBVI Survey ~~1 of 2~~ 7 8
Time Start: 7:38 Time End: 8:37

Start: T: 73 CC: 0 Wind Sp/Dir: 0 General Weather Condition: Sunny Clear

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		NOMO	A J U	M F U		
		ANCO	A J U	M F U		
		HOFI	A J U	M F U		
		LEGO	A J U	M F U		
		ACWO	A J U	M F U		
		MODO	A J U	M F U		
		BLPH	A J U	M F U		
		EUST	A J U	M F U		
		NUWO	A J U	M F U		
		BLBI	A J U	M F U		
	RSHA	~~RSHA~~	A J U	M F U		
		RuHu	A J U	M F U		
		CALT	A J U	M F U		
		SCOC	A J U	M F U		
	→	WREN	A J U	M F U		
		BUSH	A J U	M F U		
		ANHU	A J U	M F U		
		OATI	A J U	M F U		
		PSFL	A J U	M F U		
		RTHA	A J U	M F U		
		SAPH	A J U	M F U		
		BITG	A J U	M F U		
		Ground Squirrel	A J U	M F U		
		SPTO	A J U	M F U		
		BEWR	A J U	M F U		
	WFSO	~~SCJA~~	A J U	M F U		
		RWBL	A J U	M F U		
		BHCO	A J U	M F U		x2
		SNBL	A J U	M F U		
		RODO	A J U	M F U		

End: T: 82 CC: 0 Wind Sp/Dir: 0 General Weather Condition: Sunny Clear

LBVI SURVEYS

Recorder: MAM/BCA Project: Citracado Survey Section: ____
Date: 7-20-09 Survey Type: LBVI Map #: ____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		AMGO	A J U	M F U		
		Red Admiral	A J U	M F U		
		Western Tiger Swallowtail	A J U	M F U		
		Cabbage White	A J U	M F U		
		Opossum	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

End: T: ____ CC: ____ Wind Sp/Dir : ____ General Weather Condition: ____

Page 2 of 2

LBVI SURVEYS

Recorder: Jimmy McMorran Add'l Person: Shirley Tracken GPS Unit: _____
Project: Citrancho Pkwy Survey Section: _____ Map #: _____
Date: 7/31/09 Survey Type: LBVI Survey 8 of 8
Time Start: 0730 Time End: 0920

Start: T: 68° CC: 100% Wind Sp/Dir : CALM General Weather Condition: Overcast & Calm

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		HOOR	A J U	M F U		
		AMCR	A J U	M F U		
		BLPH	A J U	M F U		
		NUWO	A J U	M F U		
		HOSP	A J U	M F U		
		GBHE	A J U	M F U		
		ANHU	A J U	M F U		
		ACWO	A J U	M F U		
		EUST	A J U	M F U		
		NOMO	A J U	M F U		
		CATO	A J U	M F U		
		MODO	A J U	M F U		
		HOWR	A J U	M F U		
		HOFI	A J U	M F U		
		BCHU	A J U	M F U		
		CAEG	A J U	M F U		
		LEGO	A J U	M F U		
		BNST	A J U	M F U		
		CAKI	A J U	M F U		
		CLSW	A J U	M F U		
		OATI	A J U	M F U		
		LAGO	A J U	M F U		
		BUSH	A J U	M F U		
		SOSP	A J U	M F U		
		COVE	A J U	M F U		
		ROPI	A J U	M F U		
		AMKE	A J U	M F U		
		SPTO	A J U	M F U		
		BEWR	A J U	M F U		
		OCWA	A J U	M F U		

End: T: 0920 CC: 0% Wind Sp/Dir : CALM General Weather Condition: Sunny, Calm & warm

LBVI SURVEYS

Recorder: _____ Project: _____ Survey Section: _____
Date: _____ Survey Type: LBVI Map #: _____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		WESJ	A J U	M F U		
Rufous/Allen's Hummingbird			A J U	M F U		
		EUCD	A J U	M F U		
		YWAR	A J U	M F U		
White-winged Dove		WIWDO	A J U	M F U		
		BHGR	A J U	M F U		
		CORA	A J U	M F U		
Northern Parula		NOPA!	A J U	M F U		Photographed
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:

Total # Adult LBV: 0
Total # Juvenile LBV: _____
Total # LBV nests: _____
Total # LBV Pairs: _____
Total # BHCO: 0

only 1 yellow Warbler heard singing.
orange crowned Warblers abundant! (Migrants?)
Northern Parula - highlight
no Brown-headed Cowbirds

End: T: _____ CC: _____ Wind Sp/Dir : _____ General Weather Condition: _____

ATTACHMENT B

WILDLIFE SPECIES DETECTED DURING LEAST BELL'S VIREO SURVEYS

ATTACHMENT B
Wildlife Species Detected during Least Bell's Vireo Surveys

Scientific Names	Common Names
Insects	
Order Lepidoptera	Butterflies and Moths
Family Nymphalidae	
Vanessa atalanta	red admiral
Family Papilionidae	
Papilio rutulus	western tiger swallowtail
Family Pieridae	
Pieris rapae	cabbage white
Amphibians	
Order Anura	Frogs and Toads
Family Ranidae	
Rana catesbeiana	bullfrog
Reptiles	
Order Squamata	Lizards and Snakes
Family Phrysonomatidae	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Birds	
Order Anseriformes	Ducks and Geese
Family Anatidae	
Anas platyrhynchos	mallard
Order Ciconiiformes	Herons, Storks, Vultures, and Relatives
Family Ardeidae	
Ardea alba	great egret
Ardea herodias	great blue heron
Egretta thula	snowy egret
Bubulcus ibis	cattle egret
Nycticorax nycticorax	black-crowned night-heron
Family Threskiornithidae	
Plegadis chihi	white-faced ibis
Order Gruiformes	Cranes, Rails, and Relatives
Family Rallidae	
Fulica americana	American coot
Order Falconiformes	Diurnal Birds of Prey
Family Accipitridae	
Accipiter cooperii	Cooper's hawk **
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
Family Falconidae	
Falco sparverius	American kestrel
Order Charadriiformes	Shorebirds and Allies
Family Charadriidae	
Charadrius vociferous	killdeer
Family Recurvirostridae	
Himantopus mexicanus	black-necked stilt

Scientific Names	Common Names
Order Columbiformes	Doves and Pigeons
Family Columbidae	
Columba livia	rock dove
Streptopelia decaocto	Eurasian collared-dove
Zenaida macroura	mourning dove
Zenaida asiatica	white-winged dove
Order Apodiformes	Swifts and Hummingbirds
Family Trochilidae	
Archilochus alexandri	black-chinned hummingbird
Calypte anna	Anna's hummingbird
Selasphorus sp.	rufous/allen's hummingbird
Order Piciformes	Woodpeckers
Family Picidae	
Colaptes auratus	northern flicker
Melanerpes formicivorus	acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker
Picoides pubescens	downy woodpecker
Order Passeriformes	Perching Birds
Family Tyrannidae	
Contupus sordidulus	western wood-pewee
Empidonax difficilis	pacific-slope flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus vociferans	Cassin's kingbird
Family Turdidae	
Sialia mexicana	western bluebird
Family Corvidae	
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Family Hirundinidae	
Stelgidopteryx serripennis	northern rough-winged swallow
Petrochelidon pyrrhonota	cliff swallow
Family Paridae	
Baeolophus inornatus	oak titmouse
Family Aegithalidae	
Psaltriparus minimus	bushtit
Family Troglodytidae	
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Family Timaliidae	
Chamaea fasciata	wrentit
Family Mimidae	
Mimus polyglottos	northern mockingbird
Family Sturnidae	
Sturnus vulgaris	European starling
Family Ptilogonatidae	
Phainopepla nitens	phainopepla
Family Parulidae	
Vermivora celata	orange-crowned warbler
Dendroica petechia	yellow warbler *
Geothlypis trichas	common yellowthroat
Wilsonia pusilla	Wilson's warbler
Icteria virens	yellow-breasted chat *
Parula americana	northern parula

Scientific Names	Common Names
Family Thraupidae	
Piranga rubra	summer tanager
Family Emberzidae	
Chondestes grammacus	lark sparrow
Pipilo maculates	spotted towhee
Pipilo crissalis	California towhee
Melospiza melodia	song sparrow
Passer domesticus	house sparrow
Family Cardinalidae	
Pheucticus melanocephalus	black-headed grosbeak
Passerina caerulea	blue grosbeak
Family Icteridae	
Agelaius phoeniceus	red-winged blackbird
Molothrus ater	brown-headed cowbird
Icterus cucullatus	hooded oriole
Icterus bullockii	Bullock's oriole
Family Fringillidae	
Carpodacus mexicanus	house finch
Carduelis psaltria	lesser goldfinch
Carduelis lawrencei	Lawrence's goldfinch
Carduelis tristis	American goldfinch
Mammals	
Order Didelphimorphia	Marsupials
Family Didelphidae	
Didelphis virginiana	opossum
Order Carnivora	Carnivores
Family Canidae	
Canis latrans	coyote
Canis familiaris	domestic dog
Family Procyonidae	
Procyon lotor	raccoon
Order Lagomorpha	Rabbits, Hares, and Pikas
Family Leporidae	
Sylvilagus sp.	rabbit
Order Rodentia	Squirrels, Rats, Mice, and Relatives
Family Sciuridae	
Spermophilus beecheyi	California ground squirrel
Family Geomyidae	
Thomomys bottae	Botta's pocket gopher

* indicates California Species of Special Concern

** indicates California Watch List

APPENDIX B

45-DAY REPORT FOR THE BURROWING OWL

EDAW Inc
1420 Kettner Boulevard, Suite 500, San Diego, California 92101
T 619.233.1454 F 619.233.0952 www.edaw.com

November 27, 2007

Ms. Sandra Marquez
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

Mr. L. Breck McAlexander
California Department of Fish and Game
4949 Viewridge Avenue
San Diego, California 92123

RE: Report Summarizing Results of the Burrowing Owl Presence/Absence Surveys for the Citracado Parkway Extension Project, Escondido, California

Dear Ms. Marquez and Mr. McAlexander:

This letter summarizes results of protocol surveys conducted by EDAW, Inc. (EDAW) to determine the presence or absence of the western burrowing owl (*Athene cunicularia;* BUOW) within the proposed Citracado Parkway extension project area in San Diego County (Figure 1). Surveys were conducted on behalf of the City of Escondido.

Project Description

The City of Escondido proposes to extend and improve Citracado Parkway from West Valley Parkway to Andreasen Drive (Figure 2). The proposed Citracado Parkway extension would require a new structure crossing at Escondido Creek and may include landform alterations at the proposed intersection, or interchange, with Harmony Grove Road. Minor street realignments and/or grade adjustments may also be proposed for the intersection of Kuana Loa Drive with Harmony Grove Road. Traffic signals will be considered at various intersections with Citracado Parkway along the corridor being studied such as Citracado Parkway at Harmony Grove Road and/or Citracado Parkway at Avenida Del Diablo (see Figure 3 for additional street references).

The City is also considering the annexation of three parcels crossed by or in proximity to the proposed roadway extension. One of the parcels is owned by the City and is currently located within the County of San Diego jurisdictional boundaries. All three parcels are outside the City's Sphere of Influence.

Site Description

The project area occurs between West Valley Parkway and Andreasen Drive and crosses Escondido Creek. The project area (91.6 acres) extends approximately 4,000 feet north to south and approximately 1,000 to 1,300 feet east to west, including a 500-foot buffer surrounding the proposed project footprint. Urban development occurs adjacent to the project area to the north, east, and south,

and a mosaic of open space and developed land occurs to the northwest, west, and southwest of the project area. In the vicinity, riparian vegetation associated with Escondido Creek begins approximately 1,800 feet east of the project area and continues west-southwest through and past the project area.

Topography of the project area is relatively flat with scattered small, rocky hills, and elevation ranges from 600 to 850 feet above sea level. Soils in the project area are various types of sandy loam, with slopes from 2 to 30 percent. Visalia sandy loam with slopes of 2 to 5 percent and Vista coarse sandy loam with slopes of 5 to 9 percent occur within the area surveyed. Visalia sandy loam is moderately well-drained, very deep soil formed on granitic alluvium. Vista coarse sandy loam is well-drained, moderately deep soil formed in material weathered from decomposed granitic rocks. Several vegetation communities occur within the project area. The dominant vegetation communities are nonnative grassland, coast live oak woodland, developed and disturbed areas, and southern willow riparian forest. Small stands of eucalyptus woodland, ornamental vegetation, disturbed coastal sage scrub, and southern willow scrub also occur.

The portion of the project area that occurs within County of San Diego jurisdiction, which includes the riparian corridor and transitional habitats adjacent to it, has been designated as Pre-approved Mitigation Areas by the Draft North County Multiple Species Conservation Plan (NCMSCP).

Background Information

Regulatory Status

The BUOW is considered a species of special concern by the California Department of Fish and Game (CDFG) due to intensive development pressure on the species habitat. The species is also covered under the NCMSCP.

Habitat Status

BUOW habitat consists of annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn 1974; California Burrowing Owl Consortium [CBOC] 1993). Suitable BUOW habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of BUOW habitat and both natural and artificial burrows provide protection, shelter, and nests for BUOW. BUOW typically use burrows made by mammals, such as ground squirrels or badgers, but also may use man-made structures, such as cement culverts, cement asphalt or wood debris piles, or openings beneath cement or asphalt pavement.

Population Status

The BUOW in California is generally nonmigratory and occurs mostly in the Central and Imperial valleys, primarily in agricultural areas. Small, scattered breeding populations occur in San Diego County in five regions: Otay Mesa, Imperial Beach, Warner Valley, Borrego Valley, and Imperial Valley (Unit 2004). Population density seems to be correlated with prey availability, particularly small mammals (Klute et al. 2003). Per the California Natural Diversity Database, the closest known location

of BUOW to the project site is approximately 11,760 feet northeast of the project site (1994). It is not known whether this population is still in existence.

Survey Methodology

Prior to conducting protocol BUOW surveys in 2007, vegetation and general wildlife habitats were mapped by qualified EDAW biologists within the project area. These survey results were analyzed to determine areas of suitable BUOW habitat within and adjacent to the project area. Approximately 46.6 acres of habitat were considered suitable for BUOW within the project area, an area reasonable to survey in 1 day (Figure 3).

BUOW surveys were performed according to the protocol established by the CBOC (1993) and accepted by the CDFG. Protocol-level BUOW surveys occurred between June 25 and July 23, 2007, within the survey area (Table 1). The survey consisted of walking meandering transects through potential BUOW habitat, including all grassland associations and disturbed areas, as well as areas of scrub. EDAW biologists conducted passive surveillance (i.e., looking for the species or sign of the species) in all habitats with potential to support BUOW. Burrows detected were approached by surveyors and presence or absence of BUOW at the burrows was verified. All burrows were mapped using Global Positioning System units during the June 25 survey. Per the current protocol, suitable habitat within 500 feet of the project area was surveyed four times during the 2007 breeding season. Surveys were conducted at least 10 days apart.

Table 1
Burrowing Owl Protocol Surveys
Dates, Personnel, Weather Conditions, and Results

Date	Survey Number	Surveyors	Time	Weather Conditions	BUOW Observed
6/25/07	1	Barbra Calantas, Laurel Hanscom	0629 – 0820	Start: 58°F, wind 1.0 mph, 100% cover End: 58°F, wind 0.7 mph, 0% cover	None
7/02/07	2	Erin Riley, Chris Ward	0650 – 0855	Start: 73°F, wind 0.5 mph, 0% cover End: 82°F, wind 0.8 mph, 0% cover	None
7/12/07	3	Mason Ryan, Paul Moreno	0714 – 0815	Start: 65°F, wind 0 mph, 100% cover End: 68°F, wind 0 mph, 100% cover	None
7/23/07	4	Erin Riley, Katie Hall	0700 – 0845	Start: 66°F, wind 1.5 mph, 90% cover End: 70°F, wind 1.5 mph, 85% cover	None

Results

A summary of survey data is presented in Table 1, including date of survey, survey number, time, weather conditions, field biologists, and BUOW observations. Field notes are available in Attachment A. A complete list of all wildlife species detected during BUOW surveys is included in Attachment B. No BUOWs were detected throughout the survey area during the survey period. No evidence or sign of BUOW was detected around any of the burrows onsite. Several of the burrows

appeared to be inactive. Other burrows appeared to be in use by California ground squirrels (*Spermophilus beecheyi*) and other small rodents.

Two sensitive wildlife species were detected during BUOW surveys: Cooper's hawk (*Accipiter cooperii*) and yellow warbler (*Dendroica petechia*), both California Special Concern Species (Figure 3). Cooper's hawk is covered under the NCMSCP.

Certification Statement

Qualified EDAW biologists who conducted burrowing owl surveys for the Citracado Parkway Extension Project certify that the information in this survey report fully and accurately represents the work performed by EDAW biologists. Signatures of current EDAW biologists (i.e., Barbara Calantas and Erin Riley) who conducted protocol surveys are included below. The results of focused surveys for listed species are typically considered valid for one year by the resource agencies. If you have any questions or require additional information, please contact me at (619) 233-1454.

Barbra Calantas
Biologist

Yours sincerely,

Erin Riley
Wildlife Biologist

Attached: Figure 1 – Regional Location Map
Figure 2 – Vicinity Map
Figure 3 – Burrowing Owl Survey Results Map
Attachment A – Field Data Sheets
Attachment B – Wildlife Species Detected during Burrowing Owl Surveys

06080144 Citracado Prkwy BUOW 45-Day Rpt

Literature Cited

California Burrowing Owl Consortium (CBOC). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. April 1993.

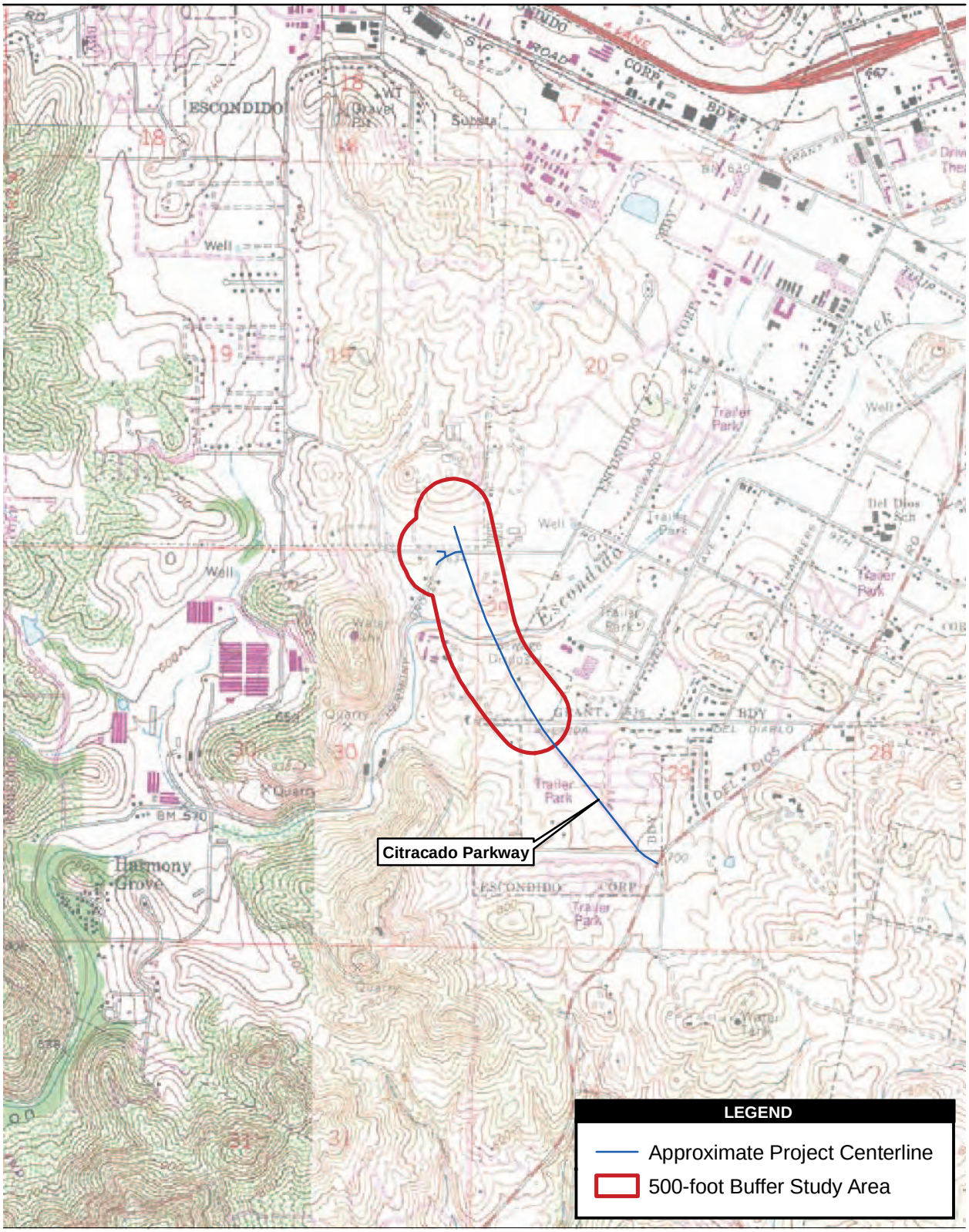
Klute, D.S., L.W. Ayers, M.T. Green, W.H. Howe, S.L. Jones, J.A. Shaffer, S.R. Sheffield, and T.S. Zimmerman. 2003. Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States. U.S. Department of Interior, Fish and Wildlife Service, Biological Technical Publication FWS/BTP-R6001-2003, Washington, D.C.

Unitt, Phillip. 2004. San Diego County Bird Atlas. San Diego Natural History Museum, P.O. Box 121390, San Diego, California 92112-1390. Ibis Publishing Company.

Zarn, M. 1974. Burrowing Owl. U.S. Department of Interior, Bureau of Land Management. Technical Note T-N 250. Denver, Colorado. 25pp.

FIGURES

Figure 1
Regional Location Map



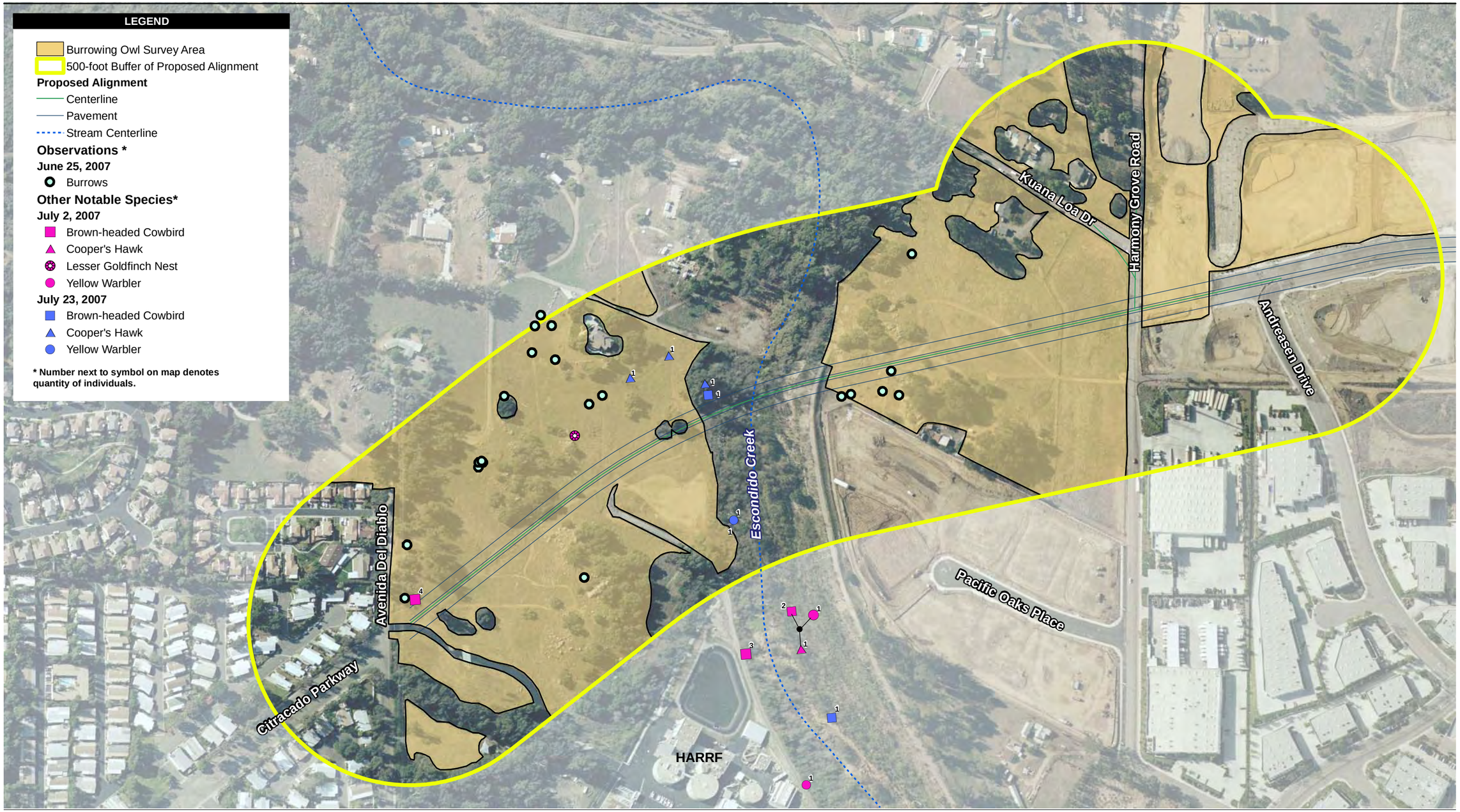
Source: USGS 7.5' Quadrangles, Escondido 1975, Valley Center 1975, Rancho Santa Fe 1983, San Marcos 1983

2,000 1,000 0 2,000 Feet

Scale: 1:24,000; 1 inch = 2,000 feet

Figure 2
Vicinity Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\Bio\LBV45day\Fig 2 Vicinity Map.mxd, 09/18/07, marraccinib



Source: EDAW 2007; Dokken 2007; AirPhotoUSA 2006

300 150 0 300 Feet

Scale: 1:3,600; 1 inch = 300 feet

Figure 3
Burrowing Owl Survey Results Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\Bio\BUOW_Rpt\Fig 3 Survey Results_REV.mxd, 11/21/07, LeeJ

ATTACHMENT A

FIELD DATA SHEETS

BURROWING OWL SURVEYS

Surveyor: B. Calantas Add'l Person: L. Hanscom GPS Unit: Garmin 2
Project: Cibbacado Pkwy Survey Section: M1 - East of W of creek Map #: CP-LBV4 no wp data.
Date: 06/25/07 Survey Type: Burrowing Owl Survey 1 of 4
Time Start: 0629 Time End: _____

Start: T: 584 CC: 100 Wind Sp/Dir: 1-0/26 W General Weather Condition: Overcast

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		CALT	A J U	M F U		
		AMCR	A J U	M F U		
		HOFI	A J U	M F U		
BU01		mammal	A J U	M F U	burrow	rodent - inactive
BU02		mammal	A J U	M F U	burrow	rodents - active @ base of rock
BU03		mammal	A J U	M F U	burrow	old burrow - w/ cobwebs
BU04		mammal	A J U	M F U	"	old burrow w/ cobwebs & debris
BU05		mammal	A J U	M F U	"	slight cobwebs
		WESJ	A J U	M F U		
		SPTO	A J U	M F U		
		NOMO	A J U	M F U		
		MODO	A J U	M F U		
BU06		mammal	A J U	M F U	2 burrows	w/ cobwebs & debris
BU07		mammal	A J U	M F U	" 2 burrows	under canopy line of oaks, 2 burrows are active
BU08		mammal	A J U	M F U	4 burrows	all old w/ cobwebs, along both sides of dirt trail
BU09		cottontail	A J U	M F U	2 burrows	one cottontail active burrow, 2nd burrow 10 ft west
BU10		mammals cottontail	A J U	M F U	5 burrows	all active; cottontail here
			A J U	M F U		note - several test pit holes
BU11		mammals	A J U	M F U	4 burrows	all burrows in this area active
BU12		mammals	A J U	M F U	~3 burrows	all inactive w/ cobwebs; under rock
		WEKI	A J U	M F U		
BU13		mammal	A J U	M F U	burrow	old; too small?
		PHAIN	A J U	M F U		
BU14		mamal.	A J U	M F U		
		coyote	A J U	M F U		
		RSHA	A J U	M F U		
		WREN	A J U	M F U		
		CLSW	A J U	M F U		
		ROAD	A J U	M F U		
		BHGR	A J U	M F U		

End: T: _____ CC: _____ Wind Sp/Dir: _____ General Weather Condition: _____

BURROWING OWL SURVEYS

Surveyor: B. calantas Project: L. Hanscom Survey Section: A1
Date: 06/25/07 Survey Type: Burrowing Owl Map #: CWP-UBV 4 - no map data

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
BU5		small mammal	A J U	M F U	burrow	active
end west of creek			A J U	M F U		
		BUOR	A J U	M F U		
BU6		mammal	A J U	M F U	burrow	2 burrows here w/ recent coyotes
BU7		mammal	A J U	M F U	"	debris & coyotes
BU8		"	A J U	M F U	"	3 active burrows
BU9		"	A J U	M F U	2 burrows	
BU20			A J U	M F U	4 "	under target practice stumps
BU21		Mammal	A J U	M F U	3 "	recently used
		OSW	A J U	M F U		
		CATH	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:
*fenced area east of creek recently tilled, very disturbed

End: T: 50.2 CC: 0 Wind Sp/Dir: 0-7/1-4 General Weather Condition: clear

LBVI SURVEYS

Recorder: ERI Add'l Person: CWA GPS Unit: 2
Project: Citracado Survey Section: — Map #: 2
Date: 070207 Survey Type: LBVI Survey 6 of 8 LBV
Time Start: 0650 Time End: 0855

Start: T: 73.2°F CC: 0 Wind Sp/Dir: 0.5/0.9max General Weather Condition: clear

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		HOFI	A J U	M F U		
		BUOR	A J U	M F U		
		CAGrnd Squirrel	A J U	M F U		
		WWPW	A J U	M F U		
		ANHU	A J U	M F U		
		BHGB	A J U	M F U		
		NWO	A J U	M F U		
		NOMO	A J U	M F U		
		BUSH	A J U	M F U		
		BHCB	A J U	M (F) U	1 indiv	
		MODO	A J U	M F U		
		ACWO	A J U	M F U		
		PSFL	A J U	M F U		
		NRWS	A J U	M F U		
		LEGO	A J U	M F U		
		COYE	A J U	M F U		
CPERYW01		YEWA	A J U	M F U		
CPERCB01		BHCB	(A) J U	(M) (F) U	2 indiv's + pair	
		SPTO	A J U	M F U		
		CALT	A J U	M F U		
		HUVI	A J U	M F U		
		CLSW	A J U	M F U		
		Western Fence Lizard	A J U	M F U		
		GRLB	A (J) U	M F U		
CPERCB03 not GPS'd		BEWR	A J U	M F U		
		BHCB	A J U	M F U	4 indiv's	@ entrance
		bullfrog	A J U	M F U		
		coyote	A J U	M F U	scat, tracks	
		BLPH	A J U	M F U		
		AMCR	A J U	M F U		

End: T: _____ CC: _____ Wind Sp/Dir: _____ General Weather Condition: _____

LBVI SURVEYS

Recorder: ERI Project: C.I.t. Prkwy Survey Section: _____
Date: 07027 Survey Type: LBVI Map #: _____

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
CPERCH01		COHA	A J U	M F U		
		PHAIN	A J U	M F U		
		WEKI	A J U	M F U		
		OATI	A J U	M F U		
		~~COMMON~~	A J U	M F U		
		RSHA	A J U	M F U		
CPERLG01		LEGO	A J U	M F U	(NEST)	w/2 fledglings
		~~HOWR~~	A J U	M F U		
		SOSP	A J U	M F U		
		RTHA	A J U	M F U		
		KILL	A J U	M F U		
		SOSP	A J U	M F U	fledglings being fed	
CPERCB02		BHCB	(A) J U	(M) F U	Bindirs	
		MALL	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

Comments:
*Burrows = all ground squirrel + some older d/c holes

End: T: 81.6F CC: 0 Wind Sp/Dir: 0.8/1.6 max General Weather Condition: warm, clear

Entered 8/1/07 RL

LBVI SURVEYS

Recorder: M. Ryan Add'l Person: P. Moreno GPS Unit: MR's Garmin
Project: Citracado Survey Section: All Map #: CITBU03
Date: 7/12/07 Survey Type: LBVI Survey 7 of 8 LBVI
Time Start: 0714 Time End: 0815 3 of 4 BUOW

Start: T: 65 CC: 100% Wind Sp/Dir: 0 General Weather Condition: cool, calm
End: T: 68 CC: 100% Wind Sp/Dir: 0 General Weather Condition: cool, calm

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		AMCR	A J U	M F U		
		WESJ	A J U	M F U		
		MODO	A J U	M F U		
		NOMO	A J U	M F U		
		BUSH	A J U	M F U		
		HOFI	A J U	M F U		
		UNFL	A J U	M F U		unidentified flycatcher
		RSHA	A J U	M F U		
		SPTO	A J U	M F U		
		CLSW	A J U	M F U		
		BHGR	A J U	M F U		
		ANHU	A J U	M F U		
		CAEG	A J U	M F U		
		RWBL	A J U	M F U		
		cottontail	A J U	M F U		
		bullfrog	A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		
			A J U	M F U		

LBVI SURVEYS

Recorder: ERI Add'l Person: KHL GPS Unit: NONE
Project: Citrado Survey Section: — Map #: 3
Date: 072307 Survey Type: LBVI + BUOW Survey 8 of 8 LBV
Time Start: 0700 Time End: 0845 3 of 3 BUOW

Start: T: 66 CC: 90 Wind Sp/Dir: 0-3mph General Weather Condition: overcast, warm

Map/ GPS #	Time	Species	Age	Sex	Point Type	Comments
		HOFI	A J U	M F U		
		LEGO	A J U	M F U		
		AMCR	A J U	M F U		
		CALT	A J U	M F U		
		cottontail	A J U	M F U		
		NUWO	A J U	M F U		
		MODO	A J U	M F U		
		ATFL	A J U	M F U		
		HOWR	A J U	M F U		
*		BHCB	A J U	M F U	mapped, no GPS	
*		COHA	A J U	M F U	mapped, no GPS	
		PSFL	A J U	M F U		
		SNEG	A J U	M F U		
		SOSP	A J U	M F U		
		OATI	A J U	M F U		
		WESJ	A J U	M F U		
		coyote	A J U	M F U	scat	
*		YEWA	A J U	M F U	mapped, no GPS	
		raccoon	A J U	M F U	tracks	
		opossum	A J U	M F U	tracks	
		ANGO	A J U	M F U		
		BLPH	A J U	M F U		burrows - no owl sign detected, all burrows = either cobwebs or grnd squ active
		CLSW	A J U	M F U		
		BEWR	A J U	M F U		
		st. skink	A J U	M F U	tracks	
		grnd sq	A J U	M F U	tracks	
		SPTO	A J U	M F U		
		BUSH	A J U	M F U		
		~~MODO~~	A J U	M F U		
bullfrogs		NOMO	A J U	M F U	singing	

End: T: 70 CC: 85 Wind Sp/Dir: 0-3 General Weather Condition: warm, overcast

ATTACHMENT B

WILDLIFE SPECIES DETECTED DURING BURROWING OWL SURVEYS

APPENDIX B
Wildlife Species Detected during Least Bell's Vireo Surveys

Scientific Names	Common Names
Amphibians	
Order Anura	Lizards and Snakes
Family Ranidae	
Lithobates (=Rana) catesbeiana	bullfrog
Reptiles	
Order Squamata	Lizards and Snakes
Family Phrysonomatidae	
Sceloporus occidentalis	western fence lizard
Family Anguidae	
Elgaria multicarinata	southern alligator lizard
Birds	
Order Anseriformes	Ducks and Geese
Family Anatidae	
Anas platyrhynchos	mallard
Order Ciconiiformes	Herons, Storks, Vultures, and Relatives
Family Ardeidae	
Egretta thula	snowy egret
Bubulcus ibis	cattle egret
Order Falconiformes	Diurnal Birds of Prey
Family Accipitridae	
Accipiter cooperii	Cooper's hawk *
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
Order Charadriiformes	Shorebirds and Allies
Family Charadriidae	
Charadrius vociferous	killdeer
Order Columbiformes	Doves and Pigeons
Family Columbridae	
Zenaida macroura	mourning dove
Order Cuculiformes	Cuckoos and Relatives
Family Cuculidae	
Geococcyx californianus	greater roadrunner
Order Apodiformes	Swifts and Hummingbirds
Family Apodidae	
Aeronautes saxatalis	white-throated swift
Family Trochilidae	
Calypte anna	Anna's hummingbird
Order Piciformes	Woodpeckers
Family Melanerpes	
Melanerpes formicivorus	acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker
Picoides pubescens	downy woodpecker
Order Passeriformes	Perching Birds
Family Tyrannidae	
Contupus sordidulus	western wood-pewee
Empidonax difficilis	pacific-slope flycatcher
Sayornis nigricans	black phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus verticalis	western kingbird
Family Vireonidae	
Vireo huttoni	Hutton's vireo
Vireo gilvus	warbling vireo

Scientific Names	Common Names
Family Corvidae	
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Family Hirundinidae	
Stelgidopteryx serripennis	northern rough-winged swallow
Petrochelidon pyrrhonota	cliff swallow
Family Paridae	
Baeolophus inornatus	oak titmouse
Family Aegithalidae	
Psaltriparus minimus	bushtit
Family Troglodytidae	
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Family Timaliidae	
Chamaea fasciata	wrentit
Family Mimidae	
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
Family Sturnidae	
Sturnus vulgaris	European starling
Family Ptilogonatidae	
Phainopepla nitens	phainopepla
Family Parulidae	
Vermivora celata	orange-crowned warbler
Dendroica petechia	yellow warbler *
Dendroica coronata	yellow-rumped warbler
Dendroica townsendi	Townsend's warbler
Geothlypis trichas	common yellowthroat
Wilsonia pusilla	Wilson's warbler
Icteria virens	yellow-breasted chat *
Family Emberzidae	
Pipilo maculates	spotted towhee
Pipilo crissalis	California towhee
Melospiza melodia	song sparrow
Family Cardinalidae	
Pheucticus melanocephalus	black-headed grosbeak
Passerina caerulea	blue grosbeak
Passerina amoena	lazuli bunting
Family Icteridae	
Agelaius phoeniceus	red-winged blackbird
Molothrus ater	brown-headed cowbird
Icterus cucullatus	hooded oriole
Icterus bullockii	Bullock's oriole
Family Fringillidae	
Carpodacus mexicanus	house finch
Carduelis psaltria	lesser goldfinch
Carduelis lawrencei	Lawrence's goldfinch
Carduelis tristis	American goldfinch
Mammals	
Order Didelphimorphia	Marsupials
Family Didelphidae	
Didelphis virginiana	opossum
Order Carnivora	Flesh-eaters
Family Canidae	
Canis latrans	coyote

Scientific Names	Common Names
Family Mephitidae	
Mephitis mephitis	striped skunk
Family Procyonidae	
Procyon lotor	raccoon
Order Lagomorpha	Rabbits, Hares, and Pikas
Family Leporidae	
Sylvilagus audubonii	desert cottontail
Order Rodentia	Gnawing Mammals
Family Sciuridae	
Spermophilus beecheyi	California ground squirrel
Family Cricetidae	
Neotoma sp.	unidentified woodrat

* indicates California Special Concern species

APPENDIX C

LIST OF SURVEY PERSONNEL AND DATES OF SURVEYS

Appendix C
List of Survey Personnel and Dates of Surveys

Survey Number	Survey Date	Survey Personnel
Rare Plant Surveys/Vegetation Mapping		
N/A	April 2007	Bruce Hanson, Linnea Spears-Lebrun
N/A	June 2007	Bruce Hanson
N/A	05/19/09	Fred Sproul, Kim Bush
N/A	01/25/10	Fred Sproul
Wetland Delineation		
N/A	04/24/07	Joshua Zinn, Linnea Spears-Lebrun
N/A	01/26/10	Joshua Zinn
Tree Survey		
N/A	04/12/07	Joshua Zinn, Linnea Spears-Lebrun
N/A	04/17/07	Joshua Zinn, Linnea Spears-Lebrun
N/A	01/26/09	Joshua Zinn
2007 Least Bell's Vireo		
1	04/18/07	Suellen Lynn, Mason Ryan
2	05/01/07	Suellen Lynn
3	05/16/07	Suellen Lynn, Paul Moreno
4	06/07/07	Barbra Calantas, Chris Ward
5	06/18/07	Barbra Calantas
6	07/02/07	Erin Riley, Chris Ward
7	07/12/07	Mason Ryan, Paul Moreno
8	07/23/07	Erin Riley, Katie Hall
2009 Least Bell's Vireo		
1	05/18/09	Andrew Fisher, Michael Anguiano
2	05/28/09	James McMorran, Michael Anguiano
3	06/08/09	James McMorran, Michael Anguiano
4	06/19/09	James McMorran, Michael Anguiano
5	06/29/09	James McMorran, Michael Anguiano
6	07/09/09	Michael Anguiano, The' Kyi Soe
7	07/20/09	Michael Anguiano, Barbra Calantas
8	07/31/09	James McMorran, Shirley Innecken
2007 Western Burrowing Owl		
1	6/25/07	Barbra Calantas, Laurel Hanscom
2	7/02/07	Erin Riley, Chris Ward
3	7/12/07	Mason Ryan, Paul Moreno
4	7/23/07	Erin Riley, Katie Hall

APPENDIX D

LIST OF PLANT SPECIES OBSERVED IN BSA

APPENDIX D
LIST OF PLANT SPECIES OBSERVED IN BSA

	Scientific Name	Common Name
DICOTYLDONAE		
Anacardiaceae - Sumac Family		
	Malosma laurina	laurel sumac
	Rhus integrifolia	lemonade berry
	*Schinus molle**	Peruvian pepper tree
	Toxicodendron diversilobum	western poison oak
Apiaceae - Carrot Family		
	*Conium maculatum**	poison hemlock
	*Foeniculum vulgare**	fennel
Asteraceae - Sunflower Family		
	*Anthemis cotula**	mayweed
	Ambrosia psilostachya	western ragweed
	Artemisia californica	California sagebrush
	Artemisia douglasiana	mugwort
	Artemisia palmeri	Palmer's sagewort
	Baccharis salicifolia	mule fat
	Baccharis pilularis	coyote brush
	Brickelia californica	California bricklebush
	*Centaurea melitensis**	tocalote
	*Cirsium vulgare**	bull thistle
	*Conyza canadensis**	horseweed
	Pseudognaphalium biolettii	bicolor cudweed
	Heterotheca grandifolia	telegraph weed
	Isocoma menziessi	coast goldenbush
	*Lactuca serriola**	prickly lettuce
	*Oncosiphon piluliferum**	globe chamomile
	Xanthium strumarium	cocklebur
Bignoniaceae – Bignonia Family		
	*Catalpa speciosa**	northern catalpa
Boraginaceae - Borage Family		
	Cryptantha sp.	cryptantha
Brassicaceae - Mustard Family		
	*Hirschfeldia incana**	perennial mustard
	*Raphanus sativus**	radish
	Rorippa nasturtium-aquaticum	water-cress

	Scientific Name	Common Name
Cactaceae – Cactus Family		
	Cylindropuntia prolifera	coast cholla
	Opuntia littoralis	coastal prickly-pear cactus
Caprifoliaceae (Adoxaceae)- Honeysuckle Family		
	Sambucus mexicana	blue elderberry
Chenopodiaceae - Goosefoot Family		
	Chenopodium sp.*	pigweed
	Chenopodium californicum	California goosefoot
	*Salsola tragus**	Russian thistle
Convulvulceae- Morning-glory Family		
	*Convulvulus arvensis**	orchard morning glory
Cucurbitaceae – Gourd Family		
	Marah macrocarpus	wild cucumber
	Cucurbita foetidissima	calabzilla
Euphorbiaceae -Spurge Family		
	Eremocarpus setigerus	turkey mullein, dove weed
Fabaceae - Pea Family		
	Melilotus indica	yellow sweet-clover
Fagaceae - Oak Family		
	Quercus agrifolia var. *agrifolia*	coast live oak
	Quercus engelmannii	Engelmann oak
	Quercus acutidens	scrub oak
Geraniaceae - Geranium Family		
	*Erodium cicutarium**	red-stem filaree
Hydrophyllaceae – Waterleaf Family		
	Phacelia cicutaria	caterpillar phacelia
Lamiaceae - Mint Family		
	*Marrubium vulgare**	horehound
Myrtaceae - Myrtle Family		
	Eucalyptus sp.*	eucalyptus
	*Eucalyptus camaldulensis**	river red gum
Onograceae- Evening Primrose Family		
	Oenothera elata	evening primrose
Plantanaceae – Sycamore Family		
	Platanus racemosa	western sycamore
Polygonaceae - Buckwheat Family		
	Eriogonum fasciculatum ssp. *fasciculatum*	flat-top buckwheat
	*Rumex crispus**	curly dock
Primulaceae - Primrose Family		
	*Anagallis arvensis**	scarlet pimpernel

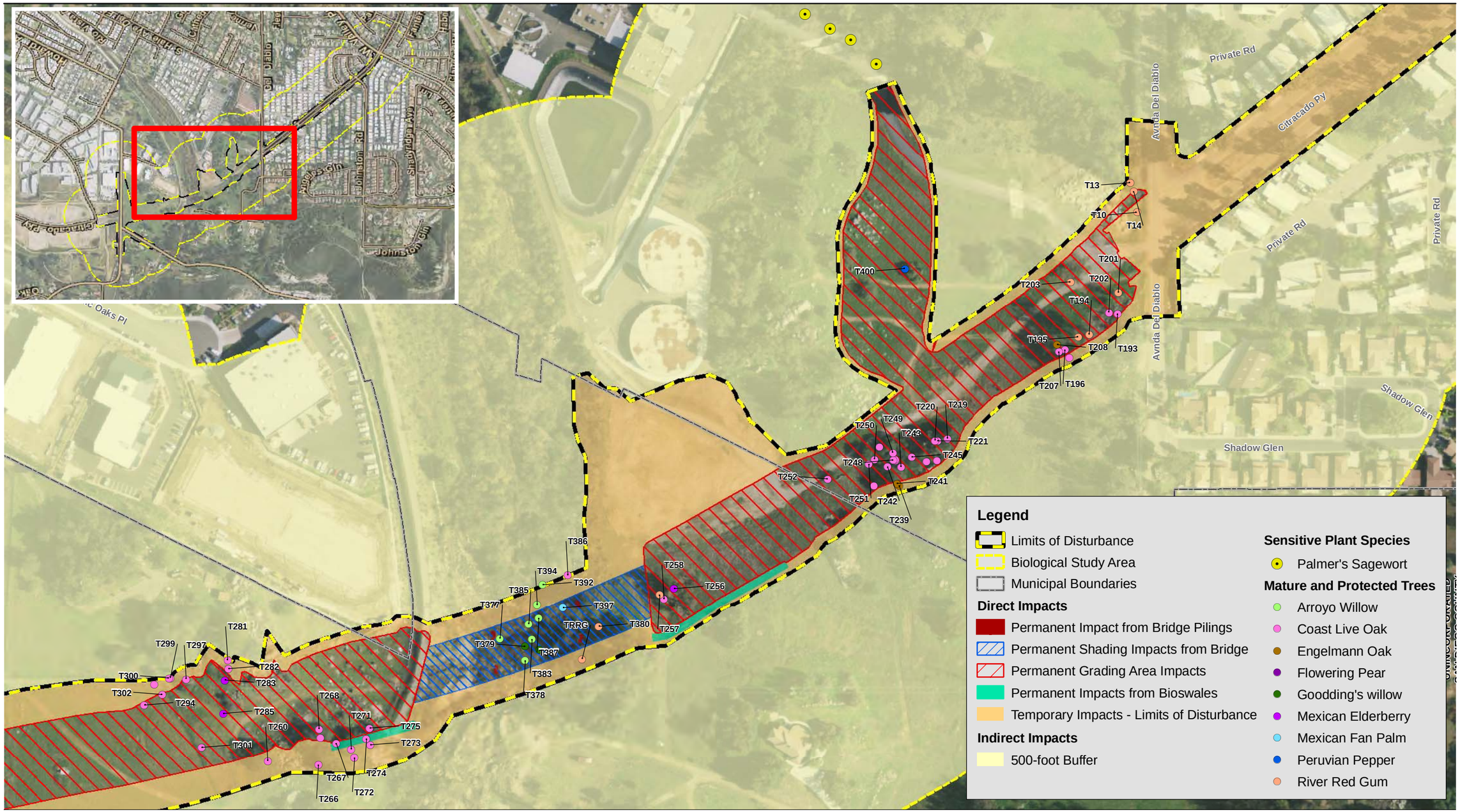
	Scientific Name	Common Name
Rhamnaceae – Buckthorn Family		
	Rhamnus crocea	spiny redberry
Rosaceae – Rose Family		
	Adenostoma fasciculata	chamise
	Heteromeles arbutifolia	toyon
	*Prunus Americana**	American plum
	*Pyrus calleryana**	flowering pear
	Rubus ursinus	California blackberry
Salicaceae - Willow Family		
	Populus fremontii	western cottonwood
	Salix exigua	narrow-leaved willow
	Salix gooddingii	Goodding's black willow
	Salix laevigata	red willow
	Salix lasiolepis	arroyo willow
Saururaceae - Lizard-Tail Family		
	Anemopsis californica	yerba mansa
Scrophulariaceae – Figwort Family		
	Mimulus guttatus	stream mimulus
	Scrophularia californica	California figwort
Solanaceae – Nightshade Family		
	Datura wrightii	jimson weed
Tamaricaceae – Tamarisk Family		
	Tamarix sp.	tamarisk
Urticaceae - Nettle Family		
	Urtica dioica ssp. *holosericea*	stinging nettle
	Urtica urens	dwarf nettle
MONOCOTYLDONAE		
Arecaceae – Palm Family		
	*Washingtonia sp.**	fan palm
	*Washingtonia robusta**	Mexican fan palm
Cyperaceae -Sedge Family		
	Cyperus sp.*	umbrella sedge
	Eleocharis sp.	spike-rush
	Scirpus sp.	bulrush
Poaceae - Grass Family		
	*Arundo donax**	giant cane
	Avena sp.*	oat
	*Bromus diandrus**	ripgut grass
	*Bromus hordeaceus**	soft chess

	Scientific Name	Common Name
	*Cynodon dactylon**	Bermuda grass
	Leymus triticoides	creeping wildrye
	Muhlenbergia rigens	deergrass
	*Piptatherum milleaceum**	smilo grass
	*Polypogon monspeliensis**	annual beard grass
Typhaceae - Cattail Family (= Sparganiaceae)		
	Typha sp.	cattail

*non-native species

APPENDIX E

TREE SURVEY RESULTS 2007 AND 2010



Source: DigitalGlobe 2008; EDAW 2007; AECOM 2010

175 87.5 0 175 Feet

Scale: 1 = 2,100; 1 inch = 175 feet

Appendix E

Impacts to Sensitive Plant Species and Mature and/or Protected Trees

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2010_mxds\BTR\Summer 2010\impacts_sensitive_plants_trees.mxd, 08/03/10, LeeJ

Appendix E - Citracado Tree Survey Results 2007 and 2010

Tree ID	Tree Species (Scientific Name)	Tree Species (Common Name)	DBH (in)	Crown Radius (ft)	Height (ft)	Limb and Branch Structure	Health and Vigor	Status	Notes	General Location	LAT	LONG
T10	Eucalyptus Camaldulensis	River Red Gum	9	6	20	1	2	Mature	mechanical damage on North side of lower trunk, asymmetrical to North	General Footprint	33.10313802	-117.11601776
T13	Eucalyptus Camaldulensis	River Red Gum	10	10	42	4	2	Mature	asymmetrical crown to the North, not topped	General Footprint	33.10317222	-117.1158422
T14	Eucalyptus Camaldulensis	River Red Gum	26	16	20	4	4	Mature	topped	General Footprint	33.10315453	-117.115894
T194	Eucalyptus Camaldulensis	River Red Gum	37	30	65	4	4	Mature		General Footprint	33.10336911	-117.1167399
T195	Eucalyptus Camaldulensis	River Red Gum	24	20	50	5	4	Mature		General Footprint	33.10342426	-117.1167539
T201	Eucalyptus Camaldulensis	River Red Gum	9	8	30	5	5	Mature	wolf tree	General Footprint	33.10322628	-117.1164938
T202	Quercus agrifolia	Coast Live Oak	6	10	15	4	3	Mature		General Footprint	33.1032728	-117.1166095
T203	Eucalyptus Camaldulensis	River Red Gum	23	25	70	5	5	Mature	next to water pipe (sewer?)	General Footprint	33.10346391	-117.1164316
T242	Quercus agrifolia	Coast Live Oak	7	10	25	5	4	Mature	some die back in crown	General Footprint	33.10436555	-117.1175299
T243	Quercus agrifolia	Coast Live Oak	7	10	15	4	3	Mature	asymmetrical to the West	General Footprint	33.10429825	-117.1175299
T244	Quercus agrifolia	Coast Live Oak	8	10	20	5	4	Mature	some crown die back	General Footprint	33.10440729	-117.1174134
T247	Quercus agrifolia	Coast Live Oak	7	20	6	1	4	Mature	asymmetrical to the Northwest, leader touches ground, bends	General Footprint	33.10432817	-117.1174862
T249	Quercus agrifolia	Coast Live Oak	7	15	20	5	4	Mature	South lean, wolf tree, slightly suppressed	General Footprint	33.10433965	-117.1174468
T252	Quercus agrifolia	Coast Live Oak	6.5	10	15	5	5	Mature	wolf tree	General Footprint	33.10466135	-117.1176048
T256	Sambucus mexicana	Mexican Elderberry	19	25	35	3	3	Mature	heavy decay, epicorms, wolf tree	General Footprint	33.105422090	-117.118257410
T257	Eucalyptus Camaldulensis	River Red Gum	33	40	65	5	5	Mature	minor crown die-back	General Footprint	33.10549325	-117.1182948
T266	Quercus agrifolia	Coast Live Oak	4	8	15	5	5	Mature		General Footprint	33.10718145	-117.1193124
T272	Quercus agrifolia	Coast Live Oak	5	20	15	2	4	Mature	Blown-out top, internal decay, resprouts	General Footprint	33.107003	-117.1192704
T273	Quercus agrifolia	Coast Live Oak	6	8	10	1	1	Mature		General Footprint	33.10692505	-117.1191954
T275	Quercus agrifolia	Coast Live Oak	6	10	10	4	4	Mature	Minor die-back, some internal decay	General Footprint	33.10692823	-117.1190964
T283	Sambucus mexicana	Mexican Elderberry	10	15	15	1	1	Mature	Decadent and decaying	General Footprint	33.10764967	-117.1188187
T285	Sambucus mexicana	Mexican Elderberry	8	15	15	4	3	Mature		General Footprint	33.10765604	-117.1190166
T300	Quercus agrifolia	Coast Live Oak	7	10	20	4	3	Mature		General Footprint	33.10792828	-117.1188103
T357	Pyrus calleryana	Flowering Pear	10	8	25	4	4	Mature	Landscape tree	Medians within Citracado Parkway	33.09997045	-117.1132108

Appendix E - Citracado Tree Survey Results 2007 and 2010

Tree ID	Tree Species (Scientific Name)	Tree Species (Common Name)	DBH (in)	Crown Radius (ft)	Height (ft)	Limb and Branch Structure	Health and Vigor	Status	Notes	General Location	LAT	LONG
T377	Salix lasiolepis	Arroyo Willow	8	10	15	4	4	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10628375	-117.1185612
T378	Salix lasiolepis	Arroyo Willow	8	10	15	4	4	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10615767	-117.1186889
T379	Salix gooddingii	Goodding's willow	10	8	25	3	4	Mature	Cut back. Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10615825	-117.1186063
T380	Eucalyptus Camaldulensis	River Red Gum	33	20	50	5	5	Mature		Riparian Area of Escondido Creek	33.10579471	-117.1184837
T381	Salix gooddingii	Goodding's willow	8	5	20	4	4	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.1060886	-117.1186221
T383	Salix lasiolepis	Arroyo Willow	10	10	25	4	4	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10612518	-117.118563
T385	Salix lasiolepis	Arroyo Willow	9	10	25	4	4	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10614249	-117.1184739
T386	Quercus agrifolia	Coast Live Oak	4	4	10	5	5	Mature		Riparian Area of Escondido Creek	33.1059498	-117.1181844
T387	Salix lasiolepis	Arroyo Willow	8	5	25	4	4	Mature	Suppressed. Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10609268	-117.118437
T392	Salix lasiolepis	Arroyo Willow	8	10	20	4	4	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10607457	-117.1182419
T394	Salix lasiolepis	Arroyo Willow	8	10	20	4	4	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10610156	-117.1183611
T397	Washingtonia robusta	Mexican Fan Palm	15	3	15	3	3	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10597349	-117.1183764
T399	Salix lasiolepis	Arroyo Willow	10	10	15	4	4	Mature	Experiences periodic flooding from Escondido Creek	Riparian Area of Escondido Creek	33.10615009	-117.1181831
T400	Schinus molle	Peruvian Pepper	15	20	25	5	5	Mature		General Footprint	33.10428702	-117.1163602
T401	Eucalyptus Camaldulensis	River Red Gum	28	20	45	5	5	Mature	Riparian Area	General Footprint	33.10571932	-117.1188561
T193	Quercus agrifolia	Coast Live Oak	30	0	20	0	0	Protected	dead standing, remove	General Footprint	33.10322964	-117.1166177
T196	Quercus agrifolia	Coast Live Oak	45	0	15	0	0	Protected	dead standing, remove	General Footprint	33.1034883	-117.1168305

Appendix E - Citracado Tree Survey Results 2007 and 2010

Tree ID	Tree Species (Scientific Name)	Tree Species (Common Name)	DBH (in)	Crown Radius (ft)	Height (ft)	Limb and Branch Structure	Health and Vigor	Status	Notes	General Location	LAT	LONG
T206	Quercus agrifolia	Coast Live Oak	25	18	35	3	1	Protected	decadent, heavy internal decay(conchs visible), black nodules on surface, blown out branches(remove), epicormic shoots	General Footprint	33.1034681	-117.1168772
T207	Quercus agrifolia	Coast Live Oak	27	20	45	4	3	Protected	die back, blown out limbs, mature	General Footprint	33.10352024	-117.1168423
T208	Quercus engelmanii	Engelmann Oak	18	12	30	4	3	Protected	epicormic shoots, stressed, die back in crown	General Footprint	33.10352870	-117.116800970
T219	Quercus agrifolia	Coast Live Oak	16	20	25	5	3	Protected	wolf tree, crown and branch die back	General Footprint	33.10406908	-117.1173614
T220	Quercus agrifolia	Coast Live Oak	12	10	20	4	4	Protected	leans to the West, slightly suppressed	General Footprint	33.10413069	-117.117373
T221	Quercus agrifolia	Coast Live Oak	36	20	25	3	3	Protected	blown out, huge hole, internal decay, wolf tree	General Footprint	33.10411912	-117.1173747
T222	Quercus agrifolia	Coast Live Oak	15	25	20	3	2	Protected	leaning to the East, gross basal decay	General Footprint	33.10417277	-117.1174947
T223	Quercus agrifolia	Coast Live Oak	12	20	20	4	4	Protected	some crown die back, asymmetrical to the East	General Footprint	33.10412055	-117.1174878
T238	Quercus agrifolia	Coast Live Oak	10	10	20	5	5	Protected	wolf tree	General Footprint	33.10443244	-117.1176408
T239	Quercus engelmanii	Engelmann Oak	24	25	30	5	3	Protected	die back in crown, epicormic shoots	General Footprint	33.10430671	-117.1176397
T241	Quercus engelmanii	Engelmann Oak	15	25	30	4	3	Protected	some epicormic, asymmetrical to the East	General Footprint	33.1043192	-117.1176272
T245	Quercus agrifolia	Coast Live Oak	19	20	25	5	4	Protected	rot pockets, wolf tree, asymmetrical to the Southwest, epicormic	General Footprint	33.10424619	-117.1174715
T246	Quercus agrifolia	Coast Live Oak	10	10	25	5	5	Protected		General Footprint	33.10432574	-117.1174906
T248	Quercus agrifolia	Coast Live Oak	25	35	30	5	4	Protected	good specimen, wolf tree	General Footprint	33.10433747	-117.1174895
T250	Quercus agrifolia	Coast Live Oak	12	15	20	5	5	Protected	wolf tree, some dead wood in crown	General Footprint	33.10443026	-117.1174869
T251	Quercus agrifolia	Coast Live Oak	14	20	25	5	5	Protected	wolf tree	General Footprint	33.10445842	-117.1175156
T258	Quercus agrifolia	Coast Live Oak	10	10	25	5	5	Protected	asymmetrical to crown	General Footprint	33.10547205	-117.1183204
T260	Quercus agrifolia	Coast Live Oak	36	25	35	5	4	Protected	excellent specimen, mature, wolf tree	General Footprint	33.10743408	-117.1192937
T267	Quercus agrifolia	Coast Live Oak	27	15	30	5	5	Protected	Minor die-back	General Footprint	33.10709478	-117.1191865
T268	Quercus agrifolia	Coast Live Oak	20	20	30	4	3	Protected		General Footprint	33.10717944	-117.1191044
T269	Quercus agrifolia	Coast Live Oak	29	40	40	5	4	Protected	Crown die-back	General Footprint	33.10717315	-117.1191553
T271	Quercus agrifolia	Coast Live Oak	36	25	35	3	3	Protected	Blown-out co-dominant stem, epicorms, dieback	General Footprint	33.10701926	-117.1192228

Appendix E - Citracado Tree Survey Results 2007 and 2010

Tree ID	Tree Species (Scientific Name)	Tree Species (Common Name)	DBH (in)	Crown Radius (ft)	Height (ft)	Limb and Branch Structure	Health and Vigor	Status	Notes	General Location	LAT	LONG
T274	Quercus agrifolia	Coast Live Oak	10	15	30	5	5	Protected	Some wounds on co-dominant, Minor die-back in crown	General Footprint	33.10694416	-117.119158
T281	Quercus agrifolia	Coast Live Oak	16	20	30	5	3	Protected	Sparse crown, epicorms, dieback	General Footprint	33.10763718	-117.118703
T282	Quercus agrifolia	Coast Live Oak	24	20	25	5	3	Protected		General Footprint	33.10763366	-117.1187524
T294	Quercus agrifolia	Coast Live Oak	22	15	35	4	3	Protected	Crown die-back, epicorms	General Footprint	33.10804915	-117.1189706
T295	Quercus agrifolia	Coast Live Oak	14	15	20	2	2	Protected	Heavy crown die-back, tree declining	General Footprint	33.10800087	-117.1188472
T297	Quercus agrifolia	Coast Live Oak	18	10	30	4	3	Protected	Crown die-back, asymetrica	General Footprint	33.1078422	-117.1188154
T299	Quercus agrifolia	Coast Live Oak	10	10	20	4	3	Protected	Crown die-back, epicorms	General Footprint	33.10792149	-117.1188093
T301	Quercus agrifolia	Coast Live Oak	20	15	15	4	4	Protected		General Footprint	33.1077629	-117.119218

APPENDIX F

LIST OF WILDLIFE SPECIES OBSERVED IN BSA

APPENDIX F
LIST OF WILDLIFE SPECIES OBSERVED IN BSA

	Scientific Name	Common Name
AMPIBIANS		
Order Anura - Frogs and Toads		
Family Ranidae	*Lithobates (=Rana) catesbeiana*	bullfrog
REPTILES		
Order Squamata - Lizards and Snakes		
Family Phrysonomatidae	*Sceloporus occidentalis*	western fence lizard
	Uta stansburiana	side-blotched lizard
Family Anguidae	*Elgaria multicarinata*	southern alligator lizard
BIRDS		
Order Anseriformes - Ducks and Geese		
Family Anatidae	*Anas platyrhyncos*	mallard
Order Ciconiiformes - Herons, Storks, Vultures and Relatives		
Family Ardeidae	*Ardea alba*	great egret
	Ardea herodias	great blue heron
	Egretta thula	snowy egret
	Bubulcus ibis	cattle egret
	Nycticorax nycticorax	black-crowned night heron
Family Threskiornithidae	*Plegadis chihi*	white-faced ibis
Order Gruiformes - Cranes, Rails and Relatives		
Family Rallidae	*Fulica americana*	American coot
Order Falconiformes - Diurnal Birds of Prey		
Family Accipitridae	*Accipiter cooperii*	Cooper's hawk**
	Buteo lineatus	red-shouldered hawk
	Buteo jamaicensis	red-tailed hawk
Family Falconidae	*Falco sprverius*	American kestrel
Order Charadriiformes - Shorebirds and Allies		
Family Charadriidae	*Charadrius vociferous*	killdeer
Family Recurvirostridae	*Himantopus mexicanus*	black-necked stilt
Order Columbiformes - Doves and Pigeons		
Family Columbidae	*Columba livia*	rock dove
	Streptopelia decaocto	Eurasian collared-dove
	Zenaida macroura	mourning dove
	Zenaida asiatica	white-winged dove
Order Cuculiformes		
Family Cuculidae	*Geococcyx californianus*	greater roadrunner

	Scientific Name	Common Name
Order Apodiformes - Swifts and Hummingbirds		
Family Trochilidae	*Archilochus alexandri*	black-chinned hummingbird
	Calypte anna	Anna's hummingbird
	Selasphorus sp.	rufous/Allen's hummingbird
Family Apodidae	*Aeronautes saxatalis*	white-throated swift
Order Piciformes - woodpeckers		
Family Melanerpes	*Coaptes auratus*	northern flicker
	Melanerpes formicivorus	acorn woodpecker
	Picoides pubescens	downy woodpecker
	Picoides nuttallii	Nutall's woodpecker
Order Passeriformes - Perching Birds		
Family Tyrannidae	*Contupus sordidulus*	western wood-pewee
	Empidonax difficilis	pacific-slope flycatcher
	Sayornis saya	Say's phoebe
	Sayornis nigricans	black phoebe
	Tyrannus verticalis	western kingbird
	Myiarchus cinerascens	ash-throated flycatcher
Family Vireonidae	*Vireo huttoni*	Hutton's vireo
	Vireo gilvus	warbling vireo
Family Turdidae	*Sialia mexicana*	western bluebird
Family Corvidae	*Aphelocoma californica*	western scrub-jay
	Corvus corax	common raven
	Corvus brachyrhynchos	American crow
Family Troglodytidae	*Thryomanes bewickii*	Bewick's wren
	Troglodytes aedon	house wren
Family Hirundinidae	*Stelgidopteryx serripennis*	northern rough-winged swallow
	Petrochelidon pyrrhonota	cliff swallow
Family Paridae	*Baeolophus inornatus*	oak titmouse
Family Aegithalidae	*Psaltriparus minimus*	bushtit
Family Timaliidae	*Chamaea fasciata*	wrentit
Family Mimidae	*Mimus polyglottos*	northern mockingbird
	Toxostoma redivivum	California thrasher
Family Sturnidae	*Sturnus vulgaris*	European starling
Family Ptilogonatidae	*Phainopepla nitens*	phainopepla
Family Parulidae	*Vermivora celata*	orange-crowned warbler
	Dendroica petechia	yellow warbler*
	Dendroica coronata	yellow-rumped warbler
	Geothlypis trichas	common yellowthroat
	Wilsonia pusilla	Wilson's warbler
	Icteria virens	yellow-breasted chat*

	Scientific Name	Common Name
	Parula americana	northern parula
Family Thraupidae	*Piranga rubra*	southern tanager
Family Emberzidae	*Chondestes grammacus*	lark sparrow
	Pipilo crissalis	California towhee
	Pipilo maculates	spotted towhee
	Melospiza melodia	song sparrow
	Passer domesticus	house sparrow
Family Cardinalidae	*Pheucticus melanocepalus*	black-headed grosbeak
	Passerina amoena	lazuli bunting
	Passerina caerulea	blue grosbeak
Family Icteridae	*Agelaius phoeniceus*	red-winged blackbird
	Molothrus ater	brown-headed cowbird
	Icterus bullockii	hooded oriole
	Icterus cucullatus	Bullock's oriole
Family Fringilidae	*Carpodacus mexicanus*	house finch
	Carduelis psaltria	lesser goldfinch
	Carduelis lawrencei	Lawrence's goldfinch
	Carduelis tristis	American goldfinch
MAMMALS		
Order Didelphimorphia - Marsupials		
Family Didelphidae	*Didelphis virginiana*	opossum
Order Carnivora - Carnivores		
Family Canidae	*Canis latrans*	coyote
	Canis familiaris	domestic dog
Family Mephitidae	*Mephitis mephitis*	striped skunk
Family Procyonidae	*Procyon lotor*	raccoon
Order Lagomorpha - Rabbits, Hares and Pikas		
Family Leporidae	*Sylvilagus* sp.	rabbit
	Sylvilagus audubonii	desert cottontail
Order Rodentia - Squirrels, Rats, Mice and Relatives		
Family Sciuridae	*Spermophilus beecheyi*	California ground squirrel
Family Geomyidae	*Thomomys bottae*	Botta's pocket gopher
Family Cricetidae	*Neotoma* sp.	Woodrat

* California Department Fish and Game Species of Special Concern
** California Department Fish and Game Watch List

APPENDIX E

CULTURAL RESOURCES SURVEY AND EVALUATION PROGRAM

CULTURAL RESOURCES SURVEY AND EVALUATION PROGRAM FOR THE CITRACADO PARKWAY EXTENSION PROJECT

City of Escondido, California

Submitted to:

City of Escondido
210 North Broadway
Escondido, California 92025

Prepared for:

AECOM
7807 Convoy Court, Suite 200
San Diego, California 92111

Prepared by:

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Brian F. Smith, MA
Consulting Archaeologist

Tracy A. Stropes, MA, RPA
Project Archaeologist

May 12, 2011; Revised February 1, 2012

National Archaeological Data Base Information

Author(s):	Tracy A. Stropes and Brian F. Smith
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Report Date:	May 12, 2011; Revised February 1, 2012
Report Title:	Cultural Resource Survey and Evaluation Program for the Citracado Parkway Extension Project, City of Escondido, California
Prepared for:	City of Escondido 210 North Broadway Escondido, California 92025
Submitted to:	AECOM 7817 Convoy Court, Suite 200 San Diego, California 92111
Submitted by:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064 (858) 484-0915
USGS Quadrangle:	*Rancho Santa Fe* and *Escondido,* California (7.5 minute)
Study Area:	Approximately 41 acres
Key Words:	Survey; positive; testing; SDI-8280 and SDI-12,209; pictographs; bedrock milling features; biface reduction; flaked lithic tools; ground stone tools; pottery; faunal remains; midden; habitation; late prehistoric; human remains; significant sites; mitigation required; data recovery program and preservation.

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* *Confidential Appendix; bound separately*

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List of Abbreviations

AMSL	Above Mean Sea Level
APE	Area of Potential Effect
ARMR	Archaeological Resource Management Report
BFSA	Brian F. Smith and Associates
BMF	Bedrock Milling Feature
CEQA	California Environmental Quality Act
DPR	Department of Parks and Recreation
FAR	Fire-Affected Rock
GPS	Global Positioning System
HARRF	Hale Avenue Resource Recovery Facility
MLD	Most Likely Descendent
MMRP	Mitigation Monitoring and Reporting Program
MNI	Minimum Number of Individuals
MOM	San Diego Museum of Man
NAHC	Native American Heritage Commission

NISP	Number of Identified Specimens
OHP	Office of Historic Preservation
PDL	Piedra de Lumbre chert
PRC	California Public Resources Code
RPA	Registered Professional Archaeologist
SCIC	South Coastal Information Center
SDAC	San Diego Archaeological Center
SDSU	San Diego State University
SEUT	Steep-Edged Unifacial Tool
SS	Surface Scrape
STP	Shovel Test Pit
TU	Test Unit
xrf	X-ray fluorescence
YBP	Years Before Present

1.0 MANAGEMENT SUMMARY/ABSTRACT

Brian F. Smith and Associates (BFSA) conducted a cultural resource survey and evaluation program for the Citracado Parkway Extension Project located in northern San Diego County, California (Figure 1.0–1). BFSA provided consulting services for this project under a contract with AECOM, the prime contractor to the City of Escondido (City) for the engineering design of the roadway and for the environmental compliance documentation required under the California Environmental Quality Act (CEQA). The 41-acre project area is located on the west side of the City of Escondido, south/southeast of the City of San Marcos, south of Harmony Grove Road, and north of Avenida Del Diablo. The project area is situated partially within the City of Escondido and also within a portion of the unincorporated area of the County of San Diego (Figure 1.0–2). The project area is located on the *Rancho Santa Fe* and *Escondido* USGS 7.5-minute topographic quadrangles in portions of Sections 29 and 30, Township 12 South, Range 2 West, of the San Bernardino Base and Meridian (see Figure 1.0–2). The proposed Citracado Parkway Extension Project will extend and connect Citracado Parkway from West Valley Parkway to Andreasen Drive. The roadway will allow access to the Escondido Research and Technology Park where the new Palomar Medical Center Hospital is under construction and the new SDG&E Palomar Power Plant is now operational.

The purpose of the current study was to focus upon the assessment of the potential adverse impacts to cultural resources represented by the construction of this road project. The archaeological study consisted of the review of institutional records searches and the completion of an updated archaeological survey of the entire project corridor to record and subsequently evaluate all identified cultural resources. BFSA was contracted by AECOM to conduct the cultural resource study and to subsequently prepare a technical report of findings for inclusion in the project's environmental impact documentation to be submitted to the City, in accordance with Section 21083.2 of the California Public Resources Code (PRC), and CEQA.

BFSA personnel and Native American monitors conducted the archaeological survey of the project property during the week of January 25, 2010. Two archaeological sites with associated bedrock milling features, pictographs, and surface artifact scatters were observed (Figure 1.0–3). These two sites were previously recorded as SDI-8280 and SDI-12,209. Native American representatives of both the Kumeyaay and Luiseño were present during all fieldwork conducted for this project evaluation effort.

Within the Citracado Parkway road alignment that traverses roughly north to south, Site SDI-12,209 is situated north of Escondido Creek and SDI-8280 is located south of the creek. Both sites are primarily late prehistoric habitation sites that contain bedrock milling features, pictographs, multiple artifacts and habitation debris, and artifact-rich midden soil.

The archaeological testing of Sites SDI-8280 and SDI-12,209 was conducted from January 26 through February 18, 2010 under the direction of Consulting Archaeologist Brian F. Smith and Project Archaeologist Tracy A. Stropes. Portions of both sites were previously

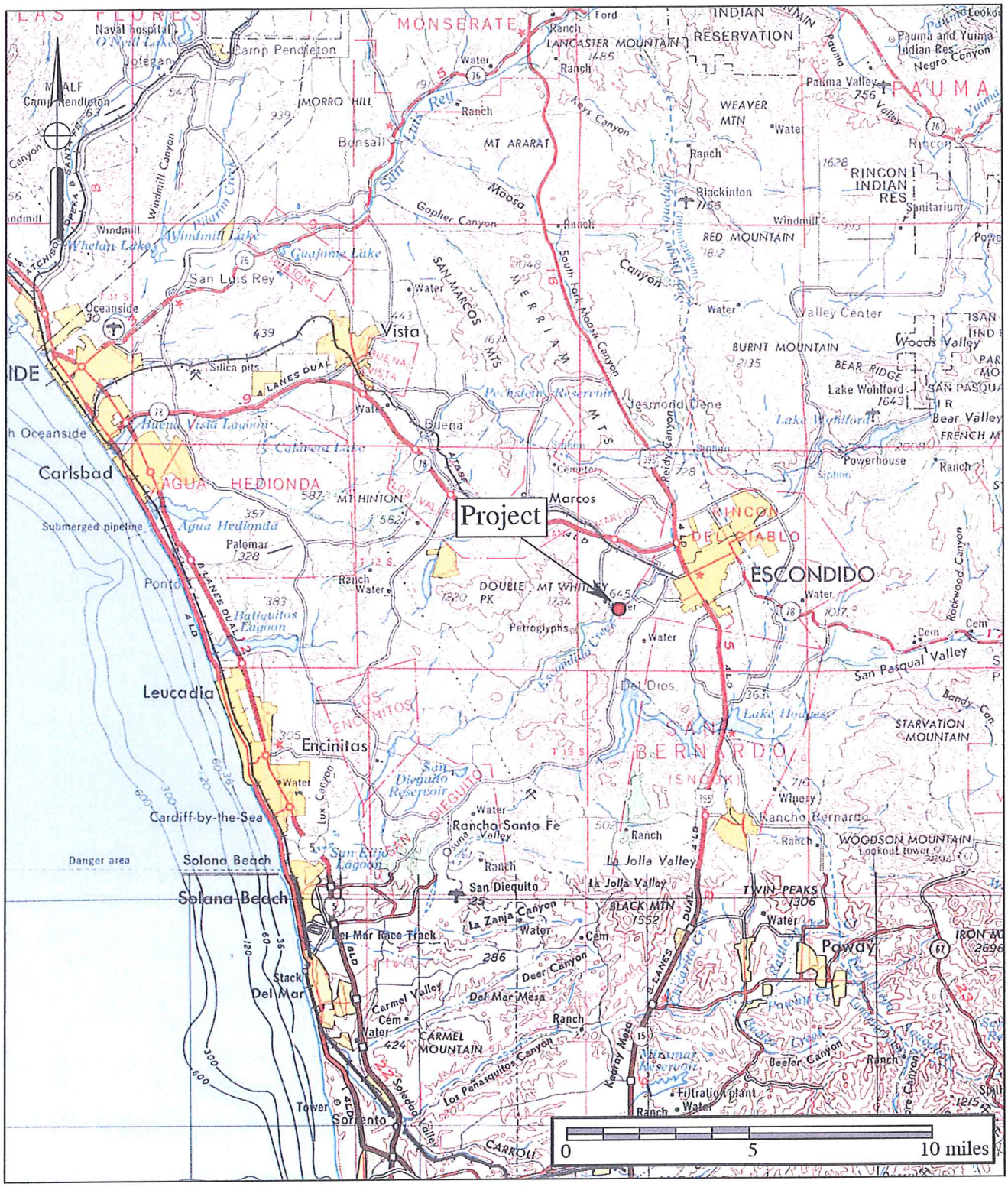


Figure 1.0–1

General Location Map

The Citracado Parkway Extension Project

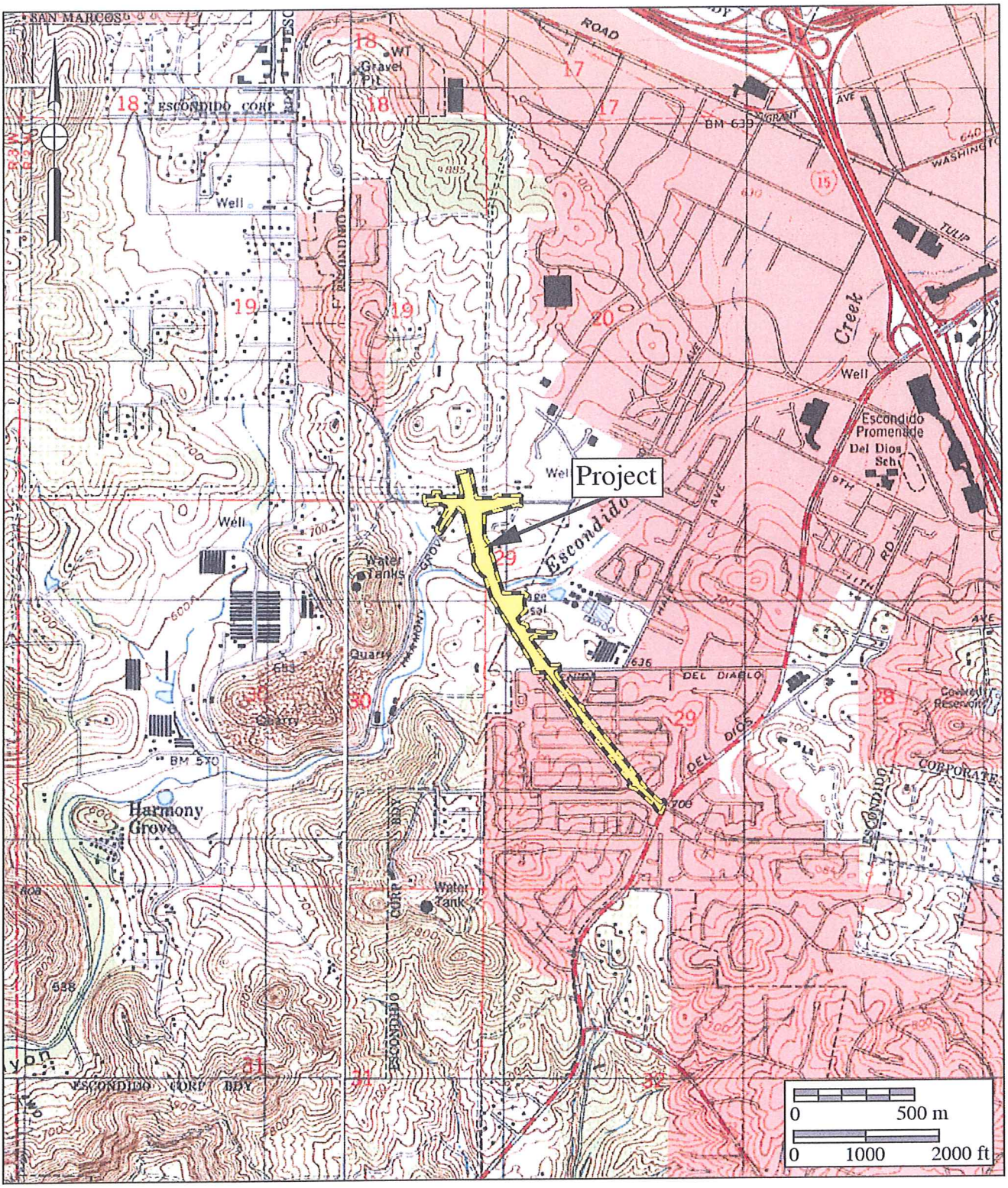


Figure 1.0–2

Project Location Map

The Citracado Parkway Extension Project

USGS *Escondido* and *Rancho Santa Fe* Quadrangle (7.5 minute series)

Figure 1.0–3

Cultural Resource Location Map

(In Confidential Appendix; Bound Separately)

studied by EDAW for earlier phases of the Citracado Parkway EIR project, and portions of SDI-8280 have been studied previously by BFSA for the Harmony Grove development project in 2006. The testing of these archaeological sites by BFSA was intended to supplement previous work by adding shovel test pits, test units, mapping and recording of all cultural features within the alignment, and updating all records information. The excavations conducted by BFSA effectively sampled the areas of the archaeological sites within the project's Area of Potential Effect (APE). Data from previous studies by EDAW and BFSA was also incorporated into this study for the purposes of subsurface site boundary identification and significance evaluation.

The cultural resources study of Sites SDI-8280 and SDI-12,209 was focused upon the task of determining site significance and evaluating potentially adverse impacts associated with the Citracado Parkway Extension Project. The results of the testing programs at both sites indicate that these archaeological sites are significant cultural resources according to CEQA, Section 15064.5 criteria. The identification of a significant subsurface deposit at each site, combined with the presence of associated pictographs and density of surface artifacts and bedrock milling features, indicates that these sites are likely to yield additional information important to furthering the current understanding of the prehistory of San Diego County. Because these cultural resources are evaluated as significant, any impacts to significant components of these sites as a result of the proposed project would be considered as having a significant adverse effect on important prehistoric resources. Consequently, measures shall be required to mitigate adverse impacts, both direct and indirect, to the cultural resources. Mitigation of impacts can be achieved through a program of preservation and data recovery, as some impacts are unavoidable because of constraints of road design and engineering/safety requirements.

Based upon the information collected from the cultural resources study, the project will not directly impact any significant areas of SDI-8280; however, significant deposits at SDI-12,209 will be directly impacted. Alternatives to redesign the project to avoid direct impacts to cultural resources are not feasible. Therefore, mitigation measures will include a data recovery program at SDI-12,209, a preservation program at SDI-8280, and mitigation monitoring for all project-related earth disturbing activities. Because human remains were recovered from SDI-12,209, mitigation measures will include protocols to treat any additional human remains that may be encountered. Native American monitoring will be included in all archaeological field work and grading activities.

This report includes all data relevant to the evaluation of the identified cultural resources and impact analysis. All collections, notes, photographs, and other materials related to this project will be temporarily housed at the BFSA archaeological laboratory in Poway, California until permanent curation is arranged at the San Diego Archaeological Center (SDAC) or other repository. Materials recovered from the previous excavations conducted by EDAW are currently housed at San Diego State University (SDSU) under the supervision of Dr. Arion Mayes.

2.0 INTRODUCTION

The cultural resource survey and evaluation program for the Citracado Parkway Extension Project was required by the City of Escondido in conformance with Section 21083.2 of the PRC and CEQA. The proposed project plans to extend and improve Citracado Parkway from West Valley Parkway to Andreasen Drive (Figure 2.0–1), and would require a new structure crossing at Escondido Creek and may include landform alterations at the proposed intersection, or interchange, with Harmony Grove Road. Minor street realignments and/or grade adjustments may also be necessary for the intersection of Kauana Loa Drive with Harmony Grove Road. Traffic signals will be considered at various intersections with Citracado Parkway along the proposed corridor. These locations include Citracado Parkway at Harmony Grove Road and/or Citracado Parkway at Avenida Del Diablo. The archaeological study was required by the City in order to identify all cultural resources located within the project and off-site improvement areas to determine the significance of all identified resources, and to determine the effect of the proposed project on these identified resources. BFSA was contracted by AECOM to complete the cultural resource survey and evaluation program for the proposed project that was started by EDAW in 2007 (Bowden-Renna and Apple 2008 and 2009). It should be noted that much of the project background information presented in this report was written by Cheryl Bowden-Renna and Rebecca McCorkle Apple and is used in this report with permission from AECOM.

The Citracado Parkway Extension Project area is situated on the west side of the City, generally south of Harmony Grove Road and north of Avenida Del Diablo partially within the City of Escondido and partially in an unincorporated area of San Diego County (see Figure 1.0–1). The project area is located on the *Rancho Santa Fe* and *Escondido* USGS 7.5-minute topographic quadrangles in portions of Sections 29 and 30, Township 12 South, Range 2 West, of the San Bernardino Base and Meridian (see Figure 1.0–2).

BFSA conducted the archaeological survey, records search review, and supplemental significance evaluations of all cultural resources identified within the project alignment. Project personnel included Consulting Archaeologist Brian F. Smith, Project Archaeologist Tracy A. Stropes (RPA), Field Director Clarence Hoff, and Field Technicians Matt Smith, Charles Callahan, Jeffrey Henry, and Rich Savitch. Fieldwork, including the survey and testing tasks, was conducted from January 25 to February 18, 2010. This report of findings was prepared by Tracy A. Stropes with input from Brian F. Smith. Karen E. Doose provided report editing and production with report graphics provided by Adrián Moreno.

Two prehistoric archaeological sites (SDI-8280 and SDI-12,209) were identified within the project alignment (see Figure 2.0–1). In addition, three pictographs (two associated with SDI-8280 and one associated with SDI-12,209) were identified adjacent to the project alignment. The archaeological site evaluation program(s) consisted of detailed mapping of all surface artifacts and features and collection of all surface artifacts, followed by the excavation of a series

of STPs in order to identify the presence or absence of subsurface archaeological deposits within the project alignment. During the assessment of SDI-8280 and SDI-12,209, where a potential subsurface deposit was indicated by the shovel tests, the excavation of one-square-meter test units was also conducted. Test unit excavations were completed at both SDI-8280 and SDI-12,209.

The prehistoric sites identified within the project area (SDI-8280 and SDI-12,209) were identified as seasonal camps or habitation sites that were components of a major late prehistoric village complex focused around Escondido Creek and the rich biological habitats in the vicinity of the sites. In addition, each site has associated pictograph loci, and exhibits a range of cultural materials including flaked lithic tools, ground stone tools, pottery, faunal materials, and associated middens. The first portion of the test phase conducted by EDAW (Bowden-Renna and Apple 2009) for SDI-12,209 also identified the presence of human remains. All of these materials suggest extended occupation of the sites located within the Citracado Parkway Extension Project alignment.

Both SDI-8280 and SDI-12,209 have been evaluated as significant cultural resources. The proposed project will impact significant areas of SDI-12,209, but no significant components of SDI-8280 will be directly affected by the construction of Citracado Parkway Extension. Mitigation measures have been prepared to reduce impacts to a level less than significant. All collections of cultural materials will be curated at an appropriate facility approved byt the City of Escondido.

Figure 2.0–1

Project Development Map showing Cultural Resource Locations

(In Confidential Appendix; Bound Separately)

3.0 SETTING

The project setting includes both physical and biological contexts of the proposed project, as well as the cultural setting of prehistoric and historic human activities in the general area.

3.1 Natural Setting

The 41-acre project area is situated in the inland foothill region located in the Peninsular Ranges geomorphic province of southern California. The property is situated east of Mount Whitney, northeast of San Elijo Canyon, south/southwest of the City of San Marcos, and west of the City of Escondido. The project area is situated among rolling hills southwest of the Escondido Valley, approximately two miles north of Lake Hodges. The central portion of the project area is bisected by a section of Escondido Creek and the surrounding floodplain between Harmony Grove Road to the north and Avenida Del Diablo to the south within the City of Escondido. Vegetation typical in the area includes coast live oak, white sage, black sage, globe mallow, star thistle, and non-native grasses. Elevations within the project area range from approximately 600 feet above mean sea level (AMSL) along Escondido Creek to approximately 660 feet AMSL on the slopes in the eastern portion of the property.

The project area contains primarily Mesozoic granitic rocks with some areas of Pre-Cenozoic granitic and metamorphic rocks and Mesozoic plutonic rocks (Miles and Goudey 1998). Soils in the project area belong to the Fallbrook-Vista Association. In this association, soils are well-drained brown sandy loams that have a subsoil of dark-brown or reddish-brown sandy clay loam and clay loam (USDA 1973). Soils are generally shallow over rock. Rock outcrops and boulders cover approximately ten percent of the surface. The mean annual precipitation is between 10 and 20 inches, and the mean annual temperture is 62 degrees Fahrenheit (USDA 1973).

The project area is currently used for agricultural fields and rural residences that have previously impacted portions of the natural topography and native vegetation. Vegetation within the parcel is dominated by oak woodland composed of scattered coast live oaks (*Quercus agrifolia*) with an understory composed of introduced grasses and poison oak. Other introduced species include eucalyptus trees along the southern and eastern boundaries of the project area, several olive trees, at least two non-producing fruit trees, a pepper tree, and several grape vines. Houses and associated buildings and infrastructure are located on the northeastern, northwestern, and southwestern peripheries of the project area. The Hale Avenue Resource Recovery Facility (HARRF) also borders the eastern portion of the project area.

3.2 Cultural Setting

The Native American cultures that have been identified in the general vicinity of the Citracado Parkway Expansion Project consist of a possible Paleo-Indian manifestation of the San Dieguito Complex, the Archaic and Early Milling Stone horizons represented by the La Jolla

Complex, and the late prehistoric Luiseño and Kumeyaay cultures. The area was used for ranching and farming following the Spanish occupation of the region. A brief discussion of the cultural elements related to the project area are provided in the following subsections.

3.2.1 Paleoenvironment

Because of the close relationship between prehistoric settlement and subsistence patterns and the environment, it is necessary to understand the setting in which these systems operated. At the end of the final period of glaciation, approximately 11,000 to 10,000 years before the present (YBP), the sea level was considerably lower than it is now; the coastline at that time would have been two to two and one-half miles west of its present location (Smith and Moriarty 1985a, 1985b). At approximately 7000 YBP, the sea level rose rapidly, filling in many coastal canyons that had been dry during the glacial period. The period between 7000 and 4000 YBP was characterized by conditions that were drier and warmer than previously, followed by a cooler, moister environment, similar to the present-day climate (Robbins-Wade 1990). Changes in sea level and coastal topography are often manifested in archaeological sites through the types of shellfish that were utilized by prehistoric groups. Different species of shellfish prefer certain types of environments, and dated sites that contain shellfish remains reflect the setting that was exploited by the prehistoric occupants.

Unfortunately, pollen studies have not been conducted for this area of San Diego; however, studies in other areas of southern California, such as Santa Barbara, indicate that the coastal plains supported a pine forest between approximately 12,000 and 8000 YBP (Robbins-Wade 1990). After 8000 YBP, this environment was replaced by more open habitats, which supported oak and non-arboreal communities. The coastal sage scrub and chaparral environments of today appear to have become dominant after 2200 YBP (Robbins-Wade 1990).

3.2.2 Prehistory

In general, the prehistoric record of San Diego County has been documented in many reports and studies, several of which represent the earliest scientific works concerning the recognition and interpretation of the archaeological manifestations present in this region. Geographer Malcolm Rogers initiated the recordation of sites in the area during the 1920s and 1930s, using his field notes to construct the first cultural sequences based on artifact assemblages and stratigraphy (Rogers 1966). Subsequent scholars expanded the information gathered by Rogers and offered more academic interpretations of the prehistoric record. Moriarty (1966, 1967, 1969), Warren (1964, 1966), and True (1958, 1966) all produced seminal works that critically defined the various prehistoric cultural phenomena present in this region (Moratto 1984). Additional studies have sought to further refine these earlier works (Cardenas 1986; Moratto 1984; Moriarty 1966, 1967; True 1970, 1980, 1986; True and Beemer 1982; True and Pankey 1985; Waugh 1986). In sharp contrast, the current trend in San Diego prehistory has also resulted in a revisionist group that rejects the established cultural historical sequence for San

Diego. This revisionist group (Warren et al. 1998) has replaced the concepts of La Jolla, San Dieguito, and all of their other manifestations with an extensive, all-encompassing, chronologically undifferentiated cultural unit that ranges from the initial occupation of southern California to around 1000 AD (Bull 1983, 1987; Ezell 1983, 1987; Gallegos 1987; Kyle et al. 1990; Stropes 2007). For the present study, the prehistory of the region is divided into four major periods including: Early Man; Paleo-Indian; Early Archaic; and, Late Prehistoric.

Early Man Period (Prior to 8,500 BC)

At the present time, there has been no concrete archaeological evidence to support the occupation of San Diego County prior to 10,500 years ago. Some archaeologists such as Carter (1957, 1980) and Minshall (1976) have been proponents of Native American occupation of the region as early 100,000 years ago. However, their evidence for such claims is sparse at best and has lost much support over the years as more precise dating techniques have become available for skeletal remains thought to represent early man in San Diego. In addition, many of the "artifacts" initially identified as products of early man in the region have since been rejected as natural products of geologic activity. Some of the local proposed Early Man Period sites include the Texas Street, Buchanan Canyon and Brown sites, as well as Mission Valley (San Diego River Valley), Del Mar and La Jolla (Bada et al. 1974; Carter 1957, 1980; Minshall 1976, 1989; Moriarty and Minshall 1972; Reeves 1985; Reeves et al. 1986).

Paleo-Indian Period (8,500-6,000 BC)

For the region, it is generally accepted that the earliest identifiable culture in the archaeological record is represented by the material remains of the Paleo-Indian Period San Dieguito Complex. The San Dieguito Complex was thought to represent the remains of a group of people who occupied sites in this region between 10,500 and 8000 YBP, and who were related to or contemporaneous with groups in the Great Basin. As of yet, no absolute dates have been forthcoming to support the great age attributed to this cultural phenomenon. The artifacts recovered from San Dieguito Complex sites duplicate the typology attributed to the Western Pluvial Lakes Tradition (Moratto 1984; Davis et al. 1969). These artifacts generally include scrapers, choppers, large bifaces, and large projectile points, with few milling tools. Tools recovered from San Dieguito Complex sites, along with the general pattern of their site locations, led early researchers to believe that the San Dieguito Complex people were a wandering, hunting, and gathering society (Moriarty 1969; Rogers 1966).

The San Dieguito Complex is the least understood of the cultures that have inhabited the San Diego County region. This is because of an overall lack of stratigraphic information and/or datable materials recovered from sites identified as San Dieguito Complex. Currently, controversy exists among researchers regarding the relationship of the San Dieguito Complex and the subsequent cultural manifestation in the area, the La Jolla Complex. Firm evidence has not been recovered to indicate whether the San Dieguito Complex "evolved" into the La Jolla

Complex, or if the people of the La Jolla Complex moved into the area and assimilated with the people of the San Dieguito Complex, or if the San Dieguito Complex people retreated from the area because of environmental or cultural pressures.

Early Archaic Period (6,000 BC- 0 AD)

Based on evidence suggesting climatic shifts and archaeologically observable changes in subsistence strategies, a new cultural pattern is believed to have emerged in the San Diego region around 6000 BC. This Archaic Period pattern is believed by archaeologists to have evolved from or replaced the San Dieguito Complex culture resulting in a pattern referred to as the Encinitas Tradition. In San Diego, the Encinitas Tradition is believed to be represented by the coastal La Jolla Complex and its inland manifestation, the Pauma Complex. The La Jolla Complex is best recognized for its pattern of shell middens and grinding tools closely associated with marine resources and flexed burials (Shumway et al. 1961; Smith and Moriarty 1985a, 1985b). Increasing numbers of inland sites have been identified as dating to the Archaic Period and focused on terrestrial subsistence (Cardenas 1986; Smith 1996; Raven-Jennings and Smith 1999a, 1999b).

The tool typology of the La Jolla Complex displays a wide range of sophistication in the lithic manufacturing techniques used to create the tools found at their sites. Scrapers, the dominant flaked tool type, were created either by splitting cobbles or by finely flaking quarried material. Evidence suggests that after about 8200 YBP, milling tools begin to appear in La Jolla Complex sites. Inland sites of the Encinitas Tradition (Pauma Complex) exhibit a reduced quantity of marine-related food refuse and contain large quantities of milling tools and food bone. The lithic tool assemblage shifts slightly to encompass the procurement and processing of terrestrial resources, suggesting seasonal migration from the coast to the inland valleys (Smith 1996). At the present time, the transition from the Archaic Period to the Late Prehistoric Period is not well understood. Many questions remain concerning cultural transformation between periods, possibilities of ethnic replacement, and/or a possible hiatus from the western portion of the County.

Late Prehistoric Period (0 AD-1769)

For the following discussion regarding the Late Prehistoric Period, both the Kumeyaay and Luiseño cultures are represented, as the project area is situated in proximity to the tribal territorial boundaries of both Native American groups. For the topics of Subsistence and Settlement, Social Organization and Material Culture, only the Luiseño are discussed as an example of Late Prehistoric Period Native American lifeways in the region.

The transition into the Late Prehistoric Period is primarily represented by a marked change in archaeological patterning known as the Yuman Tradition. This tradition is primarily represented by the Cuyamaca Complex, which is believed to have derived from the mountains of southern San Diego County. The people of the Cuyamaca Complex are considered as ancestral

to the ethnohistoric Kumeyaay (Diegueño). Although several archaeologists consider the local Native American tribes to be relatively latecomers, the traditional stories and histories passed down through oral tradition by the local Native American groups both presently and ethnographically speak to their presence here since the creation of all things.

The Kumeyaay Native Americans were a seasonal hunting and gathering people, with cultural elements that were very distinct from the La Jolla Complex people. Noted variations in material culture including cremation, the use of bows and arrows, and adaptation to the use of the acorn as a main food staple (Moratto 1984). Along the coast, the Kumeyaay made use of marine resources by fishing and collecting shellfish for food. Plant food resources (including acorns) that were seasonally available and game were sources of nourishment for the Kumeyaay. By far the most important food resource for these people was the acorn. The acorn represented a storable surplus, which in turn allowed for seasonal sedentism and its attendant expansion of social phenomena.

Firm evidence has not been recovered to indicate whether the La Jolla Complex people were present when the Kumeyaay Native Americans migrated into the coastal zone. However, stratigraphic information recovered from Site CA-SDI-4609 in Sorrento Valley may suggest a hiatus of 650 ± 100 years between the occupation of the coastal area by the La Jolla Complex (1730 ± 75 YBP is the youngest date for the La Jolla Complex inhabitants at CA-SDI-4609) and late prehistoric cultures (Smith and Moriarty 1983). More recently, a reevaluation of two prone burials at the Spindrift site excavated by Moriarty (1965) and radiocarbon dates of a pre-ceramic phase of Yuman occupation near the San Diego suburb of Santee suggests a comingling of the latest La Jolla Complex inhabitants and the earliest Yuman inhabitants about 2000 years ago (Kyle and Gallegos 1993).

Approximately 1,300 YBP, a Shoshonean-speaking group from the Great Basin region moved into northern San Diego County, marking the transition to the Late Prehistoric Period. This period is characterized by higher population densities and development in social, political, and technological systems. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, but effective technological innovations. Technological developments during this period include the introduction of the bow and arrow between 400 and 600 AD. Atlatl darts are replaced by smaller arrow darts, including the Cottonwood series points. Other hallmarks of the Late Prehistoric Period include cremation of the dead and extensive trade networks as far reaching as the Colorado River Basin. The period is divided into two phases, including San Luis Rey I and San Luis Rey II, based on the introduction of pottery (Meighan 1954). Radiocarbon dating and the introduction of pottery established that the San Luis Rey II phase began at approximately 1300 AD. San Luis Rey I is characterized by the use of portable shaped or unshaped slab metates, and non-portable bedrock milling features. Manos and pestles can also be shaped or unshaped. Cremations, bone awls, and stone and shell ornaments are also prominent in the material culture. The later San Luis Rey II assemblage is

augmented by pottery cooking and storage vessels, cremation urns, and polychrome pictographs, or rock art, which likely appeared as the result of increased population sizes, and increased sedentism (True et al. 1974). Flaked stone dart points are dominated by the Cottonwood Triangular series, but Desert Side-Notched, Dos Cabazas Serrated, leaf-shaped, and stemmed styles also occurred. Subsistence is thought to have focused on the utilization of acorns, a storable species that allowed for relative sedentism and increased population sizes.

Ethnohistorical and ethnographic evidence indicates the Shoshonean-speaking group that occupied the northern portion of San Diego County was the Luiseño. Along the coast, the Luiseño made use of marine resources available by fishing and collecting molluscs for food. Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for Luiseño groups. The elaborate kinship and clan systems between the Luiseño and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian, resources from the eastern desert region, and steatite from the Channel Islands.

When the Spanish began exploring the region in the sixteenth century, the Luiseño occupied a territory bounded on the west by the Pacific Ocean, on the east by the Peninsular Ranges mountains including Palomar Mountain to the south and Santiago Peak to the north, on the south by Agua Hedionda Lagoon, and on the north by Aliso Creek in present-day San Juan Capistrano. The Luiseño were a Takic-speaking people more closely related linguistically and ethnographically to the Cahuilla, Gabrielino, and Cupeño to the north and east rather than to the Kumeyaay, a Yuman-speaking group, who occupied territory to the south. The Luiseño differed from their neighboring Takic speakers in having an extensive proliferation of social statuses, a system of ruling families that provided ethnic cohesion within the territory, a distinct world view that stemmed from use of the hallucinogen *datura*, and an elaborate religion that included ritualized sand paintings of the sacred being "Chingichngish" (Bean and Shipek 1978; Kroeber 1925). The following is a summary of ethnographic data regarding this group.

Subsistence and Settlement

The Luiseño occupied sedentary villages, most often located in sheltered areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were located near water sources to facilitate acorn leaching, and in areas that offered thermal and defensive protection. Villages comprised areas that were both publicly and privately, or family, owned. Publicly owned areas included trails, temporary campsites, hunting areas, and quarry sites. Inland groups had fishing and gathering sites along the coast that were utilized, particularly from January to March, when inland food resources were scarce. During October and November, most of the village would relocate to mountain oak groves to harvest acorns. For the remainder of the year, the Luiseño remained at village sites, where food resources were within a day's travel (Bean and Shipek 1978).

The most important food source of the Luiseño was acorns, of which six different species were used (*Quercus californica*, *Q. agrifolia*, *Q. chrysolepis*, *Q. dumosa*, *Q. engelmanni*, and *Q. wizlizeni*). Seeds, particularly of grasses (Gramineae), composits (Compositae), and mints (Labiatae), were also heavily utilized. Seed-bearing species were encouraged through controlled burns, which were conducted at least every third year. A variety of other stems, leaves, shoots, bulbs, roots, and fruits were also utilized. Hunting augmented this vegetal diet. Animal species used for subsistence included deer (*Odocoileus hemionus*), rabbits (*Sylvilagus* sp.), hares (*Lepus californicus*), woodrats (*Neotoma* sp.), ground squirrels (*Spermophilus beecheyi*), antelope (*Antilicapra americana*), quail (*Callipelpa californica* and *Oreortyx pictus*), ducks (Anatidae), freshwater fish from mountain streams, and marine mammals, fish, crustaceans, and molluscs, particularly abalone (*Haliotis* sp.), from the coast. In addition, a variety of snakes, small birds, and rodents provided sources of food (Bean and Shipek 1978; Kroeber 1925).

Social Organization

Luiseño social groups consisted of patrilineal families or clans, which were politically and economically autonomous. Several clans comprised a religious party, or *nota*, which was headed by a chief, who organized religious ceremonies and controlled economics and warfare. The chief had assistants who specialized in particular aspects of ceremonial or environmental knowledge, and who, with the chief, were part of a cultic social group with special access to supernatural power, particularly that of Chingichngish. The positions of chief and assistants were hereditary, and the complexity and multiplicity of these specialists' roles likely increased in larger villages, notably along the coast (Bean and Shipek 1978; Kroeber 1925).

Marriages were arranged by the parents; these arrangements were often made to forge alliances between lineages. Useful alliances included those between groups of differing ecological niches, and those that resulted in territorial expansion. Residence was patrilocal (Bean and Shipek 1978; Kroeber 1925).

Women were primarily responsible for plant gathering, while men were responsible for hunting, although at times, particularly during acorn and marine mollusc harvests, there was no division of labor. Elderly women cared for children, while elderly men were active participants in rituals, ceremonies, and political affairs, and were responsible for manufacturing hunting and ritualistic implements. Children were taught subsistence skills at the earliest age possible (Bean and Shipek 1978; Kroeber 1925).

Material Culture

House structures were conical, partially subterranean, and thatched with reeds, brush, or bark. Ramadas were rectangular-shaped and generally used to protect workplaces for domestic chores, including cooking. Ceremonial sweathouses, which were important in purification rituals, were round, partially subterranean thatched structures covered with a layer of mud. Another ceremonial structure was the wámkis, which was located in the center of the village, and

was the place of rituals, including the sand painting associated with the Chingichngish cult (Bean and Shipek 1978; Kroeber 1925).

Clothing was minimal; women wore a cedar-bark, netted-twine double apron, and men a waist cord. In cold weather, cloaks or robes of rabbit fur, deerskin, or sea otter fur were worn by both sexes. Footwear included sandals fashioned from yucca fibers, and deerskin moccasins. Adornments included bead necklaces and pendants made from bone, clay, stone, shell, bear claws, mica sheets, deer hooves, and abalone shell. Men wore ear and nose piercings made of cane or bone, which were sometimes decorated with beads (Bean and Shipek 1978; Kroeber 1925).

Hunting implements included the bow and arrow. Arrows were tipped with either a carved, fire-hardened wooden tip, or a lithic point, usually fashioned from locally available Santiago Peak metavolcanic or quartz. Throwing sticks fashioned from wood were used in hunting small game, while deer head decoys were used during deer hunts. Coastal groups fashioned dugout canoes for near-shore fishing, and harvested fish with seines, nets, traps, and hooks made of bone or abalone shell (Bean and Shipek 1978; Kroeber 1925).

The Luiseño had a well-developed basket industry; baskets were used in resource gathering, food preparation, storage, and food serving. Pottery containers, which were shaped by paddle and anvil and then fired in shallow open pits, were used for food storage, cooking, and serving. Other utensils included wooden implements, steatite bowls, and ground stone manos, metates, mortars, and pestles (Bean and Shipek 1978; Kroeber 1925).

Additional tools included knives, scrapers, choppers, awls, and drills. Shamanistic items included soapstone or clay smoking pipes, and crystals made of quartz or tourmaline (Bean and Shipek 1978; Kroeber 1925).

Native American Perspective

In addition to the point of view discussed above, it is acknowledged herein that other perspectives exist to explain the presence of Native Americans in the region. The Native American perspective is that they have been here from the beginning as described by their oral histories. Similarly, they do not necessarily agree with the distinction that is made between different archaeological cultures or periods, such as "La Jolla" or "San Dieguito." Instead, they believe that there is a continuum of ancestry, from the first people to the present Native American populations of San Diego County.

3.2.3 Historic Period

Exploration Period (1530-1769)

The historic period around San Diego Bay began with the landing of Juan Rodríguez Cabrillo and his men in 1542 (Chapman 1925). Sixty years after the Cabrillo expeditions (1602-1603), an expedition led by Sebastian Vizcaíno made an extensive and thorough exploration of the Pacific Coast. Although the voyage did not extend beyond the northern limits of the Cabrillo

track, Vizcaíno had the most lasting effect on the nomenclature of the coast. Many of the names he gave to places have survived, whereas nearly every one of Cabrillo's has faded from use. Cabrillo gave the name of "San Miguel" to the first port at which he stopped in what is now the United States; 60 years later, Vizcaíno changed it to "San Diego" (Rolle 1969).

Spanish Colonial Period (1769-1821)

The Spanish occupation of the claimed territory of Alta California took place during the reign of King Carlos III of Spain (Engelhardt 1920). A powerful representative of the king in Mexico, José de Gálvez, conceived of the plan to colonize Alta California and thereby secure the area for the Spanish crown (Rolle 1969). The effort involved both a military and religious contingent, where the overall intent of establishing forts and missions was to gain control of the land and the native inhabitants through conversion. Actual colonization of the San Diego area began on July 16, 1769 when a Spanish exploration party, commanded by Gaspar de Portolá (with Father Junípero Serra in charge of religious conversion of the native populations), arrived by the overland route to San Diego to secure California for the Spanish crown (Palou 1926). The natural attraction of the harbor at San Diego and the establishment of a military presence in the area solidified the importance of San Diego to the Spanish colonization of the region and the growth of the civilian population. Missions were constructed from San Diego to as far north as San Francisco. The mission locations were based on a number of important territorial, military, and religious considerations. Grants of land were made to persons who applied, but many tracts reverted back to the government for lack of use. As an extension of territorial control by the Spanish empire, each mission was placed so as to command as much territory and as large a population as possible. While primary access to California during the Spanish Period was by sea, the route of El Camino Real served as the land route for transportation, commercial, and military activities within the colony. This route was considered to be the most direct path between the missions (Rolle 1969; Caughey 1970). As increasing numbers of Spanish and Mexican peoples, as well as the later Americans during the Gold Rush, settled in the area, the Native American populations diminished as they were displaced or decimated by disease (Carrico and Taylor 1983).

Mexican Period (1821-1846)

Father Miguel Hidalgo y Costilla and a group of Native American followers began a revolt against Spanish rule on September 16, 1810. Hidalgo did not succeed in the fight against the Spanish, and ultimately was executed. However, the revolt continued and the Spanish were finally defeated in 1821. Mexican Independence Day is celebrated on September 16 each year in honor of Father Hidalgo's bravery. The revolution had repercussions in the northern territories as well and by 1834 all of the mission lands in Alta California had been removed from the control of the Franciscan Order under the Acts of Secularization. Without proper maintenance, the missions quickly began to disintegrate. After 1836, missionaries ceased to make regular

visits to the outlying Native American communities to minister their needs (Engelhardt 1920). Large tracts of land continued to be granted to persons who applied for them or who had gained favor with the Mexican government. Grants of land were also made to settle government debts. The Mexican government was also called upon to reaffirm some older Spanish land grants shortly before the Mexican-American War of 1846 (Moyer 1969).

Anglo-American Period (1846-Present)

California was invaded by United States troops during the Mexican-American War of 1846–1848. The acquisition of strategic Pacific ports and California land was one of the principal objectives of the war (Price 1967). At the time, the inhabitants of California were practically defenseless, and they quickly surrendered to the United States Navy in July 1847 (Bancroft 1886).

The cattle ranchers of the "counties" of southern California had prospered during the cattle boom of the early 1850s. They were able to "reap windfall profit...pay taxes and lawyer's bills...and generally live according to custom" (Pitt 1966). However, cattle ranching soon declined contributing to the expansion of agriculture. With the passage of the "No Fence Act," San Diego's economy shifted from stock raising to farming (Robinson 1948). The act allowed for the expansion of unfenced farms, which was crucial in an area where fencing material was practically unavailable. Five years after its passage, most of the arable lands in San Diego County had been patented as either ranchos or homesteads, and growing grain crops replaced raising cattle in many of the County's inland valleys (Blick 1976; Elliott 1883).

By 1870, farmers had learned to dry-farm and were coping with some of the peculiarities of San Diego County's climate (*San Diego Union*, February 6, 1868; Van Dyke 1886). Between 1869 and 1871, the amount of cultivated acreage in the County rose from less than 5,000 acres to more than 20,000 (*San Diego Union*, January 2, 1872). Of course, droughts continued to hinder the development of agriculture (Crouch 1915; *San Diego Union*, November 10, 1870; Shipek 1977). Large-scale farming in San Diego County was limited by a lack of water and the small size of arable valleys. The small urban population and poor roads also restricted commercial crop growing. Meanwhile, cattle continued to be grazed in parts of inland San Diego County. In the Otay Mesa area, for example, the "No Fence Act" had little effect on cattle farmers because ranches were spaced far apart and natural ridges kept the cattle out of nearby growing crops (Gordinier 1966).

During the first two decades of the twentieth century, the population of San Diego County continued to grow. The population of the inland portion of the County declined during the 1890s, but between 1900 and 1910, it rose by about 70 percent. The pioneering efforts were over, the railroads had broken the relative isolation of southern California, and life in San Diego County became similar to other communities throughout the west. After World War I, the history of San Diego County was primarily determined by the growth of San Diego Bay. In 1919, the United States Navy decided to make the bay the home base for the Pacific Fleet

(Pourade 1967). During the 1920s, the aircraft industry also established itself at the bay (Heiges 1976). The establishment of these industries led to the growth of the County as a whole; however, most of the civilian population growth occurred in the coastal areas in the northern portion of the County where the population almost tripled between 1920 and 1930. During this time period, the history of inland San Diego County was subsidiary to that of the City of San Diego, which had become a Navy center and industrial city (Heiges 1976). In inland San Diego County, agriculture became specialized, and recreational areas were established in the mountain and desert areas. Just before World War II, urbanization began to spread to the inland parts of the County.

After the arrival of Spanish explorers, the area that is present-day Escondido became part of the Spanish mission system. In 1843, the project area was enveloped within a Mexican land grant known as El Rincon del Diablo Rancho granted to Juan Bautista Alvarado. In 1860, the rancho land was acquired by the Wolfskill brothers who planted vineyards and raised sheep (McGrew 1988). In 1883, much of the area was purchased by the Escondido Company, a group of Stockton speculators that subdivided the property three years later. In 1886, a 12,000-acre tract was purchased by a group of investors that formed the Escondido Land and Town Company, which platted the City of Escondido and lobbied for construction of a railroad connection to the coast. Aggressive land promotions during the latter half of the 1880s drew many people to the area, and although growth had slowed considerably during the 1890s, settlers continued to arrive in the back country, establishing small farms and ranches throughout the area. This migration took a sharp decline with the onset of the Depression during the 1930s, as many of the rural farmers abandoned their farms and moved to urban areas. The number of people living on farms fell 63 percent during the 1930s, while San Diego County's overall population increased by 38 percent (Van Wormer and Walter 1991). Nevertheless, farming and ranching continued to be the major focus of Escondido's economy until the 1960s.

3.3 Review of Previous Archaeological Investigations

Records searches were conducted on March 13, 2007 by EDAW at the South Coastal Information Center (SCIC) at San Diego State University (SDSU) and the San Diego Museum of Man (MOM). These records were transferred to BFSA and reviewed for the current project. The archival search consisted of an archaeological and historic records and literature review. The data reviewed includes historic maps, and the California Register of Historical Resources (California Register) and National Register of Historic Places (National Register) information for the project area. The search included a one-mile radius surrounding the project area. This research provides a background on the types of sites that would be expected in the region, and to determine whether previous surveys had been conducted in the area and what resources had been previously recorded within the project boundary.

The results of the records searches indicate that 27 previous investigations have been conducted within a one-mile radius of the current project area (Chace 1977a, 1977b, 1978, 1979, 1982a, 1982b, 1984; Dolan 2002; Fink 1978; Flower et al. 1978; Gallegos 1992; Gallegos and Kyle 1997; Gilbert et al. 2006; Hunt and Smith 1998; Keller Environmental Associates 1992; Malies 1976; Pettifor 2004; Pierson 2004, 2006; Pigniolo and Baksh 1999; Smith 1992; Smith and Meier 2004; Underwood 2001; Underwood and Cleland 2001; Wahoff et al. 2005; York 1996). Of these studies, fifteen are survey investigations, six are limited testing programs, one is an evaluation effort, two are monitoring efforts, one is a constraints analysis, and one is a Draft Environmental Impact Report. One additional cultural resources survey report was on file with the City of Escondido (Schaefer and Victorino 2000) documenting the cultural resources effort for the property adjacent to the western portion of the project area, just north of Escondido Creek. Two sites have been previously identified within the project area, SDI-8280 and SDI-12,209. Both sites were relocated during the current survey. Previous site location maps and aerial photographs were used in relocating the sites. Both sites were visually inspected to confirm previously established site boundaries and feature locations and to determine extent of disturbance if any.

A total of 35 cultural resources are located within one mile of the project area (Table 3.3–2). The majority of these resources (N = 30) are prehistoric archaeological sites. However, three of these resources also contain a historic cultural component, two are prehistoric isolate finds, and four lack descriptions. A large portion of the prehistoric sites are located east of the project area in the valley surrounding Escondido Creek. Many of the prehistoric sites (N=16) contain only bedrock milling features. The remaining prehistoric sites include one habitation site, one temporary camp, one lithic and pottery scatter, and one lithic scatter. The character and distribution of these prehistoric site types indicates that the Citracado Parkway area was utilized primarily during the Late Prehistoric Period for resource procurement and processing and, secondarily, as a seasonal camping area. No prehistoric lithic quarry sites have been identified within one mile of the project area.

The previously recorded historic cultural resources are located immediately west of the project area and north of Escondido Creek. One historic residence, one historic structure consisting of a concrete-lined well, and two pieces of farm equipment have been previously identified. Additionally, the location of a historic building, as noted on a 1928 aerial photograph, has been previously recorded; although actual surface evidence of this structure does not presently exist.

Table 3.3-2
Previously Recorded Cultural Resources within One Mile of the Project Area

Site Number	Site Description
SDI-154	Original site description lost. Site update indicates area has been completely graded and built on.
SDI-155	Original site description lost. Site update indicates area has been completely graded and built on.
SDI-5089	Small lithic and pottery scatter
SDI-5090	Bedrock milling feature
SDI-5501	Bedrock milling feature
SDI-5502	Bedrock milling feature
SDI-5503	Bedrock milling feature
SDI-7871	Bedrock milling feature and historic trash scatter
SDI-8280	Bedrock milling features and lithic scatter; historic structure remains and trash scatter
SDI-8305	Lithic scatter
SDI-8330	Large habitation site (Scraper Maker Hill)
SDI-12,209	Bedrock milling features, lithic scatter, and rock art
SDI-12,459	Bedrock milling feature and ground stone
SDI-12,460	Bedrock milling feature
SDI-12,461	Bedrock milling feature
SDI-12,601	Bedrock milling feature and lithic scatter
SDI-15,351	Bedrock milling feature and one flake
SDI-15,352	Bedrock milling feature and historic trash scatter
SDI-16,988	Temporary camp
SDI-17,837	Bedrock milling feature
SDI-17,838	Bedrock milling feature
SDI-17,839	Bedrock milling feature
W-1681	Bedrock milling feature
W-1682	Bedrock milling feature
W-1683	Bedrock milling feature
W-2010	Original site description lost
W-2013	Original site description lost
37-017514	Quartz flake
37-017515	Metavolcanic flake
37-017516	Historic building

Table 3.3-2 cont'd. Previously Recorded Cultural Resources within One Mile of the Project Area	
Site Number	**Site Description**
37-017517	Location of historic building on historic maps (no evidence of structural remains currently exists)
37-017518	Historic structure (well)
37-024457	Historic object (farm equipment)
37-024458	Historic object (farm equipment)
37-025925	Bedrock milling feature

4.0 METHODOLOGY

The cultural resources study for the Citracado Parkway Extension Project consisted of an institutional records search, an intensive cultural resource survey of the entire 41-acre project area, detailed recordation of the identified archaeological sites, an archaeological testing program, and the evaluation of all identified cultural resources within the project area. This study was conducted in conformance with professional archaeological procedures and protocols, and was intended to conform with the environmental guidelines of the City of Escondido and the County of San Diego. Statutory requirements of CEQA (Section 15064.5) were followed in evaluating the significance of each cultural resource. Specific definitions for archaeological resource type(s) used in this report are those established by the Office of Historic Preservation (OHP 1995). The report format follows the guidelines established by OHP in the Archaeological Resource Management Report (ARMR) Guidelines (OHP 1990).

4.1 Institutional Records Searches

Archaeological records searches were conducted by EDAW in 2007 at the SCIC and MOM. These records were transferred to BFSA and reviewed for the current project. Two recorded cultural resources were identified within the project boundary. An additional 33 previously recorded cultural resources are located within a one-mile radius of the project area (see Section 3.3). Most of these previously recorded sites are bedrock milling features.

4.2 Field Methodology

4.2.1 Field Surveys

The archaeological survey of the proposed Citracado Parkway Extension Project was conducted by BFSA personnel and Native American monitors on January 25, 2010. Project personnel for this phase of the project included Project Archaeologist Tracy A. Stropes, Field Director Clarence Hoff, and Field Technicians Matt Smith and Rich Savitch. The surveys generally consisted of walking in north-south parallel transects spaced at ten to fifteen meter intervals. Kumeyaay and a Luiseño representatives were present during the survey of the project area. All natural features, such as bedrock outcrops and seasonal drainages, were closely examined for cultural resources. The survey process was constrained by occasionally dense vegetation or leaf mulch. Additionally, at least 60 percent of the project area had been previously disturbed by grading of roads, structures, and cultivation. The status of all cultural resources within the project area were updated as necessary according to the OHP's *Instructions for Recording Historical Resources* using DPR forms.

4.2.2 *Testing and Significance Evaluation*

The archaeological testing and significance evaluation program for sites located within the proposed Citracado Parkway Extension Project area were conducted between January 26 and February 18, 2010. Project personnel included Principal Investigator Brian F. Smith, Project Archaeologist Tracy A. Stropes, Field Director Clarence Hoff, and Field Technicians Matt Smith, Charles Callahan, Jeffrey Henry, and Rich Savitch.

The testing program was initiated based on the information gathered from survey data and testing conducted by EDAW (Bowden-Renna and Apple 2008 and 2009) for an earlier phase of this project. EDAW's work included excavation of 45 STPs and three test units placed within the portion of Site SDI-12,209 that would be directly impacted by the project alignment. However, EDAW's earlier phase of work did not address impacts for the northern portion of the APE or potential impacts to Site SDI-8280 in the southern portion of the APE. As a result, additional work was conducted by BFSA to evaluate impacts for the entire APE including further testing at SDI-8280 and SDI-12,209. Both of these sites extend beyond the boundaries of the road corridor APE; however, testing was limited to the APE. All surface artifact collections, STPs, test units, bedrock milling features, and pictographs were mapped using a handheld Trimble GeoXT Global Positioning System (GPS) unit equipped with Terrasync software. The GPS data was post-processed to sub-meter accuracy and projected in ArcMap. All surface artifacts were recorded and collected. Bedrock milling features were given alphabetic designations and recorded, drawn, and photographed. The surface collections and results of the combined EDAW (Bowden-Renna and Apple 2009) and BFSA subsurface excavations (this report) delineated the boundaries of each site. All collected artifacts were bagged, labeled, and returned to the BFSA laboratory for further analysis.

A series of STPs were excavated to identify the nature and extent of potential subsurface deposits at Sites SDI-8280 and SDI-12,209, as well as across the remainder of the project alignment. The shovel test series consisted of the excavation of pits measuring 30 centimeters in diameter that proceeded down in decimeter levels until a culturally sterile soil horizon or bedrock was reached. The quantity and placement of STPs at each site varied according to the abundance and extent of surface artifacts and cultural features, the general morphology of the landform on which the site was located, and the limitations imposed by bedrock, orchard trees, and private property. Qualitative testing of subsurface cultural material was conducted through excavation of three one-meter-square test units excavated in decimeter levels to bedrock or a culturally sterile soil horizon at Site SDI-12,209, and five one-meter-square test units at SDI-8280. All excavated soils were placed in buckets by unit level and transported to a wet screening area. Soils were then wet screened through one-eighth-inch mesh screens. Artifacts recovered through subsurface excavations were bagged, labeled, and returned to the BFSA laboratory for further analysis.

4.3 Laboratory Methods

In keeping with generally accepted archaeological procedures, and utilizing a classification system commonly employed in this region, the artifacts collected were categorized as to artifact class, material class, and technological class. Comparative collections at the laboratory of BFSA were employed in identifying the unusual or highly fragmentary specimens as necessary. After cataloging and identification, the collections were marked with the appropriate provenience and catalog information, and then packaged for permanent curation. Because of the limits of the data recovered, only obsidian source analysis (X-ray fluorescence [xrf] analysis) was conducted for this study. No radiocarbon dating or other specialized studies were conducted based on the limits of the materials recovered from across the project area for the current phase of the project. However, previous radiocarbon dates conducted by EDAW (Bowden-Renna and Apple 2009) were referenced for the present analysis.

4.4 Registration and Curation

After cataloging, identification, and analysis, the collection from each site was marked with the appropriate provenience and catalog information, then packaged for permanent curation. All collections, notes, photographs, and other materials related to this project will be temporarily housed at the office of BFSA in Poway, California. As part of the investigation, a California Department of Parks and Recreation (DPR) 523 Site Update Form was completed for both SDI-8280 and SDI-12,209 and submitted to the SCIC (Appendix D).

4.5 Native American Consultation

During the initial phase of the project, the California Native American Heritage Commission (NAHC) was contacted to identify possible sacred lands within the project area (Bowden-Renna and Apple 2008). No known sacred lands were identified within the project area. The NAHC provided a list of contact information for local Native American representatives that may have an interest or concerns regarding the proposed project. In addition, the NAHC strongly recommended that EDAW contact Cami Mojado or Mark Mojado of the San Luis Rey Band of Luiseño Indians regarding the proposed project. All persons listed by the NAHC, including the Mojado family, were contacted.

Consultation with local Native American groups has been ongoing and has included letters, telephone calls, meetings, and site visits. On February 15, 2008, a field visit to the project area was scheduled with interested Native Americans and City of Escondido personnel. Because of inclement weather, the field visit was postponed and a meeting was held at the City of Escondido offices to address concerns regarding the proposed project as well as proposed investigations at Site SDI-12,209.

Attendees at the February meeting included Catalina Campos from the San Pasqual Band of Mission Indians; Cami Mojado and Mindy Mojado from the San Luis Rey Band of Luiseño

Indians; City of Escondido representatives Diana Delgadillo and Robert Zaino; and, EDAW representatives Jason Reynolds, Rebecca Apple, and Cheryl Bowden-Renna.

On March 4, 2008, a re-scheduled site tour was conducted. Participants included Clint Linton from the Santa Ysabel Band of Mission Indians; Cami Mojado and Mindy Mojado from the San Luis Rey Band of Luiseño Indians; City of Escondido representative Diana Delgadillo; and Jason Reynolds, Rebecca Apple, and Cheryl Bowden-Renna from EDAW.

At the request of local Native American representatives, the City of Escondido agreed that a representative from both the Kumeyaay and Luiseño would be present during the testing programs, as the site is located within territorial boundaries of both the Kumeyaay and Luiseño. Native American monitors were present during EDAW's test of SDI-12,209 between June 9 and June 13, 2008. During the field program conducted by EDAW in 2008, human remains were identified from SDI-12,209. Issues were raised by Native American representatives over the protocol used by EDAW in the treatment of those remains, and field studies were temporarily halted. Subsequently, meetings were held between the Native American community, the City of Escondido, the private landowner of the Citracado Parkway Extension right-of-way, and Brian F. Smith (BFSA). Native American participants at those meetings in 2008 and 2009 included representatives from the Kumeyaay Cultural Repatriation Committee, and from Santa Ysabel, Sycuan, Rincon, San Luis Rey, San Pasqual, and La Posta. Specific individuals included Clint Linton, Emily Burgueno, Bernice Paipa, Catalina Campos, Johnny B. Contreras, Dave Toler, Cami Mojado, Michael Madrigal, Louie Guassac, Mindy Stoneburner, Dorothy Tavui, and Brandon Linton.

After several meetings, the issues related to the treatment of human remains and archaeological protocol were resolved, and the project environmental review process was restarted.

With the reinitiation of the cultural resources study of the Citracado Parkway Extension corridor in 2010, BFSA provided assistance to EDAW and AECOM to complete the archaeological study and coordinate with Native American representatives. Native American monitors from Red Tail Monitoring and Research, Inc. (Kumeyaay) and the San Luis Rey Band of Luiseño Indians were present during the re-survey, testing, and evaluation effort conducted for the current project by BFSA. Future cooperation between the City of Escondido and the Native American community will be very important as part of the mitigation monitoring program required for the construction phase of the road.

5.0 REPORT OF FINDINGS

The archaeological survey of the Citracado Parkway Extension APE resulted in the relocation of two recorded prehistoric sites, SDI-8280 and SDI-12,209 (see Figure 2.0–1). No additional or previously undocumented cultural resources were identified during the survey by BFSA. Site SDI-8280, south of Escondido Creek, has been extensively disturbed by rural uses over the past 100 years, including agricultural uses, residential uses, disking and grading, and the site has been vandalized. Many of the rock outcrops are covered with graffiti. The northeast area of SDI-8280, outside of the Citracado Parkway Extension APE, has been impacted by the construction of two equalization tanks at the HARRF. In spite of this disturbance, SDI-8280 retains areas of intact cultural deposits, and the pictographs near the APE have not been vandalized. The updated survey of SDI-8280 identified one previously unrecorded bedrock milling feature. Site SDI-12,209, north of Escondido Creek, retains the same characteristics as SDI-8280 to the south, with site elements including milling features in and around stands of oak trees, midden deposits, and rock art. Like SDI-8280, SDI-12,209 has also been disturbed by rural agricultural uses over the past 100 years, but areas of intact deposits and undisturbed features are still present. Site SDI-12,209 has not suffered the level of vandalism observed at SDI-8280.

Both SDI-8280 and SDI-12,209 have been previously studied by various environmental firms for public and private projects. All data available from these previous studies of the sites was reviewed and added to the data generated by the BFSA fieldwork. The goal of the BFSA archaeological work was to consolidate all available data concerning the cultural sites and present conclusions regarding the evaluation of Sites SDI-8280 and SDI-12,209. Sections 6.0 and 7.0 of this technical report detail the results of archaeological investigations past and present conducted at Sites SDI-8280 and SDI-12,209, respectively. In addition, results of analyses conducted for artifacts recovered during the current study are provided. Section 8.0 provides a discussion of site significance and recommendations for mitigation of project impacts.

The general conclusions of the testing program are that Sites SDI-8280 and SDI-12,209 are representative of a large late prehistoric occupation complex supported by resources associated with Escondido Creek and the environmental setting of plants and animals of the area. Undoubtedly, both of these sites, and several others in the immediate vicinity, were occupied communally as part of a village complex of resource procurement and food processing. The data supplied in Sections 6.0 and 7.0 supports the evaluations of significance. The key concern of the study relates to the delineation of areas with significant research potential or cultural interest, and where these areas may be impacted by the proposed road improvement project.

6.0 ARCHAEOLOGICAL INVESTIGATIONS AT SDI-8280

6.1 Previous Work

Site SDI-8280 was originally recorded as W-1046 in 1974 by O. T. Knutson who recorded a large pitted boulder, a "trail shrine," a pictograph, and numerous artifacts scattered over a knoll overlooking Escondido Creek. In 1986, the site was revisited (Vick and Thatcher 1986). Trash was noted in the site area and evidence of pothunting was observed at the base of the bedrock outcrops. The site was later re-examined by Linehan and Strudwick (W-5032/SDI-12,461) (Gallegos and Strudwick 1991), who identified two additional loci for the site, expanding its boundary to the south and west. Linehan estimated some 90 milling elements at the site, primarily milling slicks. In addition, Linehan estimated more than 500 flakes, a biface, several cores, about ten manos, and two circular rock alignments. However, the "trail shrine" and pictograph were not relocated. Examination of the site by James et al. in 1992 noted some additional milling features and some historic materials. A subsequent cultural resources survey conducted by Smith (1992) for a proposed HARRF chemical storage and feed building resulted in the discovery of one small prehistoric archaeological site (SDI-12,601). The site consisted of seven milling features on three bedrock outcrops. Limited excavations by Smith, consisting of nine shovel test pits and a one-meter-square test unit yielded a total six flakes (Smith 1992). Plans to construct the chemical storage and feed building were discontinued at that time.

In 1996, a survey was conducted by York (1996) for proposed expansion to the HARRF. Two recorded archaeological sites (SDI-8280 and SDI-12,601) were mapped within the survey area. York's investigations determined that Site SDI-12,601 was within the boundary of SDI-8280. A detailed site map and site record update was prepared, documenting surface features including numerous milling elements within the site loci, midden, and historic foundations. The largest of these loci (Locus 1) occupied an oak-covered knoll with numerous granitic boulders and outcrops containing at least 35 individual milling elements on 14 outcrops, a small midden deposit at the top of the knoll, and about ten flakes of volcanic material. York (1996) also identified a historic residential component to Locus 1. Locus 2 was situated on a low, oak-covered knoll across a small swale and to the southwest of Locus 1. A total of ten milling slicks were identified on five boulders at Locus 2, along with a small midden deposit on top of the knoll and a sparse lithic scatter. According to York (1996), the midden deposit had been heavily disturbed by recent camping. Locus 3 consisted of a large granitic outcrop located on the lower slopes of the same knoll as Locus 2. Forty-nine milling features and a small midden deposit contained primarily within the outcrop were recorded.

In 2003, an evaluation and limited testing program was conducted by Wahoff et al. (2005) as part of the City's Operations and Maintenance Program for the Escondido Sewer Outfall. The investigation identified two fruit trees that appeared to be associated with the historic component of SDI-8280. No additional cultural resources were found. The limited testing program indicated a shallow subsurface deposit on the knoll top at Locus 1. However,

there appeared to be no subsurface deposit between Locus 1 and Locus 2. Based on the testing results and evaluation efforts, the site was recommended not eligible for the National Register.

In 2004, an archaeological constraints analysis was conducted in conjunction with the proposed construction of two equalization tanks adjacent to the west of the existing HARRF (Pettifor 2004). Boulders and bedrock outcrops within and adjacent to the project area were investigated for milling features, and Site SDI-8280 milling features in the vicinity of the project area were relocated to confirm that none of the milling features were located within the project area.

Finally, additional testing by BFSA between 2004 and 2006 for the Harmoney Grove Village Project (Gilbert et al. 2006) identified significant cultural deposits and features within two of the four loci comprising Site SDI-8280. Based on the testing of SDI-8280, the site (notably Locus 1 and Locus 2) was determined to be significant under CEQA criteria. Gilbert et al. (2006) noted however, that the extent of modern impacts had affected overall site integrity and reduced the site's research potential. The subsurface excavations at Locus 1 and Locus 2 did identify areas containing deposits between 10 and 100 centimeters, with a range of artifacts signifying an extended occupation during the Late Prehistoric Period.

6.2 Current Study

The portion(s) of Site SDI-8280 located within the proposed alignment for the Citricado Parkway Extension Project include eight prehistoric bedrock milling features, low density subsurface cultural materials, and two pictographs located on a low hill on a southwest-facing slope east of Locus 2 in the southeastern portion of the project area (Figure 6.2–1). Based on the road construction project plans, the western portion of Locus 1 and the eastern portion of Locus 2 are situated within the proposed road alignment (see Figure 6.2–1). The site consists of pictograph panels, milling features, a surface artifact scatter, and minimal subsurface deposits. Areas within SDI-8280 that contained verified subsurface deposits will apparently be avoided by the road construction project. The site was subjected to an intensive testing program during the current investigation to characterize the portions of the site that would be impacted within the APE. Elevations at the site range from approximately 615 to 650 feet AMSL.

The site contains a large amount of exposed bedrock on the top and slopes of the hills that characterize the site topography. Vegetation at the site consists of patches of native coastal sage scrub species including several large coast live oak trees near the rock outcrops, and dense grasses and weeds over the majority of the site. The general configuration of the site is shown in Figure 6.2–1 and pictured in Plate 6.2–1.

Testing of Site SDI-8280 consisted of mapping and recordation of all visible features within the alignment including pictograph panels and milling features within the APE, mapping and collection of surface artifacts, two surface scrapes, and the excavation of 43 STPs and five one-square-meter test units within the APE. The testing program was conducted between January 26 and February 18, 2010. Limited supplemental testing was conducted in May of 2011

Figure 6.2–1

SDI-8280 Excavation Location Map

(In Confidential Appendix; Bound Separately)

Plate 6.2–1, Overview of Site SDI-8280, facing north.

to determine if the access road to the wastewater treatment facility would impact any significant elements of SDI-8280. The field investigations at Site SDI-8280 were conducted using the standard methodologies described in Section 4.0. Results of these field investigations are discussed below.

6.2.1 Surface Collection

The entire surface of the site area within the APE was inspected for artifacts and features, and a datum was established at the site. The datum, as well as all artifacts, features, and excavations, were mapped using a handheld Trimble GeoXT GPS unit. Vegetation cover consisted of dense non-native grass over most of the site; consequently, surface visibility was poor across the majority of the site. Within the APE, two pictograph panels and sixteen bedrock milling features were recorded. The locations of these features are shown in Figure 6.2–1.

The two pictograph panels are located near the southeastern edge of the APE, on the west side of Locus 1. Pictograph 1 is located on a medium-sized boulder just east of the drainage that separates Locus 1 and Locus 2. The panel consists of a geometric design of red pigment. The design measures three feet tall by two feet wide, but is very faint. Similarly, Pictograph 2 consists of a design in red pigment, but much of the design appears to have faded and is no longer visible. A series of photographs were taken to record the panels. Using the decorrelation stretch method of digitally enhancing visual records of the pictographs from SDI-8280, the elements present on the pictograph panels were more readily distinguished. The pictograph motifs appear to be similar to those found on other panels in the vicinity of the project area in northern San Diego County. Further discussion on the pictographs is provided in Section 6.6.

The 16 bedrock milling features at Site SDI-8280 within the APE contained a total of 171 grinding surfaces, consisting of 168 slicks, one basin, one starter mortar, and one oval mortar. Slicks identified at Site SDI-8280 ranged in length from 12 to 42 centimeters. As noted above, the surfaces of the bedrock outcrops were extremely weathered; therefore, the edges of the grinding surfaces were often difficult to identify. Further discussion on the bedrock milling features is provided in Section 6.4.

All artifacts observed on the surface of the site within the APE were mapped and collected, the locations of which are illustrated in Figure 6.2–1. The surface collection, summarized in Table 6.2–1, consisted of 110 artifacts from 20 different surface locations and included 109 debitage and one angular hammer. The surface scatter was located primarily in the southeastern portion of the project alignment. In addition to the surface collection, two one-meter-square surface scrapes were conducted in an area covered by dense vegetation between the areas with the highest surface recovery. To conduct a surface scrape, the vegetation was removed from a one-square-meter area, the surface of the area was scraped, and the removed soils were sifted through one-eighth-inch mesh hardware cloth. The surface scrape was employed to compensate for the dense vegetation cover that severely limited ground visibility. Recovery from the surface scrapes included 22 debitage (Table 6.2–2).

6.2.2 Subsurface Investigation

The potential for subsurface cultural deposits at Site SDI-8280 was investigated through the excavation of a total of 43 STPs and five test units. The STPs were positioned based on the project alignment, topography of the site and the location of surface artifacts and milling features in order to determine the presence and extent of any subsurface expression within the project APE. The locations of the STPs are shown in Figure 6.2–1. All of the shovel tests were excavated in decimeter levels to at least 30 centimeters, unless bedrock was encountered. Several of the STPs, located in areas with dark midden soil, were excavated until a soil change was encountered. Twenty-one of the 43 STPs excavated at Site SDI-8280 were positive for cultural material, consisting of 170 debitage, one retouched flake, and one pottery fragment, with recovery observed to an average depth of 40 centimeters. Detailed recovery information for all STP excavations is presented in Table 6.2–3. Shovel tests 28-43 were excavated in the area of Locus 1 where the revised location of the HARRF access road is planned. Because of the close proximity of the cultural deposits at Locus 1 to the reused location of the access route, these STPs were employed to ensure no significant deposits associated with Locus 1 would be affected by construction grading associated with the HARRF access road.

Subsurface testing of Site SDI-8280 continued with the excavation of five standard one-meter-square test units. The test units were positioned to sample the areas of greatest potential for subsurface deposits based on surface collection and STP data, in addition to areas closest to the core areas of Locus 1 and Locus 2 within the APE.

Table 6.2–1 SDI-8280 Surface Collection		
Surface Collection Number	**Cultural Material**	**Quantity**
1	Debitage	1
2	Debitage	3
3	Debitage	1
4	Debitage	5
5	Debitage	12
6	Debitage	9
7	Debitage	18
9	Debitage	1
10	Debitage	2
11	Debitage	1
12	Debitage	3
13	Debitage	23
14	Debitage	4
15	Debitage	1
16	Angular Hammer	1
16	Debitage	6
17	Debitage	3
18	Debitage	6
19	Debitage	2
20	Debitage	8
Total		**110**

Table 6.2–2 SDI-8280 Surface Scrape Collection		
Surface Scrape Number	**Cultural Material**	**Quantity**
1	Debitage	17
2	Debitage	5
Total		**22**

Table 6.2–3
SDI-8280 Cultural Material Recovered from STPs by Depth

STP Number	Cultural Material	0-10 cm	10-20 cm	20-30 cm	30-40 cm	40-50 cm	50-60 cm	60-70 cm	70-80 cm	Total
3	Debitage	0	2	0	0	0	0	0	0	2
7	Ceramic	1	0	0	0	0	0	0	0	1
	Debitage	2	2	3	3	0	0	0	0	10
11	Debitage	1	1	0	0	0	0	0	0	2
14	Debitage	1	0	0	0	0	0	0	0	1
15	Debitage	1	0	0	0	0	0	0	0	1
20	Debitage	0	1	0	0	0	0	0	0	1
21	Debitage	1	0	0	0	0	0	0	0	1
22	Debitage	0	1	1	0	0	0	0	0	2
27	Debitage	2	2	1	0	0	0	0	0	5
28	Debitage	1	0	0	0	0	0	0	0	1
29	Debitage	0	0	1	0	0	0	0	0	1
30	Debitage	0	1	0	0	0	0	0	0	1
31	Debitage	5	4	3	4	2	1	0	0	19
32	Debitage	7	1	14	4	12	3	0	0	41
33	Debitage	5	7	10	3	3	8	3	1	40
34										0
35	Debitage	3	2	0	0	0	0	0	0	5
	Flake Tool	0	1	0	0	0	0	0	0	1
36										0
37	Debitage	2	3	3	1	0	0	0	0	9
38	Debitage	1	2	0	0	0	0	0	0	3
39	Debitage	4	5	2	2	1	0	0	0	14
40	Debitage	2	3	4	1	0	0	0	0	10
41	Debitage	3	0	0	0	0	0	0	0	3
42										0
43	Debitage	0	0	1	0	0	0	0	0	1
Total		**42**	**38**	**43**	**18**	**18**	**12**	**3**	**1**	**175**

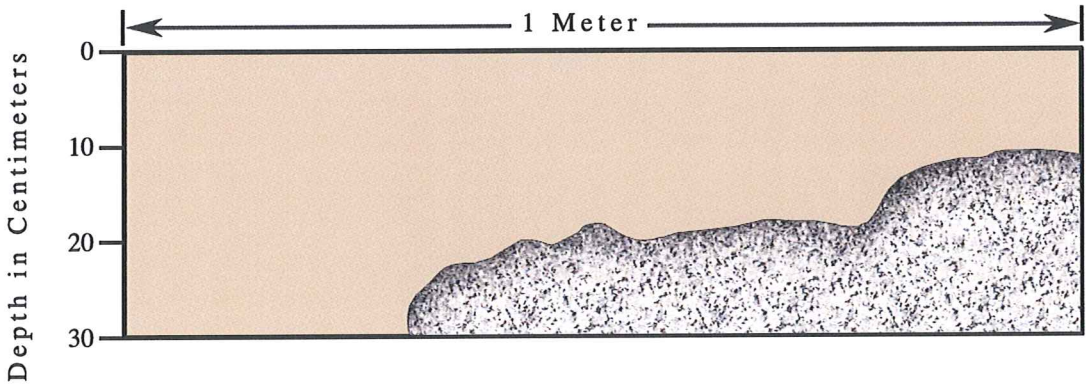
Test Unit 1 (TU 1) was placed near the base area of Pictograph 2. The location of TU 1 is shown in Figure 6.2–1. The test unit was excavated in standard decimeter levels to 30 centimeters, and all removed soils were sifted through one-eighth-inch mesh hardware cloth. The recovery from TU 1 consisted of four debitage. Recovery information for TU 1 is summarized in Table 6.2–4. The soil from TU 1 was characterized as a dark brown (10YR 3/3) sandy loam. The north wall soil profile of TU 1 is presented in Plate 6.2–2 and Figure 6.2–2.

Table 6.2–4 SDI-8280 Cultural Material Recovered from Test Unit 1				
Cultural Material	**0-10 cm**	**10-20 cm**	**20-30 cm**	**Total**
Debitage	4	0	0	4
Total	**4**	**0**	**0**	**4**

Test Unit 2 (TU 2) was positioned to sample an area within the APE that was within the subsurface site boundary of Locus 1 identified by Gilbert et al. (2006). The location of TU 2 is shown in Figure 6.2–1. The test unit was excavated in standard decimeter levels to 40 centimeters, and all removed soils were sifted through one-eighth-inch mesh hardware cloth. The recovery from TU 2 consisted of 13 debitage. Recovery information for TU 2 is summarized in Table 6.2–5. The soil from TU 2 was characterized as a dark brown (10YR 3/3) sandy loam underlain by dark brown (7.5YR 4/4) compacted clay with decomposing granite. The north wall soil profile of TU 2 is presented in Plate 6.2–3 and Figure 6.2–3.

Plate 6.2–2, North Wall Profile of Test Unit 1.

Plate 6.2–3, North Wall Profile of Test Unit 2.



Soil Types

1 Dark brown sandy loam

Rock

0 10 20 cm

Figure 6.2–2

North Wall Profile, Test Unit 1

Site SDI-8280

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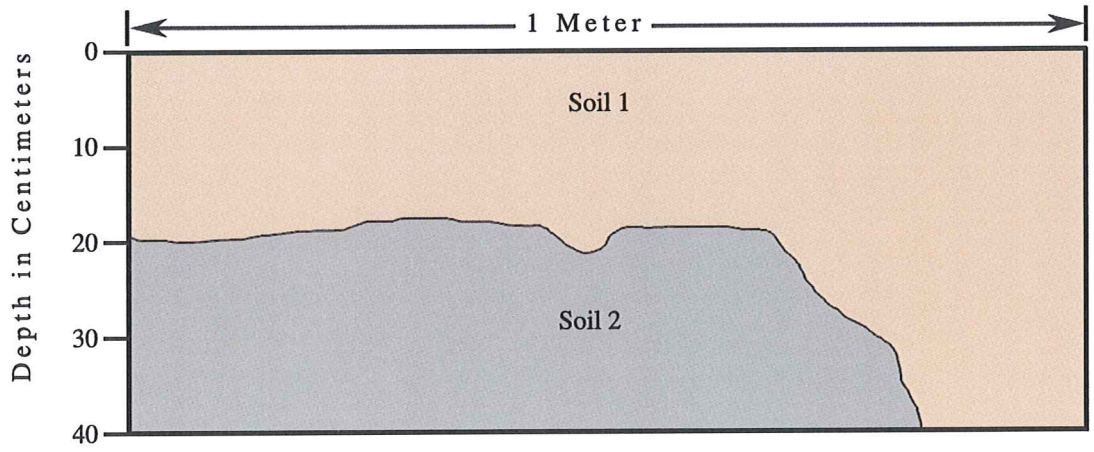

Soil Types

1 Dark brown sandy loam

2 Dark brown clay loam with decomposing granite

0 10 20 cm

Figure 6.2–3

North Wall Profile, Test Unit 2

Site SDI-8280

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Table 6.2–5 SDI-8280 Cultural Material Recovered from Test Unit 2					
Cultural Material	**0-10 cm**	**10-20 cm**	**20-30 cm**	**30-40 cm**	**Total**
Debitage	1	4	7	1	13
Total	**1**	**4**	**7**	**1**	**13**

Test Unit 3 (TU 3) was placed within the southeasternmost portion of the APE that was within the surface boundary of Locus 1 identified by Gilbert et al. (2006). It was also placed in the vicinity of STP 22, which yielded subsurface cultural materials to a depth of 30 cm. The location of TU 3 is shown in Figure 6.2–1. The test unit was excavated in standard decimeter levels to 50 centimeters, and all removed soils were sifted through one-eighth-inch mesh hardware cloth. The recovery from TU 3 consisted of eight debitage and one flake from an angular hammer. Recovery information for TU 3 is summarized in Table 6.2–6. The soil from TU 3 was characterized as a dark brown (10YR 3/3) sandy loam with pockets of reddish brown (2.5YR 4/6) compacted clay with decomposing granite. The north wall soil profile of TU 3 is presented in Plate 6.2–4 and Figure 6.2–4.

Table 6.2–6 SDI-8280 Cultural Material Recovered from Test Unit 3						
Cultural Material	**0-10 cm**	**10-20 cm**	**20-30 cm**	**30-40 cm**	**40-50 cm**	**Total**
Angular Hammer Flake	1	0	0	0	0	1
Debitage	2	3	2	0	0	7
Total	**2**	**3**	**2**	**0**	**0**	**8**

Test Unit 4 (TU 4) was placed between the highest producing shovel test (STP 7) in the alignment and BMF A located within the boundary of Locus 3 identified by Gilbert et al. (2006). STP 7 yielded subsurface cultural materials to a depth of 40 cm. The location of TU 4 is shown in Figure 6.2–1. The test unit was excavated in standard decimeter levels to 80 centimeters, and all removed soils were sifted through one-eighth-inch mesh hardware cloth. The recovery from TU 4 consisted of 56 debitage and two pottery fragments. Recovery information for TU 4 is summarized in Table 6.2–7. The soil from TU 4 was characterized as a dark brown (10YR 3/3) sandy loam underlain by reddish brown (2.5YR 4/6) compacted clay with decomposing granite. The north wall soil profile of TU 4 is presented in Plate 6.2–5 and Figure 6.2–5.

Plate 6.2–4, North Wall Profile of Test Unit 3.

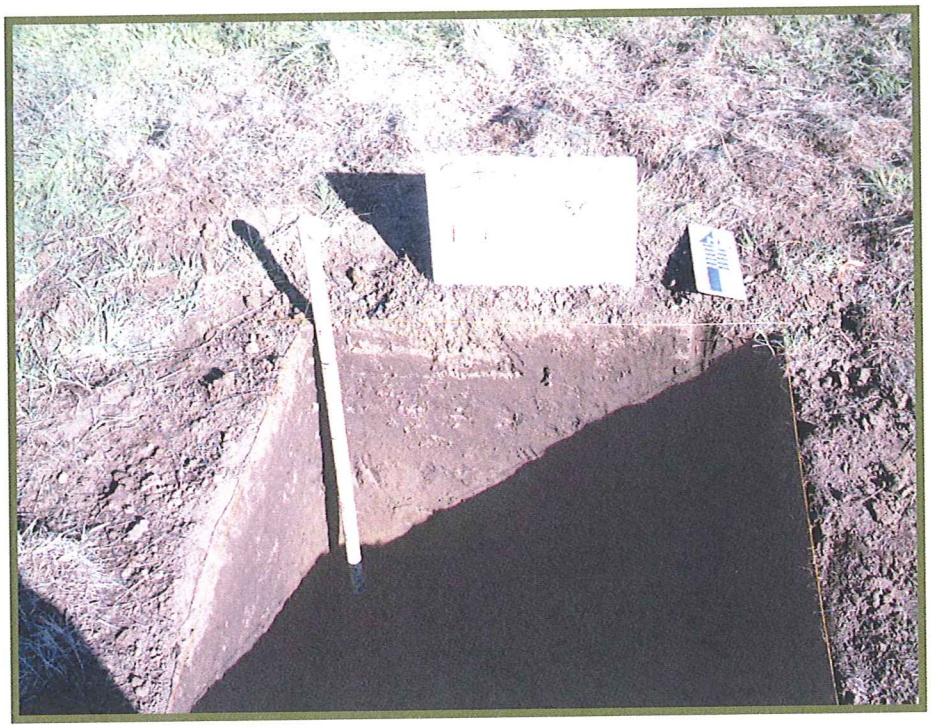
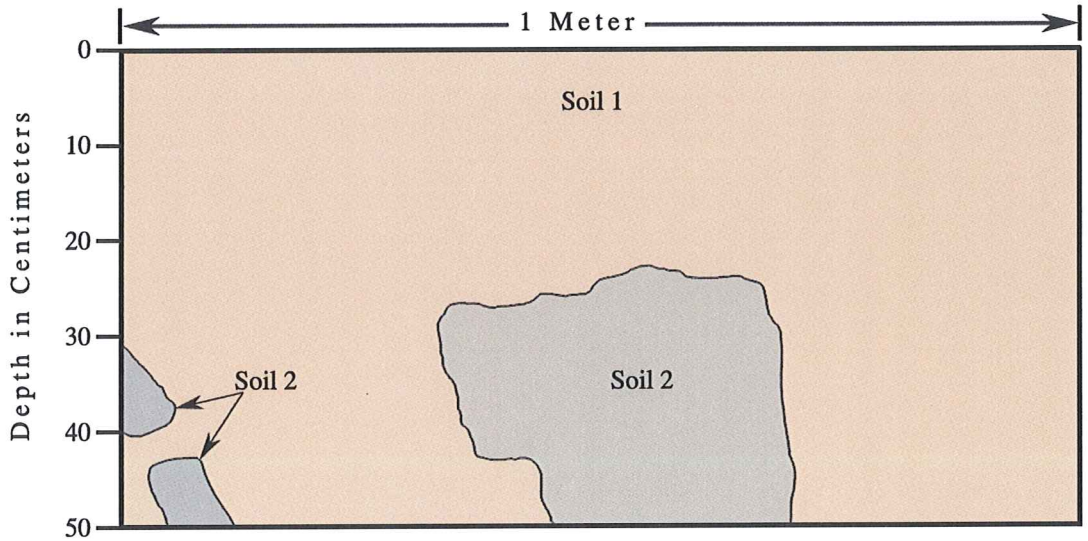


Plate 6.2–5, North Wall Profile of Test Unit 4.



Soil Types

1 Dark brown sandy loam

2 Reddish brown compacted clay with decomposing granite

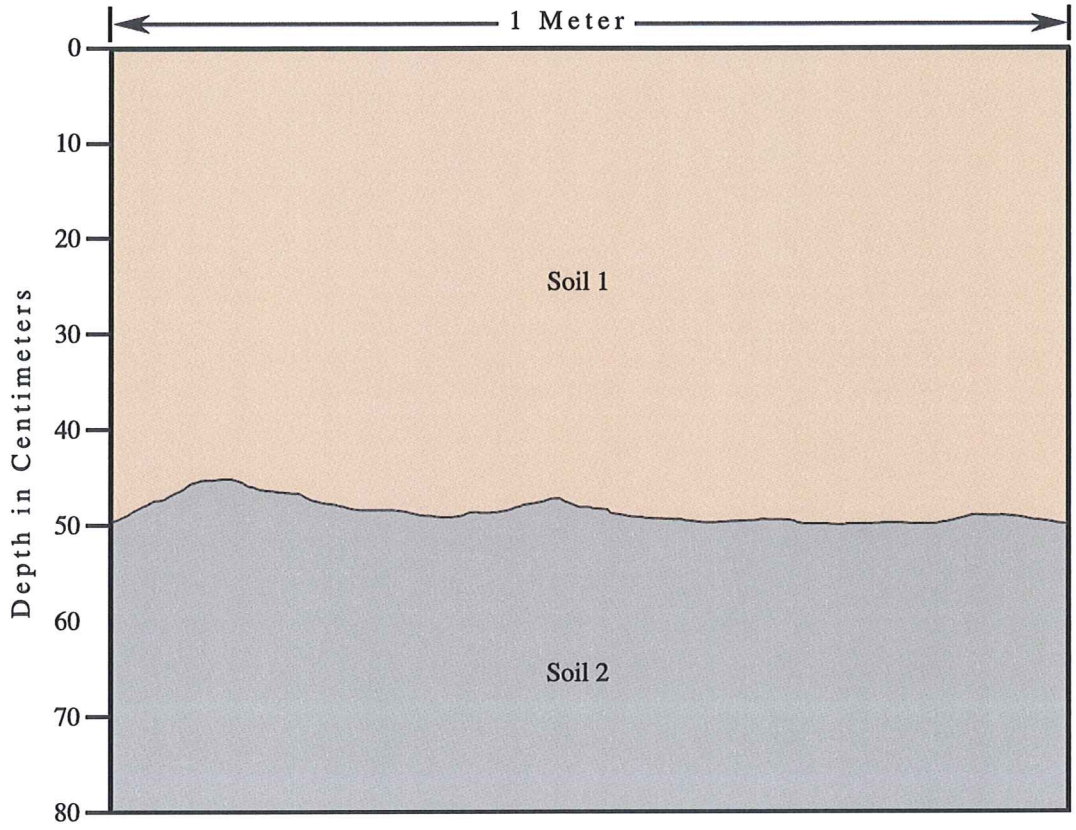
0 10 20 cm

Figure 6.2–4

North Wall Profile, Test Unit 3

Site SDI-8280

The Citracado Parkway Extension Project



Soil Types

1 Dark brown sandy loam

2 Reddish brown compacted clay with decomposing granite

0 10 20 cm

Figure 6.2–5

North Wall Profile, Test Unit 4

Site SDI-8280

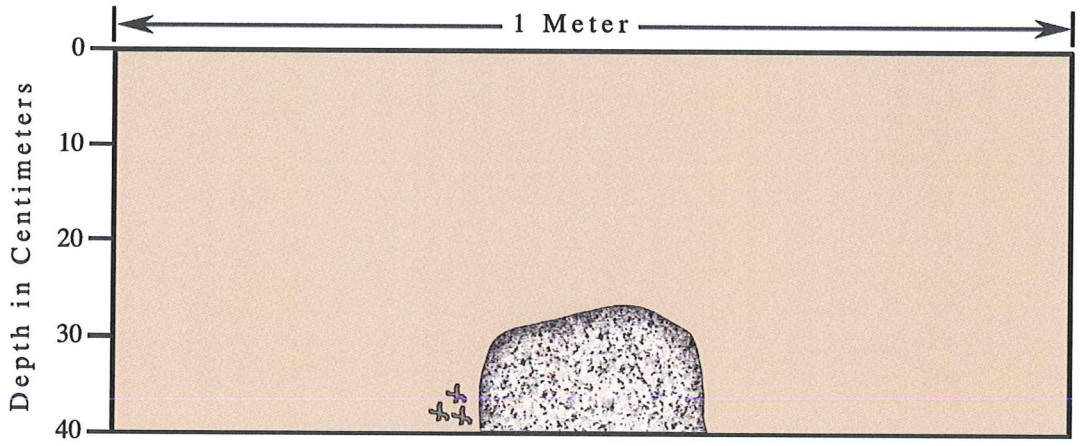
The Citracado Parkway Extension Project

Table 6.2–7 SDI-8280 Cultural Material Recovered from Test Unit 4									
Cultural Material	**0-10 cm**	**10-20 cm**	**20-30 cm**	**30-40 cm**	**40-50 cm**	**50-60 cm**	**60-70 cm**	**70-80 cm**	**Total**
Ceramic	1	0	1	0	0	0	0	0	2
Debitage	4	17	10	10	8	7	0	0	56
Total	**5**	**17**	**11**	**10**	**8**	**7**	**0**	**0**	**58**

Test Unit 5 (TU 5) was placed near the southernmost boundary of the project APE and near two positive STPs (STP 14 and 15). The location of TU 5 is shown in Figure 6.2–1. The test unit was excavated in standard decimeter levels to 40 centimeters, and all removed soils were sifted through one-eighth-inch mesh hardware cloth. The recovery from TU 5 consisted of two debitage. Recovery information for TU 5 is summarized in Table 6.2–8. The soil from TU 5 was characterized as a dark brown (10YR 3/3) sandy loam. The north wall soil profile of TU 5 is presented in Plate 6.2–6 and Figure 6.2–6.

Table 6.2–8 SDI-8280 Cultural Material Recovered from Test Unit 5					
Cultural Material	**0-10 cm**	**10-20 cm**	**20-30 cm**	**30-40 cm**	**Total**
Debitage	0	0	2	0	2
Total	**0**	**0**	**2**	**0**	**2**

Plate 6.2–6, North Wall Profile of Test Unit 5.



Soil Types

1 Dark brown sandy loam

Root

Rock

0 10 20 cm

Figure 6.2–6

North Wall Profile, Test Unit 5

Site SDI-8280

The Citracado Parkway Extension Project

6.3 Flaked Lithic Artifacts

Laboratory analysis for Site SDI-8280 included the standard procedures described in Section 4.0 of this report. All artifacts recovered from field investigations conducted at the site were returned to the laboratory of BFSA for cataloging and further analysis. Recovery from Site SDI-8280 included 383 debitage, one angular hammer, one flake from an angular hammer, and three pottery fragments. Total artifact recovery from Site SDI-8280 is summarized in Table 6.3–1.

Table 6.3–1
Summary of Cultural Material Recovered from SDI-8280

Cultural Material	Surface	Surface Scrapes	STPs	Test Units	Total
Angular Hammer	1	0	0	0	1
Angular Hammer Flake	0	0	0	1	1
Ceramic	0	0	1	2	3
Retouched Flakes	0	0	1	0	1
Debitage	109	22	170	82	383
Total	**110**	**22**	**197**	**85**	**389**

6.3.1 Debitage Analysis

Methodology

The technological identification of all debitage sampled was based on work by Flenniken (1978, 1981) for analysis and interpretation. Technological lithic analysis based upon replicative data was conducted for all debitage recovered from test unit excavations at SDI-8280. Technological reduction stage flake categories were defined by comparing technological attributes of replicated artifacts from known stone tool reduction technologies to the recovered lithic assemblage. By comparing the recovered assemblage to the replicated assemblage in terms of manufacture, reduction stages were assigned to technologically diagnostic debitage. Some debitage, however, was considered technologically undiagnostic because of its fragmented condition. Data from each excavated level was compared to identify changes in the percentages of diagnostic debitage, which can be used to define a change in reduction techniques in separate and distinct flintknapping activities at different locations throughout the site, to delineate different depths in site stratigraphy, or to define homogeneity of the deposit. Although technological analysis of flaked stone artifacts from each excavated level is designed to segregate differences in reduction technology, technological differences were not identified either horizontally or vertically within the site matrix. The flaked stone assemblage recovered from SDI-8280 is extremely homogeneous in terms of reduction technology, toolstone materials, and frequency of artifacts. This is likely a result of the natural mixing of sediments.

Debitage classification attributes were divided into reduction-oriented technological categories, and then these categories were segregated into stages. By segregating the technologically diagnostic debitage into technological categories that represent and identify

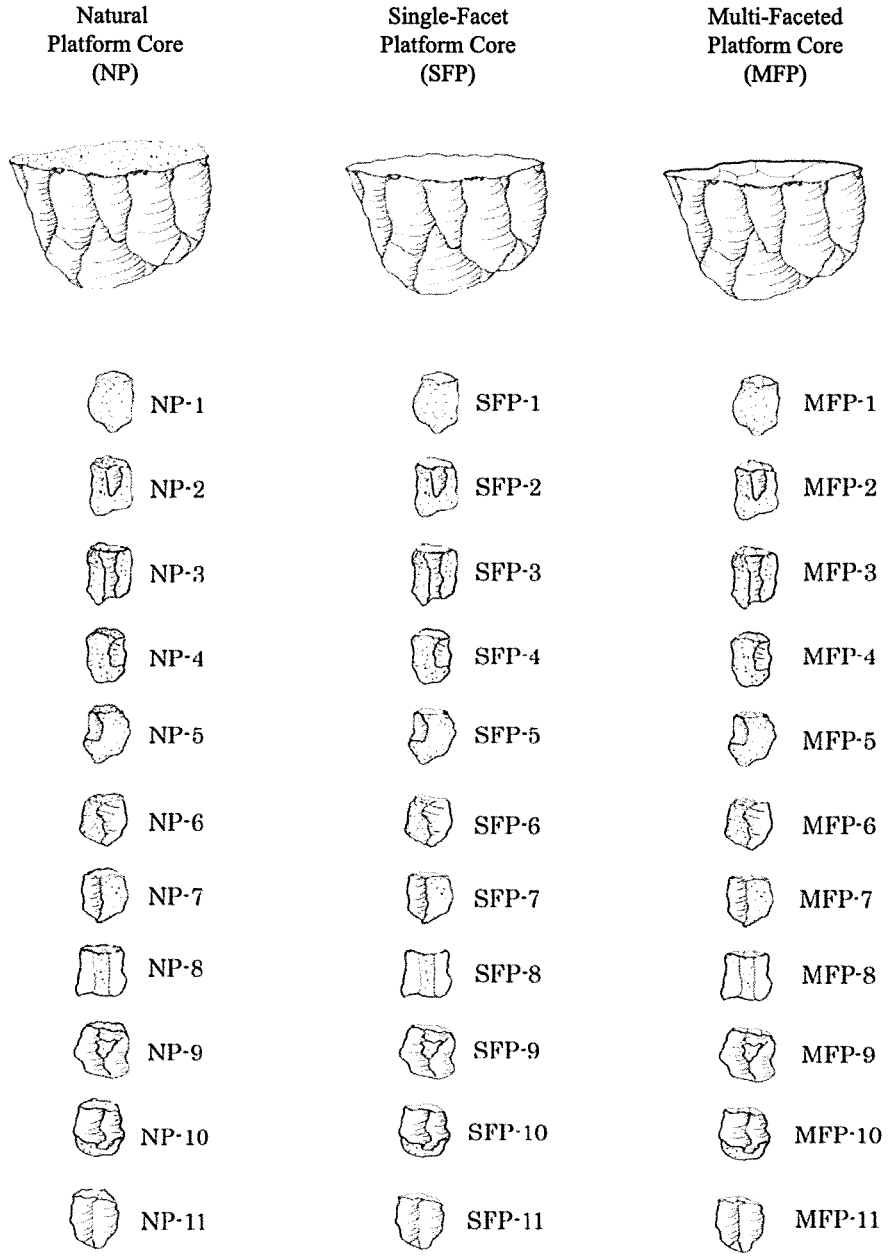
reduction techniques, two different reduction sequences were defined as a result of this analysis. Both nodule core reduction and biface reduction were identified within the present assemblage. Nodule core debitage was recognized and grouped into technological categories based on the amount and location of dorsal cortex, platform attributes, dorsal arris count and direction, and flake cross/long-section shape. Debitage was classified according to three platform types identified among the flakes from nodule core reduction: natural/cortical platforms (NP), single-facet platforms (SFP), and multi-faceted platforms (MFP). In addition, flakes were further subdivided according to the location of dorsal cortex (i.e., flake categories NP-1 through NP-11, SFP-1 through SFP-11) (Figure 6.3–1). The reduction-oriented technological categories of diagnostic flakes were also separated on the basis of geological material types (i.e., metavolcanic, quartz, chert, and obsidian). Flake fragments that lacked the necessary attributes to be placed in one of these categories were classified as undiagnostic fragments. Only the raw material type and presence or absence of cortex were recorded for these artifacts. Interpretation of the reduction sequence from this site was determined using only the technologically diagnostic debitage.

Often, it is possible that two different reduction sequences may or may not be part of a single interrelated reduction continuum. For instance, bifacial artifacts may have been manufactured from flake blanks produced from nodule cores, and thus the collection may be viewed as a single continuum. Reduction stage, as employed for this analysis, is a concept designed to separate a flintknapping continuum for analytical purposes only. The reduction-oriented technological stages (processes) employed in this analysis, the flake categories (based upon replicated artifacts that correspond to the processes), and the flake attributes used to define those categories are all within the nodule core reduction technology that was well established in prehistoric southern California.

All debitage was analyzed, identified, and assigned to specific technological categories and stages. Technologically diagnostic debitage was assigned to a specific reduction category, and served as the basis for interpretation of lithic technology. Preliminary analyses indicate that artifacts recovered from the site are intra-site similar in technological character. As such, the sample of the entire assemblage excavated from test units is considered homogeneous. In light of this lack of technological change, all artifacts from the test units were combined for the purpose of interpretation of the site's overall lithic technology.

Technological Assessment

Technological analyses of the artifact sample recovered during the investigation of SDI-8280 identified two specific reduction technologies that were employed by the site's prehistoric knappers: biface reduction and, to a lesser extent, nodule core reduction. As stated previously, these reduction technologies may be part of the same continuum, as flakes from nodule core reduction may have been used as flake blanks for flake-based biface production. The flaked stone assemblage recovered from this site is an adequate sample, and to maximize the sample,



Adapted from Stropes (2007)

Figure 6.3–1

Nodule Core Reduction Flake Type Categories

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artifacts collected from all contexts were combined for analytical purposes. With few exceptions (i.e., Piedra de Lumbre [PDL] chert and chert), all lithic artifacts are made of local materials (Table 6.3–2 and Table 6.3–3).

All formed artifacts and debitage recovered from test unit excavations were combined for the purpose of analysis. Of the 82 debitage recovered, 40 (48%) were technologically diagnostic of two different reduction technologies (see Table 6.3–2), while 42 (52%) were technologically undiagnostic (see Table 6.3–3). A total of five different lithic toolstone materials were represented in the SDI-8280 assemblage (includes both technologically diagnostic and undiagnostic debitage). These materials include 38 metavolcanic, 27 volcanic, 11 quartz, five PDL, and one chert.

Table 6.3–2
SDI-8280 Technologically Diagnostic Debitage by Material

Diagnostic Debitage	Material				Totals	Percent Total Debitage
	MV	V	Q	PDL		
Nodule Core Reduction						
SFP-1: Flake with single-facet platform and 100% dorsal surface cortex	1	0	0	0	1	2.5%
SFP-11: Flake with single-facet platform and no dorsal surface cortex	8	1	0	0	9	22.5%
Nodule Core Reduction Totals	9 90.0%	1 10.0%	0 0.0%	0 0.0%	10 100.0%	25.0%
Biface Reduction						
Stage 2						
Bifacial thinning flake with characteristics of an alternate flake	2	2	0	0	4	10.0%
Bifacial thinning flake with the characteristics of an edge preparation flake	3	3	0	1	7	17.5%
Stage 3						
Early percussion bifacial thinning flake	4	2	0	0	6	15.0%
Late percussion bifacial thinning flake	1	1	0	1	3	7.5%
Stage 4						
Early pressure bifacial reduction flake	1	2	1	0	4	10.0%
Late pressure bifacial reduction flake	5	0	0	1	6	15.0%
Biface Reduction Totals	16	10	1	3	30	75.0%
Percent of Biface Reduction Total	53.3%	33.3%	3.3%	10.0%	100.0%	
Total Debitage	**25**	**11**	**1**	**3**	**40**	**100.0%**

MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert
SFP = Single-facet platform

Table 6.3–3 SDI-8280 Technologically Undiagnostic Debitage by Material						
	Material					
Undiagnostic Flake Fragments	**MV**	**V**	**Q**	**PDL**	**CH**	**Total**
Uw/icc	0	4	0	0	0	4
Uw/geoc	2	0	0	0	0	2
Uwo/c	11	12	10	2	1	36
Total	**13**	**16**	**10**	**2**	**1**	**42**
(% of Column)	**31.0%**	**38.1%**	**23.8%**	**4.8%**	**2.4%**	**100.0%**

Uw/icc = undiagnostic with incipient core cortex
Uw/geoc = undiagnostic with original geologic cortex
Uwo/c = undiagnostic without cortex
MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert
CH = Chert

Nodule Core Reduction

The least common reduction technology identified in the assemblage was nodule core reduction. Ten (25%) of the technologically diagnostic debitage supported nodule core reduction. Only one nodule core platform type was represented at SDI-8280. Single-facet platform debitage was represented by a total of ten flakes (see Table 6.3–3). The most common (N = 9) single-facet platform debitage category was SFP-11. This flake category comprises ideal flake blanks, but the specific flakes from SDI-8280 were broken or were too small for use.

Biface Reduction

For this analysis, biface reduction debitage was divided into four reduction-oriented technological categories (as defined by Flenniken 2001) that were, in turn, employed to define the reduction sequences used at SDI-8280. These include core reduction (Stage 1), edge preparation (Stage 2), percussion bifacial thinning (Stage 3), and pressure bifacial thinning (Stage 4). For SDI-8280, portions (Stages 2 through 4) of three of the four stages were identified in the assemblage. However, although no Stage 1 bifacial reduction debitage was identified in the present assemblage, this may in fact be a result of separating those materials and classifying them as nodule core reduction. The following are technological definitions by Flenniken (2001) for bifacial technological categories:

> *1. Core reduction, that is, primary decortication debitage segregated on the basis of approximately 100% cortex on the dorsal surface and platform configuration; secondary decortication debitage separated based upon partial dorsal cortex and platform type;*

and interior debitage categorized by platform attributes, dorsal arris count and direction, flake cross/long-section configuration, and especially, absence of dorsal cortex;

2. Edge preparation, that is, bifacial reduction debitage classified on the basis of multi-faceted platform configuration and location, location of remnant bulb of force, dorsal arris count and direction, flake termination, flake cross/long-section orientation, and presence or absence of detachment scar;

3. Percussion bifacial thinning, that is, debitage segregated on the basis of multi-faceted platform configuration, size, lipping, and location, dorsal arris count and direction, flake termination, cross/long-section orientation, and presence or absence of detachment scar;

4. Pressure bifacial thinning, that is, debitage separated on the basis of multi-faceted platform configuration and location, dorsal arris count and direction, flake termination, platform-to-long axis geometry, cross/long-section orientation, and presence or absence of detachment scar.

Stage 2, edge preparation debitage, includes seven edge preparation flakes and four alternate flakes. Edge preparation flakes are created by preparing the margin (moving the margin by percussion into the mass) of a flake blank for reduction into a biface. While this stage sample constitutes only 27.5% (N = 11) of the technologically diagnostic debitage (which is typical of this reduction stage), it supports the technological assumption that flake blanks were manufactured at the site (or flake blanks were transported to the site) and some partially reduced there by direct free-hand percussion (see Table 6.3–2).

Stage 3 technologically diagnostic flakes included primarily early (N = 6) and late (N = 3) percussion bifacial thinning flakes. Stage 3 materials made up 22.5% of the biface reduction assemblage. The general size of these flakes indicate small bifaces were thinned at the site. Some of the early biface thinning flakes were produced as a result of bifacial blank manufacture by direct free-hand percussion flaking. All of the Stage 3 flakes were small, indicating small biface production. Small (arrow point size, or less than approximately 6x2.5x1 centimeters) technologically diagnostic debitage indicates small bifaces were manufactured at the site. It is not possible to produce large bifaces via the production of small debitage. This would fail to thin the biface. In general, the length of complete bifacial thinning flakes represents approximately two-thirds the width of the biface being reduced. Virtually all of the complete bifacial thinning flakes recovered from SDI-8280 were within the arrow point blank size range.

Pressure biface thinning flakes (Stage 4), were represented by four early pressure flakes and six late pressure flakes forming 25% (N = 10) of the overall diagnostic debitage assemblage. All of these pressure flakes were small, and were the result of bifacial thinning and shaping

bifacial tools. This high representation of pressure flakes in the assemblage suggests pressure flaking was a major flintknapping activity conducted at the site, most likely for the production and/or rejuvenation of pressure flaked tools, such as projectile points (see Table 6.3–2). The majority of the pressure flakes were also very small, suggesting shaping of bifacial tools was more common than thinning bifacial tools by pressure. Given that the dominant toolstone materials were metavolcanic and quartz, much of the thinning of the arrow point blanks was completed by percussion. In terms of arrow point manufacture in general throughout the American West, percussion thinning of arrow point blanks is rare, but raw material constraints at SDI-8280 necessitated percussion thinning of arrow point blanks.

Undiagnostic Debitage

A total of 42 technologically undiagnostic flake fragments were also identified in the SDI-8280 assemblage (see Table 6.3–3). Only six fragments possessed cortex (Uw/icc or Uw/geoc), while 36 were cortex-free (Uwo/c). The cortex noted on these flakes includes both flakes with incipient cone cortex (Uw/icc, N=4) common on local lithic materials, and flakes with cortex evident of direct removal from the original geologic source (Uw/geoc, N=2). The amount of cortex on debitage across the site suggests that the cores used to produce flakes at SDI-8280 may have been prepared (decorticated and shaped) away from the site location. However, it is likely that the majority of raw toolstone material was gathered relatively close to the site. As with the technologically diagnostic debitage, undiagnostic flake fragment materials were collected from both primary geological contexts (primary geological cortex) and alluvial contexts (incipient cone cortex).

It should be noted that much of the primary geological cortex discussed herein is calcium carbonate found on many rounded and subrounded metavolcanic materials. These nodules were most likely collected from the local Lindavista cobble formations in the area. Because these formations have been *in situ* for so long, geologically speaking, they have formed "primary geological cortex." Incipient cone cortex herein refers to materials with thin exterior rinds that are punctuated by hundreds, if not thousands, of intersecting Hertzian cones caused by being transported by moving water in the not-so-distant past.

Anthropological Interpretation

Based on the technological assessment of the debitage assemblage recovered in the test units excavated at SDI-8280, the following anthropological interpretation of the assemblage is offered. Biface reduction technology is the most common technology identified in the lithic sample from SDI-8280. Products of biface reduction are the most abundant in the site as measured by percent of technologically diagnostic flakes. The flaked stone reduction technology identified at SDI-8280 was almost exclusively related to arrow point production and rejuvenation. The nodule core reduction portion of the assemblage was dominated by non-cortical single-facet platform flakes that were either brought to the site or produced at the site

during the production of flake blanks for arrow points from flake cores. Flake cores were either transported from the site and/or laterally cycled into other tools such as angular hammers (N = 1), as flake cores were not represented in the excavated assemblage. Based on the low frequency of cortical debitage (N = 7), non-cortical flake blanks and/or partially prepared cores (free of most of the cortex) were transported to the site. Both flake blanks (as evidenced in the Stage 2 biface reduction debitage) and bifacial blanks were reduced into preforms and arrow points. By definition, Stage 2 debitage represents flake blank production.

Stage 3 percussion biface thinning is also represented at the site, which supports arrow point manufacture, as percussion bifacial thinning is not extensively employed when manufacturing arrow points from smaller flake blanks. However, given the raw material constraints, percussion bifacial thinning was employed to thin arrow point blanks. Only 22.5% of the technologically diagnostic debitage supported direct free-hand percussion biface manufacture. Also, these bifacial thinning flakes were small, suggesting small biface manufacture such as blanks for arrow points.

Stage 4 pressure biface thinning debitage was split between early and late stage pressure flakes. A larger percentage of early pressure flakes indicates original tool manufacture over bifacial tool rejuvenation. However, given that most of these toolstone materials (metavolcanic and quartz) are not ideal for the production of bifacial tools, early pressure flakes may not only represent original tool manufacture, but may include rejuvenation processes.

For SDI-8280, it is clear that a large portion of the site activities within the APE are associated with arrow point manufacture and replacement, and not arrow shaft production. This is because of a lack of fragments of arrow shaft straighteners, abraders, flake tools, and/or scrapers within the excavated assemblage from the portions of SDI-8280 located within the project APE. However, previous studies (Gilbert et al. 2006) have identified a more robust lithic assemblage outside of the present APE. These portions of the site may contain a more diverse lithic assemblage and represent more diverse human behavior patterns.

6.3.2 Formed Artifacts

Angular Hammers

Prehistoric flaked stone assemblages from southern California, as well as the Southwest, contain a common artifact identified by archaeologists by a variety of names including chopper, hammerstone, pounder, muller, milling stone, flaked hammerstone, handstone, battered hammerstone, masher, basher, utilized core, scraper plane, pecking stone, fist ax, hand ax, to name a few (cf. Dodd 1979; Wallace 1978). Many of these artifacts are employed as archaeological identifiers of specific prehistoric cultures (Wallace 1954; Kowta 1969). Others are simply weighed, measured, and described generally as plant and animal resource processing tools. Dodd (1979) and others (cf. Ambler 1985; Geib 1986), however, have devoted considerable time and energy to the identification and function of a rather unsophisticated, but highly specialized and important prehistoric tool class, angular hammers. Angular hammers are

separated from the other artifact classes on the basis of pock marks located on one or more intentionally prepared areas on a single tool, which are the result of repeated pounding against another hard object. These implements are most frequently produced from conchoidally fracturing, subrounded to subangular, spherical to discoidal, cobble-sized quartzite, metavolcanic, and volcanic nodular alluvial materials. For SDI-8280, one angular hammer and one flake from an angular hammer were identified in the collection. Angular hammers were employed prehistorically and ethnographically to shape, sharpen, and resharpen manos and metates (Flenniken et al. 1993).

6.3.3 Analysis Summary

Based on the lithic assemblage recovered from SDI-8280, flintknapping activities within the APE were limited to primarily the production/rejuvenation of arrow points/small bifaces. The analyzed debitage assemblage provided an example of a site wherein the last stages of biface manufacture occurred. The primary flintknapping activity that occurred at the site was likely associated with arrow point manufacture. Of the technologically diagnostic flakes present in the assemblage, 75% were biface technology based. Therefore, the primary flintknapping activity that occurred at SDI-8280 was biface reduction. Selection of metavolcanic nodule core toolstone, nodule core platform preparation, nodule core decortication and manufacture, and extensive nodule core reduction did not occur within the APE.

Based on the lithic technology identified at portions of SDI-8280 located within the APE, these site areas may have served as secondary reduction loci where arrow points were manufactured or retooled. Although a small amount of flake production from metavolcanic nodules from local sources occurred at the site, it is only a very small portion of the assemblage. Most likely, flake blanks were manufactured off-site, or at other portions of the site not within the boundary of the current project area. The evidence for manufacturing of arrow points suggests that hunting activities may have occurred near this site as well. Contrarily, these artifacts may simply represent hunting equipment maintenance. The presence of an angular hammer and an angular hammer flake supports non-flintknapping activities. These tools and attrition flakes imply active ground stone tool use. This is not surprising given the large amount of bedrock milling features at the site.

6.4 Ground Lithic Artifacts

All ground stone materials identified at SDI-8280 were selected for analysis and interpretation. Ground stone implements/features may include a wide range of objects used for or created by the processes of abrasion, impaction, or polishing (Adams 2002). Often, ground stone tools are associated with the processing/milling of seeds, nuts (i.e., acorns, walnuts, holly leaf cherry), and small mammals. In addition, ethnographic evidence indicates that bone, clay, and pigments may have also been processed with the same tools (Gayton 1929; Kroeber 1925; Spier 1978). Implements or features of this type may be identified by the pattern of wear

developed through milling stone against stone. This process often results in a smooth and/or polished surface, depending on the substance ground and the lithic material type. These surfaces were frequently pecked or resharpened when ground too smooth. These implements/features are sometimes shaped into a desired form through pecking, grinding, and/or flaking. Thus, tool identification is based on the presence of ground or smooth surfaces, pecked or resharpened surfaces, and evidence of shaping of the tool form.

6.4.1 Bedrock Milling Features

Although no ground stone tools were recovered during the current study, the survey of SDI-8280 identified 16 bedrock milling features that were drawn, photographed, and recorded (Figure 6.4–1). An overview of BMF A is shown in Plate 6.4–1, and an element measurement table and illustrations for all bedrock milling features located within the site are provided in Appendix B. The recording and subsequent analyses of the 16 bedrock milling features were based on parameters partially defined by Adams (2002) and further refined by Stropes (2006). Traditionally, three basic types of elements on bedrock milling features have been considered. These milling element types include mortars, basins, and slicks that may occur separately or together in any combination. In total, 16 bedrock milling features were identified within the boundary of the APE. These 16 features contain 171 milling elements, of which 168 are slicks. The single starter mortar, oval mortar, and basin do not lend themselves to further discussion. Milling features, unlike metates or portable mortars, provide a unique opportunity to the analyst because they are fixed in space. The presence of bedrock milling features is indicative of precontact subsistence activities on both the individual and group level, providing an anchor point for anthropological investigations into subsistence, social and technological activities performed at or near a given site. The following section provides a brief analysis and discussion of milling elements by type and the implications of the present milling features for the precontact reconstruction of SDI-8280.

Milling Slicks

To date, the milling slick has remained the most enigmatic of all bedrock milling elements. This is likely because of the lack of a large sample of slicks that can be studied as a group. Past studies have included only a small sample of slicks, and have thus failed to produce the amount of data required to develop a better understanding of slick technology. Slicks have been attributed to a wide range of behaviors including basin production, hide processing, proofing clay and processing fibers. However, an analysis of the 80 bedrock milling slicks identified at SDI-8280 sheds some light on the mystery of the milling slick. When compared to flat metates, milling slicks on milling features are similar in use and form. It is simply the lack of a defined edge that creates problems for the analyst. If a basin metate is analogous to a basin element, then it is probable that the same is true for milling slicks and flat metates. Certainly, this is not the case for all milling slicks, but it is likely the case for most. For the 168 specimens

Figure 6.4–1

SDI-8280 Bedrock Milling Feature Location Map

(In Confidential Appendix; Bound Separately)

at SDI-8280, the average length is 22.5 centimeters and the average width is 21 centimeters. This is nearly a 1:1 ratio for length to width. This measurement falls within the reasonable range of motion for the reciprocal stroke performed during the milling process suggesting that most slicks within the study area operate as a flat metate may have.

Plate 6.4–1, Overview of BMF A.

Milling Feature Summary

In total, 16 bedrock milling features were identified and recorded for the portions of SDI-8280 within the project APE. On these features, 171 milling elements were identified. For the site, the frequency of milling elements is high. Although the quantity and variety of elements is important, it is their frequency and proximity at a single milling station that present interesting questions. In most cases, a single grinding feature/station may only allow for or represent the work of a single individual or family unit. This limits the possible range of social interactions. In contrast, the presence of multiple bedrock milling features, such as at SDI-8280, is suggestive of a high frequency of communal milling practices, and therefore social interaction. The high frequency of milling features across the site would imply that a larger population occupied the site or site loci resulting in the creation of a larger number of milling elements. Based on the present evidence, it is likely that communal processing or distribution of milling based foods occurred at some level, especially in the southwestern portion of the APE near Locus 2 and Locus 4.

6.5 Ceramic Analysis

A total of three pottery fragments were recovered during the testing program for SDI-8280. All three specimens were included in the study sample. No rim sherds were identified in the collection, so no data was available on orientation of vessel mouths or radius of the vessel opening. The specimens were visually analyzed under a microscope to identify specific mineral inclusions and their possible corresponding geologic locales. Results of this analysis indicate that the sherds appear to be Tizon Brown Ware. As Site SDI-8280 is located inland, the clay was likely obtained from the local foothill and mountain regions of San Diego County.

6.6 Pictograph Features

The two pictograph panels are located adjacent to the eastern edge of the APE within the boundary of Locus 1 (see Figure 6.2–1). A series of photographs were taken to record the panels. Using the decorrelation stretch method of digitally enhancing visual records of the pictographs from SDI-8280, the elements present on the pictograph panels were more readily distinguished.

6.6.1 Pictograph 1

The images represented on Pictograph 1 consist of a geometric design of red pigment likely aplied with mineral pigment employed much like a crayon. The design is three feet tall by two feet wide, but is very faint. Although the panel is highly weathered, digital photographic enhancement of Pictograph 1 revealed design elements associated with both the Rancho Bernardo style (Hedges 1979) and the La Rumorosa style (Hedges 1973, 1977) (Plate 6.5–1).

The large maze glyph present on Pictograph 1 is common to the Rancho Bernardo style defined by Hedges (1979). This style is characterized by large geometric panels, especially maze patterns, often painted in red. These panels frequently are rectangular in shape and mainatin rectangular borders. Although the timeframe for this style is unclear, when present with the San Luis Rey style of pictographs on the same panel, the Rancho Bernardo style of imagery is older (Hedges and Hamann 1987). The Rancho Bernardo style is believed to overlap both Northern Diegueño and Luiseño territories.

The sun glyph present on Pictograph 1 may be attributed to the La Rumorosa style, which often includes sunbursts, digitate, basic anthropomorphs, lizards, and grid patterns. This style has been attributed primarily to the late prehistoric and historic Kumeyaay populations (Hedges 1973, 1977).

6.6.2 Pictograph 2

Pictograph 2 consists of a design in red pigment, but much of the design appears to have faded, and is no longer visible (Plate 6.5–2). A series of photographs were taken to record this panel as well. Using the decorrelation stretch method of digitally enhancing visual records of Pictograph 2 revealed that the majority of elements on the pictograph are now gone. At the

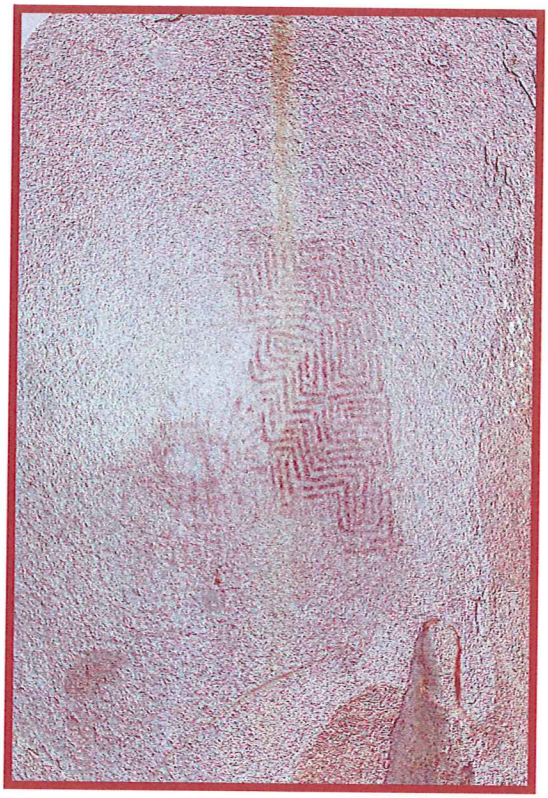


Plate 6.5–1, Digitally enhanced photograph of Pictograph 1 at Site SDI-8280.

Plate 6.5–2, Digitally enhanced photograph of Pictograph 2 at Site SDI-8280.

present time, only two vertical lines remain. The pictograph motifs for Pictograph 2 were not distinguishable or attributable to a particular style for the region.

6.7 Discusssion

Surface investigations within the project APE demonstrated that Site SDI-8280 consists of two pictographs, bedrock milling features, a surface scatter of artifacts, and a subsurface deposit. The present study indicates that approximately 1686 square meters of SDI-8280 Locus 1; 438 square meters of Locus 2; 1458 square meters of Locus 3; and, 980 square meters of Locus 4 will be impacted by the proposed development. The shovel tests and test units excavated at Site SDI-8280 within the APE identified the presence of an intact associated subsurface deposit within these loci. Eight of the 25 shovel tests were positive for cultural material to a maximum depth of 40 centimeters. In addition, the test units produced debitage attributable to arrow point manufacture. Because the site contains surface artifacts, pictographs, milling features, and an intact subsurface deposit, the site is determined to have additional research potential. The use of data from BFSA's 2006 study for the Harmony Grove Village Project (Gilbert et al. 2006) of areas within SDI-8280 indicates that midden deposits that are situated just outside of the APE contain a substantially higher quantity and diversity of cultural materials than the collections from test excavations placed within the project APE. A summary of collections recovered from SDI-8280 by BFSA in 2006 is provided in Table 6.7–1.

Site SDI-8280 is interpreted as a component of a larger village complex that includes SDI-12,209 to the north. Camp site activities included floral food resource extraction and processing as well as small bifacial tool manufacture and maintenance. Although no absolute temporally diagnostic artifacts were recovered, the pictograph elements, bedrock milling features, pottery, and production of arrow points suggests a late prehistoric occupation of the site. Based on the information derived from the previous and current investigations, portions of Site SDI-8280 are considered to be significant according to criteria listed in CEQA, Section 15064.5 and the City's guidelines (cultural resources). However, no significant elements of SDI-8280 are located within the project APE. The cultural deposits within the APE are characterized by limited collections of lithic production waste and minimal numbers of ceramics. Given that these deposits within the APE do not retain further research potential, these areas in and of themselves do not contribute to the significance evaluation of the overall site. Therefore, for purposes of this CEQA review, the APE will not include any significant cultural components of SDI-8280. Significant components of SDI-8280, including significant deposits and pictographs, are situated outside of the APE in Locus 1 and Locus 2.

6.8 Summary

The investigation of portions of Site SDI-8280 revealed two pictograph panels, surface artifacts, bedrock milling features, and the presence of subsurface deposits. The bedrock milling

Table 6.7-1
Summary of Cultural Material Recovered/Identified at SDI-8280 in 2006*

Cultural Material	Locus 1	Locus 2	Locus 3 Not Tested	Locus 4 No Subsurface Recovery	Total
Ecofact:					
Bone	32.9 g	15.0 g	0	0	47.9 g
Marine Shell Unid.	9.2 g	< 0.1g	0	0	9.3 g
Lithic Production Waste:					
Debitage	47	41	0	0	88
Flakes	826	444	0	0	1270
Ground Stone Tools:					
Metate	0	1	0	0	1
Manos	3	0	0	0	3
Unidentifiable	1	0	0	0	1
Percussion Tools:					
Hammerstones	2	0	0	0	2
Precision Tools:					
Core Tools	0	2	0	0	2
Flake Scrapers	3	0	0	0	3
Retouched Flakes	9	1	0	0	10
Scraper Plane	1	0	0	0	1
Spoke Shave	1	0	0	0	1
Utilized Flakes	9	3	0	0	12
Perforator	0	1	0	0	1
Pottery:					
Sherds	2	4	0	0	6
Miscellaneous:					
Petrified Wood	1	0	0	0	1
Bedrock Milling Features	27	16	0	15	58
Pictograph Panels	2	0	0	0	2
Total**	905	497	0	0	1402

* Based on data from Gilbert et al. 2006 from the Harmony Grove Project

** Total does not include Bone, Shell, Bedrock Milling Features, or Pictograph Panels

features, lithic tools, and pottery present at the site indicate that activities at this location were focused on floral resource processing, and arrow point manufacture and maintenance. Subsistence at the site appears to have been based on a reliance on botanical and faunal resources for a larger populous. In addition, the lithic artifacts recovered from the test units and several of the shovel test pits, suggests the potential for buried features. A late prehistoric utilization is suggested by the presence of bedrock milling, pictographs, arrow point manufacture, and pottery.

While the entirety of SDI-8280 may be considered as a significant site, the portions of SDI-8280 within the Citracado Parkway alignment or within the HARRF entrance road alignment do not contain significant deposits that substantially contribute to the overall site significance evaluation.

7.0 ARCHAEOLOGICAL INVESTIGATIONS AT SDI-12,209

7.1 Previous Work

Site SDI-12,209 was originally recorded in the 1920s by Malcolm Rogers as the "Oakdale Site" (W-255). Rogers described the site as having several loci consisting of milling, ceramics, and a pictograph, with possible multiple occupations. A reservoir constructed prior to 1919 was also noted by Rogers. He further observed that some of the construction materials came from several Diegueño "rock houses" located on-site. The site was re-recorded by A. Lenker in 1973 (W-476) and by J. Lenker in 1978 (W-477). Both identified a dense scatter of lithics, but failed to mention any pictographs. The site was re-examined by Linehan and Gallegos (1991), who identified two distinct loci with multiple milling features and a pictograph. In 2000, the site was revisited (Schaefer and Victorino 2000). Two loci were identified and the eastern portion of Locus 1 was resurveyed. Because of the lack of surface artifacts, this part of the site was considered not significant. However, it was strongly recommended that the remainder of the site be evaluated through more detailed documentation and subsurface testing, as the remainder of the site appeared to be significant. Locus 2 was resurveyed and mapped to confirm that the area was outside of the project area. Seven milling features were identified in Locus 2, along with midden, lithics, and ceramics.

In 2001, SDI-12,209 was revisited and seven distinct milling features were identified within two loci, along with one rock art panel located on the eastern edge of the site (Underwood and Cleland 2001). The historic reservoir, created from rocks and boulders on-site, was also relocated. A late 1930s single family residence and several outbuildings were also identified within Locus 1. A paved road connecting the residence to Harmony Grove Road is located along the northwest side of Locus 1. One of the outbuildings may be a historic adobe, possibly associated with the residence.

In 2008, the site was revisited (Bowden-Renna and Apple 2008). All features were relocated in Locus 1, including a rock art panel (Feature 8) and a pre-1919 rock-lined reservoir (Feature 9). Four additional milling features were located in Locus 1, for a total of five milling features. All milling features identified by Schaefer and Victorino (2000) and Underwood and Cleland (2001) in Locus 2 were relocated. One additional milling feature was identified in Locus 2, for a total of nine milling features. Additionally, at least 300 lithics were observed in the field adjacent to the north side of Locus 1 and Locus 2. Lithic material observed consisted of quartz and metavolcanics. A broken quartz biface with a portion of the middle missing was identified. The biface was collected and returned to the property owner during the evaluation program. According to the tenant on one of the adjacent properties, they have found "several dozen arrowheads" on their property. The tenant described what might have been a cache of projectile points under a rock that they removed to build a concrete slab patio at the back of their house (McArdle 2007). The site boundary was expanded to include the historic house, newly identified milling features, and the additional lithic scatter.

In 2008, EDAW (Bowden-Renna and Apple 2009) began testing at SDI-12,209 for an earlier phase of this project. EDAW's work included excavation of 45 STPs and three test units placed within the portion of Site SDI-12,209 that would be directly impacted by the project alignment. During this portion of the project, EDAW identified a rich midden deposit, multiple bedrock milling features, and the presence of human remains. However, EDAW's earlier phase of work did not address impacts for the northern portion of the APE or potential impacts to Site SDI-8280 in the southern portion of the APE. As a result, additional work was conducted by BFSA to evaluate impacts for the entire APE including further testing for SDI-12,209. A summary of the data collected by EDAW can be found in Table 7.1–1.

Table 7.1–1
Cultural Material Recovered by EDAW (Bowden-Renna and Apple 2009)

Cultural Material	STPs	Unit 1	Unit 2	Unit 3	Total
Biface	0	0	0	1	1
Ceramic	3	7	1	0	11
Clay Daub	0	1	0	0	1
Core	1	2	0	0	3
Debitage	419	530	65	209	1223
Ground Stone	5	6	0	0	11
Projectile Point	1	7	1	0	9
Tools	2	3	0	0	5
Charcoal*	1.7	15	2.8	0.01	19.51
Bone*	7.9	154.8	2	0	164.7
Fire-Affected Rock (FAR)*	407.8	1694.4	443.4	0	2545.6
Floral*	0	0	0.5	0	0.5
Intrusive*	87	28.2	20.5	0	135.7
Shell*	0	1.9	0.1	0	2
Total**	**431**	**556**	**67**	**210**	**1264**

* Weight in grams
** Total does not include Charcoal, Bone, FAR, Floral, Intrusive or Shell

7.2 Current Study

The portion(s) of Site SDI-12,209 located within the APE for the Citricado Parkway Extension Project include two loci. Locus 1 of SDI-12,209 is the larger of the two loci, and is situated on the south and east sides of the site, while Locus 2 is located on the north side of the site. The portion of Locus 1 within the APE includes 57 bedrock milling features, a rich midden deposit, and a high density of surface and subsurface cultural materials (Figure 7.2–1). A pictograph was also recorded at Locus 1 just outside of the APE. Locus 2 is separated from Locus 1 by an absence in cultural materials between the two loci. Locus 2 includes a dense lithic scatter of primarily quartz materials. Based on the current project plans, the south-central

Figure 7.2–1

SDI-12,209 Excavation Location Map

(In Confidential Appendix; Bound Separately)

portion of SDI-12,209 (Locus 1) and the northern Locus (Locus 2) are situated within the proposed road alignment (see Figure 7.2–1). Each locus was relocated and subjected to an intensive testing program within the APE during the current investigation. Elevations at the site range from approximately 615 to 650 feet AMSL.

Site SDI-12,209 contains a large amount of bedrock outcrops and the areas of the site north, south, and east of the bedrock outcrops have been disturbed, with evidence of past clearing, farming, and rural developmet. In addition, many of the exposed bedrock outcrops at the site are extensively exfoliated, suggesting that more milling elements may have been present, but are now unidentifiable. Vegetation at the site consists of pockets of native coastal sage scrub species, several large coast live oak trees around the rock outcrops, and dense grasses and weeds over the majority of the site. The general configuration of the site is shown in Figure 2.0–1 and pictured in Plate 7.2–1. It should be noted that the site configuration recorded with the SCIC does not include Locus 2. A site form update with the updated site boundary as shown in Figure 2.0–1 will be submitted to the SCIC for this study.

Plate 7.2–1, Overview of Site SDI-12,209, facing southwest.

Testing of Site SDI-12,209 consisted of mapping and recordation of a pictograph panel, the removal of soils and vegetation from the margins of bedrock in search of grinding surfaces, mapping and recordation of milling features within the APE, mapping and collection of surface artifacts, and the excavation of 25 STPs and three test units within the portions of the site located within the APE. Test information collected by EDAW in 2008 was also reviewed and included

as necessary to augment the data set recovered by BFSA. The testing program was conducted between January 26 and February 18, 2010. The field investigations at Site SDI-12,209 were conducted using the standard methodologies described in Section 4.0. Results of these field investigations are discussed below.

7.2.1 Surface Collection

The entire surface of the site area within the APE was inspected for artifacts and features, and a datum was established at the site. The datum, as well as all artifacts, features, and excavations, were mapped using a handheld Trimble GPS unit providing sub-meter mapping acuracy. Vegetation consisted of dense grass over most of the site; subsequently, surface visibility was poor across the majority of the site. A total of 57 bedrock milling features and two site loci were identified within the APE. Bedrock milling features were recorded as BMF A through EEE. Although just outside of the APE, one pictograph locus was also updated to address any possible secondary impacts. The locations of these features are shown in Figure 7.2–1.

The single pictograph panel is located just outside of the eastern edge of the APE. The panel consists of a geometric design of red pigment with interconecting glyphs. The design measures approximately five feet tall by three feet wide, but is somewhat faint albeit mostly visible to the naked eye. A series of photographs were taken to record the panel. Using the decorrelation stretch method of digitally enhancing visual records of the pictograph, the elements present on the pictograph panel were more readily distinguished. The pictograph motifs appear to be similar to those found at other panels in the vicinity of the project and in northern San Diego County. Further discussion of the pictograph feature is provided in Section 7.9.

The 57 bedrock milling features at Site SDI-12,209 within the APE contained a total of 523 grinding surfaces, consisting of 449 slicks, 45 basins, 10 mortars, 13 collars, and six rubs. Several features are present outside of the APE boundary, but these were not investigated. Slicks made up the majority of the milling elements identified at the site. As noted above, the surfaces of the bedrock outcrops were extremely weathered, and therefore, the edges of the grinding surfaces were often difficult to identify. Further discussion is provided in Section 7.4.

All artifacts observed on the surface of the site were mapped and collected, the locations of which are illustrated in Figure 7.2–1. The surface collection, summarized in Table 7.2–1, consisted of 662 artifacts from 214 different surface locations. The surface artifact assemblage includes nine bifaces, one drill, 619 debitage, two flake tools, one angular hammer flake, two cores, 19 ceramic fragments, one crystal, three manos, one unidentifiable ground stone fragment, one fire-affected rock, and 1.9 grams of shell. The surface scatter was located primarily in the central portions of the project area at Locus 1 and Locus 2.

Table 7.2-1
SDI-12,209 Surface Collection

SC No.	Cultural Material	Quan	SC No.	Cultural Material	Quan	SC No.	Cultural Material	Quan
1	Debitage	2	74	Angular Hammer Flake	1	137	Debitage	10
2	Debitage	2	74	Debitage	6	138	Debitage	3
3	Debitage	4	75	Debitage	7	139	Core	1
4	Debitage	9	76	Ceramic	1	139	Debitage	1
5	Debitage	3	76	Debitage	2	140	Debitage	2
6	Debitage	3	77	Debitage	1	141	Debitage	10
7	Debitage	1	78	Ceramic	1	142	Debitage	21
8	Debitage	2	78	Debitage	6	143	Biface	1
9	Debitage	4	79	Debitage	5	143	Ceramic	2
10	Debitage	3	80	Debitage	2	143	Debitage	5
11	Debitage	2	81	Debitage	2	144	Debitage	9
12	Debitage	1	82	Biface	1	145	Debitage	2
13	Debitage	3	82	Debitage	4	146	Debitage	1
14	Debitage	2	83	Debitage	4	147	Debitage	2
15	Debitage	2	84	Debitage	4	148	Debitage	1
16	Debitage	3	85	Debitage	6	149	Debitage	3
17	Debitage	3	86	Debitage	5	150	Debitage	1
18	Debitage	2	87	Debitage	3	151	Debitage	1
19	Debitage	1	88	Debitage	1	152	Debitage	5
20	Debitage	2	89	Debitage	2	152	Drill	1
21	Debitage	1	90	Debitage	1	153	Debitage	1
22	Debitage	1	91	Debitage	1	154	Debitage	1
23	Debitage	3	91	Shell	1	155	Debitage	3
24	Debitage	2	92	Debitage	1	156	Debitage	2
25	Debitage	2	93	Debitage	1	157	Debitage	1
26	Debitage	6	94	Ceramic	1	158	Debitage	2
27	Debitage	4	94	Debitage	1	159	Debitage	2
28	Debitage	7	95	Debitage	2	160	Debitage	1
29	Debitage	3	96	Debitage	1	161	Debitage	1
30	Debitage	1	97	Debitage	2	162	Debitage	1
31	Debitage	3	98	Ceramic	1	163	Debitage	1
32	Debitage	2	98	Debitage	1	164	Debitage	1
33	Debitage	6	99	Debitage	2	165	Debitage	2
34	Debitage	1	100	Fire-Affected Rock	1	166	Debitage	7
35	Debitage	1	101	Ceramic	1	167	Debitage	2
36	Debitage	1	102	Ceramic	7	168	Debitage	2
36	Flake Tool	1	102	Debitage	2	169	Debitage	2
37	Debitage	2	103	Ceramic	1	170	Debitage	1
38	Debitage	2	103	Debitage	4	171	Debitage	2
39	Debitage	2	104	Debitage	1	172	Debitage	2
40	Non-Artifact	0	105	Ceramic	1	173	Debitage	1
41	Debitage	2	105	Debitage	6	174	Debitage	1
41	Ground Stone	1	106	Debitage	3	175	Debitage	1

Table 7.2-1
SDI-12,209 Surface Collection

SC No.	Cultural Material	Quan	SC No.	Cultural Material	Quan	SC No.	Cultural Material	Quan
42	Biface	1	107	Debitage	1	176	Debitage	1
42	Debitage	6	108	Debitage	2	177	Debitage	2
43	Debitage	4	109	Debitage	1	178	Debitage	1
44	Debitage	8	109	Mano	1	179	Debitage	1
45	Debitage	4	110	Mano	2	180	Debitage	2
46	Debitage	4	111	Debitage	1	181	Debitage	3
47	Debitage	4	112	Debitage	1	182	Debitage	1
48	Debitage	3	113	Debitage	1	183	Debitage	2
49	Debitage	2	114	Debitage	1	184	Debitage	5
49	Shell	1	115	Debitage	1	185	Debitage	3
50	Debitage	8	116	Debitage	4	186	Debitage	2
51	Debitage	1	117	Debitage	2	187	Debitage	3
52	Debitage	6	118	Debitage	3	188	Debitage	2
53	Debitage	3	118	Projectile Point	1	189	Debitage	1
54	Debitage	3	119	Debitage	5	190	Debitage	7
55	Debitage	12	120	Debitage	2	191	Debitage	1
56	Debitage	5	121	Debitage	3	192	Debitage	3
57	Biface	1	122	Debitage	8	193	Debitage	1
57	Debitage	3	123	Debitage	4	194	Debitage	2
58	Debitage	3	124	Debitage	7	195	Debitage	1
59	Ceramic	1	125	Biface	1	196	Biface	1
59	Debitage	5	125	Debitage	7	197	Debitage	2
60	Debitage	3	126	Debitage	3	198	Debitage	1
61	Debitage	3	127	Biface	1	199	Debitage	1
62	Debitage	2	127	Crystal	1	200	Debitage	1
62	Flake Tool	1	127	Debitage	17	201	Debitage	4
63	Debitage	2	128	Debitage	6	202	Debitage	1
64	Debitage	1	129	Debitage	6	203	Debitage	1
65	Debitage	3	130	Debitage	4	204	Debitage	2
66	Core	1	131	Debitage	2	205	Debitage	2
66	Debitage	1	132	Debitage	2	206	Debitage	1
67	Debitage	1	133	Biface	1	207	Debitage	2
68	Debitage	3	133	Debitage	4	208	Debitage	5
69	Debitage	1	134	Debitage	5	210	Debitage	1
70	Debitage	4	135	Ceramic	1	211	Ceramic	1
71	Debitage	8	135	Debitage	2	212	Debitage	3
72	Debitage	5	136	Biface	1	213	Debitage	1
73	Debitage	6	136	Debitage	3	214	Non-Artifact	0

7.2.2 Subsurface Investigation

The potential for subsurface cultural deposits at Site SDI-12,209 was investigated through the excavation of a total of 25 STPs and three test units. STP and test unit data recovered from the EDAW study (Bowden-Renna and Apple 2009) was also reviewed and included with map data to provide more accurate subsurface resolution for the subsurface site expression of Locus 1 and Locus 2.

STP Program

The STPs were positioned based on the project alignment, topography of the site, and location of surface artifacts and milling features in order to determine the presence and extent of any subsurface expression within the project APE. The locations of the current STPs and EDAW STPs are shown in Figure 7.2–1. All of the shovel tests were excavated in decimeter levels to at least 30 centimeters, unless bedrock was encountered. Several of the STPs, located in areas with dark midden soil, were excavated until a soil change was encountered. Seventeen of the 25 STPs excavated by BFSA for the current phase of investigation were positive for cultural material. Artifacts recovered during the shovel tests include 283 debitage, three pottery fragments, 0.5 gram of shell, 1.2 grams of bone and one historic ceramic fragment, with recovery to a depth of 90 centimeters (STP 21). Detailed recovery information for the STPs excavated by BFSA is presented in Table 7.2–2.

Forty-five STPS were excavated at SDI-12,209 by EDAW (Bowden-Renna and Apple 2009). Of the 45 STPs excavated, 29 were positive. Recovered artifacts include one projectile point, three pottery fragments, 419 debitage, two flake tools, one core, five unidentifiable ground stone fragments, 407.8 grams of fire-affected rock, 1.7 grams of charcoal, 7.9 grams of faunal material, and 87 grams of "intrusive material" (Table 7.2–3).

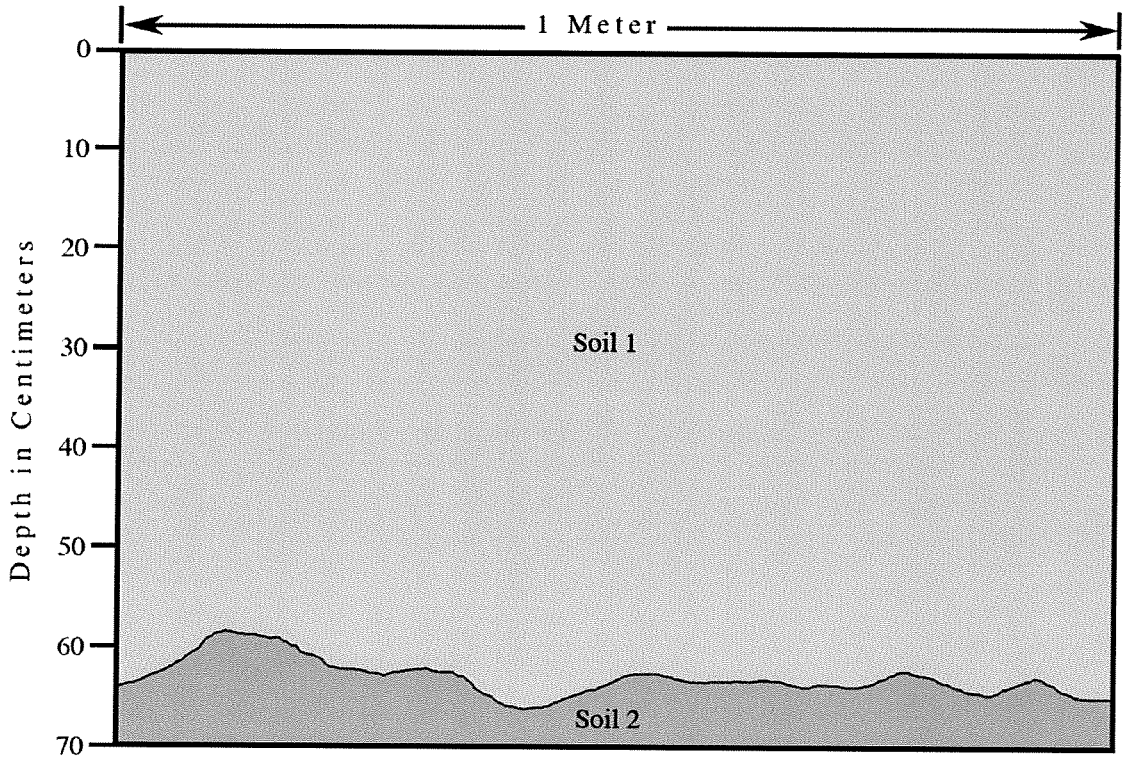
Test Unit Program

Subsurface testing of Site SDI-12,209 continued with the excavation of three standard one-meter-square test units. The test units were positioned to sample the areas of greatest potential for subsurface deposits based on surface collection and STP data in addition to areas closest to the core areas of Locus 1 and Locus 2 within the APE.

Test Unit 1 (TU 1) was placed within the core area of Locus 2, as defined by STP data. The location of TU 1 is shown in Figure 7.2–1. The test unit was excavated in standard decimeter levels to 70 centimeters, and all removed soils were bucketed, transported to an on-site wet screening station, and processed through one-eighth-inch mesh hardware cloth. The recovery from TU 1 consisted of 175 debitage and 0.35 gram of bone. Recovery information for TU 1 is summarized in Table 7.2–4. The soil from TU 1 was characterized as a brown (10YR 4/3) loose, sandy loam underlain by decomposing granite. The south wall soil profile of TU 1 is presented in Plate 7.2–2 and Figure 7.2–2.

Table 7.2-2 SDI-12209 Cultural Material Recovered from STPs by Depth												
STP Number	**Cultural Material**	**0-10 cm**	**10-20 cm**	**20-30 cm**	**30-40 cm**	**30-40 cm**	**40-50 cm**	**50-60 cm**	**60-70 cm**	**70-80 cm**	**80-90 cm**	**Total**
3	Debitage	1	2	1	1	0	0	0	0	0	0	5
4	Debitage	3	3	2	1	0	2	0	0	0	0	11
5	Debitage	3	5	6	6	0	3	3	4	0	0	30
6	Debitage	2	2	1	0	0	1	0	0	0	0	6
8	Debitage	0	1	1	0	0	0	0	0	0	0	2
9	Debitage	3	2	2	5	0	8	2	2	1	0	25
10	Debitage	2	2	4	2	0	3	2	2	0	0	17
14	Debitage	8	5	10	15	0	12	2	11	7	0	70
15	Debitage	0	3	0	0	0	0	0	0	0	0	3
16	Debitage	5	1	3	0	0	0	0	0	0	0	9
17	Debitage	2	2	2	1	0	0	0	0	0	0	7
18	Debitage	0	1	2	0	2	0	0	0	0	0	5
19	Ceramic	2	0	1	0	0	0	0	0	0	0	3
	Debitage	29	13	1	0	0	0	0	0	0	0	43
	Historic	1	0	0	0	0	0	0	0	0	0	1
20	Debitage	12	1	4	1	0	0	0	0	0	0	18
21	Debitage	5	0	2	7	0	3	5	2	2	4	30
22	Debitage	1	0	0	0	0	0	0	0	0	0	1
24	Debitage	1	0	0	0	0	0	0	0	0	0	1
	Total	**80**	**43**	**42**	**39**	**2**	**32**	**14**	**21**	**10**	**4**	**287**

Table 7.2-3 SDI-12,209 Cultural Material Recovered from EDAW (Bowden-Renna and Apple 2009) STP Excavations											
STP Number	Ceramic	Core	Debitage	Ground Stone	Projectile Point	Tools	Charcoal*	Faunal*	Fire-affected rock*	Intrusive*	Total
1	0	0	15	0	0	0	0	0	0	1.4	15
2	0	0	3	0	0	0	0	0	0	0	3
3	0	0	7	0	0	0	0	0	0	0	7
4	0	0	41	0	0	0	0	0	0	0	41
5	0	0	31	0	0	0	0	0	0	8.3	31
6	0	0	34	0	0	0	0	0	0	14.9	34
7	0	0	5	0	0	0	0	0	0	0	5
8	0	0	4	0	0	0	0	0	0	0	4
16	0	0	62	2	0	0	0.3	2	358.7	0.9	64
17	0	0	14	0	0	0	0.5	0.3	46.1	3.7	14
18	0	0	44	0	0	0	0.1	2.3	1	15.3	44
19	0	0	0	1	0	0	0	0	0	2.4	1
21	2	0	6	0	1	1	0	1.7	0	0	10
22	1	0	12	0	0	0	0	0	0	5.9	13
23	0	0	6	1	0	0	0	0	0	6.3	7
25	0	0	1	1	0	1	0	0	0	1.4	3
26	0	0	15	0	0	0	0	0	0	6.3	15
27	0	0	19	0	0	0	0.8	0.2	2	2.5	19
28	0	0	21	0	0	0	0	0	0	9.7	21
29	0	0	2	0	0	0	0	0	0	1.1	2
35	0	0	7	0	0	0	0	1.4	0	0	7
37	0	0	2	0	0	0	0	0	0	0	2
38	0	0	11	0	0	0	0	0	0	0	11
39	0	0	3	0	0	0	0	0	0	0.3	3
40	0	0	4	0	0	0	0	0	0	0	4
41	0	0	22	0	0	0	0	0	0	0	22
42	0	0	2	0	0	0	0	0	0	0.3	2
43	0	1	21	0	0	0	0	0	0	6.3	22
44	0	0	5	0	0	0	0	0	0	0	5
Total	**3**	**1**	**419**	**5**	**1**	**2**	**1.7**	**7.9**	**407.8**	**87**	**431**



Soil Types

1 Brown loose, sandy loam

2 Decomposed granite

0 10 20 cm

Figure 7.2–2

North Wall Profile, Test Unit 1

Site SDI-12,209

The Citracado Parkway Expansion Project

Table 7.2–4 SDI-12,209 Cultural Material Recovered from Test Unit 1							
Cultural Material	**0-10 cm**	**10-20 cm**	**20-30 cm**	**30-40 cm**	**40-50 cm**	**50-60 cm**	**Total**
Debitage	42	43	39	42	10	9	185
Bone*	0.1	0.2	0	0	0.05	0	0.35
Total**	**42**	**43**	**39**	**42**	**0**	**0**	**185**

* Weight in grams
** Total does not include Bone

Plate 7.2–2, North Wall Profile of Test Unit 1.

Test Unit 2 (TU 2) was positioned to sample the core area of Locus 1 identified by the STP data. The location of TU 2 is shown in Figure 7.2–1. The test unit was excavated in standard decimeter levels to 80 centimeters, and all removed soils were bucketed, transported to an on-site wet screening station, and processed through one-eighth-inch mesh hardware cloth. The excavations at TU 2 uncovered a portion of a large rock feature (possible a hearth) of unknown dimensions beginning at 20 centimeters. Soils were excavated in decimeter levels to a depth of 80 centimeters in the northern portion of the unit exposing the portion of the feature that filled TU 2 to the south. The exposed portion of the feature was then fully documented in illustrations and photographs. The unit was then backfilled to protect the integrity of the feature. The recovery from TU 2 consisted of two projectile points, one biface, two steep-edged unifacial tools (SEUTs), one angular hammer, one flake tool, one utilized flake, one core, 612 debitage, 19

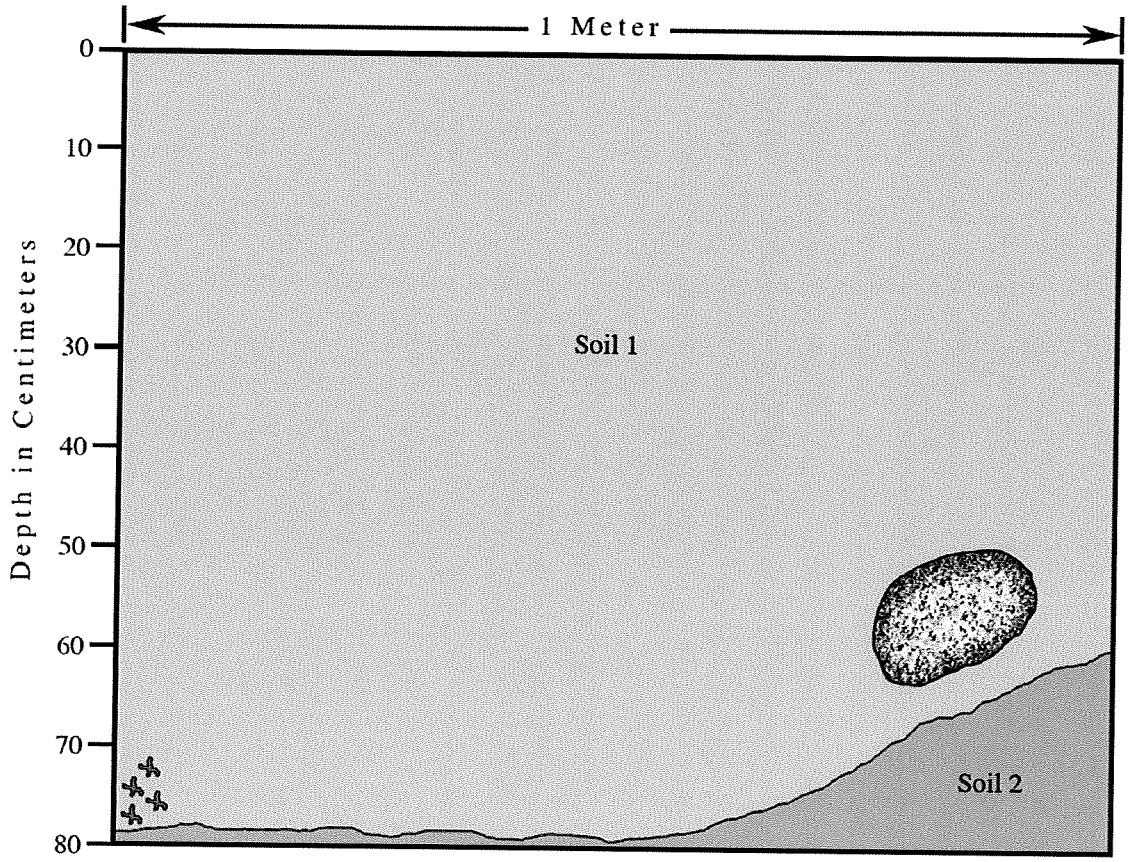
pottery fragments, and 43.3 grams of bone. Recovery information for TU 2 is summarized in Table 7.2–5. The soil from TU 2 was characterized as a black (10YR 2/1) midden soil underlain by reddish brown (5YR 4/4) clay mixed with decomposing granite. The north wall soil profile of TU 2 is presented in Plate 7.2–3 and Figure 7.2–3.

Table 7.2–5
SDI-12,209 Cultural Material Recovered from Test Unit 2

Cultural Material	0-10 cm	10-20 cm	20-30 cm	30-40 cm	40-50 cm	50-60 cm	60-70 cm	70-80 cm	Total
Angular Hammer	0	0	0	0	1	0	0	0	1
Biface	0	0	0	0	0	0	1	0	1
Core	0	0	0	0	1	0	0	0	1
Debitage	151	198	95	74	45	65	93	41	762
Flake Tool	0	0	0	0	0	0	1	0	1
Projectile Point	0	1	0	0	0	0	1	0	2
Steep-Edged Unifacial Tool	0	1	0	0	0	0	1	0	2
Utilized Flake	0	0	0	0	1	0	0	0	1
Ceramic	9	7	2	1	0	0	0	0	19
Bone*	4.9	9.6	5.4	4.1	5.3	4.8	4.3	4.9	43.3
Total**	**160**	**207**	**97**	**75**	**48**	**65**	**97**	**41**	**790**

* Weight in grams
** Total does not include Bone

Plate 7.2–3, North Wall Profile of Test Unit 2 showing rock feature.



Soil Types

1 Black midden soil

2 Reddish brown clay with decomposing granite

Root

Rock

0 10 20 cm

Figure 7.2–3

North Wall Profile, Test Unit 2

Site SDI-12,209

The Citracado Parkway Expansion Project

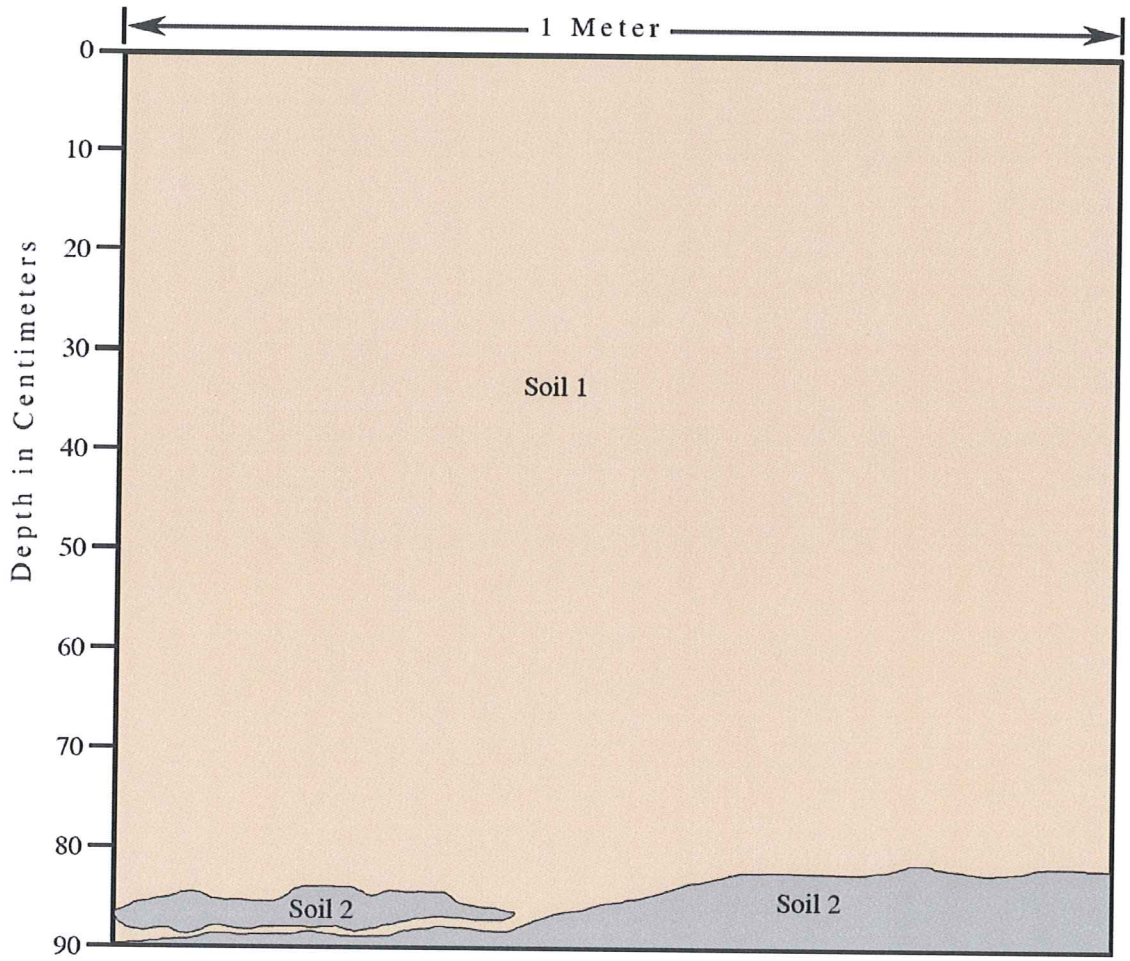
Test Unit 3 (TU 3) was within the southeasternmost portion of Locus 1 in proximity to STP 14, which yielded the highest frequency of cultural materials for the site to a depth of 80 centimeters. The location of TU 3 is shown in Figure 7.2–1. The test unit was excavated in standard decimeter levels to 90 centimeters, and all removed soils were bucketed, transported to an on-site wet screening station, and processed through one-eighth-inch mesh hardware cloth. The recovery from TU 3 consisted of two bifaces, two projectile points, one angular hammer, one core, 837 debitage, one fire-affected rock fragment, and 1.5 grams of bone. Recovery information for TU 3 is summarized in Table 7.2–6. The soil from TU 3 was characterized as a moderately compacted brown (10YR 4/3) sandy loam underlain by reddish brown (5YR 4/4) clay mixed with decomposing granite. The north wall soil profile of TU 3 is presented in Plate 7.2–4 and Figure 7.2–4.

Table 7.2–6
SDI-12,209 Cultural Material Recovered from Test Unit 3

Cultural Material	0-10 cm	10-20 cm	20-30 cm	30-40 cm	40-50 cm	50-60 cm	60-70 cm	70-80 cm	80-90 cm	Total
Angular Hammer	0	0	0	0	0	1	0	0	0	1
Biface	0	0	1	0	0	1	0	0	0	2
Core	0	0	0	1	0	0	0	0	0	1
Debitage	66	134	155	137	137	131	54	20	3	837
Projectile Point	0	0	2	0	0	0	0	0	0	2
Ceramic	1	0	0	0	0	0	0	0	0	1
Bone*	0	0.5	0.2	0	0.3	0.3	0.2	0	0	1.5
Total**	**67**	**134**	**158**	**138**	**137**	**133**	**54**	**20**	**3**	**844**

* Weight in grams
** Total does not include Bone

Plate 7.2–4, North Wall Profile of Test Unit 3.



Soil Types

1 Moderately compacted brown sandy loam

2 Reddish brown clay with decomposing granite

0 10 20 cm

Figure 7.2–4

North Wall Profile, Test Unit 3

Site SDI-12,209

The Citracado Parkway Expansion Project

Three TUs were excavated by EDAW (Bowden-Renna and Apple 2009) during an earlier phase of this study. These units were placed judgmentally, based on where the proposed alignment crossed Locus 1 and Locus 2, and based on the results of the STP excavations. TUs excavated by EDAW ranged in depth from 50 centimeters to 70 centimeters. The soils data and artifactual materials recovered by EDAW were comparable to the current study. Cultural material recovered by EDAW included bifaces, ceramics, cores, debitage, ground stone, projectile points, tools, charcoal, fire-affected rock, and bone and shell. Their recovery results are sumarized in Table 7.1–1. In addition, the archaeological excavations by EDAW identified the presence of human remains in Unit 1.

The recovery from Site SDI-12,209 included 12 bifaces, five projectile points, one drill, three flake tools, one utilized flake, two angular hammers, one flake from an angular hammer, two steep-edged unifacial tools (SEUTS), four cores, 2686 debitage, three manos, one unidentifiable ground stone fragment, one crystal, 42 pottery fragments, two fire-affected rocks (FAR), 46.4 grams of bone, 1.95 grams of shell, and one historic ceramic fragment. Total artifact recovery from Site SDI-12,209 is summarized in Table 7.2–7. All artifacts, ecofacts, and features were subjected to analysis and interpretation. The following sections detail the results of these studies.

Table 7.2–7
Summary of Cultural Material Recovered from SDI-12,209 during the Current Study

Cultural Material	Surface	STPs	Unit 1	Unit 2	Unit 3	Total
Angular Hammer	0	0	0	1	1	2
Angular Hammer Flake	1	0	0	0	0	1
Biface	9	0	0	1	2	12
Core	2	0	0	1	1	4
Crystal	1	0	0	0	0	1
Debitage	619	283	185	762	837	2686
Drill	1	0	0	0	0	1
Flake Tool	2	0	0	1	0	3
Ground Stone	1	0	0	0	0	1
Mano	3	0	0	0	0	3
Projectile Point	1	0	0	2	2	5
Steep-Edged Unifacial Tool	0	0	0	2	0	2
Utilized Flake	0	0	0	1	0	1
Ceramic	19	3	0	19	1	42
Fire-Affected Rock	1	0	0	0	1	2
Historic Ceramic	0	1	0	0	0	1
Bone*	0	1.25	0.35	43.3	1.5	46.4
Shell*	1.9	0.05	0	0	0	1.95
Total**	**660**	**287**	**185**	**790**	**845**	**2767**

* Weight in grams
** Total does not include Bone

7.3 Flaked Lithic Artifacts

7.3.1 Debitage Analysis

Methodology

The technological identification of all debitage sampled was based on work by Flenniken (1978, 1981) for analysis and interpretation. Technological lithic analysis based upon replicative data was conducted for all debitage recovered from test unit excavations at SDI-12,209. Technological reduction stage flake categories were defined by comparing technological attributes of replicated artifacts from known stone tool reduction technologies to the recovered lithic assemblage. By comparing the recovered assemblage to the replicated assemblage in terms of manufacture, reduction stages were assigned to technologically diagnostic debitage. Some debitage, however, was considered technologically undiagnostic because of its fragmented condition. Data from each excavated level was compared to identify changes in the percentages of diagnostic debitage, which can be used to define a change in reduction techniques in separate and distinct flintknapping activities at different locations throughout the site, to delineate different depths in site stratigraphy or to define homogeneity of the deposit. Although technological analysis of flaked stone artifacts from each excavated level is designed to segregate differences in reduction technology, technological differences were not identified either horizontally or vertically within the site matrix. The flaked stone assemblage recovered from SDI-12,209 is extremely homogeneous in terms of reduction technology. However, there is some variation across the site in terms of ratio of toolstone materials and frequency of artifacts.

Debitage classification attributes were divided into reduction-oriented technological categories, and then these categories were segregated into stages. By segregating the technologically diagnostic debitage into technological categories that represent and identify reduction techniques, two different reduction sequences were defined as a result of this analysis. Both nodule core reduction and biface reduction were identified within the present assemblage. Nodule core debitage was recognized and grouped into technological categories based on the amount and location of dorsal cortex, platform attributes, dorsal arris count and direction, and flake cross/long-section shape. Debitage was classified according to three platform types identified among the flakes from nodule core reduction: natural/cortical platforms (NP), single-facet platforms (SFP), and multi-faceted platforms (MFP). In addition, flakes were further subdivided according to the location of dorsal cortex (i.e., flake categories NP-1 through NP-11, SFP-1 through SFP-11) (see Figure 6.3–1). The reduction-oriented technological categories of diagnostic flakes were also separated on the basis of geological material types (i.e., metavolcanic, quartz, chert, and obsidian). Flake fragments that lacked the necessary attributes to be placed in one of these categories were classified as undiagnostic fragments. Only the raw material type and presence or absence of cortex were recorded for these artifacts. Interpretation of the reduction sequence from this site was determined using only the technologically diagnostic debitage.

Often, it is possible that two different reduction sequences may or may not be part of a single interrelated reduction continuum. For instance, bifacial artifacts may have been manufactured from flake blanks produced from nodule cores, and thus, the collection may be viewed as a single continuum. Reduction stage, as employed for this analysis, is a concept designed to separate a flintknapping continuum for analytical purposes only. The reduction-oriented technological stages (processes) employed in this analysis, the flake categories (based upon replicated artifacts that correspond to the processes), and the flake attributes used to define those categories are all within the nodule core reduction technology that was well established in prehistoric southern California.

All debitage recovered from BFSA unit excavation was analyzed, identified, and assigned to specific technological categories and stages. Technologically diagnostic debitage was assigned to a specific reduction category, which served as the basis for interpretation of lithic technology. Preliminary analyses indicate that artifacts recovered from the site are intra-site similar in technological character, but not in frequency of material. As such, the sample of the entire assemblage recovered from the test units cannot be considered homogeneous, and therefore, the analytical units were kept separate for interpretive purposes. Preliminary results indicate that although there is a lack of technological change across the site, variations in preference for certain toolstone materials may have occurred. The implications of these preferences will be considered in the conclusions of the analyses.

Technological Assessment

Technological analyses of the artifact sample recovered from the three test units at SDI-12,209 identified two specific reduction technologies that were employed by the site's prehistoric knappers. The assemblage is composed of primarily two reduction technologies including biface reduction and, to a lesser extent, nodule core reduction. As stated previously, these reduction technologies may be part of the same continuum, as flakes from nodule core reduction may have been used as flake blanks for flake-based biface production. The flaked stone assemblage recovered from this site is an adequate sample, and to maximize the sample, artifacts collected from all contexts were combined for analytical purposes. With few exceptions (i.e., obsidian, Piedra de Lumbre [PDL] chert, and chert), all lithic artifacts are made of local materials (Table 7.3–1).

Table 7.3–1 SDI-12,209 Lithic Material of Debitage Recovered by Unit							
	Material						
Unit	**MV**	**V**	**Q**	**PDL**	**CH**	**OB**	**Total**
1	6	5	173	0	1	0	185
2	504	37	193	23	3	2	762
3	243	81	469	34	9	1	837
Total	**753**	**123**	**835**	**57**	**13**	**3**	**1784**
(% of Column)	42.2%	6.9%	46.8%	3.2%	0.7%	0.2%	100.0%

MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert
CH = Chert
O = Obsidian

All formed artifacts and debitage were combined for the purpose of analysis. Of the 1,784 debitage recovered from unit excavations, 619 (35%) were technologically diagnostic of two different reduction technologies, while 1158 (65%) were technologically undiagnostic (Tables 7.3–2 through 7.3–7). A total of five different lithic toolstone materials were represented in the SDI-12,209 assemblage (includes both technologically diagnostic and undiagnostic debitage). These materials include 753 metavolcanic, 123 volcanic, 835 quartz, 57 PDL, 13 chert, and three obsidian (see Table 7.3–1 through 7.3–7).

Table 7.3–2 Unit 1 Technologically Diagnostic Debitage by Material						
Diagnostic Debitage	**Material**				**Totals**	**Percent of Total Debitage**
	MV	**V**	**Q**	**PDL**		
Biface Reduction						
Stage 2						
Bifacial thinning flake with characteristics of an alternate flake	0	0	1	0	1	2.0%
Bifacial thinning fake with the characteristics of an edge preparation flake	1	0	1	0	2	3.9%
Stage 3						
Early percussion bifacial thinning flake	0	0	7	0	7	13.7%
Late percussion bifacial thinning flake	0	0	12	0	12	23.5%
Stage 4						
Early pressure bifacial reduction flake	0	0	8	0	8	15.7%
Late pressure bifacial reduction flake	1	0	20	0	21	41.2%
Biface Reduction Totals	2	0	49	0	51	100.0%
Percent of Biface Reduction Total	3.9%	0.0%	96.1%	0.0%	100.0%	
Total Debitage	**2**	**0**	**49**	**0**	**51**	**100.0%**

MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert

Table 7.3–3 Unit 1 Technologically Undiagnostic Debitage by Material						
	Material					
Undiagnostic Flake Fragments	**MV**	**V**	**Q**	**PDL**	**CH**	**Total**
Uw/icc	0	0	0	0	0	0
Uw/geoc	0	0	2	0	0	2
Uwo/c	4	5	122	0	1	132
Total	**4**	**5**	**124**	**0**	**1**	**134**
(% of Column)	3.0%	3.7%	92.5%	0.0%	0.7%	100.0%

Uw/icc = undiagnostic with incipient core cortex
Uw/geoc = undiagnostic with original geologic cortex
Uwo/c = undiagnostic without cortex
MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert
CH = Chert

Nodule Core Reduction

The least common reduction technology identified in the assemblage was nodule core reduction. When all units are considered as a whole analytic set, 94 (15%) of the technologically diagnostic debitage supported nodule core reduction. All three nodule core platform types were represented at SDI-12,209. Natural platform debitage was represented by 13 flakes; single-facet platform debitage by 81 flakes; and, multi-faceted platform debitage by seven flakes (see Tables 7.3–4 and 7.3–6). These three platform configurations suggest three different platform preparations on cores. The most common (N = 79) single-facet platform debitage category was SFP-11. This flake category comprises ideal flake blanks, but the specific flakes from SDI-12,209 were broken or too small for use. Multi-faceted platform debitage totaled seven flakes, of which all were MFP-11 flakes. Again, these specific flakes were broken or too small for ideal flake blanks and were discarded. As such, a discussion on nodule core reduction is not necessary, other than to note its presence. Interestingly, no nodule core reduction was identified in the assemblage from Locus 2. This is also the locus with the highest frequency of quartz materials.

Biface Reduction

For this analysis, biface reduction debitage was divided into four reduction-oriented technological categories (as defined by Flenniken 2001) that were, in turn, employed to define the reduction sequences used at SDI-12,209. These include core reduction (Stage 1), edge preparation (Stage 2), percussion bifacial thinning (Stage 3), and pressure bifacial thinning (Stage 4). For SDI-12,209, portions (Stages 2 through 4) of three of the four stages were identified in the assemblage. However, although no Stage 1 bifacial reduction debitage was identified in the present assemblage, this may in fact be a result of separating those

Table 7.3–4
Unit 2 Technologically Diagnostic Debitage by Material

Diagnostic Debitage	Material						Totals	Percent of Total Debitage
	MV	V	Q	PDL	CH	OB		
Nodule Core Reduction								
NP-5: Flake with natural cortical platform and right lateral and distal dorsal surface cortex	1	0	0	0	0	0	1	0.3%
NP-11: Flake with natural cortical platform and no dorsal surface cortex	1	5	0	0	0	0	6	2.1%
SFP-1: Flake with single-facet platform and 100% dorsal surface cortex	1	0	0	0	0	0	1	0.3%
SFP-11: Flake with single-facet platform and no dorsal surface cortex	19	5	3	3	0	0	30	10.5%
MFP-11: Flake with multi-faceted platform and no dorsal surface cortex	1	1	0	0	0	0	2	0.7%
Nodule Core Reduction Totals	23	11	3	3	0	0	33	11.5%
	69.7%	33.3%	9.1%	9.1%	0.0%	0.0%	100.0%	
Biface Reduction								
Stage 2								
Bifacial thinning flake with characteristics of an alternate flake	9	0	0	0	0	0	9	3.1%
Bifacial thinning flake with the characteristics of an edge preparation flake	32	0	3	1	0	0	36	12.5%
Stage 3								
Early percussion bifacial thinning flake	15	0	5	2	0	0	22	7.7%
Late percussion bifacial thinning flake	16	0	7	1	1	0	25	8.7%
Stage 4								
Early pressure bifacial reduction flake	38	4	7	3	0	1	53	18.5%
Late pressure bifacial reduction flake	86	0	17	3	0	0	106	36.9%
Notching flake from a bifacial preform	3	0	0	0	0	0	3	1.0%
Biface Reduction Totals	199	4	39	10	1	1	254	88.5%
Percent of Biface Reduction Total	78.3%	1.6%	15.4%	3.9%	0.4%	0.4%	100.0%	
Total Debitage	**222**	**15**	**42**	**13**	**1**	**1**	**287**	**100.0%**

MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert
NP = Natural Platform
SFP = Single-facet platform
MFP = Multi-faceted platform

Table 7.3–5 Unit 2 Technologically Undiagnostic Debitage by Material							
	Material						
Undiagnostic Flake Fragments	**MV**	**V**	**Q**	**PDL**	**CH**	**OB**	**Total**
Uw/icc	0	4	0	0	0	0	4
Uw/geoc	26	0	2	0	0	0	28
Uwo/c	256	18	149	10	2	1	436
Total	**282**	**22**	**151**	**10**	**2**	**1**	**468**
(% of Column)	60.3%	4.7%	32.3%	2.1%	0.4%	0.2%	100.0%

Uw/icc = undiagnostic with incipient core cortex
Uw/geoc = undiagnostic with original geologic cortex
Uwo/c = undiagnostic without cortex
MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert
CH = Chert
OB = Obsidian

materials and classifying them as nodule core reduction. The following are technological definitions by Flenniken (2001) for bifacial technological categories:

1. Core reduction, that is, primary decortication debitage segregated on the basis of approximately 100% cortex on the dorsal surface and platform configuration; secondary decortication debitage separated based upon partial dorsal cortex and platform type; and interior debitage categorized by platform attributes, dorsal arris count and direction, flake cross/long-section configuration, and especially, absence of dorsal cortex;

2. Edge preparation, that is, bifacial reduction debitage classified on the basis of multi-faceted platform configuration and location, location of remnant bulb of force, dorsal arris count and direction, flake termination, flake cross/long-section orientation, and presence or absence of detachment scar;

3. Percussion bifacial thinning, that is, debitage segregated on the basis of multi-faceted platform configuration, size, lipping, and location, dorsal arris count and direction, flake termination, cross/long-section orientation, and presence or absence of detachment scar;

4. Pressure bifacial thinning, that is, debitage separated on the basis of multi-faceted platform configuration and location, dorsal arris count and direction, flake termination, platform-to-long axis geometry, cross/long-section orientation, and presence or absence of detachment scar.

Table 7.3–6
Unit 3 Technologically Diagnostic Debitage by Material

Diagnostic Debitage	Material						Totals	Percent of Total Debitage
	MV	V	Q	PDL	CH	OB		
Nodule Core Reduction								
NP-6: Flake with natural cortical platform and left lateral dorsal surface cortex	3	0	0	0	0	0	3	1.1%
NP-11: Flake with natural cortical platform and no dorsal surface cortex	2	1	0	0	0	0	3	1.1%
SFP-10: Flake with single-facet platform and distal dorsal surface cortex	0	1	0	0	0	0	1	0.4%
SFP-11: Flake with single-facet platform and no dorsal surface cortex	10	15	24	0	0	0	49	17.4%
MFP-11: Flake with multi-faceted platform and no dorsal surface cortex	1	2	2	0	0	0	5	1.8%
Nodule Core Reduction Totals	16 26.2%	19 31.1%	26 42.6%	0 0.0%	0 0.0%	0 0.0%	61 100.0%	21.7%
Biface Reduction								
Stage 2								
Bifacial thinning flake with characteristics of an alternate flake	5	0	6	2	0	0	13	4.6%
Bifacial thinning flake with the characteristics of an edge preparation flake	19	4	17	2	1	0	43	15.3%
Stage 3								
Bifacial thinning flake with characteristics of a margin removal flake	0	0	0	1	0	0	1	0.4%
Early percussion bifacial thinning flake	11	2	11	4	0	0	28	10.0%
Late percussion bifacial thinning flake	13	0	6	2	1	0	22	7.8%
Stage 4								
Early pressure bifacial reduction flake	17	7	17	4	0	1	46	16.4%
Late pressure bifacial reduction flake	29	2	32	2	2	0	67	23.8%
Biface Reduction Totals Percent of Biface Reduction Total	94 42.7%	15 6.8%	89 40.5%	17 7.7%	4 1.8%	1 0.5%	220 100.0%	78.3%
Total Debitage	**110**	**34**	**115**	**17**	**4**	**1**	**281**	**100.0%**

MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert
CH = Chert
OB = Obsidian
SFP = Single-facet platform

Stage 2, edge preparation debitage, includes 81 edge preparation flakes, and 23 alternate flakes when all three units are combined. Edge preparation flakes are created by preparing the margin (moving the margin by percussion into the mass) of a flake blank for reduction into a biface. While this stage sample constitutes only 16.8% (N = 104) of the technologically diagnostic debitage (which is typical of this reduction stage), it supports the technological assumption that flake blanks were manufactured at the site (or flake blanks were transported to

the site), and some partially reduced there by direct free-hand percussion (see Tables 7.3–2, 7.3–4, and 7.3–6).

Table 7.3–7
Unit 3 Technologically Undiagnostic Debitage by Material

	Material						
Undiagnostic Flake Fragments	**MV**	**V**	**Q**	**PDL**	**CH**	**OB**	**Total**
Uw/icc	2	1	0	0	0	0	3
Uw/geoc	10	2	0	0	0	0	12
Uwo/c	121	44	354	17	5	0	541
Total	**133**	**47**	**354**	**17**	**5**	**0**	**556**
(% of Column)	23.9%	8.5%	63.7%	3.1%	0.9%	0.0%	100.0%

Uw/icc = undiagnostic with incipient core cortex
Uw/geoc = undiagnostic with original geologic cortex
Uwo/c = undiagnostic without cortex
MV = Metavolcanic
V = Volcanic
Q = Quartz
PDL = Piedra de Lumbre chert
CH = Chert
OB = Obsidian

Stage 3 technologically diagnostic flakes recovered from excavations at SDI-12,209 included primarily early percussion bifacial thinning flakes (N = 57), late percussion bifacial thinning flakes (N = 59), and one margin removal flake. Stage 3 materials made up 17.7% of the biface reduction assemblage. The general size of these flakes indicate that small bifaces were thinned at the site. Some of the early biface thinning flakes were produced as a result of bifacial blank manufacture by direct free-hand percussion flaking. All of the Stage 3 flakes were small, indicating small biface production. Small (arrow point size, or less than approximately 6.0 x 2.5 x 1.0 centimeters) technologically diagnostic debitage indicates small bifaces were manufactured at the site. It is not possible to produce large bifaces via the production of small debitage. This would fail to thin the biface. In general, the length of complete bifacial thinning flakes represents approximately two-thirds the width of the biface being reduced. Virtually all of the complete bifacial thinning flakes from SDI-12,209 were within the arrow point blank range size range.

Pressure biface thinning flakes (Stage 4), were represented by 107 early pressure flakes, 194 late pressure flakes, and three notching flakes forming 49% (N = 304) of the overall diagnostic assemblage. All of these pressure flakes were small, and were the result of bifacial thinning and shaping bifacial tools. This high representation of pressure flakes in the assemblage suggests pressure flaking was a major flintknapping activity conducted at the site, most likely for the production and/or rejuvenation of pressure flaked tools, such as projectile points (see Tables 7.3–2, 7.3–4, and 7.3–6). The majority of the pressure flakes were also very small, suggesting shaping of bifacial tools was more common than thinning bifacial tools by pressure. Given that

the dominant toolstone materials were metavolcanic and quartz, much of the thinning of the arrow point blanks was completed by percussion. In terms of arrow point manufacture in general throughout the American West, percussion thinning of arrow point blanks is rare, but raw material constraints at SDI-12,209 necessitated percussion thinning of arrow point blanks.

Undiagnostic Debitage

A total of 1,158 technologically undiagnostic flake fragments were also identified in the SDI-12,209 assemblage (see Tables 7.3–3, 7.3–5, and 7.3–7). Only 49 fragments possessed cortex (Uw/icc or Uw/geoc), while 1,109 were cortex-free (Uwo/c). The cortex noted on these flakes includes both incipient cone cortex (Uw/icc, N = 7) common on local lithic materials, and cortex indicative of direct removal from the original geologic source (Uw/geoc, N = 42). The amount of cortex on debitage across the site suggests that the cores used to produce flakes at SDI-12,209 may have been prepared (decorticated and shaped) away from the site location. However, it is likely that the majority of raw toolstone material was gathered relatively close to the site. As with the technologically diagnostic debitage, undiagnostic flake fragment materials were collected from both primary geological contexts (primary geological cortex) and alluvial contexts (incipient cone cortex).

It should be noted that much of the primary geological cortex discussed herein is calcium carbonate found on many rounded and subrounded metavolcanic materials. These nodules were most likely collected from the local Lindavista cobble formations in the area. Because these formations have been *in situ* for so long, geologically speaking, they have formed "primary geological cortex." Incipient cone cortex herein refers to materials with thin exterior rinds that are punctuated by hundreds, if not thousands, of intersecting Hertzian cones caused by being transported by moving water in the not-so-distant past.

Anthropological Interpretation

Based on the technological assessment of the debitage assemblage recovered in the test units excavated at SDI-12,209, the following anthropological interpretation of the assemblage is offered. Biface reduction technology is the most common technology identified in the lithic sample from SDI-12,209. Products of biface reduction are the most abundant in the site as measured by percent of technologically diagnostic flakes. The flaked stone reduction technology identified at SDI-12,209 was almost exclusively related to arrow point production and rejuvenation. Furthermore, the formed artifacts are supported by the technologically diagnostic debitage, in that the debitage resulted from arrow point production and rejuvenation. The nodule core reduction portion of the assemblage was dominated by non-cortical, single-facet platform flakes that were either brought to the site or produced at the site during the production of flake blanks for arrow points from flake cores. Flake cores were either transported from the site and/or laterally cycled into other tools such as angular hammers or steep-edged unifacial tools, as flake cores were not well represented in the assemblage (N = 4). Based on the low frequency of

cortical debitage (N = 49), non-cortical flake blanks and/or partially prepared cores (free of most of the cortex) were transported to the site. Both flake blanks (as evidenced in the Stage 2 biface reduction debitage) and bifacial blanks were reduced into preforms and arrow points. By definition, Stage 2 debitage represents flake blank production.

Stage 3 percussion biface thinning is not well represented at this site, which supports arrow point manufacture, as percussion bifacial thinning is not extensively employed when manufacturing arrow points from smaller flake blanks. However, given the raw material constraints, percussion bifacial thinning was employed to thin arrow point blanks. Only 17.7% (N = 117) of the technologically diagnostic debitage supported direct free-hand percussion biface manufacture. In addition, these bifacial thinning flakes were small, suggesting small biface manufacture such as blanks for arrow points.

Stage 4 pressure biface thinning debitage was well distributed between early and late pressure flakes. A predominance of early pressure flakes indicates original tool manufacture over bifacial tool rejuvenation. The presence of both in quantities suggests that arrow points were being manufactured and rejuvenated on-site. Overall, this may imply more intense hunting activities occurring within the vicinity of the site. The presence of arrow point preforms also supports Stage 4 bifacial reduction at SDI-12,209.

The presence of arrow point blanks in the SDI-12,209 assemblage, support Stage 3 debitage (Figure 7.3–1). These arrow point blanks were manufactured into preforms by pressure flaking the blanks (see Figure 7.3–1). All of the blanks identified in the SDI-12,209 artifact assemblage were broken during manufacture, which supports on-site production of arrow points.

Complete but exhausted arrow points were also discarded at the site (see Figure 7.3–1). Broken arrow points (proximal ends, midsections, and distal ends) were also deposited into the archaeological context of SDI-12,209. This discard behavior most likely represents activities associated with retooling of bow and arrow hunting equipment. Broken arrow points were disposed of and replaced with new arrow points manufactured on-site. Formed artifacts as well as debitage strongly support this interpretation. Even the small, undiagnostic pressure flaked biface fragments were most likely fragments of arrow points. Interestingly, site activities concerning the flaked stone artifacts were associated with arrow point manufacture and replacement, not arrow shaft production, as fragments of arrow shaft straighteners, abraders, flake tools, and/or scrapers were not well represented in the excavated assemblage from SDI-12,209. For this site, it is clear that a large portion of the site activities within the APE are associated with arrow point manufacture and replacement and not arrow shaft production. This is because of a lack of fragments of arrow shaft straighteners and abraders, and a very low frequency of flake tools and/or scrapers within the excavated assemblage from the portions of SDI-12,209 within the project APE. However, other portions of the assemblage may contain a more diverse portion of the assemblage, which may represent more diverse human behavior patterns.

Figure 7.3–1

Bifaces Recovered from SDI-12,290

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Finally, although there appears to be technological homogeneity across the site, and there also appears to be a variation in the frequency of material employed for that technology across the site. The material indicates that quartz was the preferred material in the northern portion of the site at Locus 2, and metavolcanic materials became preferable as one moved south into Locus 1. The reason for this patterning is unclear, and may be related to access to resources over time or change in material preference over time. Regardless, this research issue should be explored in more depth in future studies for SDI-12,209.

7.3.2 Formed Artifacts

Cores

A total of four cores (three cores and one core fragment) were recovered from SDI-12,209. Of the four cores, three represent unidirectional nodule core reduction and one represents multi-directional nodule core reduction. Specimen materials include two quartz, one metavolcanic, and one PDL chert. Many of the specimens are quite small (smaller than fist size), suggesting that the cores had become too small for further reduction, and/or recycling into another tool form (i.e., SEUT or angular hammer). All of the cores lack cortex of any kind. The presence of these cores supports nodule core reduction activities at SDI-12,209, as indicated by the debitage analyses.

Bifaces and Projectile Points

A total of 17 bifaces were recovered during the current testing at Site SDI-12,209 (Table 7.3-8 and Figure 7.3-2). This sample includes seven complete or nearly complete specimens and ten fragmentary specimens. Their shape, size, and weight (see Table 7.3-8) indicate that five of the specimens recovered are arrow points (Fenenga 1953) or arrow point fragments. The remaining twelve specimens include five bifacial blanks that failed during manufacture, and seven bifacial preforms that failed during manufacture.

For SDI-12,209, a total of five bifacial blanks were recovered. The five bifacial blank fragments are small in size and further support the manufacture of arrow points on site. Bifacial blanks differ from preforms in that they represent the initial stages of shaping a flake blank or core nucleus into a bifacial preform via direct free-hand percussion. The five specimens include our quartz specimen and one metavolcanic specimen. Four of the five bifacial blank specimens from failed during manufacture as a result of bending and perverse fractures (Cat Nos. 335, 383, 385, and 390). The remaining specimen (Cat. No. 388) is whole and displays evidence of manufacture directly from a flake. This specimen likely became too thick to thin further and was discarded. The majority of bifacial blanks recovered from the site however, were likely discarded because of problems encountered during manufacture, or to inherent problems with the material being worked. The presence of blanks also supports on-site production of arrow points.

Table 7.3-8 Bifaces Recovered from SDI-12,209 (current study)							
Cat. No.	**Cultural Material**	**Type**	**Material**	**Length (mm)**	**Width (mm)**	**Thickness (mm)**	**Weight (g)**
55	Projectile Point	Arrow Point Cottonwood Triangular	Quartz	17.9	12.5	4.1	0.7
62	Projectile Point	Arrow Point Cottonwood Triangular	Quartz	17.8	17.9	4.8	1.3
63	Projectile Point	Arrow Point Cottonwood Triangular	Metavolcanic	30.3	15.8	5	2
67	Projectile Point	Arrow Point Cottonwood Triangular	Metavolcanic	9.6	11.8	2.3	0.2
380	Projectile Point	Arrow Point Not Typeable	Quartz	15.7	11.6	4.2	0.7
88	Biface	Preform	Volcanic	33.7	27.3	7.3	6.7
384	Biface	Preform	Quartz	23.3	18.8	6	2.8
387	Biface	Preform	Quartz	25.3	13	6.7	2.6
391	Biface	Preform	Quartz	26.4	19.9	8.5	4.4
392	Biface	Preform	Quartz	15	16.4	5.2	1.3
393	Biface	Preform	Quartz	23.4	14.6	6.4	1.9
394	Biface	Preform	Quartz	31.7	14.5	5.2	1.8
335	Biface	Bifacial Blank	Quartz	24.9	23	7.9	4.4
383	Biface	Bifacial Blank	Quartz	36.7	22.9	8.5	5
385	Biface	Bifacial Blank	Metavolcanic	25.1	28.8	6.7	6.2
388	Biface	Bifacial Blank	Quartz	32.1	21.5	11.6	9.3
390	Biface	Bifacial Blank	Quartz	47.3	12.5	9	5.8

The testing program at SDI-12,209 also recovered a total of seven bifacial preforms. The seven bifacial preform fragments are small in size and also support the manufacture of arrow points on-site. Bifacial preforms differ from bifacial blanks in that they represent the later stages of shaping of bifacial blanks into a more refined bifacial preform via pressure flaking. The seven specimens include six quartz specimens and one volcanic specimen. Five of the bifacial preform specimens failed during manufacture as a result of perverse fractures (Cat. Nos. 387, 391, 392, 393, and 394). The remaining two specimens (Cat. Nos. 88 and 384) appear to have fractured at one time. However, it appears attempts were made to retool them unsuccessfully, and they were abandoned, as each specimen likely became too thick to thin further. The presence of preforms further supports on-site production of arrow points.

Complete, but exhausted arrow points, in addition to broken arrow points (proximal ends and distal ends), were deposited into the archaeological context at SDI-12,209. This discard behavior most likely represents activities associated with retooling of bow and arrow hunting equipment. Broken arrow points were disposed of and replaced with new arrow points manufactured on-site. The artifacts and debitage recovered strongly support this interpretation. Arrow points from SDI-12,209 (and arrow points overall) are temporally sensitive, based on the weapon they were used in conjunction with, the bow and arrow. The atlatl and dart were replaced by the bow and arrow an estimated 1500 years ago in San Diego County (Moratto 1984). This change required a transition to smaller projectile points suggesting that the site, therefore, is less than 1500 years old.

Of the five identified arrow point/arrow point fragments, four are identifiable to the Cottonwood Series, and the remaining specimen is too fragmentary to accurately place it within a relevant projectile point series. For the Cottonwood projectile points, one specimen (Cat. No. 62) displays a concave base with concave margins, and three specimens (Cat. Nos. 55, 63, and 67) maintain concave bases with relatively straight margins. In addition, all four of the specimens maintain remnants of their original detachment scar indicating manufacture directly from flake blanks.

Three of the projectile point specimens display evidence of direct impact to the tip, likely from use. Each of these specimens (Cat. Nos. 55, 62, and 380) maintains only minor damage in the form of tip flutes or a bending fracture. It is possible that the damage incurred by these points was too severe, and as a result, the points were discarded. These patterns of breakage are indicative of direct impact to an opposing surface, possibly in a hunting situation (Woods 1987). One of the specimens (Cat. No. 67) exhibits a manufacturing error in the form of a perverse fracture, which is defined by Crabtree (1972) as "a helical, spiral or twisting break initiated at the edge of an objective piece." The perverse fracture on this projectile point likely occurred while pressure flaking along one of the lateral margins of the objective piece. Fractures of this type are common in both the archaeological record and in replicative experiments conducted throughout the past few decades (Woods 1987). Experimental data concerning the fracture patterns and rejuvenation of projectile points employed in simulated hunting situations are well established in

the archaeological literature (Flenniken 1985; Flenniken and Raymond 1986; Titmus and Woods 1986; Woods 1987; Towner and Warburton 1990). Excavation at SDI-12,209 produced five arrow points/arrow point fragments, and small pieces of pressure flaked bifaces that may have been portions of arrow points or arrow point preforms. The biface assemblage and technological analysis indicates that reusable arrow points were rejuvenated, as badly broken arrow points were discarded and replaced with newly made arrow points on-site.

In addition to the four typeable points and point bases, one mid-section was also recovered. The specific point fragment recovered from the site displays impact damage that may be indicative of hunting activities. Often, projectile points were broken on impact with inanimate objects (missed targets), or inside of animals (Flenniken 1985). Because of their small, unusable condition, tips and mid-sections were not retrieved, and therefore, may have remained at kill sites. Alternatively, these fragments may have been deposited at the butchering location where the fragments were returned in the dispatched animals. Additionally, these arrow point fragments may have been the results of flintknapping errors that occurred during arrow point manufacture.

For the entire assemblage of arrow points and fragments recovered from the site, the ratio of complete points/bases to tips/mid-sections was nearly 4:1. This technological observation suggests possible circumstances that relate to site function. First, bases and complete points are often indicative of rejuvenation and weapon repair, while tips and mid-sections are indicative of hunting activities. If this scenario is true for SDI-12,209, then the site is associated with occupation rather than a kill site wherein game was hunted. However, the actual kill site may be in the vicinity of SDI-12,209, or a minimal distance away. Given that faunal remains are not extensive in the present assemblage, however, the type of game being hunted is not clear. Despite this, some small fragments of arrow points would have been brought back to the site in the hunted meat package. Once back at the site, the hunters repaired the broken, but reusable, arrow point bases brought back to the site on arrow shafts, and discarded badly broken and exhausted arrow points, replacing them with new arrow points made at the site.

Drill

A single bifacial expanding base drill specimen was recovered from the surface of SDI-12,209. The quartz specimen (Cat. No. 382) measures 38.2 x 23.2 x 7.6 millimeters and weighs 4.1 grams. The tool has been pressure flaked at the tip and appears to have been manufactured from the remnants of a failed bifacial blank. The hardness of the quartz would allow for a durable drill that could be used on materials ranging from vegetable items to other softer stone. Despite the expanding base on the specimen, there is no evidence of hafting.

Angular Hammers

Prehistoric flaked stone assemblages from southern California and the Southwest contain a common artifact identified by archaeologists by a variety of names including chopper,

hammerstone, pounder, muller, milling stone, flaked hammerstone, handstone, battered hammerstone, masher, basher, utilized core, scraper plane, pecking stone, fist ax, hand ax, to name a few (cf. Dodd 197; Wallace 1978). Many of these artifacts are employed as archaeological identifiers of specific prehistoric cultures (Wallace 1954; Kowta 1969). Others are simply weighed, measured, and described generally as plant and animal resource processing tools. Dodd (1979) and others (cf. Ambler 1985; Geib 1986), however, have devoted considerable time and energy to the identification and function of a rather unsophisticated, but highly specialized and important prehistoric tool class, angular hammers. Angular hammers are separated from the other artifact classes on the basis of pock marks located on one or more intentionally prepared areas on a single tool, which are the result of repeated pounding against another hard object. These implements are most frequently produced from conchoidally fracturing, subrounded to subangular, spherical to discoidal, cobble-sized quartzite, metavolcanic, and volcanic nodular alluvial materials. For SDI-12,209, two angular hammers and one attrition flake from an angular hammer were identified in the collection. Angular hammers were employed prehistorically and ethnographically to shape, sharpen, and resharpen ground stone (Flenniken et al. 1993). The presence of angular hammers at SDI-12,209 is not surprising given the frequency of bedrock milling features and intensity of milling behavior that took place on-site.

Steep-Edged Unifacial Tools (SEUTs)

Southern California archaeology has been plagued for years with amorphous lumps of metavolcanic stone that possess steep unifacial edges. These objects also have long been recognized by archaeologists as artifacts. However, these steep-edged unifacial tools (SEUTs) have been subjected to numerous morphological and functional categories (i.e., horse hoof scraper, scraper plane, flake scraper, biscuit scraper, various core types). Schroth and Flenniken's (1997) analysis of flaked stone tools from SDI-11,424 is, by far, the best effort to sort these artifacts into techno-functional categories. The category of adze, or woodworking tool, defines these tools. Two metavolcanic SEUT specimens were identified at SDI-12,209.

SEUTs were manufactured from thick flake blanks (8.0 centimeters or thicker) and, more commonly, from exhausted cobble cores. SEUTs are plano-convex in cross-section, have steep sides, are almost circular in plan view, are heavy, and most importantly, have strong acute cutting edges. These tools are ideal woodworking tools because they are sharp, weighted, and durable. Brian Hayden's (1979) ethnographic study in Australia, *Paleolithic Reflections,* describes the manufacture and use of SEUTs in extreme detail. Given that the environments of Australia and southern California are very similar, and that wood was essential for prehistoric artifacts, southern California SEUTs most likely were used in a similar manner. This functional interpretation is supported by the fact that these tool categories (SEUTs and adzes) are the same in terms of manufacture, material quality, size, shape, wear patterns, and overall variation.

Additionally, experimentation described by Schroth and Flenniken (1997) supports the use of SEUTs as adzes.

Morphological variation within the SEUT category is, perhaps, the main reason for the numerous scraper, plane, and core categories. However, this variation in size and weight was an important technological consideration for the various tasks required of these tools. With basically the same attributes, except those of size and weight, SEUTs functioned as adzes where different sizes and weights were essential for the different tasks at hand. The most critical attribute in addition to size and weight was an acute, sharp cutting edge. When this edge became dulled during woodworking, the tool was resharpened or rejuvenated by removing flakes from the steep face while employing the plano-surface as a platform.

Flake Tools and Utilized Flakes

Utilized flakes are flakes with a minimal amount or no shaping with modification (if any) generally restricted to the working edge, and often resulting from naturally occurring use-wear. These tools are frequently used for a short period of time, and then discarded. A total of four flake tools/flake tool fragments were identified in the present collection. All of the flake tools identified in the collection are laterally utilized flakes. Laterally utilized flake tools exhibit use or modification along a single lateral margin of the flake from which the tools were produced. In addition, small areas of polish are exhibited on natural arrises on the flake tools suggesting use in a scraping activity. All of the specimens maintain relatively straight edges. Two of the specimens have naturally straight edges while two were modified through edge preparation to bring their working edge into alignment. The angle of the working faces of three of the specimens are relatively low (less than 45 degrees). It is likely that these flake tools were used in a scraping motion for various purposes, including the working of opposing curved surfaces (such as vegetable products), animal materials (such as animal hides), and/or other softer stone. In addition, one specimen maintained a steep working edge. This specimen exhibited small areas of polish on natural arrises suggesting that the flake tool was used to perform an activity that involved scraping with an obtuse edge.

7.3.3 Analysis Summary

Based on the flaked lithic assemblage recovered from SDI-12,209, flintknapping activities within the Citracado Parkway Extension Project APE were limited to primarily the production/rejuvenation of arrow points/small bifaces. The analyzed debitage assemblage from SDI-12,209 provided an example of a site wherein the last stages of biface manufacture occurred. The primary flintknapping activity that occurred at the site was clearly associated with arrow point manufacture. Of the technologically diagnostic flakes present in the assemblage, 85% were biface technology based. Therefore, the primary flintknapping activity that occurred at SDI-12,209 was biface reduction. Selection of nodule core toolstone, nodule core platform

preparation, nodule core decortication and manufacture, and extensive nodule core reduction did not occur within the APE.

Based on the lithic technology identified at those portions of SDI-12,209 located within the APE, these site areas may have served as secondary reduction loci where arrow points were manufactured and retooled. Although a small amount of flake production from metavolcanic, volcanic, and quartz nodules from local sources occurred at the site, it is only a very small portion of the assemblage. Most likely, flake blanks were manufactured off-site, or at other portions of the site not within the boundary of the current project area. The evidence for manufacturing of arrow points suggests that hunting activities may have occurred near the site as well. The presence of flake tools and SEUTs supports non-flintknapping activities. These tools imply possible processing of a range of materials. The identification of angular hammers in the assemblage also supports active ground stone tool use. This is not surprising given the large amount of bedrock milling features situated within the APE and the immediate site vicinity.

Finally, based on the analysis of material frequencies from test units, there appears to be spatial variation in the frequency of material employed for flintknapping across the site. The material analysis indicates that quartz was the preferred toolstone material in the northern portion of the site at Locus 2, and metavolcanic material was more prevalent in the south into Locus 1. This continues to be the pattern as one moves even farther south across Escondido Creek into site SDI-8280. The reason for this patterning is unclear and may be related to access to resources over time or change in material preference over time. As stated previously, this research issue should be explored in more depth.

7.4 Ground Lithic Artifacts

All ground stone materials identified at SDI-12,209 were selected for analysis and interpretation. Ground stone implements/features may include a wide range of objects used for or created by the processes of abrasion, impaction, or polishing (Adams 2002). Often, ground stone tools are associated with the processing/milling of seeds, nuts (i.e., acorns, walnuts, holly leaf cherry), and small mammals. In addition, ethnographic evidence indicates that bone, clay, and pigments may have also been processed with the same tools (Gayton 1929; Kroeber 1925; Spier 1978). Implements or features of this type may be identified by the pattern of wear developed through milling stone against stone. This process often results in a smooth and/or polished surface, depending on the substance ground and the lithic material type. These surfaces were frequently pecked or resharpened when ground too smooth. These implements/features are sometimes shaped into a desired form through pecking, grinding, and/or flaking. Thus, tool identification is based on the presence of ground or smooth surfaces, pecked or resharpened surfaces, and evidence of shaping of the tool form.

7.4.1 Manos

Three manos were recovered as a result of the testing program conducted at SDI-12,209. All three manos were fragmentary granitic cobbles. Each specimen demonstrates evidence of shaping, such as pecking, flaking, and end-battering suggesting extended use. This extended usage and mano curation may imply long-term occupation of the site. There is end-battering present on one of the specimens, and all three exhibit pecked grinding surfaces. The end-battering visible on the one specimen may indicate that the mano was also used as a hammer to sharpen metate grinding surfaces when metate face became too slick to grind. The overall curvature of each mano face is slight, indicating that the opposing milling surface that the manos were ground against (i.e., metate, milling slick) was shallow in form. In addition, the grinding patterns evident on the faces of each mano indicate that the majority of manos are flat manos used primarily in a reciprocal stroke manner in concert with flat metates (Adams 2002). All of the manos collected were thermally damaged to varied degrees. It is likely, given the amount of bedrock milling at SDI-12,209 that the manos present were recycled at the site for use in rock hearth/earth ovens.

7.4.2 Ground Stone Fragments

One unidentified ground stone fragment was recovered during the current study. A ground stone fragment is a piece of a ground stone implement that has some grinding evidence, but lacks any defining attributes that would facilitate tool identification. The small fragment recovered from SDI-12,209 is granitic and thermally damaged.

7.4.3 Bedrock Milling Features

During the current study, the survey of SDI-12,209 identified 57 bedrock milling features that were drawn, photographed, and recorded (Figure 7.4–1). Examples of bedrock milling features at the site are shown in Plates 7.4–1 and 7.4–2, and an element measurement table and illustrations for all bedrock milling features within the site are provided in Appendix B. The recording and subsequent analyses of the 57 bedrock milling features were based on parameters partially defined by Adams (2002) and further refined by Stropes (2006). Traditionally, three basic types of elements on bedrock features have been considered. These milling element types include mortars, basins, and slicks that may occur separately or together in any combination. In total, 57 bedrock milling features were identified in the portions of the site within the project APE. These 57 features contain 523 milling elements including 449 slicks, 45 basins, and ten mortars. In addition, 13 collars and six rubs were also identified. Milling features, unlike metates or portable mortars, provide a unique opportunity to the analyst because they are fixed in space. The presence of bedrock milling features is indicative of precontact subsistence activities on both the individual and group level, providing an anchor point for anthropological investigations into subsistence, social and technological activities performed at or near a given site. The following section provides a brief analysis and discussion of milling

elements by type and the implications of the present milling features for the precontact reconstruction of SDI-12,209.

Milling Slicks, Rubs, and Collars

To date, the milling slick has remained the most enigmatic of all bedrock milling elements. This is likely because of the lack of a large sample of slicks that can be studied as a group. Past studies have included only a small sample of slicks, and have thus failed to produce the amount of data required to develop a better understanding of slick technology. Slicks have been attributed to a wide range of behaviors including basin production, hide processing, proofing clay, processing fibers, and even human wear (created by sitting on a rock and performing other milling activities). However, an analysis of the 449 bedrock milling slicks identified at SDI-12,209 sheds some light on the mystery of the milling slick. When compared to flat metates, milling slicks on milling features are similar in use and form. It is simply the lack of a defined edge that creates problems for the analyst. If a basin metate is analogous to a basin element, then it is probable that the same is true for milling slicks and flat metates. Certainly, this is not the case for all milling slicks, but it is likely the case for most. For the 449 specimens at SDI-12,209, the average length is 33 centimeters and the average width is 26 centimeters. This is nearly a 4:3 ratio for length to width. This measurement falls within the reasonable range of motion for the circular stroke performed during the milling process suggesting that most slicks within the study area operate as a flat metate may have.

The collars present at SDI-12,209 are primarily slick collars. These may have been created through repeated use of a single location moving from a longer grinding stroke to a shorter grinding stroke over time. Alternatively, they may represent moving from a slick to a basin milling technology, or a need for both element types in the milling process employed. This can only be speculation however, as the true nature of milling collars is not clear.

Figure 7.4–1

SDI-12,209 Bedrock Milling Feature Location Map

(In Confidential Appendix; Bound Separately)

Plate 7.4–1, Overview of BMF JJ.

Plate 7.4–2, Overview of BMF P.

Basin Elements

Basin elements on milling features are similar in use and form to basin metates. As defined by Adams (1999), basins are generally manufactured with a semi-circular or elliptical depression. Basins have generally thought to be used in concert with a handheld mano. The depth of a basin may be suggestive of the type of item milled (i.e., dry ground products versus wet ground products). Adams (1999) has demonstrated through replication experiments that dry products may be more easily ground in a deeper basin as it minimizes the amount of flour lost to wind action. The use of the mano itself often removes any evidence of the manufacturing process of milling feature basin elements. No evidence of manufacture was visible on any of the recorded basin elements. This can also create some difficulty when trying to distinguish between basins versus well used (depressed) slicks or elongated mortar holes. A total of 45 basins were identified at SDI-12,209. The majority of basins identified on the milling features across the site are generally shallow (less than three centimeters in depth) with an average length of 27.5 centimeters and an average width of 19.8 centimeters. This is basically a 3:2 ratio for the length and width.

Mortar Elements

Mortar elements are semi-circular to circular holes in bedrock that were either produced through design and manufacture or simply through the process of use. In general, four primary morphologies have been identified for the San Diego region. These forms include conical mortars, oval mortars, saucer mortars, and cupped mortars. It has been suggested that the shape of the bottom of the mortar (i.e. conical or cup-shaped) may relate to the morphology of the pestle. However, unlike metates and manos, this assumption is uncertain because unlike a mano, pestles have been identified ethnographically as being produced from wood. Therefore, it is possible that the morphology of the mortar may relate to function rather than being a result of the impact of its counterpart, the pestle. For the six mortar elements identified at SDI-12,209 no evidence of manufacture was visible on any of the recorded elements. The six mortar elements are all conical mortars. For conical mortars, the average circumference is 19.5 centimeters with an average depth of 6.4 centimeters. In addition, a total of four starter mortars were also identified. Starter mortars are like miniature mortars pecked into the stone, often next to a large mortar. Ethnographically, these have been identified among Western Mono women (Jackson 1991) in California for use in the initial cracking and pulverizing during food processing activity. The initially processed materials are then cleared of detritus and swept into the deeper mortar for final processing. For starter mortars, the average circumference is 19.1 centimeters with an average depth of 3.7 centimeters.

Summary

In total, 57 milling features were identified and recorded for SDI-12,209. On these features, a total of 523 various milling elements were identified. These elements include 449

slicks, 45 basins, and ten mortars. In addition, 13 collars and six rubs were also identified. Features BBB, CCC, JJ, and ZZ are of key importance, as these features contain the largest frequency of elements (see Appendix B). Although the quantity and variety of elements is important, it is their frequency and proximity at a single milling station that presents interesting questions. A single grinding feature/station only allows for or represents the work of a single individual. Multiple elements on a single grinding feature/station suggest that multiple grinders may have worked in concert. This presents a range of possibilities for various kinds of social interaction not evident with the single milling feature. Although it may be argued that a feature with multiple elements may represent overlapping time periods of use, this is not likely the case, as the other cultural elements of SDI-12,209 indicate that the site is a habitation site. Although the presence of multiple grinding stations has been noted both archaeologically and ethnographically, these references are generally made with regards to areas such as the Southwest Culture Area. This is because of the intensive study that milling technology has received in the Southwest. Generally, the ethnographic record for multiple milling stations is in reference to maize grinding, and involves several women working at multiple stations in proximity to one another and at the same time. If this activity is analogous to the prehistoric social constructs of southern California, then these areas may be defined as female activity loci for the present analysis. However, such gender specific data can never be determined for certain. What is clear, based on the present analysis, is that at some level, the communal processing and likely distribution of milling based foods was occurring prehistorically at SDI-12,209.

7.5 Ceramic Analysis

A total of 42 pottery fragments were recovered during the testing program for SDI-12,209. All specimens were included in the study sample. The specimens included 41 highly fragmented body sherds and one rim sherd. Twenty-three of the body specimens were recovered from subsurface excavations while the remainder (including the rim specimen) was recovered from surface collections. Although the single rim sherd was identified, it was too small to make an accurate determination with regards to orientation of vessel mouth or radius of the vessel opening. However, the rim specimen (Cat. No. 231) did appear to be incised with a partial geometric pattern (Plate 7.5-1). A similar incised specimen was also reported as part of the EDAW (Bowden-Renna and Apple 2009) recovery. The specimens were visually analyzed under a microscope to identify specific mineral inclusions and their possible corresponding geologic locales. Results of this analysis indicate that the sherds appear to be Tizon Brown Ware. The manufacturing patterns observed in a small number of the body specimens indicate that coil pattern production methods used on-site in at least a portion of the cermic asssemblage. As Site SDI-12,209 is located inland, the clay was likely obtained from the local foothill and mountain regions of San Diego County.

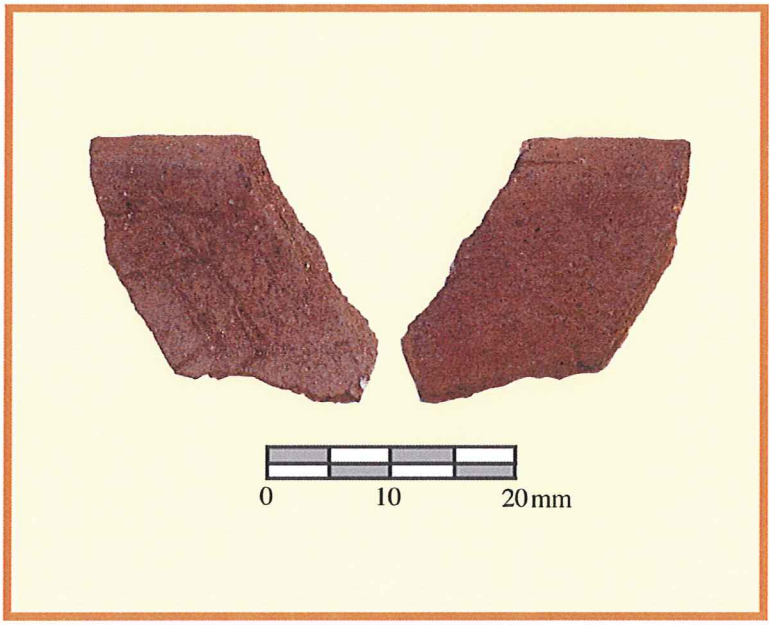

Plate 7.5-1, Photograph of Cat. No. 231, incised ceramic fragment (ventral and dorsal sides)

7.6 Vertebrate Faunal Remains

A total of 46.5 grams of vertebrate faunal remains was recovered from SDI-12,209. The faunal assemblage includes 375 bone fragments, which represent mammals, reptiles, and birds. The only terrestrial animals identified to species were the valley pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi)*, and striped skunk (*Mephetis mephitis*). The only genus identified was *Sylvilagus sp.* (cottontail rabbits and western brush rabbits). The only family identified was Mustelidae (skunks and weasels). The following section details the results of the faunal analysis including methodology, background on the ethnographic uses of animals, taphonomy, and a discussion of species selection, site function, and seasonality. Table 7.6–1 lists the animals identified in the archaeofaunal sample from SDI-12,209. The faunal analysis catalogs are provided in Appendix E.

Table 7.6–1
Vertebrate Faunal Remains Identified at SDI-12,209

Scientific Name	Common Name
Aves	bird
Mammalia	mammal
Mephetis mephetis	striped skunk
Mustelidae	skunk and weasel
Reptilia	reptile
Rodentia	unidentifiable rodents
Spermophilus beecheyi	California ground squirrel
Sylvilagus sp.	rabbit
Thomomys bottae	valley pocket gopher

7.6.1 Methodology

Each bone fragment was identified to the lowest taxonomic category possible: element, side (right or left), portion (e.g., proximal or distal), age (e.g., adult or juvenile), breakage pattern (spiral or angular), and modification (e.g., burning, cut marks, rodent gnawing, or carnivore chewing). Jennifer R. Kraft performed the identifications using comparative faunal collections and references housed in the BFSA laboratory. As with many faunal assemblages from southern California, a significant portion of the bone could not be identified to specific species, genera, or family taxonomic category. Rabbits, for example, were not identified down to species because of the fact that there are two rabbit species common in the San Diego area whose ranges overlap. Both of these animals (*Sylvilagus audubonii* [desert cottontail] and *Sylvilagus bachmani* [western brush rabbit]) are relatively the same size, and without distinctive taxonomic elements it is too difficult to discern between the two (Elbroch 2006; Jameson and Peters 1988). There was no evidence of other rabbit or hare species within the site faunal assemblage.

In many instances, bone fragments were identifiable only to class, and an attempt was made to place these fragments, based on their characteristics, into size categories. For instance,

mammal bone that could only be identified as belonging to a rabbit-sized mammal was placed into a category called small mammal. Likewise, remains from a mammal the size of a coyote was placed into a category designated as medium mammal.

All data were entered into a datasheet, which facilitated quantitative analyses. From these raw data, the relative abundance of taxa and anatomical parts were generated using the Number of Identified Specimens (NISP). Although the NISP is associated with difficulties due to problems concerning interdependence and aggregation of units (Grayson 1984), these quantification schemes were used since they provide a qualitative assessment of taxonomic abundance. The Minimum Number of Individuals (MNI) was not calculated given the relatively low amount of faunal remains that were identifiable to a specific species; the result of which would have been an MNI of basically one for every taxon.

7.6.2 Discussion and Summary of Results by Animal Class

Animals were an important resource to prehistoric peoples of southern California and the procurement of various species often dictated settlement patterns. As archaeologists only have indirect evidence of how various species were hunted and processed, information regarding these activities is often based on regional ethnographic sources collected from Luiseño, Cahuilla, and Kumeyaay Native Americans. The following section discusses the various animals identified in the faunal assemblage from SDI-12,209 and individual species habitat preferences.

The majority of the faunal remains from SDI-12,209 were so small and indistinguishable that they were placed into the appropriate size category of mammal. Unidentifiable small mammal fragments (N = 209, 55.73%) represented the largest portion of the faunal assemblage. Only a very small portion of the assemblage was identifiable to a particular species. Table 7.6–2 summarizes the animals identified at SDI-12,209.

Birds

Collectively, birds comprise less than two percent of the faunal remains recovered from SDI-12,209 (see Table 7.6–2). A total of five bones were identified as bird. Birds, such as ducks, geese, and quails were hunted for food and other birds such as hawks, eagles, and owls, were used for ceremonial purposes. Birds were obtained by using a slip loop, blinding with smoke, catching when cold or wet, or shooting with an arrow (Drucker 1937; Luomala 1978). The bones and feathers from hawks, eagles, condors, and owls had ceremonial significance, but the meat was not eaten (Drucker 1937; Kroeber 1925; Spier 1923). Bird bones were also used to make such items as whistles, and the skins and feathers were used for making arrow shafts, clothing, and blankets (Bean and Shipek 1978; Kroeber 1925).

Table 7.6–2 Vertebrate Faunal Remains by NISP		
Taxon	**Total**	**Percent**
Aves	5	1.33%
Mammal, medium	4	1.07%
Mammal, small	111	29.60%
Mephetis mephetis	1	0.27%
Mustelid	2	0.53%
Rodentia	6	1.60%
Reptilia	4	1.07%
Spermophilus beecheyi	3	0.80%
Sylvilagus sp.	10	2.67%
Thomomys bottae	7	1.87%
Unidentifiable medium mammal	13	3.47%
Unidentifiable small mammal	209	55.73%
Total	375	100.00%

** Rounded totals may not equal 100.00%*

Reptiles

One small reptile vertebra and three turtle carapaces were recovered from SDI-12,209. The vertebra likely represents the remains of a lizard or snake, although the vertebra was too small to determine a specific order. Ethnographically, the consumption of snakes and lizards seems to vary by region. The Cahuilla commonly ate snakes that they prepared by roasting or broiling (Bean 1972), but the Luiseño and Kumeyaay did not commonly eat snakes (Drucker 1937). The turtle shell fragments most likely belong to a pond turtle; however, because of the lack of distinguishing characteristics on the fragments, the elements could not be identified to a specific genus or species.

Small Mammals

Small mammals, representing rodent- to rabbit-sized animals comprise a little more than 93% of the faunal assemblage with a combined NISP of 352 (209 of which were unidentifiable) (see Table 7.6–2). Unidentifiable small mammal fragments and/or rodents and lagomorphs were identified in all units. Fragments that could only be identified to the family genus *Sylvilagus sp.* (N = 10, brush rabbits and cottontail rabbits) were the most common, followed by the valley pocket gopher (*Thomomys bottae*, N = 7), unidentifiable rodents (N = 6), California ground squirrels (*Spermophilus beecheyi*, N = 3), Mustelids (N = 2), and the striped skunk (*Mephetis mephitis*, N = 1). Table 7.6–3 displays the small mammal remains by element.

Unidentifiable long bones (N = 93) and unidentifiable fragments (N = 209) comprise the majority of elements identified in the small mammal assemblage (see Table 7.6–3). Some of the elements (N = 156, 44.82%) identified in this category display evidence of burning, indicating some mammals were used for food. Ethnographic sources indicate that small mammals

Table 7.6–3
Small Mammal Remains by Element

Element	Mammal, Small	*Mephetis mephetis*	Mustelida	Rodentia	*Spermophilus beecheyi*	*Sylvilagus sp.*	*Thomomys bottae*	Total	Percent*
Astragalus	1	0	0	0	0	0	0	1	0.29%
Atlas	1	0	0	0	0	0	0	1	0.29%
Calcaneus	2	0	0	1	0	4	0	7	2.01%
Cranium	2	0	0	0	0	0	0	2	0.57%
Femur	1	0	0	0	1	0	2	4	1.15%
Humerus	0	0	0	0	0	1	2	3	0.86%
Innominate	0	0	0	0	0	0	1	1	0.29%
Long Bone Shaft	93	0	0	0	0	0	0	93	26.72%
Mandible	1	1	0	0	0	2	2	6	1.72%
Maxillae	4	0	2	1	0	1	0	8	2.30%
Metacarpal	1	0	0	0	0	0	0	1	0.29%
Phalange	1	0	0	0	0	0	0	1	0.29%
Ribs	1	0	0	0	0	0	0	1	0.29%
Scapula	1	0	0	0	0	1	0	2	0.57%
Teeth	0	0	0	4	0	0	0	4	1.15%
Tibia/Fibula	1	0	0	0	1	1	0	3	0.86%
Vertebrae	1	0	0	0	0	0	0	1	0.29%
Unidentifiable	209	0	0	0	0	0	0	209	60.05%
Total	320	1	2	6	2	10	7	348	100.00%
Percent*	91.95%	0.29%	0.57%	1.72%	0.57%	2.87%	2.01%	100.00%	

** Rounded totals may not equal 100.00%*

including rodents and lagomorphs were an important part of the prehistoric diet (Beaglehole 1936; Driver 1939; Drucker 1937; Kroeber 1925; Bean 1972; Luomala 1978). Approximately 67% to 76% of the live weight of small mammals is edible (Stahl 1982). Yohe et al. (1991) even found rodent proteins on ground stone tools from southern California suggesting that these implements were used to process the animals. Furthermore, many ethnographic accounts indicate that small mammals were ground to obtain grease (Kroeber 1925; Steward 1941, 1955; Vehik 1977). The observation that 86.78% (N = 302) of the small mammal assemblage is represented by unidentifiable long bone shafts and unidentifiable fragments, in conjunction with

evidence that indicates some of these fragments were burned, suggests that small mammals were used as food and were processed using milling implements.

Methods used to capture small game included snares and traps, bows and arrows, clubs, and direct capture (Bean 1978; Castetter and Bell 1942; Cuero 1991; Kroeber 1925). Burrows and nests were flooded to drive out rodents. Shaped sticks were also poked down burrows and nests to spear prey (Castetter and Underhill 1935). Artifacts supporting these types of hunting practices are rare, as most of the hunting techniques used tools constructed from perishable material. Arrow-type projectile points for capturing small mammals could have been made from fire-hardened wood that is not often preserved in an archaeological context (Castetter and Underhill 1935). According to Underhill (Castetter and Underhill 1935), the procurement of small mammals was not a specialized activity, but one that accompanied other subsistence activities such as the gathering of wild plants. Ceremony and ritual did not accompany the hunting of small game as did the hunting of large game. Because of the fact that there were no restrictions on who could hunt the small game, women and children could capture these animals (Underhill 1939).

Rabbits, in fact, were hunted extensively because of their abundance and availability during all seasons. Communal drives were used to hunt both cottontails and jackrabbits; however, jackrabbits were easier to hunt in this manner because they flee when threatened as opposed to cottontails that prefer to hide (Szuter and Bayham 1991). Communal rabbit drives were very organized and directed by leaders for ritual, social, or purely subsistence activities (Bean 1972). Fire and dogs were occasionally used to drive the animals into nets (Drucker 1937). Ceremony was more often attached to communal drives than individual hunting. Lagomorphs were often also hunted individually using pocket nets, traps, snares, throwing sticks, and rocks (Bean 1972; Castetter and Bell 1942; Castetter and Underhill 1935; Cuero 1991; Drucker 1937; Kroeber 1925; Szuter and Bayham 1991). Magic in the form of fetishes and charms was used for communal and individual hunting. Several different elements of leporids were recovered from SDI-12,209, which indicates that entire animals were brought back to the camps.

Once the animal was captured, the entire carcass was prepared by broiling over hot coals, cooking on a spit over an open fire, or pulverizing using milling tools (Bean 1972; Kroeber 1925). Grinding was done to produce pemmican, a paste made from ground bones. Plant materials, such as berries, were often added to the paste (Spier 1923). Any leftover meat was dried and stored for later consumption. These processing methods would result in faunal assemblages that contain a large number of unidentifiable fragments, as is the case with the SDI-12,209 faunal assemblage. As most of the small mammals in the assemblage were rabbits, hares and rodents, in all likelihood, these fragments also represent the results of food processing. In addition to the use of rabbits for food, clothing and blankets were often made from pelts and ornaments and tools were often made from bones (Kroeber 1925).

A small portion of the small mammal assemblage is likely the result of natural mechanisms. Three *Thomomys bottae* elements were in fact removed from the analysis because of the collagen rich nature of the bone. Collagen in the bone indicates that the animal died relatively recently, as it was not subject to any weathering, burning or any other factors associated with age. These elements are likely from a burrow extending into the test unit area. Burrowing rodents, if they died in their burrows on-site, would likely be represented by all or most elements given that cultural process such as pounding and burning would likely destroy less dense elements (Lyman 1984; Price 1962; Schmitt and Juell 1994). The gophers identified in the assemblage were most likely intrusive.

Medium Mammals

Medium mammals make up a small portion of the assemblage. Many of these bones are most likely carnivores or small deer. Carnivores, such as coyotes and bobcats, typically make up only a small portion of any faunal assemblage in southern California. This is the case at SDI-12,209, as less than 4% (N = 13) of the assemblage contained fragments that were identified as medium mammals. Table 7.6–4 displays the medium mammal remains recovered from the site by element.

Table 7.6–4
Medium Mammal Remains by Element

Element	Quantity	Percent
Long Bone Shaft Fragment	1	5.88%
Phalanx	1	5.88%
Rib	1	5.88%
Tooth	1	5.88%
Unidentifiable	12	70.59%
Total	17	100.00%
Percent	100.00%	

** Rounded totals may not equal 100.00%*

The ethnographic use of carnivores as a food source is debated. The Kumeyaay (Diegueño) and Luiseño, according to Kroeber (1925) and Drucker (1937), did not eat dogs, coyotes, or bears. Bean (1972) claims that carnivores were not usually eaten, but also states that the Cahuilla were rather fond of badgers and considered them very tasty. Additionally, Bean (1972) indicates that the Cahuilla hunted foxes and coyotes for their skins in order to make ceremonial objects. According to Fowler (1995), canids (dogs and coyotes) were eaten only during periods of extreme subsistence stress. Seven of the medium mammal fragments were burned. The evidence would seem to suggest that the occupants of SDI-12,209 used carnivores or small deer for food and/or ceremonial purposes. Of course, there is the possibility that some of the remains could be that of a native domestic dog (*Canis familiaris*). Native dogs were used

for hunting and were fed with fresh meat, but were not eaten because their flesh was considered poisonous to humans (Kroeber 1925).

7.6.3 Taphonomy

Bioturbation, caused by burrowing mammals, is a significant factor affecting the composition of archaeofaunal assemblages in southern California. Gophers and squirrels are responsible for a significant degree of disturbance to sites in San Diego County by churning soil and mixing deposits. Burrowing rodent remains were not that common in the SDI-12,209 assemblage. Rodents, if they died in their burrows on-site, would likely be represented by all or most elements, given that cultural processes, such as pounding and burning, would likely destroy less dense elements (Lyman 1984; Price 1962; Schmitt and Juell 1994). At least some of the gophers identified in the assemblage were most likely intrusive to the assemblage as these rodents are represented by axial elements that display evidence of weathering. No cultural modifications, such as cut marks or evidence of burning, were found on these elements; however, some rodents were likely consumed by the prehistoric inhabitants given the presence of small, burned unidentifiable fragments.

7.6.4 Prehistoric Site Analyses

The types, quantities, and proportions of animals identified in the SDI-12,209 faunal assemblage were compared to one another in order to examine variability between species selection and site activities. Rabbits and rodents were the animals most commonly exploited by the prehistoric inhabitants of the area, although mustelids, birds and possibly deer, carnivores and reptiles were also utilized. Other animals identified in the assemblage, including gophers, were identified as being deposited by natural or non-human agents. Consequently, the following discussion focuses on the animals identified as likely cultural in origin. Table 7.6–5 summarizes the quantities of rabbits, rodents, skunks, reptiles and birds identified at the site that would not have been found in a burrow or show signs of burning.

Species Selection and Site Activities

The uniformity of species found at SDI-12,209 can be linked to several general factors. The first factor reflects the environmental conditions and the economic maximization behavior common to hunter-gatherers (Kelly 1985; Koerper et al. 1986; Winterhalder 1981; Simms 1984). The second factor reflects site function and indicates the types of activities that were undertaken at each site. Environmental conditions shape the animal resources that will be available within a site's catchment area and consequently, are very important in shaping the composition of a faunal assemblage. Based on the recovery of faunal material from SDI-12,209, the environmental conditions during the occupation of these sites were generally similar to historical conditions and consisted of dense brush and grasslands. Rabbits like brushy or chaparral habitats, and dense brush characterizes the habitat in and around SDI-12,209. The valleys and

tops of mesas near the site would have supported a grassland environment during prehistoric times and jackrabbits or hares typically prefer these types of habitats. Birds, mustelids, rodents, small deer and canids can be found in both grassland and brushy habitats.

Table 7.6–5
Summary of Animals Likely Used by the Site Occupants

Taxon	Quantity	Percent*
Aves	5	20%
Mephetis mephetis	1	4%
Reptilia	3	12%
Rodentia	2	8%
Spermophilus beecheyi	1	4%
Sylvilagus sp.	10	40%
Thomomys bottae	3	12%
Total	25	100%
Percent*	100%	

Overall, the faunal samples are generally similar in that rabbits and rodents comprise the majority of the animals identified. The general similarity in the composition of archaeofaunal assemblages from sites in southern California has been attributed to the use of maximization strategies that affect the selection of certain species for food (Koerper et al. 1986). Previous studies have suggested that the ease of capture, population densities, multiple uses for a particular species, and a species tendency for aggregation are all factors that influence the composition of a faunal assemblage (Jochim 1976; Hawkes et al. 1982). The large quantity of rabbits and rodents in the assemblage from the site offers support that hunter-gatherers selected these species in order to maximize their returns for the effort expended. Rabbits, because of their habitats, population densities, and behavior patterns are easy targets for groups with a hunter-gatherer technology, such as that found at SDI-12,209. The dominance of rabbits and rodents from sites with both Archaic and Late Prehistoric components suggests that these animals were significant to prehistoric subsistence.

Ethnographic data indicates animal bone was pounded and pulverized for use in stews, particularly during the winter (James 1990; Jones 1993). In addition, the economic importance of bone fat to past peoples has been demonstrated (Outram 2001; Speth and Spielmann 1983). The use of mammal bones to obtain marrow and grease is represented by the large quantity of long bone shaft and unidentifiable fragments among the mammals. Unidentifiable long bone and unidentifiable fragments comprise the majority of the assemblage, suggesting all nutrients were expended from captured animals. The presence of birds may suggest that these animals were captured and utilized for ceremonial clothing and/or objects; however, the small sample size

detracts from this interpretation. Rabbits, rodents, mustelids and reptiles were identified as cultural in origin as well.

The faunal assemblage lacks large mammals such as deer. The scarcity of large mammals, particularly deer, suggests that these animals were not present in large quantities in the nearby environment, and when they were hunted, albeit infrequently, they were hunted individually rather than in communal hunts.

Site Function

The types of animals represented in a faunal assemblage from an archaeological site often indicate site function. SDI-12,209 contains rabbits and rodents with a minor amount of mustelids, birds and reptiles. The homogeneity of species represented at SDI-12,209 is more characteristic of short-term occupation (Jones 1993). Foraging for immediate consumption results in the introduction of complete animal carcasses into camps and therefore, depending on cultural processes, all skeletal parts have a chance to become part of the archaeological assemblage (Jones 1993). At SDI-12,209, complete carcasses were being brought to camp for butchering and consumption. The observation that long bone shaft and indeterminate fragments dominate the assemblage indicates that occupants of these sites were extracting marrow and grease.

Mammals, birds, and reptiles used for food, utilitarian, and possibly ceremonial purposes were identified at SDI-12,209. Animals used for food include rabbits, rodents, mustelids and reptiles as suggested by the evidence of burning and marrow and grease extraction. Rabbits were used not only for meat, grease, and marrow, but also for their fur and bones (Drucker 1937). Rabbit pelts were made into long capes, robes, and blankets for use during cold weather (Drucker 1937; Kroeber 1925). A large blanket required between 20 and 40 pelts (Byrd and Serr 1993). Additionally, animals possibly associated with ceremonial dress and ornaments, including medium-sized mammals and birds, were present; however, the use of these mammals and birds for food cannot be entirely ruled out, as some of these bone fragments showed evidence of burning and were likely consumed during times of subsistence stress (Fowler 1995).

Seasonality

Evidence used to determine seasonality at SDI-12,209 is limited to the breeding patterns and age of rabbits. The age of rabbits, determined by the ossification and epiphyseal fusion of limb bones, can offer insights into the season in which the individual was captured (Hale 1949). Rabbits have a long breeding season and often have fluctuating beginning and ending dates depending on the availability of food during any particular year; thus, estimation of seasonality can be somewhat imprecise. However, both cottontails and hares breed generally in the winter and spring (Hall 1946; Jameson and Peeters 1988). All of the rabbits in the assemblage with identifiable epiphyses were adults suggesting that rabbit hunting most often took place in the summer and fall before the peak-breeding season. These older individuals had reached the age

when epiphyseal fusion had already taken place and had time to mature prior to being captured. However, there is the possibility that adult lagomorphs were individually hunted during the winter and spring since they were larger and provided more of a return than smaller juvenile lagomorphs.

7.6.5 Summary

The faunal remains from SDI-12,209 are generally homogeneous and indicate a reliance on terrestrial animals. Several animals, including rabbits, rodents, birds, reptiles and mustelids were identified in the archaeofaunal assemblage. Nearly all of the species identified would have been available for exploitation in chaparral or grassland habitats near the site. The abundance of rabbits and rodents suggests that grassland and brushy habitats were located near the site and that the prehistoric environment was generally similar to the modern environment. Gophers were also identified at SDI-12,209; however, most of these animals were considered intrusive to the prehistoric faunal assemblage.

The faunal remains from this site indicate that rabbits and other small mammals were the primary animal resources exploited, and their presence at multi-component Archaic and Late Prehistoric sites suggests that these terrestrial resources were very important to the subsistence regimen throughout prehistory. The animal remains represented suggest the site functioned as a temporary camp. The homogeneous nature of the assemblage, the presence of low-utility elements that are typically discarded at butchering sites, and the representation of nearly all elements for small mammals would suggest that entire carcasses were brought back to the camps for butchering and that the animal remains were deposited very near where they were processed. The large quantity of unidentifiable long bone shafts and unidentifiable fragments recovered indicates that marrow and grease extraction activities were occurring at the site. Evidence for season of occupation was generally limited; however, summer and fall were potentially represented by the rabbits.

7.7 Invertebrate Faunal Remains

Two pieces of marine shell, totaling 1.95 grams in weight were recovered during the current study. The recovered shell was either too small or weathered to allow for identification. Shell was recovered from the zero- to 10-centimeter level of STP 24 and from the site surface of Locus 1.

7.8 Miscellaneous Artifacts

Miscellaneous artifacts represent cultural material that is set apart from any of the major analysis categories identified at a given site. For SDI-12,209, the miscellaneous artifacts recovered include a polished quartz crystal collected from the site surface. A description of the recovered artifact is provided below.

Quartz Crystal

A single quartz crystal (Cat. No. 386) was recovered from the surface of SDI-12,209. The quartz crystal specimen is relatively small (<10 millimeters in length) and displays no evidence of hafting. Several of the arises on the specimen appear to be worn or abraded. Many quartz crystals were thought to have magical powers (Sparkman 1908), and were ethnohistorically known to be hafted on the ends of ornate wooden, wand-like objects known as shamans' wands as described by Kroeber (1925). However, because of the small size of the specimen, it is unlikely that this quartz crystal served such a function. The use of this specimen is undetermined.

7.9 Human Remains

The excavations conducted by EDAW (Bowden-Renna and Apple 2009) recovered seven bone fragments identified as human. One tooth fragment was identified by Arion Mayes, Ph.D., at the Department of Anthropology at San Diego State University. The remaining six fragments were identified by Patricia Mitchell in concurrence with Tori Heflin, Curator of Physical Anthropology at the San Diego Museum of Man. All seven fragments were recovered from EDAW's Unit 1 (see Figure 7.2–1). The remains were reported as displaced fragments from an unknown burial.

The skeletal remains identified include two cranium fragments, three rib fragments and two teeth fragments. The rib fragments were identified to possibly the eighth, ninth, or tenth ribs. One cranium and one tooth fragment were recovered from the zero- to 10-centimeter level, one cranium and two rib fragments were recovered from the 30-40-centimeter level; and, two teeth fragments were recovered from the 40-50-centimeter level. All fragments, with the exception of the tooth enamel fragment, exhibit some degree of burning. One cranium fragment was calcined, but did not exhibit signs of shrinking, warping or cracking. It is likely there was no soft tissue present at the time the fragment was exposed to an open flame. The remaining fragments exhibit either brown or black discoloration. The skeletal fragments were reported to lack morphological features that would have allowed any insight into age or sex of the individual. The skeletal fragments were reported as possibly originating from a disturbed burial and representing a secondary deposit. The primary deposit was not determined by EDAW (Bowden-Renna and Apple 2009).

7.10 Pictograph Feature

The single pictograph panel is located within Locus 1 of SDI-12,209 just outside of the eastern edge of the APE. A series of photographs were taken to record the panel. Using the decorrelation stretch method of digitally enhancing visual records of the pictograph from SDI-12,209, the elements present on the pictograph panel were more readily distinguished.

The images represented on Pictograph 1 consist of a geometric design of red pigment likely aplied with mineral pigment employed much like a crayon. The design measures 1.6

meters in heighth by 1.0 meter in width, but is very faint. Although the panel is highly weathered, digital photographic enhancement of Pictograph 1 revealed design elements associated with the Rancho Bernardo style (Hedges 1979) (Plate 7.10–1).

The large maze glyph present on Pictograph 1 is common to the Rancho Bernardo style defined by Hedges (1979). This style is characterized by large geometric panels, especially maze patterns, often painted in red. These panels frequently are rectangular in shape and maintain rectangular borders. The panel also includes interconnecting bar glyphs across the top as well as interconnecting (possibly sun related) circular glyphs on the side. Although the timeframe for this style is unclear, when present with the San Luis Rey style of pictographs on the same panel, the Rancho Bernardo style of imagery is older (Hedges and Hamann 1987). The Rancho Bernardo style is believed to overlap both Northern Diegueño (Kumeyaay) and Luiseño territories.

Plate 7.10–1, Digitally enhanced photograph of pictograph at Site SDI-12,209.

7.11 Obsidian Source Analysis

Three obsidian flakes were submitted to the Geochemical Research Laboratory to determine the geographical source of this rock material. Since obsidian does not occur in San Diego, prehistoric populations had to trade for this material. Sources of this material can indicate the aboriginal groups trading the obsidian and also suggest the general time frame. All three obsidian flakes from SDI-12,209 were sourced to the Obsidian Butte quarry in Imperial Valley. Because this source was available primarily during the late prehistoric period, and was traded by Luiseño-speaking people between the desert and the coast principally over the past 1500 years

7.12 Radiocarbon Dating Analysis (from Bowden-Renna and Apple 2009)

A sample of charcoal from EDAW's Unit 1, 40-50-centimeter level, was submitted to Beta Analytic, Inc. for radiocarbon analysis (Beta-258008). The sample returned a conventional date of 200 ± 40 BP. The sample was calibrated at 2-sigma and returned the dates 1640 to 1700 AD and 1920 to 1950 AD.

7.13 Discusssion

The initial surface investigations within the project APE identified 57 bedrock milling features, a surface scatter of artifacts, and two distinct site loci at SDI-12,209. The shovel tests and test units excavated at Site SDI-12,209 within the APE identified the presence of an intact associated subsurface deposit. By employing the combined STP excavation data from the current excavations and the 2008 EDAW excavations (Bowden-Renna and Apple 2009), the existance of two distinct loci were verified. Seventeen of the current 25 shovel tests were positive for cultural material to a maximum depth of 90 centimeters. The three current test units ranged in depth from 70-90 centimeters. In total, the current study recovered 12 bifaces, five projectile points, one drill, three flake tools, one utilized flake, two angular hammers, one flake from an angular hammer, two SEUTS, four cores, 2686 debitage, three manos, one unidentifiable ground stone fragment, one crystal, 42 pottery fragments, two FAR, 46.4 grams of bone, 1.95 grams of shell, and one historic ceramic fragment.

Site SDI-12,209 Locus 1 is interpreted as a habitation site, with subsistence practices primarily focused on floral food resource extraction and processing, and hunting of animals such as rabbit. Given the high number of arrow points and point production waste, flake stone technology at the site appears to be oriented to the production and maintenance of arrow points, as reflected in both the technological trajectory of the debitage and the presence of arrow points. The presences of ceramics, arrow points, and pictographs identified at SDI-12,209 suggest late prehistoric occupation of the site.

Based on the analyzed assemblage, Site SDI-12,209 Locus 2 is interpreted as a secondary lithic reduction locus. This portion of the site contains primarily lithic materials resulting from the production of arrow points, and appears to be oriented only to the production and

maintenance of arrow points, as reflected in both the technological trajectory of the debitage and the presence of arrow points. Additionally, there appears to be a variation in the frequency of lithic material employed for arrow point manufacture between Locus 1 and Locus 2. The material analysis indicates that quartz was the preferred material in the northern portion of the site at Locus 2, while metavolcanic materials were more common at Locus 1. The reason for this patterning is unclear and may be related to access to resources over time or change in material preference over time. Regardless, this research issue should be explored in more depth in future studies for SDI-12,209.

7.14 Summary

The investigation of the portions of Site SDI-12,209 located within the Citracado Parkway Extension Project APE identified surface artifacts, 57 bedrock milling features, one subsurface feature, and the presence of an intact subsurface deposit. The bedrock milling features, lithic tools, and pottery present at the site indicate that activities at this location were focused on floral resource processing and arrow point manufacture and maintenance. Subsistence at the site appears to have been based on an intense reliance on botanical and faunal resources for a larger populous. In addition, the lithic artifacts recovered from the test units and several of the STPs suggest the potential for buried features. A late prehistoric occupation of the site is suggested by the presence of pottery, arrow points, and pictographs. Excavations by EDAW (Bowden-Renna and Apple 2009) also identified the presence of human remains.

The present study indicates that approximately 6157 square meters of SDI-12,209 Locus 1 and 3751 square meters of Locus 2 will be impacted by the present development. Because the testing and evaluation program identified an intact subsurface deposit, the site is considered to have additional research potential. Therefore, Site SDI-12,209 is considered an important cultural resource according to the criteria listed in CEQA, Section 15064.5, and any impacts to the cultural resource will be considered significant.

8.0 SIGNIFICANCE EVALUATION, IMPACT ANALYSIS, AND MITIGATION MEASURES

8.1 Evaluation Criteria

The cultural resources tested within the project APE were evaluated according to the criteria presented in Section 15064.5 of the California Environmental Quality Act (CEQA), the environmental guidelines of the City of Escondido, and the County of San Diego's *Guidelines for Determining Significance — Cultural Resources*. Because the project currently spans both City and County land (City of Escondido property on the south and County of San Diego jurisdiction on the north), multiple sets of evaluation criteria will be incorporated into the site evaluations. The characteristic that was consistently cited for the sites evaluated as significant was the potential to produce additional information that would be applicable to numerous regionally important research topics. Both of the prehistoric sites (SDI-8280 and SDI-12,209) contain a wide spectrum of feature types, ceremonial areas, cultural deposits, or elements of the material culture that represent a focused occupation by sizeable populations for many centuries.

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of San Diego County in history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance. Specifically, criteria outlined in CEQA, the City of Escondido environmental guidelines, and the San Diego County Local Register provide the guidance for making such a determination. The following sections detail the criteria that a resource must meet in order to be determined important.

- ***California Environmental Quality Act (CEQA)***

According to CEQA (§15064.5a), the term "historical resource" includes the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code §S5024.1, Title 14 CCR. Section 4850 et seq.).
2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social,

political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code §S5024.1, Title 14, Section 4852) including the following:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
b) Is associated with the lives of persons important in our past;
c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
d) Has yielded, or may be likely to yield, information important in prehistory or history.

4) The fact that a resource is not listed in, or determined eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1.

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change as:

1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
2) The significance of an historical resource is materially impaired when a project:
    a) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or,
    b) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey

meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or,

c) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects on archaeological sites and contains the following additional provisions regarding archaeological sites:

1. When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).
2. If a lead agency determines that the archaeological site is an historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, Section 15126.4 of the Guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.
3. If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21803.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
4. If an archaeological resource is neither a unique archaeological nor historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) & (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

(d) When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage

Commission as provided in Public Resources Code §S5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the Native American Heritage Commission. Action implementing such an agreement is exempt from:

1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5)
2) The requirement of CEQA and the Coastal Act.

- ***San Diego County Local Register of Historical Resources (Local Register)***

The County requires that resource importance be assessed not only at the State level as required by CEQA, but at the local level as well. If a resource meets any one of the following criteria as outlined in the Local Register, it will be considered an important resource:

1) Is associated with events that have made a significant contribution to the broad patterns of San Diego County's history and cultural heritage;
2) Is associated with the lives of persons important to the history of San Diego or its communities;
3) Embodies the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4) Has yielded, or may be likely to yield, information important in prehistory or history.

- ***San Diego County Guidelines for Determining Significance–Cultural Resources***

The County of San Diego's criteria for determining cultural resource significance (section 3.2.2) is provided below:

A number of criteria are used in identifying significant historic/archaeological resources and are based upon the criteria for inclusion in the San Diego County Local Register. Significance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustration or interpreting the heritage of San Diego County in history, architecture, archaeology, engineering, and culture.

The San Diego County Local Register was modeled after the California Register. As such, a cultural resource is determined significant if the resource is listed in, or determined to be eligible for listing in the National Register of Historic Places, the California Register of Historical Resources, of the San Diego County Local Register of Historical Resources.

Any resource that is significant at the National or State level is by definition significant at the local level.

The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources; or is not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or is not identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that a resource may be historical as defined in Public Resources Code section 5020.1(j) or 5024.1.

The following criteria must be considered when evaluating a resource's importance. The first four criteria were derived from the significance criteria found in the California Environmental Quality Act and the San Diego County Local Register of Historical Resources (Ordinance No.9493; San Diego County Administrative Code §396.7). The San Diego County Local Register is similar to both the National Register and California Register but is different in that significance is evaluated at the local level.

1) Resources associated with events that have made a significant contribution to the broad patterns of California or San Diego County's history and cultural heritage. Examples include resources associated with the Battle of San Pasqual (Mexican-American War, 1846), or gold mining in the Julian area (1870s), or a Kumeyaay settlement in the Cuyamaca Valley. Each of these resources would be considered significant because it is associated with an event that has made a significant contribution to the broad patterns of San Diego County's history and cultural heritage.

2) Resources associated with the lives of persons important to our past, including the history of San Diego County or its communities. Resources that are associated with the life of George W. Marston (Benefactor/Merchant/Civic Leader), Kate Sessions (Horticulturalist), John D. Spreckles (Investor/Developer), Ellen Browning Scripps (Philanthropist), Ah Quin (Chinese Merchant/Labor/Contractor), Manuel O. Medina (Pioneer of the Tuna Industry), Jose Manuel Polton (Hatam [Kumeyaay Captain of the Florida Canyon Village]), or Jose Pedro Panto (Kumeyaay Captain of the San Pasqual Pueblo) illustrates this criteria because this list identifies examples of individuals that are important to the history of San Diego or its communities.

3) Resources that embody the distinctive characteristics of a type, period, region (San Diego County), or method of construction, or represents the work of an important creative individual, or possesses high artistic values. Resources representing the

work of William Templeton Johnson (Architect – Balboa Park, Serra Museum), Irving Gill (Architect – Bishop's School), Lilian Rice (Rancho Santa Fe), or Hazel Waterman (Designer – Estudillo Adobe Restoration) would be considered significant because they represent the work of an important creative individual; or if a resource is identified as a Queen Anne, Mission Revival, Craftsman, Spanish Colonial, or Western Ranch Style structure, it would be significant because it embodies the distinctive characteristics of a type or period.

4) Resources that have yielded or may be likely to yield, information important in prehistory or history. Most archaeological resources contain information; however, the amount of information varies from resource to resource. For example, a small lithic scatter will contain information, but it will be on a much more limited basis than that of a village or camp site. The information may be captured during initial recordation and testing of the site or may require a full data recovery program or additional treatment/mitigation. **Any site that yields information or has the potential to yield information is considered a significant site**. Most resources will be considered significant because they contain some information that contributes to our knowledge of history or prehistory. The criteria used to evaluate a single resource is the same criteria used to evaluate cumulative impacts to multiple resources outside the boundary of a project.

5) Although districts typically will fall into one of the above four categories, because they are not specifically identified, the following criterion is included which was obtained from the National Register:

   Districts are significant resources if they are composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition, but collectively compose an entity of exceptional historical or artistic significance, or outstandingly commemorate or illustrate a way of life or culture. A traditional cultural landscape is an example of a prehistoric district because individual sites must be considered within the broader context of their association with one another.

6) Resource Protection Ordinance. Cultural resources must be evaluated for both the California Environmental Quality Act as outlined in criteria 1-4 above and the Resource Protection Ordinance pursuant to Section 2 of the ordinance. Under the Resource Protection Ordinance, cultural resources are considered "RPO" significant if they meet the definition of a RPO "Significant Prehistoric or Historic Site," as set forth in Section 3.1 above.

7) Human remains are considered "highly sensitive" by the County. As such, human remains require special consideration and treatment. Regulations require that if human remains are discovered, the County Coroner shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposal of the remains. This criterion was included pursuant to the California Environmental Quality Act (§ 15064.5) and California State Code (PRC5097.98 and HSC7050.5). As such, a resource shall be considered significant if it contains any human remains interred outside of a formal cemetery. Mitigation measures will be developed on a case-by-case basis by the Consulting Archaeologist. In addition, it is of the utmost importance to tribes that human remains be avoided whenever feasible.

8) Integrity is the authenticity of a resource's physical identity evidenced by the survival of characteristics that existed during the resource period of significance. The evaluation of integrity is somewhat of a subjective judgment, but it must always be grounded in an understanding of a property's physical features and how they relate to its historical associations or attributes and context. Resources must retain enough of their historical character or appearance to be recognizable as historical resources and to convey the reasons for their significance. An evaluation of integrity is an essential part of determining significance for historical resources such as building, structures, and districts.

   Integrity is evaluated through the assessment of a cultural resource's attributes, and may include location, design, setting, materials, workmanship, feeling, and association. It must be judged with reference to the particular criteria under which a resource is proposed for eligibility (structural, architectural, artistic, historic location, archaeological site, historic district). Alterations over time to a resource or historic changes in its use may themselves have historical, cultural, or architectural significance.

   Attributes – Attributes are those distinctive features that characterize a resource. They should be evaluated and compared to other properties of its type, period, or method of construction.

   Location – Location is the place where the property was constructed or the place where the historical event occurred. The actual location of an historical property, complemented by its setting, it particularly important in recapturing the sense of historical events and persons.

Design – Design is the combination of elements that create the historical form, plan, space, structure, and style of a property. This includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials. Design can also apply to districts and to the historical way in which the buildings, sites, and structures are related. Examples include spatial relationships between major features; visual rhythms in a streetscape or landscape plantings; the layout and materials of walkways and roads; and the relationship of other features, such as statues, water fountains, and archaeological sites.

Setting – Setting is the physical environment of an historical property. It refers to the historical character of the place in which the property played its historical role. It involves how, not just where, the property is situated and its historical relationship to surrounding features and open space. The physical features that constitute the historical setting of a historical property can be either natural or manmade and include such elements as topographical features, vegetation, simple manmade paths or fences and the relationships between buildings and other features or open spaces.

Materials – Materials are the physical elements that were present during the development period and are still present or, if materials have been replaced, the replacements(s) must have been based on the original. The property must be an actual historical resource, not a re-creation. For example, a Victorian style wood-frame dwelling that has been covered with reconstructed stucco has lost its integrity of materials. Conversely, an adobe wall that has been reconstructed with similar adobe mud, as opposed to adobe-simulate concrete, would retain its integrity of materials.

Workmanship – Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history. It is the evidence of the artisans' labor and skill in constructing or altering a building, structure, object, or site. It may be expressed in vernacular methods of construction and plain finishes or in highly sophisticated configurations and ornamental detailing. Examples of workmanship in historic buildings include tooling, carving, painting, graining, turning, and joinery. Examples of workmanship in precontact contexts include pottery, stone tools, basketry, rock art, bedrock milling, and stone structures.

To assess integrity one must:

- Define essential features that must be present to a high degree for a property to represent its significance;

- Determine whether the essential physical features are apparent enough to convey the property's significance; and
- Compare the property with similar properties in the locally significant theme.

A property that is significant for its historical association should retain the essential physical features that made up its character or appearance during the period of its association with the important event, historical pattern, or person(s). If the property is a site where there are no material cultural remains, such as a battlefield, the setting must be intact. If the historical building associated with the event, pattern, or person no longer exists, the property has lost its historical integrity.

A property important for illustrating a particular architectural style or construction technique must retain the physical features that constitute that style or technique. A property that has lost some historical materials or details can be considered if it retains the majority of features that illustrate its style in terms of the massing, spatial relationships, proportion, pattern of windows and doors, texture of materials, and ornamentation. A property should not be considered if it retains some basic features conveying massing, but has lost the majority of the features that once characterized its style. Normally changes to a structure that are reversible will not affect integrity because they will be less than significant.

Properties being considered for the first five criteria above must not only retain the essential physical features, but the features must be visible enough to convey their significance and historical identity. This means that even if a property is physically intact, its integrity is questionable if its significant features are concealed under modern construction. Archaeological properties are the exception to this – by nature they may not require visible features to convey their significance.

- ***City of Escondido Guidelines***

The City of Escondido (City) cultural resources evaluation criteria follow CEQA and state that effects of a project are considered to be significant if the proposed project would:

a. Cause substantiated adverse change in the significance of a historic resource as defined in Section 15064.5;
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
c. Disturb any human remains, including those interred outside of formal cemeteries.

8.2 Significance Evaluation Summary

The proposed Citracado Parkway Extension Project proposes to extend and improve Citracado Parkway from West Valley Parkway to Andreasen Drive. In addition, the project will include the construction of an entrance road to the maintenance yard at HARRF. The cultural resource study for this project included evaluation of two archaeological sites designated as SDI-8280 and SDI-12,209. In accordance with CEQA, the City and County guidelines and significance evaluation criteria, the sites were evaluated for significance and the effects of the proposed project on the sites.

8.2.1 Project Assessment

One seasonal camp site (SDI-8280) and one habitation site (SDI-12,209) were identified within the proposed Citracado Parkway Extension Project APE. Both sites can be considered as components of a larger village complex surrounding Escondido Creek. Site SDI-8280 is located in the south portion of the project area and Site SDI-12,209 is located in the north-central (Locus 1) to north (Locus 2) portion of the project area. The prehistoric sites are interpreted as Late Prehistoric Period occupation sites. Each of the sites has associated pictograph features.

The analysis of the archaeological information recovered during the testing programs at the two sites indicates that both sites have significant subsurface deposits, large quantities of bedrock milling, and associated pictograph loci, and therefore, have the potential to further answer questions related to the understanding of prehistory and history for the region, state, and/or nation (CEQA: Criterion 3).

SDI-8280

Site SDI-8280 on the south side of the alignment would be affected by the proposed project. Archaeological studies at SDI-8280 have identified significant cultural deposits and features. Studies have identified the significant areas of the site on the hilltops that overlook Escondido Creek to the north. The subsurface excavations at SDI-8280 identified areas containing deposits between 10 and 80 centimeters, with a range of artifacts signifying an occupation during the Late Prehistoric Period. The areas of Locus 1 and Locus 2 that contain significant deposits are situated outside of the Citracado Parkway Extension alignment. The site contains two faded pictographs, which have been recorded and mapped. These pictograph features fall outside of the APE for the Citracado Parkway Extension Project. Because the alignment of Citracado Parkway will pass through the swale between hills on the east and west sides of the alignment, the road footprint will miss the major subsurface deposits recorded on the hilltops within Locus 1 and Locus 2 (Figure 8.2–1). While many tests within the alignment recovered artifacts, these recoveries were typically sparse and generally reflected marginal or peripheral areas outside of the main activity areas (and the associated significant cultural deposits) on the higher elevations.

Direct impacts from the planned Citracado Parkway Extension Project will affect 11,915 square meters of SDI-8280. Approximately 1,686 square meters of SDI-8280 Locus 1, 438 square meters of Locus 2, 1,458 square meters of Locus 3, and 980 square meters of Locus 4 will be impacted by the construction of the Citracado Parkway Extension (see Figure 8.2–1). However, of this total direct impact area of 11,915 square meters, none of the areas identified as containing significant deposits or pictographs will be directly affected by the project. Direct impacts to the 11,915 square meters of SDI-8280 that have been identified as not significant under CEQA criteria will represent non-significant impacts. Based on data from various studies of SDI-8280, particularly the 2006 BFSA study for the Harmony Grove Village Project (Gilbert et al. 2006), the site is considered to be significant under CEQA criteria. Given the presence of clearly definable rock art and the overall data potential for the site, it is eligible under CEQA Criterion 1 and Criterion 3. Not all areas within the site share the cultural elements that contribute to the significance evaluation of the overall site. From the perspective of addressing impacts, the area to be impacted by the project is evaluated as not significant. Site SDI-8280 is located within the boundary of the City of Escondido, and based upon the City's implementation of CEQA and the City's environmental guidelines, the site is important under City and CEQA criteria. However, the portions of Loci 1, 2, 3, and 4 that will be impacted do not contain important deposits, and the impacts will not be significant. The significant pictographs at Locus 1 will not be directly impacted by the project. Based upon the conclusion that significant elements of SDI-8280 will not be affected by the project measures to mitigation direct impacts will not be required.

The project does, however, represent potential indirect impacts to the significant pictographs at Locus 1 of SDI-8280. During construction, the alignment will pass within eight feet of the southern pictograph boulder at Locus 1. Because of the proximity of the construction work, measures will be required during construction to secure and shield the boulder from dust and debris generated by grading and blasting. These protective measures are listed in Section 8.4 (Mitigation Measures). The significant deposits at SDI-8280 that are located outside of the APE will be protected by construction fencing and monitoring of grading by archaeologists.

Figure 8.2–1

SDI-8280 Impact Analysis Map

(In Confidential Appendix; Bound Separately)

SDI-12,209

Site SDI-12,209 is the larger and more complex of the two cultural resources within the project APE. The survey and testing program conducted at SDI-12,209 identified significant cultural deposits and features within both of the loci identified at the site. In addition, human remains were also recovered from the site. Therefore, based on the testing data, the site (notably portions of Locus 1 and Locus 2) is considered to be significant under CEQA criteria. Given the presence of clearly definable rock art and the overall data potential for the site, it is eligible under CEQA Criterion 1 and Criterion 3. The subsurface excavations conducted at Locus 1 and Locus 2 identified areas containing deposits up to 90 centimeters in depth, with a range of artifacts signifying an occupation during the Late Prehistoric Period. The site contains a single pictograph just outside of the APE, which may be subject to indirect impacts.

Impacts associated with the extension of Citracado Parkway include direct impacts to approximately 20,554 square meters of SDI-12,209 (Figure 8.2–2). The testing program at SDI-12,209 defined areas of significant research potential, as well as areas that do not retain any significant features or deposits. Areas that will be directly impacted, and which have been identified as significant include 6,157 square meters of SDI-12,209 Locus 1 and 3,751 square meters of Locus 2 (see Figure 8.2-2). Based on the proposed alignment, significant portions of SDI-12,209 Locus 1 and Locus 2 will be directly impacted including multiple bedrock milling features, core site areas, and potentially human remains. The pictograph at Locus 1 is located outside of the direct impact area of the road alignment; however, indirect impacts from large earth moving equipment, blasting, chemicals, increased traffic, and dust should be considered. Because impacts to the site will be significant, measures to mitigate impacts will be required.

8.3 Impact Summary

Sites SDI-8280 and SDI-12,209 contain significant cultural components; however, the project will affect significant deposits only at SD-12,209. The direct impacts associated with the road construction project to the archaeological sites are unavoidable, and in the case of SDI-12,209, significant. Indirect impacts may also be considered adverse to cultural sites adjacent to the project APE. Measures to mitigate impacts to SDI-8280 (indirect impacts) and SDI-12,209 (direct and indirect impacts) will be required as part of project approval (Table 8.3–1).

Figure 8.2–2

SDI-12,209 Impact Analysis Map

(In Confidential Appendix; Bound Separately)

Table 8.3–1 Summary of Site Significance Evaluation and Potential Impacts				
Site	**Significant within the Citracado Parkway APE**	**Potential Impacts**		**Mitigation**
		Direct Impacts	**Indirect Impacts**	
SDI-8280				
Locus 1	No	Yes – Not Significant	Potential	Preservation
Locus 2	No	Yes - Not Significant	No	None
Locus 3	No	Yes - Not Significant	No	None
Locus 4	No	Yes - Not Significant	No	None
SDI-12,209				
Locus 1	Yes	Yes - Significant	Potential	Data Recovery
Locus 2	Yes	Yes - Significant	No	Data Recovery

Where possible, impacts to significant cultural resources should be avoided through project redesign. In the case of the Citracado Parkway Extension, the overriding fact that this project is connecting two fixed points of existing ends of Citracado Parkway leaves only minimal opportunities to adjust the alignment and avoid direct impacts to significant cultural resources. As complete avoidance of the cultural resource sites cannot be accomplished through project redesign, measures to mitigate impacts must include a data recovery program and preservation. The data recovery program at SDI-12,209 can achieve mitigation by exhausting the research potential of the site through excavation of a statistically valid sample of the cultural deposits. The data recovery program will be guided by a detailed research design that will present: 1) the research topics represented at the site; 2) the sampling strategy required to exhaust the research potential of the site; and, 3) the methods and protocols to be implemented. The data recovery program will include the participation of local Luiseño and Kumeyaay Native American representatives. Native American monitors will be present during all field operations associated with the data recovery program. Preservation as mitigation of indirect impacts at SDI-8280 can be accomplished by open space easements or land transfer to a land conservancy.

8.4 Mitigation Measures

The following mitigation measures are recommended to reduce the significant potential impacts to prehistoric sites within the Project area. Because the resources to be affected represent important sites to local Native American tribes, tribal representatives will be included in the mitigation program. As a matter of record, the two points of contact for Native American tribes associated with this project will be the Kumeyaay Cultural Repatriation Committee (KCRC) for the Kumeyaay and Carmen Mojado (Luiseño) for the San Luis Rey Band. The KCRC and Carmen Mojado have previously been designated as Most Likely Descendent

(MLD[s]) for this project and should continue in this role and as representatives of the two Native American tribes that claim the project area as part of their traditional cultural territory. Throughout the mitigation monitoring program, the MLDs may designate other Native American tribal members to represent tribal interests. For the purposes of this mitigation discussion, the term "MLD" will be used to define the tribal representatives charged with the responsibility of determining the treatment of human remains and facilitating the monitoring of the archaeological data recovery program and grading.

MM-CR-1: Human Remains Encountered within the Construction Zone

MM-CR-1.1: In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, protocols and procedures noted in the Public Resources Code Section 5097.98, the California Government Code Section 27491, the Health and Safety Code Section 7050.5, and the County of San Diego Historical Resources Guidelines for the treatment of human remains encountered at archaeological sites will be followed. The City of Escondido will prepare and submit to the Tribes for their review and comments a Pre-Excavation Agreement that is intended to outline the procedures and protocol to be followed in the event human remains are identified. This agreement is not a mandatory precursor to the implementation of the mitigation and monitoring program; however, the City is committed to the proper treatment of any human remains that may be encountered, and will make the necessary effort to implement the Pre-Excavation Agreement. The procedures listed below shall be followed where human remains are encountered:

A. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

   a. A City Official is contacted.

   b. The Coroner is contacted to determine that no investigation of the cause of death is required, and

   c. If the Coroner determines the remains are Native American:

      i. The Coroner shall contact the Native American Heritage Commission (Commission) within 24 hours.

      ii. The Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. Previous discoveries of human remains on this project resulted in the NAHC identifying two MLDs, the KCRC for the Kumeyaay and Carmen Mojado for the San Luis Rey (Luiseño). It is reasonable to assume that the MLDs will continue in that role for the duration of the project.

iii. The Most Likely Descendent (MLD) may make recommendations to the landowner or the City for the excavation work.

B. The Native American human remains and associated funerary items that are removed from the Project APE may be reburied at a location mutually agreed upon by the City and the MLD(s). A portion of a City-owned parcel has been designated by the City as a location where human remains can be reburied and preserved. An open space easement will be placed over this lot within City-owned property adjacent to the Citracado Parkway Project. This easement will be permanent and will protect all cultural materials within the easement indefinitely. If reinterment of human remains cannot be accomplished at the time of discovery, the MLD(s) shall either take temporary possession of the remains or identify a location for the temporary but secure storage of the remains.

C. Any time human remains are encountered or suspected and soil conditions are appropriate for the technique, the use of canine forensics will be considered when searching for human remains. The decision to use canine forensics will be made on a case-by-case basis through consultation between the City representative, the Consulting Archaeologist (defined as the individual charged with the responsibility of implementing the Mitigation Monitoring and Reporting Program and directing field excavations), and the MLD(s). Because human remains require special consideration and handling, they must be defined in a broad sense. For the purposes of this document, human remains are defined as:

   a. Cremations including the soil surrounding the deposit,

   b. Interments including the soil surrounding the deposit, or

   c. Associated funerary items.

MM-CR-1.2: In consultation with the City representative, the Consulting Archaeologist, and the MLD, additional measures, such as focused archaeological excavations, may be required to determine the extent of burials or ensure the recovery of all elements of the burial.

MM-CR-2: Disposition of Human Remains

The majority of Locus 1 of SDI-8280 is situated outside of the Project's APE and is located on property owned by the City of Escondido. To ensure the preservation of the significant pictographs recorded at SDI-8280 and located adjacent to the APE (and within the City's ownership), the City shall delineate an area for preservation that encompasses the pictographs (Figure 8.4-1). Furthermore, because of the high potential to recover additional human remains or sensitive artifacts associated with sacred, religious, or ceremonial components of the material

cultural of the prehistoric occupants of these sites, the City shall also identify this preservation area within Locus 1 of SDI-8280 as a location for the repatriation and reburial of such sacred, religious, or ceremonial artifacts or human remains identified by the MLD(s) as appropriate for reburial.

The preservation area within Locus 1 of SDI-8280 shall be either dedicated as an open space easement to ensure the perpetual protection of the pictographs and any reburied cultural materials; or, the preservation area may be legally separated from the City's property and ownership conveyed to the Kumeyaay-Diegueiio Land Conservancy (KDLC) to provide the local Native American community direct control of the preservation area for perpetual access to the human remains reburied there and to facilitate their guardianship over this location. From the perspective of CEQA and the mitigation of impacts to cultural resources, either method of preservation would be sufficient to accomplish the goal of the mitigation program. The proposed preservation area within Locus 1 of SDI-8280 is depicted in the BFSA technical report.

MM-CR-3: Indirect Impacts to Significant Cultural Deposits and Rock Art Elements at SDI-8280 and SDI-12.209

MM-CR-3.1: Indirect impacts to elements of SDI-8280 and SDI-12,209 that are adjacent to the construction APE shall be mitigated through fencing that will be used to isolate the work area. Notes shall be placed on the construction plans and notices posted on the job site stating that areas outside of the APE contain "Environmentally Sensitive Areas." No construction activity shall be permitted outside of the APE unless that area has been reviewed for potential impacts to cultural deposits.

MM-CR-3.2: Concerns over the pictograph at SDI-12,209, which is situated east of the alignment, have been raised by the Native American community. The boulder with the pictograph could be affected by vibrations from blasting or heavy equipment. Measures would be required to ensure indirect impacts do not cause any damage to this feature. Measures to protect the feature may include wrapping the rock with layers of fabric to protect the pictograph image. Engineering assistance will be necessary to calculate the need for any structural shoring of the rock to prevent movement. This pictograph is located on private property, and measures to mitigate potential indirect impacts may require the consent of the property owner. The status of access to the boulder at the time of construction to provide mitigation of indirect impacts is not known at this time. If access is denied, measures to protect the pictograph rock will be limited to fencing along the limits of construction.

MM-CR-3.3: The pictographs located in Locus 1 of SDI-8280 are situated near the APE and may be affected by the grading of the new road. The southernmost of the pictographs is immediately

adjacent to the road cut, and will be very near the construction activity, which represents a source of potential indirect impacts. To ensure the preservation of the pictograph, measures will be needed to secure the boulder from dust and debris, vibrations, and any damage to the surface of the boulder. The following measures shall be completed prior to the initiation of grading within 500 feet of the pictographs at Locus 1 of SDI-8280:

A. The project engineer/design consultant shall devise a method to secure the slope between the southern pictograph boulder and the proposed retaining wall immediately adjacent to the pictographs.

B. The drilling of tie rods needed to secure the retaining wall adjacent and downslope from the southern pictograph shall not cause any degradation to the soil below the pictograph that might over time affect the stability of the feature.

C. Dust and debris from the grading of the road will affect and potentially damage the painted surface of the pictographs. Measures shall be implemented to ensure the surfaces of the boulders are protected. These measures may include the wrapping of the boulder first in a cloth to cover the boulder surface and the construction of a framework to create a barrier to flying debris. Prior to the start of grading, the City's resident engineer shall meet with the Consulting Archaeologist, the Tribal representatives, and the contractor to arrive at an agreement upon which method would be preferred to accomplish the protection of the feature. If, for any reason, a mutually-agreeable method cannot be achieved by all parties, then the Consulting Archaeologist shall be responsible to implement measures to ensure the pictograph is not damaged during construction. Prior to placement of any protective materials over the pictographics, digital photographs shall be taken with the purpose of using technological methods to enhance the observable image while the opportunity exists prior to construction of the roadway.

D. Following the completion of the road project, all protective materials shall be removed from the pictographs and the area returned to its natural setting.

In addition to the protection of the pictograph features, the milling features that will be affected by the project and which are considered sensitive to Native American groups will be preserved (and capped) or possibly moved, where possible and feasible. The majority of milling features at SDI-12,209 are far too large to move, and may be capped and preserved in the fill soil needed to raise the roadbed. Smaller milling features may be moved to the open space easement at SDI-8280. In order to determine which milling features within the APE will be preserved, moved, or destroyed, a field meeting will be required prior to the start of grading and will be attended by the City's engineer, the contractor, the Native American representatives, and the Consulting Archaeologist to review the inventory of milling features within the APE and determine the most appropriate

candidates to move or relocate, which may be preserved by capping and will be impacted by grading. Where preservation cannot be accomplished, no additional work is required, as all the features have been previously recorded.

MM-CR-4: Direct Impacts to Significant Elements of SDI-12209

For direct impacts to significant components of Site SDI-12,209 (Loci I and 2), mitigation of those impacts would be achieved through the implementation of a data recovery program. As a condition of approval for this project, and prior to the initiation of any clearing, grading, or construction associated with the road project within the boundaries of the cultural sites, the City shall direct the archaeological consultant to prepare a detailed research design to orientate the research perspective, stipulate the archaeological goals, address Native American concerns, and direct the excavation process. The implementation of the research design constitutes mitigation for the proposed destruction of the significant portions of archaeological Site SDI-12,209 (Loci 1 and 2) within the alignment. The mitigation of impacts shall be achieved by the excavation and analysis of a sufficient sample of the significant deposits affected to exhaust the research potential of those areas. Based on the archaeological research records for this region, and following widely applied guideline requirements from agencies in this area, mitigation of impacts through applied data recovery programs will typically target a 10 to 15 percent sample as a statistically valid recovery level for significant deposits. However, the overriding measure of the adequacy of a sample of a significant deposit is the exhaustion of research potential and achievement of a redundant artifact recovery pattern. To facilitate the periodic review of the excavation collection and assessment of the status of the information accumulated, the data recovery program will utilize a statistical sampling process that will require the evaluation of the excavation at 5 percent sample increments, or phases. At the conclusion of each phase of sampling (potentially Phases 1, 2, 3), the Consulting Archaeologist shall determine if the subsequent phase of sampling is required, using criteria listed in the research design, and potentially stratifying the subsequent sample phase to focus excavations in areas with higher research potential. The Consulting Archaeologist responsible for the mitigation program will have the latitude to adjust the stratified sampling process to maximize efforts in any particular areas that possess identified higher research potential. The sampling protocol is highlighted below but will be presented in greater detail in the research design.

A. The basic unit of the data recovery field program will be standard 1-meter-square test units.Each unit will be excavated using common archaeological protocols for fieldwork, including the excavation of each unit in decimeter levels to a depth that exceeds the lowest depth of the cultural deposit. All excavations will be completed using hand tools and work will be approached in a careful, professional manner. All of the soil excavated from the units will be subjected to hydro-screening on-site. The use

of water to separate dirt from the archaeological collections will ensure that any human remains are immediately revealed and will also enhance the recovery of cultural materials that may be too small to otherwise be identified. All soils will be hydro-screened through one-eighth-inch mesh hardware cloth, with at least 10 percent of the excavated sample to be screened with one-tenth-inch mesh hardware cloth to search for those elements of the deposit that otherwise would pass through the one-eighth-inch mesh. All recovered cultural materials will be bagged by provenience, labeled, and transported to a secure location for laboratory analysis.

B. All excavations (both archaeological and construction-related) will include monitoring by Luiseilo and Kumeyaay MLDs (or their designated representatives).

C. Detailed field maps will be completed using Global Positioning System technology with submeter accuracy to record all excavations and features encountered.

D. Phase I of the fieldwork program will include a 5 percent hand-excavated sample of each identified subsurface deposit that will be directly impacted.

E. At the completion of Phase I, the Consulting Archaeologist shall evaluate the results and consider issues of site integrity, data redundancy, spatial and temporal patterning, features, and other relevant topics in order to assess the adequacy of the initial five percent sample. The Consulting Archaeologist shall communicate with the City of Escondido and County of San Diego the results of the Phase I evaluation and recommendation for Phase II additional work. Based on this assessment, the site will be stratified to delineate areas with further research potential or the potential to produce features. A second phase of field investigations would consist of an additional 5 percent sample of that stratified area with further research potential. Adjustments in the sample size shall be an option of the Consulting Archaeologist should the assessment of the sources of the Phase I sample indicate the Phase II sample should be less than 5 percent.

F. Implement Phase II of fieldwork, as necessary. Upon completion of the second phase of sampling, the Consulting Archaeologist will evaluate the success of the Phase II and consider the need for further sampling. The Consulting Archaeologist shall submit the results of this evaluation to the City of Escondido and County of San Diego as well as any recommendations for Phase III additional excavations. Should this analysis confirm research potential remains, a third phase (Phase III) will be employed. Typically, as a product of site organization and use pattern during the Late Prehistoric period, the sampling process will identify a core area of more intense artifact concentration and variety of artifact types. The final phase (Phase III) of the stratified sample would commonly employ a large block excavation to focus Phase III efforts only upon the core deposit.

G. Implement Phase III of sampling if determined to be necessary.

H. Conduct an intensive laboratory program for all recovered cultural materials. All items in the collection will be subjected to standard laboratory procedures of cleaning, cataloging, data entry, and artifact analysis including lithics analysis, ceramics analysis, faunal analysis, floral analysis, assemblage analysis, and radiocarbon dating.

I. Provide evidence to the satisfaction of the City that all archaeological materials recovered, during both the significance testing and data recovery phases, have been curated according to current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Agreements with the Native American representatives regarding elements of the archaeological excavation recovery will supersede curation requirements if these artifacts are requested by the tribes for repatriation, relocation, and/or reburial.

J. Complete and submit the Final Technical Report to the satisfaction of the City.

MM-CR-5: Potential Impacts to Undocumented Cultural Deposits During Grading

The construction of the Citracado Parkway Extension would require the implementation of a MMRP. The basis for this requirement is that the construction APE will include known significant cultural resources and areas where potentially important cultural deposits could be discovered. To identify any significant and previously undocumented elements of SDI-8280 and SDI-12,209, the MMRP will require the presence of an archaeological monitor, as well as Luiselio and Kumeyaay Native American monitors, during all grading and trenching associated with the project. The actual building of the roadway following the completion of earthwork will not require monitoring, although periodic visits by the monitors will be conducted to ensure the adjacent cultural resources remain intact. The MMRP shall state the following:

MM-CR-5 .1: During the cutting of previously undisturbed soil, archaeological and Native American monitors shall be on-site full time to perform inspections of the excavations. The presence of the Archaeologist is a mandatory grading requirement; however, the Native American monitors may choose to monitor at their discretion during the grading program. The number of monitors permitted on the project will depend on the rate of excavation, the number of areas being graded at any one time, the materials excavated, and the presence and abundance of artifacts and features. The Consulting Archaeologist shall provide the City with a rationale for the number of monitors needed to comply with the mitigation measure. Safety issues and protocols will be cited in those instances where the number of individuals on site may be limited due to hazardous conditions. Because of the constrained work environment, a monitoring team shall typically include one archaeological monitor and two Native American monitors, one

Kumeyaay and one Luiseño. The supervising archaeologist will recommend additional monitoring teams should multiple work areas be graded simultaneously.

MM-CR-5.2: Prior to the initiation of grading, the contractor shall organize a preconstruction meeting of all personnel scheduled to work on the grading and construction phases of the project. The purpose of this meeting will be a Worker's Education Program to instruct the work force about the cultural resources associated with the project, the sensitivity of these resources to the local Native American community, and the protocols to be followed should any workers encounter artifacts during work on the project. The Consulting Archaeologist shall conduct the Worker's Education Program and shall include the Native American representatives as part of the presentation of Native American concerns.

MM-CR-5.3: Isolates and clearly nonsignificant deposits will be documented in the field but will not be subjected to data recovery mitigation.

MM-CR-5.4: In the event that previously unidentified and potentially significant cultural resources are discovered, the Consulting Archaeologist or Native American monitor shall have the authority to divert or temporarily halt ground disturbance operations to review possible discoveries. This temporary diversion of work shall be as brief as possible; however, if a discovery is confirmed, the supervising archaeologist shall report this to the City's resident engineer. The discovery location shall be secured from further disturbance to allow evaluation of potentially significant cultural resources. The Consulting Archaeologist shall contact the City's resident engineer at the time of any discovery. The Consulting Archaeologist, in consultation with tribal representatives, shall determine the significance of the discovered resources. For any significant cultural resources discovered during monitoring of grading, further mitigation measures (data recovery) will be necessary to complete the impact mitigation. A detailed description of additional mitigation measures will be prepared by the Consulting Archaeologist and approved by the City, prior to implementation. If any human remains are discovered, the County Coroner shall be contacted (see MM-CR-2). In the event that the remains are determined to be of Native American origin, the MLDs shall be contacted to determine proper treatment and disposition of the remains.

MM-CR-5.5: In areas within the APE where significant deposits have been identified, controlled grading may be implemented to carefully peel away layers of soil, which could expose features or human remains with minimal damage. The Consulting Archaeologist, in conjunction with Native American monitors, shall determine when and where controlled grading is needed based upon the results of the Data Recovery Program and any new discoveries made during grading. The pace, depth, duration, and location of the controlled grading protocol will be made in concert

with Tribal monitors, but will ultimately be the responsibility of the Consulting Archaeologist to grade and implement the program.

MM-CR-5.6: All cultural material collected during the grading monitoring program shall be processed and curated according to current professional repository standards and as required by the environmental policies and guidelines of the County of San Diego. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Agreements with the MLDs (Pre-Excavation Agreement) regarding human remains and associated grave goods will supersede curation requirements and all human remains and associated grave goods will be submitted to the tribes for repatriation, relocation, and/or reburial.

MM-CR-5.7: A section of the final data recovery report for the Citracado Extension Project shall include a description of the mitigation monitoring program and a report of all findings made during the monitoring process. Copies of the mitigation and monitoring report will be provided to the City of Escondido, County of San Diego, the Native American tribes, and the South Coastal Information Center at San Diego State University. The final technical report and the curation of collections shall be completed within one year of the termination of fieldwork and monitoring and grading.

Figure 8.4–1

SDI-8280 Preservation Area Map

(In Confidential Appendix; Bound Separately)

9.0 PERSONNEL

The Citracado Parkway Extension Project archaeological survey and site evaluation program was directed by Brian F. Smith, Principal Investigator, and Tracy A. Stropes, Project Archaeologist. All fieldwork was managed by Tracy Stropes and completed by Field Director Clarence Hoff and Field Technicians Matt Smith, Charles Callahan, Jeffrey Henry, and Rich Savitch. Tracy Stropes and Brian Smith prepared the report. Tracy Stropes analyzed the prehistoric lithic artifact assemblage. Jennifer R. Kraft analyzed the vertebrate faunal assemblage. Tracy Stropes provided GIS maps and data interpolation in addition to artifact and bedrock milling tables. Karen E. Doose completed report editing and production, and report graphics were produced by Adrián Moreno. AECOM provided the background information from the original EDAW testing. Bobo Linton (Kumeyaay) with Red Tail Monitoring and Research, Inc., and P. J. Stoneburner and Cami Mojado with the San Luis Rey Band of Luiseño Indians provided Native American monitoring for the current phase of the project.

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APPENDIX A

Resumes of Key Personnel

Tracy A. Stropes, MA, RPA

Project Archaeologist
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Education

Master of Arts, Anthropology, San Diego State University, California — **2007**

Bachelor of Science, Anthropology, University of California, Riverside — **2000**

Experience

Project Archaeologist — **March 2009–Present**
Brian F. Smith and Associates, Inc.

Duties include project management of all phases of archaeological investigations for local, state and federal agencies; field supervisor of all phases of archaeological projects; lithic analysis; National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) site evaluations; authoring and coauthoring of cultural resource management reports primarily for southern California.

Archaeological Principal Investigator — **June 2008–February 2009**
TRC Solutions

Archaeological Principal Investigator for cultural resource segment of Natural Sciences and Permitting Division. Duties included management of all phases of archaeological investigations for private companies and local, state and federal agencies; personnel management, field supervision of all phases of archaeological projects; laboratory supervision; lithic analysis, Native American consultation, and reporting; National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) site evaluations; authoring and coauthoring of cultural resource management reports primarily for southern California.

Principal Investigator and Project Archaeologist — **June 2006–May 2008**
Archaeological Resource Analysts

As a sub consultant, served as Principal Investigator and Project Archaeologist for several projects for SRS Inc. Primary tasks included filed direction, project management, personnel management, lab analysis, and authorship of company reports throughout southern California.

Project Archaeologist — **September 1996–June 2006**
Gallegos & Associates

Duties for Gallegos and Associates included project management, laboratory management, lithic analysis, field direction, Native American consultation, report authorship, and editing for several technical reports for various projects throughout southern California. In addition, composed several data recovery and preservation programs for sites throughout California for both CEQA and NEPA level compliance.

Project Archaeologist **September 1993–September 1996**
Macko Inc.

Duties for Macko Inc. included project management, laboratory management, lithic analysis, field supervision, report authorship, and editing for technical reports for various projects throughout southern California.

Archaeological Field Technician **January 1996–September 1993**
Chambers Group Inc.

Duties for Chambers Group Inc. included archaeological excavation, survey, monitoring, wet screen facilities management, and project logistics. —January 1993 – September 1993.

Archaeological Field Technician **May–September 1992**
John Minch and Associates

Duties for John Minch and Associates included archaeological excavation, survey, monitoring, wet screen facilities management, and project logistics.

Reports/Papers

Principal Author

2009 An Archaeological Assessment for the Rivera-Placentia Project, City of Riverside, California. Prepared for Riverside Construction Company.

2009 Cultural Resource Data Recovery Plan for the North Ocean Beach Gateway Project. Prepared for the City of San Diego and KTU+A.

2009 Cultural Resource Letter Report for the Borrego Substation Feasibility Study, Borrego Springs, California. Prepared for RBF Consulting.

2009 A Cultural Resource Study for the Gatto Residence Project, La Jolla, California. Prepared for Marengo Martin Architects Inc.

2008 Phase I Cultural Resource Survey for the 28220 Highridge Road Development Project, Rancho Palos Verdes, California. Prepared for REC Development.

2008 Wild Goose Expansion 3 Project Butte County, California Colusa County, California. Prepared for Niska Gas Storage LLC.

2008 Class III Cultural Resource Survey for the Burlington Northern Santa Fe Four Railway Bridge Renewal Project San Bernardino County, California. Prepared for BNSF Railway Company.

2008 I-80 Colfax Site Cultural Resource Records Search Report, Placer County California. Prepared for Granite Construction Company.

2008 I-80 Gold Run Site Cultural Resource Records Search Report, Placer County California. Prepared for Granite Construction Company.

2008 Cultural Resource Monitoring at 31431 Camino Capistrano, San Juan Capistrano California. Prepared for Herman Weissker, Inc.

2008 Cultural Resource Inventory for the Snow White Pumice Mine, Hinkley California. Prepared for U.S. Mining and Minerals Corporation.

2007 Nodule Industries of North Coastal San Diego: Change and Stasis in 10,000 Years of Lithic Technology. Masters Thesis on file, San Diego State University.

2007 Cultural Resource Inventory for Empire Homes (APN 104-180-04), Lake Forest, California. Prepared for Empire Homes.

2007 Phase I Archaeological Assessment for APN 104-200-09, Beumont, California. Prepared for Mary Chan.

2007 Cultural Resource Inventory for Empire Homes (APN 104-180-04), Lake Forest, California. Prepared for Empire Homes.

2006 Carlsbad Municipal Golf Course Data Recovery Program for CA-SDI-8694, and Indexing and Preservation Program Study for CA-SDI-8303 and CA-SDI-8797 Locus C, City of Carlsbad, CA. Prepared for City of Carlsbad.

2005 Grand Pacific Resorts Data Recovery and Index Sample Program for CA-SDI-8797, Area A, City of Carlsbad, CA. Prepared for Grand Pacific Resorts Inc.

2004 "Near the Harris Site Quarry" Cultural Resource Data Recovery and Preservation Program for CA-SDI-13028, San Diego County, California. Prepared for Harbrecht Development, L.P.

2004 Cultural Resource Survey and Boundary Test Report for the Lilac Ranch Project, San Diego County, California. Prepared for Empire Companies.

2003 Cultural Resource Data Recovery and Preservation Program for CA-SDI-12027, San Diego County, California. Prepared for Harbrecht Development Inc.

2002 Data Recovery Program for the Pacbell Site CA-SDI-5633, San Marcos, California. Prepared for Joseph Wong Design Associates.

2001 McCrink Ranch Cultural Resource Test Program Additional Information for Selected Sites, San Diego County, California. Prepared for Shapouri & Associates.

2001 The Quail Ridge Project Cultural Resource Test Program, San Diego County, California. Prepared for Helix Environmental Planning, Inc.

2000 Cultural Resource Survey and Evaluation for the North Sand Sheet Full Buildout Program, Owens Lake, California. Prepared for CH2MHill.

1995 Final Report: Archaeological Investigations Conducted for the Abalone Cove Dewatering Wells, City of Rancho Palos Verdes Los Angeles County, California. Prepared for the City of Rancho Palos Verdes, Environmental Services.

1995 Final Report: A Class III Intensive Survey of a 100-Acre Sand and Gravel Mining Area, Imperial County, California. Prepared for the Lilburn Corporation.

1994 Final Report: Data Recovery Excavations at Five Late Prehistoric Archaeological Sites Along the Los Trancos Access Road, Newport Coast Planned Community, Orange County, California. Prepared for the Coastal Community Builders, a division of The Irvine Company.

Contributing Author

2008 Lithic Analysis for Thirteen Sites Along the Transwestern Phoenix Expansion Project, Loops A and B. Prepared for Transwestern Pipeline Company, LLC.

2005 Cultural Resource Survey and Testing for the Star Ranch Property, San Diego, California.

2004 Cultural Resource Test Report for the Palomar Point Project: Site CA-SDI-16205, Carlsbad, California. Prepared for Lanikai Management Corp.

2004 Cultural Resource Survey and Test Report for the Canyon View Project, Carlsbad, California. Prepared for Shapouri & Associates.

2004 Cultural Resource Test Report for the Yamamoto Property: Site SDM-W-2046, Carlsbad, California. Prepared for Cunningham Consultants, Inc.

2004 Historical Resources Report for the Kuta and Mascari Properties, Otay Mesa, California. Prepared for Centex Homes.

2004 Cultural Resource Monitor and Test Report for the Encina Power Plant Project, Carlsbad, California. Prepared for Haley & Aldrich, Inc.

2004 Cultural Resource Test Report for Site CA-SDI-16788, Otay Mesa, California. Prepared for Otay Mesa Property, L.P.

2004 Cultural Resource Survey and Test Report for the Lonestar Project, Otay Mesa, San Diego County, California. Prepared for Otay Mesa Property, L.P.

2003 Cultural Resource Mitigation Program for the Torrey Ranch Site CA-SDI-5325, San Diego, California. Prepared for Garden Communities.

2003 Cultural Resource Survey and Test Report for the Johnson Canyon Parcel, Otay Mesa, San Diego County, California. Prepared for Otay Mesa Property, L.P.

2002 Cultural Resource Data Recovery Plan for the Shaw Project: Sites CA-SDI-13025 and CA-SDI-13067, San Diego County, California. Prepared for Shapouri & Associates.

2001 Archaeological Test Program for CA-SDI-14112 Mesa Norte Project, San Diego, California. Prepared for Hunsaker & Associates.

2001 The Vista-Oceanside Cultural Resource Survey and Test Program, Vista, California. Prepared for Shapouri & Associates.

2001 Cultural Resource Test Program for the Wilson Property, Carlsbad, California. Prepared for the City of Carlsbad.

2001 Cultural Resource Test Plan for the Oceanside-Escondido Project, County of San Diego, California. Prepared for Dudek & Associates.

2001 Cultural Resource Test Program for the Kramer Junction Expansion Project Adelanto, California. Prepared for AMEC.

2001 Cultural Resource Test Program for CA-SDI-12508 San Diego, California (LDR. No. 99-1331). Prepared for Garden Communities.

2000 Archaeological Testing of Prehistoric Sites CASDI-14115 and CA-SDI-14116 for The Mesa Grande Project, San Diego, California. Prepared for Solana Mesa Partners, LLC.

2000 Cultural Resource Survey and Test Report for the Wetmore Property, Otay Mesa, San Diego County, California. Prepared for Mr. Andy Campbell.

2000 The Torrey Ranch Cultural Resource Test Program, San Diego County, California. Prepared for Garden Communities.

2000 Cultural Resource Test Results for the Otay Mesa Generating Project. Prepared for the California Energy Commission and Otay Mesa Generating Company, LCC.

2000 The Eternal Hills Cultural Resource Survey and Test Program, City of Oceanside, California. Prepared for Eternal Hills Memorial Park.

2000 The Quail Ridge Cultural Resource Test Program, San Diego County, California. Prepared for Helix Environmental Planning Inc.

2000 Cultural Resource Testing Program for CA-SDI-5652/H and CA-SDI-9474H SR 78/Rancho Del Oro Interchange Project, Oceanside, California. Prepared for Tetratech Inc.

2000 Cultural Resource Test Results for a Portion of CA-SDI-8654 (Kuebler Ranch) Otay Mesa, San Diego County, California. Prepared for Shapouri & Associates.

2000 Historical/Archaeological Monitoring and Data Recovery Program for Prehistoric Site CA-SDI-48, Locus C Naval Base Point Loma, San Diego, California. Prepared for Department of the Navy, Southwest Division.

2000 Cultural Resource Evaluation Report for the Palomar College Science Building Project San Marcos, California. Prepared for Parsons Engineering Science Inc.

1999 Cultural Resource Monitoring Report for the Village of Ystagua Water Main Break City of San Diego, California. Prepared for the City of San Diego Water Department.

1999 The Effect of Projectile Point Size on Atlatl Dart Efficiency in Lithic Technology Vol 24, No 1 p (27-37).

1999 Cultural Resource Evaluation Report for the Oceanside-Escondido Bikeway Project, San Marcos, California. Prepared for City of San Marcos.

1999 5000 Years of Occupation: Cultural Resource Inventory and Assessment Program for the Carlsbad Municipal Golf Course Project City of Carlsbad, California. Prepared or Cotton/Beland/Associates, Inc.

1999 Silver Oaks Estates Cultural Resource Enhanced Survey and Test Report for a Portion of CA-SDI-7202 San Diego, California. Prepared for Helix Environmental Planning Inc.

1999 Historical Archaeological Test of a portion of CA-SDI-8303 for the Faraday Road Extension Carlsbad, California. Prepared for the City of Carlsbad.

1999 Cultural Resource Literature Review for the North Coast Transportation Study Arterial Streets Alternative San Diego County, California. Prepared for MLF/San Diego Association of Govt.

1998 Archaeological Test Report for a Portion of CA-SDI-9115/SDM-W-122 Carlsbad, California. Prepared for Industrial Developments International.

1998 Rainforest Ranch Cultural Resource Survey and Significance Test for Prehistoric Sites CA-SDI-14932, CA-SDI-14937, CA-SDI-14938, and CA-SDI-14946 County of San Diego, California. Prepared for Boys and Girls Club of Inland North County.

1998 Cultural Resource Evaluation Report for the Oceanside-Escondido Bikeway Project San Marcos, California.

1998 Final Report: Cultural Resource Survey Report for the Sterling Property, Carlsbad, California. Prepared for SPT Holdings LCC.

1996 Final Report: Archaeological Survey and Test for the Huber Property Carlsbad, California. Prepared for Gene Huber.

1996 Final Report: Results of Phase II Test Excavations and Phase III Data Recovery Excavations at Nine Archaeological Sites Within the Newport Coast Planned Community Phase III Entitlement Area, San Joaquin Hills, Orange County, California. Prepared for Coastal Community Builders, a division of The Irvine Company.

1995 Preliminary Report: Phase II Test Results From Nine Prehistoric Archaeological Sites Within The Proposed Upper Newport Bay Regional County Park. Prepared for EDAW, Inc.

1995 Final Report: A Phase II Test Excavation at CA-ORA-136, Block 800 City of Newport Beach, Orange County California. Prepared for the Irvine Apartment Communities, a division of The Irvine Company.

Presentations

2004 Guest Lecturer and Flintknapping Demonstration Mission San Luis Rey Band of Mission Indians Annual Inter-tribal Pow-Wow. Mark Mojado, Tribal Contact.

2003 Steep Edge Unifacial Tools of Otay Mesa: An Analysis of Edge Types from CA SDI-7215 SCA Southern California Data Sharing Meetings

2001 Identification of Late Period Behavior Patterns in Elfin Forest: Three Sites in Northern San Diego County.

2001 Society for California Archaeology Data Sharing Meetings, San Luis Obispo, California.

1996 Trans-Tehachapian Lithic Trade at the Canebreak/Sawtooth Transition. Thirteenth Annual Meeting, Society of California Archaeology, Bakersfield, California.

1994 Point Size and Atlatl Dart Efficiency. Twenty Fourth Annual Meeting, Great Basin Anthropological Conference, Elko, Nevada.

1994/96 Guest Lecturer and Flint Knapping Instruction - Archaeological Field Class Fall Semester ,Cypress College, Cypress, California. Paul Langenwalter/Henry C. Koerper, Directors.

1994/95 Annual Guest Lecturer - "Living History Days" at the Mission, Mission San Juan Capistrano, San Juan Capistrano, California.

1994 Guest Lecturer - El Monte High School, El Monte, California.

Professional Memberships

Register of Professional Archaeologists
Society for California Archaeology
Archaeological Institute of America

Brian F. Smith, MA

Principal Investigator
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Education

Master of Arts, History, University of San Diego, California **1982**

Bachelor of Arts, History and Anthropology, University of San Diego, California **1975**

Experience

Principal Investigator **1977–Present**
Brian F. Smith and Associates, Inc.

Brian F. Smith is the owner and principal historical and archaeological consultant for Brian F. Smith and Associates. In the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Brian Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Crops of Engineers (USACE), the Bureau of Land Management (BLM), Bureau of Reclamation (BR), the Department of Defense (DOD), and Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts which have added significantly to the body of knowledge concerning the prehistoric lifeways of cultures once present in the southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large number of downtown San Diego mitigation and monitoring projects submitted to the Centre City Development Corporation, some of which included Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of

pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade. 2000-2007.

The Navy Broadway Complex: Architectural and historical assessment of over 25 structures that comprise the Naval Supply Depot, many of which have been in use since World War I and were used extensively during World War II. The EIR/EIS which was prepared included National Register evaluations of all structures. The archaeological component of the project involved the excavation of backhoe trenches to search for evidence of the remains of elements of the historic waterfront features that characterized the bay front in the latter half of the 19th century. This study was successful in locating portions of wharves and shanties that existed on the site prior to capping of this area after construction of the sea wall in the early 20th century.

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the City of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the City of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs which document this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the City and County of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the City. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the City showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Midbayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the City. The study included the analysis of some potentially historic features and numerous prehistoric sites.

Cultural resources survey and test of sites within the proposed development of the Audie Murphy Ranch, Riverside County, California: Project Manager/Director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—included project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February-September 2002.

Cultural resources evaluation of sites within the proposed development of the Otay Ranch Village 13 Project, San Diego County, California: Project Manager/Director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural resources survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project Manager/Director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural resources survey and test of sites within the proposed development of the Menifee West GPA, Riverside County, California: Project Manager/Director of the investigation of nine sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Mitigation of a Archaic cultural resource for the Eastlake III Woods Project for the City of Chula Vista, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. September 2001-March 2002.

Cultural resources survey and test of sites within the proposed French Valley Specific Plan/EIR, Riverside County, California: Project Manager/Director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural resources survey and test of sites within the proposed Lawson Valley Project, San Diego County, California: Project Manager/Director of the investigation of 28 prehistoric and two historic sites—included project coordination; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural resource survey and geotechnical monitoring for the Mohyi Residence Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; field survey; assessment of parcel for potentially buried cultural deposits; monitoring of geotechnichal borings; authoring of cultural resources project report. Brian F. Smith and Associates, San Diego, California. June 2000.

Enhanced cultural resource survey and evaluation for the Prewitt/Schmucker/Cavadias Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; direction of field crews; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. June 2000.

Cultural resources survey and test of sites within the proposed development of the Menifee Ranch, Riverside County, California: Project Manager/Director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage mitigation of a portion of the San Diego Presidio identified during water pipe construction for the City of San Diego, California: Project Archaeologist/Director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced cultural resource survey and evaluation for the Tyrian 3 Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced cultural resource survey and evaluation for the Lamont 5 Project, Pacific Beach, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced cultural resource survey and evaluation for the Reiss Residence Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage mitigation of a portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and testing of two prehistoric cultural resources for the Airway Truck Parking Project, Otay Mesa, California: Project Archaeologist/Director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural resources Phase I and II investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project along the International Border, San Diego County, California: Project Manager/Director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field

crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a prehistoric cultural resource for the Westview High School Project for the City of San Diego, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a prehistoric cultural resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project Archaeologist/Director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of grading for the Herschel Place Project, La Jolla, California: Project Archaeologist/ Monitor—included monitoring of grading activities associated with the development of a single-dwelling parcel. September 1999.

Survey and testing of an historic resource for the Osterkamp Development Project, Valley Center, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and testing of a prehistoric cultural resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project Manager/Director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and evaluation of cultural resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project Archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and evaluation of cultural resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project Manager/Director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural resources Phase I, II, and III investigations for the Immigration and Naturalization Services Triple Fence Project along the International Border, San Diego County, California: Project Manager/Director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997-January 2000.

Phase I, II, and II investigations for the Scripps Poway Parkway East Project, Poway California: Project Archaeologist/Project Director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis;

coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.

Archaeological evaluation of cultural resources within the proposed corridor for the San Elijo Water Reclamation System Project, San Elijo, California: Project Manager/Director —test excavations; direction of artifact identification and analysis; graphics production; coauthorship of final cultural resources report. December 1994-July 1995.

Evaluation of Cultural Resources for the Environmental Impact Report for the Rose Canyon Trunk Sewer Project, San Diego, California: Project Manager/Director —direction of test excavations; identification and analysis of prehistoric and historic artifact collections; data synthesis; co-authorship of final cultural resources report, San Diego, California. June 1991-March 1992.

Reports/Papers

Author, coauthor, or contributor, to over 2,500 cultural resources management publications, a selection of which are presented below.

2009 Cultural Resource Assessment of the North Ocean Beach Gateway Project City of San Diego #64A-003A; Project #154116.

2009 Archaeological constraints study of the Morgan Valley Wind Assessment Project, Lake County, California.

2008 Results of an archaeological review of the Helen Park Lane 3.1-acre Property (APN 314-561-31), Poway, California.

2008 Archaeological Letter Report for a Phase I Archaeological Assessment of the Valley Park Condominium Project, Ramona, California; APN 282-262-75-00.

2007 Archaeology at the Ballpark. Brian F. Smith and Associates, San Diego, California. Submitted to the Centre City Development Corporation.

2007 Result of an Archaeological Survey for the Villages at Promenade Project (APNs 115-180-007-3,115-180-049-1, 115-180-042-4, 115-180-047-9) in te City of Corona, Riverside County.

2007 Monitoring Results for the Capping of Site CA-SDI-6038/SDM-W-5517 within the Katzer Jamul Center Project; P00-017.

2006 Archaeological Assessment for The Johnson Project (APN 322-011-10), Poway, California.

2005 Results of archaeological monitoring at the El Camino Del Teatro Accelerated Sewer Replacement Project (Bid No. K041364; WO # 177741; CIP # 46-610.6.

2005 Results of archaeological monitoring at the Baltazar Draper Avenue Project (Project No. 15857; APN: 351-040-09).

2004 TM 5325 ER #03-14-043 Cultural Resources.

2004 An Archaeological Survey and an Evaluation of Cultural Resources at the Salt Creek Project. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Assessment for the Hidden Meadows Project, San Diego County, TM 5174, Log No. 99-08-033. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Survey for the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Investigations at the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Monitoring of Geological Testing Cores at the Pacific Beach Christian Church Project. Report on file at Brian F. Smith and Associates.

2003 San Juan Creek Drilling Archaeological Monitoring. Report on file at Brian F. Smith and Associates.

2002 Evaluation of Archaeological Resources Within the Spring Canyon Biological Mitigation Area, Otay Mesa, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Otay Ranch Village 13 Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Audie Murphy Ranch Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 Results of an Archaeological Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County, California . Brian F. Smith and Associates, San Diego, California.

2002 A Cultural Resources Survey and Evaluation for the Proposed Robertson Ranch Project, City of Carlsbad . Brian F. Smith and Associates, San Diego, California.

2002 Archaeological Mitigation of Impacts to Prehistoric Site SDI-7976 for the Eastlake III Woods Project, Chula Vista, California . Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29777, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29835, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Survey and Evaluation of a Cultural Resource for the Moore Property, Poway. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Report for the Mitigation, Monitoring, and Reporting Program at the Water and Sewer Group Job 530A, Old Town San Diego. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Impact Survey for the High Desert Water District Recharge Site 6 Project, Yucca Valley. Brian F. Smith and Associates, San Diego, California.

2001 Archaeological Mitigation of Impacts to Prehistoric Site SDI-13,864 at the Otay Ranch SPA-One West Project. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Survey and Site Evaluations at the Stewart Subdivision Project, Moreno Valley, County of San Diego. Brian F. Smith and Associates, San Diego, California.

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APPENDIX B

Bedrock Milling Feature Analyses

SDI-8280 Bedrock Milling Feature Measurements						
Locus	Feature	Surface	Type	Length cm	Width cm	Depth cm
1	W	1	Slick	12	12	0.1
		2	Slick	21	19	0.1
		3	Slick	21	16	0.1
		4	Slick	21	20	0.1
		5	Slick	22	18	0.1
		6	Slick	25	20	0.1
		7	Slick	23	16	0.1
		8	Slick	22	21	0.1
	X	1	Slick	28	26	0.1
		2	Slick	28	19	0.1
		3	Slick	27	24	0.1
		4	Slick	30	25	0.1
		5	Slick	30	17	0.1
		6	Slick	42	29	0.1
	Y	1	Slick	25	24	0.1
	Z	1	Slick	33	28	0.1
2	L	1	Slick	25	22	0.1
		2	Slick	20	19	0.1
		3	Slick	23	20	0.1
		4	Slick	23	18	0.1
		5	Slick	14	12	0.1
		6	Slick	20	19	0.1
		7	Slick	19	15	0.1
		8	Slick	15	15	0.1
		9	Slick	15	14	0.1
		10	Slick	14	14	0.1
		11	Slick	15	13	0.1
		12	Slick	20	19	0.1
		13	Slick	26	20	0.1
		14	Slick	18	118	0.1
		15	Slick	15	15	0.1
		16	Slick	27	14	0.1
		17	Slick	22	18	0.1
		18	Slick	25	17	0.1
		19	Slick	26	20	0.1
		20	Slick	22	19	0.1
		21	Slick	26	23	0.1
		22	Slick	23	19	0.1
		23	Slick	24	23	0.1
		24	Slick	20	16	0.1
		25	Slick	26	18	0.1
		26	Slick	22	22	0.1
	M	1	Slick	22	20	0.1
		2	Slick	20	20	0.1
		3	Slick	20	19	0.1
		4	Slick	23	18	0.1

SDI-8280 Bedrock Milling Feature Measurements						
Locus	Feature	Surface	Type	Length cm	Width cm	Depth cm
	M cont'd.	5	Slick	23	18	0.1
		6	Slick	22	22	0.1
		7	Slick	19	19	0.1
	N	1	Slick	33	22	0.1
		2	Slick	23	22	0.1
		3	Slick	26	16	0.1
		4	Slick	35	25	0.1
		5	Slick	27	23	0.1
		6	Slick	23	18	0.1
		7	Slick	22	21	0.1
		8	Slick	26	15	0.1
		9	Slick	30	16	0.1
		10	Slick	26	22	0.1
		11	Slick	24	21	0.1
		12	Slick	24	22	0.1
		13	Slick	32	20	0.1
		14	Slick	23	22	0.1
		15	Slick	24	23	0.1
		16	Slick	25	22	0.1
		17	Slick	23	23	0.1
		18	Slick	22	20	0.1
		19	Slick	30	21	0.1
		20	Slick	24	18	0.1
		21	Slick	26	20	0.1
		22	Slick	28	23	0.1
		23	Slick	25	22	0.1
		24	Slick	25	24	0.1
		25	Slick	22	20	0.1
		26	Slick	24	18	0.1
		27	Slick	23	20	0.1
		28	Slick	30	20	0.1
		29	Slick	25	18	0.1
		30	Slick	19	18	0.1
		31	Mortar Start	10	10	2
3	A	1	Slick	42	35	0.1
4	A	1	Slick	24	21	0.1
		2	Slick	22	19	0.1
		3	Slick	19	18	0.1
	B	1	Slick	16	12	0.1
		2	Slick	22	21	0.1
		3	Slick	22	20	0.1
		4	Slick	20	18	0.1
	C	1	Slick	20	18	0.1
		2	Slick	23	23	0.1
		3	Slick	19	19	0.1
		4	Slick	13	12	0.1

SDI-8280 Bedrock Milling Feature Measurements						
Locus	Feature	Surface	Type	Length cm	Width cm	Depth cm
	C cont'd.	5	Slick	25	20	0.1
		6	Slick	24	23	0.1
		7	Slick	33	27	0.1
		8	Slick	25	25	0.1
		9	Slick	18	18	0.1
		10	Slick	34	26	0.1
		11	Slick	20	16	0.1
		12	Slick	19	16	0.1
		13	Slick	23	22	0.1
		14	Slick	21	15	0.1
		15	Slick	18	11	0.1
		16	Slick	23	20	0.1
		17	Slick	30	14	0.1
		18	Slick	26	25	0.1
		19	Slick	17	16	0.1
		20	Slick	23	20	0.1
		21	Slick	28	20	0.1
		22	Slick	16	15	0.1
		23	Slick	20	16	0.1
		24	Slick	15	3	0.1
		25	Slick	28	26	0.1
		26	Slick	23	21	0.1
		27	Slick	20	19	0.1
		28	Slick	21	20	0.1
		29	Slick	15	14	0.1
		30	Slick	19	18	0.1
		31	Slick	20	18	0.1
		32	Slick	27	19	0.1
		33	Slick	20	19	0.1
		34	Slick	18	17	0.1
		35	Slick	25	25	0.1
		36	Slick	24	13	0.1
		37	Slick	20	16	0.1
		38	Slick	22	19	0.1
		39	Slick	19	15	0.1
		40	Slick	15	15	0.1
	D	1	Slick	19	18	0.1
		2	Slick	19	14	0.1
		3	Slick	17	15	0.1
	E	1	Slick	22	20	0.1
	F	1	Slick	20	17	0.1
		2	Slick	22	17	0.1
	G	1	Slick	18	17	0.1
		2	Slick	23	19	0.1
		3	Slick	20	16	0.1
		4	Slick	20	20	0.1
		5	Slick	22	20	0.1

SDI-8280 Bedrock Milling Feature Measurements						
Locus	**Feature**	**Surface**	**Type**	**Length cm**	**Width cm**	**Depth cm**
	G cont'd.	6	Slick	25	23	0.1
		7	Slick	16	16	0.1
		8	Slick	15	14	0.1
		9	Slick	17	15	0.1
		10	Slick	20	20	0.1
		11	Slick	20	10	0.1
		12	Slick	40	20	0.1
		13	Slick	23	15	0.1
		14	Slick	28	22	0.1
	H	1	Slick	17	16	0.1
		2	Slick	25	18	0.1
		3	Slick	24	22	0.1
		4	Slick	24	18	0.1
		5	Slick	21	20	0.1
		6	Slick	22	22	0.1
		7	Slick	21	20	0.1
		8	Slick	24	15	0.1
		9	Slick	16	14	0.1
		10	Slick	22	16	0.1
		11	Slick	26	23	0.1
		12	Slick	19	17	0.1
		13	Slick	17	16	0.1
		14	Slick	19	18	0.1
		15	Slick	18	18	0.1
		16	Basin	35	23	0.1
		17	Slick	30	21	0.1
		18	Slick	22	16	0.1
		19	Slick	14	14	0.1
		20	Oval	42	20	0.1
		21	Slick	34	17	0.1
		22	Slick	20	14	0.1

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
A	1	Slick	40	27	0.01
	2	Slick	43	42	0.01
	3	Slick	47	42	0.01
	4	Slick	29	28	0.01
	5	Slick	49	43	0.01
	6	Slick	53	37	0.01
	7	Basin	23	19	2
	8	Slick	33	29	0.01
	9	Slick	17	15	0.01
	10	Slick	27	26	0.01
	11	Slick	30	28	0.01
	12	Slick	29	28	0.01
	13	Basin	30	28	3
	14	Slick	15	15	0.01
	15	Slick	23	18	0.01
	16	Slick	22	18	0.01
AA	1	Mortar	17	16	4.5
	2	Collar	44	39	0.01
	3	Slick	32	20	0.01
	4	Slick	43	30	0.01
	5	Slick	20	20	0.01
	6	Slick	20	20	0.01
	7	Slick	28	23	0.01
AAA	1	Slick	38	27	0.01
	2	Slick	27	18	0.01
	3	Slick	38	23	0.01
	4	Slick	30	26	0.01
	5	Slick	37	33	0.01
	6	Slick	29	20	0.01
	7	Slick	37	34	0.01
	8	Slick	27	22	0.01
	9	Slick	29	23	0.01
	10	Slick	50	27	0.01
	11	Basin	34	25	1
	12	Slick	19	14	0.01
	13	Slick	34	20	0.01
	14	Slick	28	16	0.01
	15	Slick	54	32	0.01
	16	Slick	43	36	0.01
	17	Slick	37	33	0.01
B	1	Slick	38	25	0.01
BB	1	Slick	43	40	0.01
BBB	1	Slick	39	32	0.01
	2	Slick	34	33	0.01
	3	Slick	32	29	0.01
	4	Rub	94	66	0.01
	5	Slick	44	42	0.01
	6	Slick	33	32	0.01
	7	Slick	33	32	0.01
	8	Slick	30	29	0.01
	9	Slick	17	15	0.01
	10	Slick	32	28	0.01
	11	Slick	43	31	0.01
	12	Slick	34	32	0.01
	13	Slick	31	23	0.01
	14	Slick	21	16	0.01
	15	Slick	42	30	0.01
	16	Slick	22	18	0.01
	17	Slick	32	23	0.01
	18	Slick	30	23	0.01
	19	Slick	15	15	0.01

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
BBB cont'd.	20	Slick	19	16	0.01
	21	Slick	24	24	0.01
	22	Slick	31	27	0.01
	23	Slick	41	32	0.01
	24	Slick	26	25	0.01
	25	Slick	26	24	0.01
	26	Slick	39	36	0.01
	27	Slick	59	35	0.01
	28	Slick	41	40	0.01
	29	Slick	36	35	0.01
	30	Slick	37	35	0.01
	31	Slick	40	34	0.01
C	1	Slick	41	40	0.01
	2	Slick	32	28	0.03
CC	1	Slick	32	20	0.01
	2	Slick	35	19	0.01
CCC	1	Slick	18	16	0.01
	2	Collar	42	38	0.01
	3	Slick	34	27	0.01
	4	Slick	29	28	0.01
	5	Collar	49	48	0.01
	6	Slick	36	33	0.01
	7	Slick	35	18	0.01
	8	Slick	18	16	0.01
	9	Slick	45	42	0.01
	10	Slick	54	41	0.01
	11	Slick	39	38	0.01
	12	Slick	49	48	0.01
	13	Slick	47	30	0.01
	14	Slick	14	12	0.01
	15	Slick	22	18	0.01
	16	Slick	28	23	0.01
	17	Mortar Start	18	16	3
	18	Mortar	23	19	8
	19	Mortar	23	21	6
	20	Slick	39	33	0.01
	21	Slick	14	10	0.01
	22	Slick	22	19	0.01
	23	Slick	30	26	0.01
	24	Slick	19	19	0.01
	25	Slick	32	27	0.01
	26	Slick	29	28	0.01
	27	Slick	40	30	0.01
	28	Slick	43	24	0.01
	29	Slick	23	20	0.01
	30	Slick	17	16	0.01
	31	Slick	22	18	0.01
	32	Slick	17	12	0.01
	33	Slick	22	20	0.01
	34	Slick	31	27	0.01
	35	Slick	20	16	0.01
	36	Slick	32	31	0.01
	37	Slick	34	32	0.01
	38	Slick	43	42	0.01
	39	Slick	51	41	0.01
	40	Slick	35	31	0.01
	41	Slick	48	42	0.01
	42	Slick	45	35	0.01
	43	Slick	31	26	0.01
	44	Slick	33	31	0.01
	45	Slick	35	30	0.01

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
CCC cont'd.	46	Slick	56	49	0.01
	47	Slick	45	28	0.01
	48	Slick	38	31	0.01
	49	Slick	33	28	0.01
	50	Slick	39	25	0.01
	51	Slick	34	31	0.01
	52	Slick	30	28	0.01
	53	Slick	38	29	0.01
	54	Slick	49	33	0.01
	55	Slick	27	25	0.01
	56	Slick	30	27	0.01
	57	Slick	49	48	0.01
	58	Slick	30	28	0.01
	59	Slick	36	22	0.01
	60	Slick	36	31	0.01
	61	Slick	36	15	0.01
	62	Slick	31	28	0.01
	63	Slick	51	31	0.01
	64	Basin	63	34	3
	65	Basin	30	26	5
	66	Slick	46	41	0.01
	67	Slick	36	32	0.01
	68	Slick	26	25	0.01
	69	Slick	36	34	0.01
	70	Slick	38	30	0.01
	71	Slick	32	30	0.01
	72	Slick	52	32	0.01
	73	Slick	36	34	0.01
	74	Slick	51	40	0.01
	75	Slick	42	29	0.01
	76	Slick	44	33	0.01
	77	Slick	39	35	0.01
	78	Slick	46	35	0.01
	79	Slick	28	25	0.01
	80	Slick	34	27	0.01
	81	Slick	47	34	0.01
	82	Slick	43	29	0.01
	83	Slick	30	23	0.01
	84	Slick	37	26	0.01
	85	Collar	46	44	1
	86	Slick	34	32	0.01
	87	Slick	34	25	0.01
	88	Slick	34	29	0.01
	89	Slick	34	24	0.01
	90	Slick	52	36	0.01
	91	Slick	38	31	0.01
	92	Slick	27	26	0.01
	93	Slick	27	18	0.01
	94	Mortar	24	22	10
	95	Slick	22	17	0.01
	96	Mortar	17	16	6
D	1	Slick	33	26	0.01
	2	Slick	47	35	0.01
DD	1	Mortar Start	21	19	3.5
	2	Collar	50	40	0.01
	3	Slick	43	40	0.01
	4	Slick	31	25	0.01
	5	Slick	26	19	0.01
	6	Slick	20	20	0.01
	7	Slick	23	21	0.01
	8	Slick	50	30	0.01

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
DD	9	Slick	40	38	0.01
cont'd.	10	Slick	29	25	0.01
	11	Slick	36	23	0.01
	12	Slick	41	36	0.01
	13	Slick	30	25	0.01
	14	Slick	32	30	0.01
DDD	1	Slick	54	28	0.01
	2	Slick	47	36	0.01
	3	Slick	30	29	0.01
	4	Slick	52	52	0.01
	5	Slick	39	26	0.01
	6	Slick	39	25	0.01
	7	Slick	62	30	0.01
	8	Slick	42	20	0.01
E	1	Slick	39	27	0.01
	2	Slick	22	16	0.01
	3	Basin	23	13	2
	4	Collar	42	23	0.01
	5	Slick	27	24	0.01
EE	1	Slick	38	35	0.01
EEE	1	Slick	27	27	0.01
F	1	Slick	36	32	0.01
	2	Slick	45	45	0.01
	3	Slick	52	28	0.01
	4	Slick	45	43	0.01
	5	Slick	26	21	0.01
	6	Slick	46	35	0.01
	7	Slick	26	14	0.01
	8	Slick	18	17	0.01
FF	1	Slick	32	26	0.01
	2	Slick	33	22	0.01
G	1	Rub	62	33	0.01
	2	Slick	29	29	0.01
	3	Slick	32	24	0.01
	4	Slick	27	26	0.01
	5	Slick	25	25	0.01
	6	Slick	29	28	0.01
GG	1	Slick	27	26	0.01
H	1	Basin	38	24	0.04
HH	1	Slick	32	27	0.01
	2	Slick	30	26	0.01
I	1	Rub	66	46	0.01
	2	Slick	30	26	0.01
	3	Slick	39	28	0.01
	4	Slick	32	23	0.01
	5	Slick	44	32	0.01
	6	Slick	41	34	0.01
	7	Slick	39	32	0.01
	8	Slick	45	44	0.01
	9	Rub	92	54	0.01
	10	Slick	50	42	0.01
	11	Basin	28	22	9
II	1	Slick	38	30	0.01
	2	Slick	48	25	0.01
	3	Slick	38	30	0.01
	4	Slick	34	18	0.01
	5	Slick	37	31	0.01
	6	Slick	22	17	0.01
	7	Slick	30	27	0.01
	8	Slick	33	25	0.01
	9	Slick	40	27	0.01

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
II	10	Slick	35	27	0.01
cont'd.	11	Slick	32	22	0.01
	12	Slick	41	32	0.01
	13	Slick	40	34	0.01
	14	Slick	28	27	0.01
J	1	Slick	35	23	0.01
JJ	1	Slick	34	28	0.01
	2	Slick	36	24	0.01
	3	Slick	37	26	0.01
	4	Slick	32	24	0.01
	5	Slick	23	16	0.01
	6	Slick	27	23	0.01
	7	Basin	26	16	2.5
	8	Slick	25	18	0.01
	9	Slick	24	14	0.02
	10	Slick	19	13	0.01
	11	Slick	27	16	0.01
	12	Basin	23	17	2.5
	13	Slick	41	28	0.01
	14	Slick	53	20	0.01
	15	Basin	24	16	2
	16	Slick	50	23	0.01
	17	Slick	20	20	0.01
	18	Slick	30	17	0.01
	19	Basin	26	19	4
	20	Collar	53	40	0.01
	21	Basin	24	19	2.5
	22	Slick	30	15	1
	23	Basin	24	18	4
	24	Slick	25	22	1.5
	25	Basin	24	17	3
	26	Slick	45	26	0.01
	27	Basin	25	16	3
	28	Slick	38	20	0.01
	29	Slick	38	26	0.01
	30	Basin	27	18	4
	31	Collar	44	41	0.01
	32	Slick	25	22	0.01
	33	Slick	28	23	0.01
	34	Slick	23	20	0.01
	35	Slick	30	24	0.01
	36	Slick	48	32	0.01
	37	Basin	27	15	3
	38	Slick	37	24	0.01
K	1	Slick	27	22	0.01
	2	Slick	27	23	0.01
	3	Slick	36	22	0.01
	4	Slick	28	24	0.01
	5	Slick	23	18	0.01
	6	Slick	14	12	0.01
KK	1	Slick	29	20	0.01
	2	Slick	31	30	0.01
	3	Slick	26	20	0.01
	4	Slick	28	20	0.01
	5	Slick	20	20	0.01
	6	Slick	31	30	0.01
	7	Slick	40	38	0.01
	8	Basin	29	28	2
	9	Slick	26	20	0.01
	10	Slick	37	22	0.01
	11	Slick	30	19	0.01

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
KK	12	Slick	30	27	0.01
cont'd.	13	Basin	27	21	4
	14	Basin	32	18	2
	15	Slick	29	20	0.01
	16	Slick	36	18	0.01
L	1	Slick	56	44	0.01
	2	Slick	24	18	0.01
LL	1	Slick	27	25	0.01
M	1	Slick	34	28	0.01
	2	Slick	20	17	0.01
	3	Slick	22	20	0.01
	4	Slick	26	24	0.01
	5	Slick	22	18	0.01
	6	Slick	20	17	0.01
	7	Basin	20	14	2
	8	Collar	36	29	0.01
	9	Slick	65	33	0.01
MM	1	Slick	32	24	0.01
	2	Slick	33	32	0.01
	3	Slick	31	26	0.01
	4	Slick	23	23	0.01
	5	Slick	20	20	0.01
	6	Slick	20	19	0.01
	7	Slick	23	22	0.01
	8	Slick	25	18	0.01
	9	Slick	33	20	0.01
	10	Slick	28	27	0.01
	11	Slick	31	27	0.01
	12	Slick	46	33	0.01
	13	Slick	39	21	0.01
	14	Slick	31	22	0.01
	15	Slick	25	23	0.03
	16	Slick	30	23	0.01
	17	Slick	29	26	0.01
	18	Slick	30	23	0.01
	19	Slick	25	23	0.01
N	1	Slick	20	20	0.01
	2	Slick	31	30	0.01
NN	1	Slick	23	18	0.01
	2	Slick	38	22	0.01
O	1	Slick	12	12	0.01
	2	Slick	20	15	0.01
OO	1	Slick	35	34	0.01
	2	Slick	39	35	0.01
P	1	Basin	25	14	3.5
	2	Slick	16	13	0.01
	3	Basin	19	14	3
	4	Collar	31	31	0.01
	5	Basin	16	15	1.5
	6	Collar	30	28	0.01
PP	1	Slick	20	18	0.01
	2	Slick	30	25	0.01
	3	Slick	30	25	0.01
	4	Slick	24	20	0.01
Q	1	Basin	25	22	2
	2	Slick	28	25	0.01
	3	Slick	23	22	0.01
QQ	1	Slick	38	30	0.01
R	1	Basin	24	18	3.5
	2	Slick	20	14	0.01
	3	Slick	22	16	0.01

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
RR	1	Slick	30	24	0.01
	2	Slick	26	24	0.01
	3	Slick	29	20	0.01
	4	Basin	23	21	2.5
	5	Slick	24	22	0.01
	6	Slick	30	23	0.01
	7	Slick	22	15	0.01
	8	Slick	30	30	0.01
	9	Slick	31	29	0.01
	10	Slick	30	24	0.01
	11	Basin	23	22	4
	12	Slick	33	33	0.01
	13	Slick	55	42	0.01
	14	Mortar Start	21	20	5
	15	Slick	45	20	0.01
	16	Slick	30	26	0.01
	17	Slick	29	20	0.01
	18	Slick	28	20	0.01
S	1	Basin	26	15	3.5
	2	Collar	39	23	0.01
	3	Slick	24	20	0.01
	4	Slick	30	26	0.01
	5	Slick	20	18	0.01
	6	Slick	33	29	0.01
	7	Slick	30	23	0.01
	8	Slick	43	34	0.01
	9	Slick	38	38	0.01
	10	Slick	30	30	0.01
	11	Slick	49	48	0.01
	12	Slick	50	34	0.01
	13	Slick	40	20	0.01
	14	Rub	62	40	0.01
	15	Slick	77	68	0.01
	16	Rub	95	53	0.01
	17	Slick	27	25	0.01
	18	Slick	33	26	0.01
	19	Slick	37	28	0.01
SS	1	Basin	30	30	2
	2	Mortar	20	20	4
	3	Slick	27	25	0.01
	4	Slick	29	26	0.01
	5	Slick	20	14	0.01
	6	Slick	32	20	0.01
	7	Slick	30	27	0.01
	8	Slick	24	18	0.01
	9	Slick	30	30	0.01
	10	Slick	40	31	0.01
	11	Slick	40	27	0.01
	12	Slick	34	32	0.01
T	1	Slick	22	14	0.01
TT	1	Slick	45	43	0.01
	2	Slick	40	32	0.01
	3	Slick	40	36	0.01
	4	Slick	36	25	0.01
	5	Slick	38	36	0.01
U	1	Slick	24	20	0.01
	2	Slick	24	17	0.01
	3	Slick	24	16	0.01
	4	Slick	20	18	0.01
	5	Basin	24	18	2
	6	Basin	28	17	4

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
U cont'd.	7	Slick	30	18	0.01
UU	1	Slick	27	20	0.01
	2	Slick	31	26	0.01
	3	Slick	24	19	0.01
	4	Slick	20	20	0.01
	5	Slick	30	27	0.01
	6	Basin	40	28	2
	7	Slick	40	34	0.01
	8	Slick	46	39	0.01
	9	Slick	34	27	0.01
	10	Slick	44	33	0.01
	11	Slick	35	28	0.01
	12	Slick	37	31	0.01
	13	Slick	29	27	0.01
	14	Basin	23	20	5
	15	Slick	53	32	0.01
	16	Slick	40	35	0.01
V	1	Slick	34	33	0.01
	2	Slick	26	22	0.01
	3	Basin	27	17	2
	4	Slick	27	20	0.01
	5	Slick	50	43	0.01
	6	Basin	22	16	2.5
	7	Slick	38	30	0.01
	8	Slick	35	25	0.01
	9	Slick	33	18	0.01
	10	Basin	27	18	2.5
	11	Slick	23	22	0.01
	12	Slick	32	26	0.01
	13	Slick	32	19	0.01
	14	Basin	22	16	3.5
	15	Slick	50	29	0.01
	16	Slick	21	18	0.01
	17	Slick	22	10	0.01
	18	Slick	29	22	0.01
VV	1	Slick	38	30	0.01
	2	Slick	23	18	0.01
	3	Slick	26	19	0.01
	4	Basin	20	18	5
	5	Slick	39	25	0.01
	6	Slick	39	24	0.01
W	1	Slick	17	14	0.01
	2	Slick	35	34	0.01
	3	Basin	25	14	0.01
	4	Basin	24	15	0.01
	5	Slick	46	27	0.01
	6	Slick	33	27	0.01
WW	1	Slick	23	22	0.01
	2	Slick	17	16	0.01
	3	Slick	34	23	0.01
	4	Slick	50	25	0.01
	5	Slick	30	30	0.01
	6	Basin	43	37	5
	7	Slick	29	26	0.01
	8	Slick	34	30	0.01
	9	Slick	31	29	0.01
	10	Slick	26	20	0.01
X	1	Slick	20	16	1.5
	2	Slick	74	37	0.01
XX	1	Slick	41	22	0.01

SDI-12,209 Bedrock Milling Feature Measurements					
Feature	Surface	Type	Length cm	Width c)	Depth cm
Y	1	Slick	30	23	0.01
YY	1	Slick	30	26	0.01
	2	Slick	41	37	0.01
Z	1	Slick	19	15	0.01
	2	Slick	40	16	0.01
ZZ	1	Slick	37	24	0.01
	2	Slick	38	30	0.01
	3	Slick	37	35	0.01
	4	Slick	47	41	0.01
	5	Slick	32	23	0.01
	6	Slick	34	27	0.01
	7	Mortar Start	22	16	3.5
	8	Slick	40	19	0.01
	9	Slick	44	22	0.01
	10	Slick	24	18	0.02
	11	Slick	22	18	0.01
	12	Slick	32	30	0.01
	13	Slick	31	25	0.01
	14	Slick	36	33	0.01
	15	Slick	27	27	0.01
	16	Basin	29	23	0.01
	17	Slick	38	35	0.01
	18	Slick	35	35	0.01
	19	Slick	39	27	0.01
	20	Slick	43	39	0.01
	21	Slick	32	26	0.01
	22	Slick	39	30	0.01
	23	Slick	36	32	0.01
	24	Slick	40	35	0.03
	25	Slick	47	32	0.02
	26	Slick	30	29	0.01
	27	Slick	28	28	0.01
	28	Collar	45	33	0.01
	29	Basin	30	20	1.5
	30	Slick	24	20	0.02
	31	Slick	47	30	0.01

APPENDIX C

Catalogs

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
1	Surface		Surface	1	Debitage	Com	Metavolcanic	1				2.1
2	Surface		Surface	14	Debitage	Com	Metavolcanic	4				8
3	Surface		Surface	20	Debitage	Com	Metavolcanic	8				13.2
4	Surface		Surface	19	Debitage	Com	Undiferentiated	2				1.4
5	Surface		Surface	18	Debitage	Com	Metavolcanic	6				3
6	Surface		Surface	15	Debitage	Com	Metavolcanic	1				1.9
7	Surface		Surface	17	Debitage	Com	Metavolcanic	3				1.1
8	Surface		Surface	13	Debitage	Com	Metavolcanic	2				0.6
9	Surface		Surface	12	Debitage	Com	Undiferentiated	3				1.6
10	Surface		Surface	11	Debitage	Com	Metavolcanic	1				1.4
11	Surface		Surface	10	Debitage	Com	Metavolcanic	2				12.6
12	Surface		Surface	9	Debitage	Com	Metavolcanic	1				0.5
13	Surface		Surface	13	Debitage	Com	Metavolcanic	21				29.8
14	Surface		Surface	7	Debitage	Com	Metavolcanic	18				23.9
15	Surface		Surface	6	Debitage	Com	Metavolcanic	9				6.3
16	Surface		Surface	5	Debitage	Com	Metavolcanic	12				12.7
17	Surface		Surface	4	Debitage	com	Metavolcanic	5				21.3
18	Surface		Surface	3	Debitage	Com	Metavolcanic	1				0.4
19	Surface		Surface	2	Debitage	Com	Metavolcanic	3				4.4
20	Surface		Surface	16	Debitage	Com	Undiferentiated	6				7.2
21	Surface		Surface	16	Angular Hammer	Com	Metavolcanic	1	50.1	56.76	52.69	191.4
22	STP	27	20-30 cm		Debitage	Com	Quartz	1				0.1
23	STP	27	10-20 cm		Debitage	Com	Metavolcanic	2				0.9
24	STP	27	0-10 cm		Debitage	Com	Metavolcanic	2				10.4
25	Surface		Surface	2	Debitage	Com	Metavolcanic	5				2.1
26	Surface		Surface	1	Debitage	Com	Metavolcanic	17				23.3
27	TU	5	20-30 cm		Debitage	Com	Metavolcanic	2				0.2
28	STP	22	10-20 cm		Debitage	Com	Metavolcanic	1				0.1
29	STP	3	10-20 cm		Debitage	Com	Metavolcanic	2				3
30	STP	11	0-10 cm		Debitage	Com	PDL	1				1.3
31	STP	11	10-20 cm		Debitage	Com	Metavolcanic	1				4.1
32	STP	21	0-10 cm		Debitage	Com	Metavolcanic	1				0.3
33	STP	14	0-10 cm		Debitage	Com	Metavolcanic	1				1.3
34	STP	20	10-20 cm		Debitage	Com	Metavolcanic	1				0.1
35	STP	15	0-10 cm		Debitage	Com	Metavolcanic	1				4.5
36	TU	1	0-10 cm		Debitage	Com	Metavolcanic	1				0.1
37	STP	22	20-30 cm		Debitage	Com	Metavolcanic	1				0.1

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
38	STP	7	10-20 cm		Debitage	Com	Metavolcanic	2				0.2
39	STP	7	20-30 cm		Debitage	Com	Metavolcanic	3				2
40	STP	7	0-10 cm		Debitage	Com	Undiferentiated	2				4
41	STP	7	0-10 cm		Ceramic	Frag	Brown ware	1				1.2
42	STP	7	30-40 cm		Debitage	Com	Metavolcanic	3				11.3
43	TU	3	20-30 cm		Debitage	Com	Metavolcanic	2				0.2
44	TU	3	10-20 cm		Debitage	Com	Undiferentiated	3				0.8
45	TU	3	0-10 cm		Debitage	Com	Metavolcanic	2				24.7
46	TU	4	0-10 cm		Debitage	Com	Undiferentiated	4				4.8
47	TU	4	0-10 cm		Ceramic	Frag	Brown ware	1				1.4
48	TU	4	50-60 cm		Debitage	Com	Undiferentiated	7				8.8
49	TU	4	40-50 cm		Debitage	Com	Undiferentiated	8				8
50	TU	4	30-40 cm		Debitage	Com	Undiferentiated	10				8.2
51	TU	4	20-30 cm		Debitage	Com	Undiferentiated	10				6
52	TU	4	20-30 cm		Ceramic	Frag	Brown ware	1				0.3
53	TU	4	10-20 cm		Debitage	Com	Undiferentiated	17				6.7
54	TU	1	0-10 cm		Debitage	Com	Metavolcanic	3				2.5
55	TU	2	10-20 cm		Debitage	Com	Metavolcanic	4				0.8
56	TU	2	0-10 cm		Debitage	Com	Metavolcanic	1				0.1
57	TU	2	30-40 cm		Debitage	Com	Metavolcanic	1				0.5
58	TU	2	20-30 cm		Debitage	Com	Undiferentiated	7				1.4
59	TU	3	0-10 cm		Angular Hammer Flake	Com	Metavolcanic	1				15.4

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
1	STP	18	30-40cm		Debitage	Com	Metavolcanic	2				1.9
2	STP	9	70-80 cm		Debitage	Com	Quartz	1				0.7
3	STP	9	60-70 cm		Debitage	Com	Quartz	2				0.2
4	STP	16	20-30 cm		Debitage	Com	Metavolcanic	3				23.9
5	STP	16	10-20 cm		Debitage	Com	Metavolcanic	1				1.7
6	STP	16	0-10 cm		Debitage	Com	Undiferentiated	5				6.8
7	STP	18	20-30 cm		Debitage	Com	Undiferentiated	2				1.4
8	STP	18	10-20 cm		Debitage	Com	Metavolcanic	1				0.1
9	STP	15	10-20 cm		Debitage	Com	Metavolcanic	3				19.8
10	STP	19	0-10 cm		Debitage	Com	Quartz	2				5.8
11	STP	19	0-10 cm		Historic	Frag	Ceramic	1				1
12	STP	14	50-60 cm		Debitage	Com	Undiferentiated	2				0.1
13	STP	14	40-50 cm		Debitage	Com	Undiferentiated	12				1
14	STP	14	30-40 cm		Debitage	Com	Undiferentiated	11				2.3
15	STP	14	20-30 cm		Debitage	Com	Undiferentiated	10				4.2
16	STP	14	10-20 cm		Debitage	Com	Undiferentiated	5				1.6
17	STP	14	0-10 cm		Debitage	Com	Undiferentiated	8				4
18	STP	14	30-40 cm		Debitage	Com	Undiferentiated	4				0.6
19	STP	21	0-10 cm		Debitage	Com	Undiferentiated	5				1.5
20	STP	21	80-90 cm		Debitage	Com	Metavolcanic	4				0.8
21	STP	21	30-40 cm		Debitage	Com	Undiferentiated	7				5.7
22	STP	21	20-30 cm		Debitage	Com	Undiferentiated	2				3.5
23	STP	17	10-20 cm		Debitage	Com	Undiferentiated	2				0.9
24	STP	19	20-30 cm		Debitage	Com	Metavolcanic	1				0.2
25	STP	19	20-30 cm		Ceramic	Frag	Brown Ware	1				0.6
26	STP	19	20-30 cm		Faunal	Frag	Bone	1				0.1
27	STP	19	10-20 cm		Faunal	Frags	Bone	1				0.1
28	STP	19	10-20 cm		Debitage	Com	Undiferentiated	13				4.5
29	STP	10	60-70 cm		Debitage	Com	Undiferentiated	2				0.2
30	STP	10	50-60 cm		Debitage	Com	Quartz	2				3.7
31	STP	17	30-40 cm		Debitage	Com	Metavolcanic	1				0.2
32	STP	17	20-30 cm		Debitage	Com	Undiferentiated	2				0.3
33	STP	10	30-40 cm		Debitage	Com	Undiferentiated	2				5.9
34	STP	10	20-30 cm		Debitage	Com	Quartz	4				1.3
35	STP	10	10-20 cm		Debitage	Com	Quartz	2				0.6
36	STP	10	0-10 cm		Debitage	Com	Quartz	2	57.16	50.37	17.6	1
37	STP	6	40-50 cm		Debitage	Com	Quartz	1				0.1

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
38	STP	6	30-40 cm		Non artifact	Frag	Non artifact	1				0.1
39	STP	6	20-30 cm		Debitage	Com	Quartz	1				0.4
40	STP	19	0-10 cm		Debitage	Com	Undiferentiated	27				7.1
41	STP	19	0-10 cm		Faunal	Frags	Bone	2				0.1
42	STP	19	0-10 cm		Ceramic	Frags	Brown Ware	2				13.3
43	STP	20	0-10 cm		Debitage	Com	Undiferentiated	12				2.1
44	STP	20	0-10 cm		Faunal	Frags	Bone	2				0.1
45	STP	17	0-10 cm		Debitage	Com	Undiferentiated	2				0.7
46	STP	10	40-50 cm		Debitage	Com	Undiferentiated	3				0.3
47	STP	6	10-20 cm		Debitage	Com	Quartz	2				1.1
48	STP	6	0-10 cm		Debitage	Com	Quartz	2				0.1
49	STP	20	20-30 cm		Debitage	Com	Metavolcanic	4				0.4
50	STP	20	30-40 cm		Debitage	Com	Metavolcanic	1				0.1
51	STP	20	10-20 cm		Debitage	Com	Metavolcanic	1				0.2
52	TU	2	10-20 cm		Debitage	Com	Undiferentiated	198				102.7
53	TU	2	10-20 cm		Steep Edge Unifacial Tool	Com	Metavolcanic	1	46.96	36.11	22.65	41.4
54	TU	2	10-20 cm		Ceramic	Com	Brown Ware	7				10.1
55	TU	2	10-20 cm		Projectile Point	Frag	Quartz	1	17.9	12.5	4.1	0.7
56	TU	2	10-20 cm		Faunal	Frag	Bone	46				8.8
57	TU	2	20-30 cm		Debitage	Com	Undiferentiated	95				70
58	TU	2	20-30 cm		Ceramic	Frag	Brown Ware	2				3
59	TU	2	20-30 cm		Faunal	Frag	Bone	48				5.4
60	TU	3	20-30 cm		Debitage	Com	Undiferentiated	155				42.5
61	TU	3	20-30 cm		Faunal	Frags	Bone	3				0.2
62	TU	3	20-30 cm		Projectile Point	Frag	Quartz	1	17.8	17.9	4.8	1.3
63	TU	3	20-30 cm		Projectile Point	Frag	Metavolcanic	1	30.3	15.8	5	2
64	STP	21	40-50 cm		Debitage	Com	Undiferentiated	3				1.2
65	TU	2	60-70 cm		Debitage	Com	Undiferentiated	93				43.3
66	TU	2	60-70 cm		Steep Edge Unifacial Tool	Com	Metavolcanic	1	38.91	37.83	21.47	44.6
67	TU	2	60-70 cm		Projectile Point	Frag	Metavolcanic	1	9.6	11.8	2.3	0.2
68	TU	2	60-70 cm		Faunal	Frags	Bone	49				4.3
69	TU	1	10-20 cm		Debitage	Com	Undiferentiated	43				12.6
70	TU	1	10-20 cm		Faunal	Frag	Bone	1				0.2
71	TU	2	30-40 cm		Ceramic	Frag	Brown Ware	1				2.4
72	TU	2	30-40 cm		Debitage	Com	Obsidian	1				0.4
73	TU	2	30-40 cm		Debitage	Com	Undiferentiated	73				48.8
74	TU	2	30-40 cm		Faunal	Frags	Bone	44				4.1

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
75	TU	2	40-50 cm		Debitage	Com	Undiferentiated	45				95.7
76	TU	2	40-50 cm		Core	Frag	Quartz	1	48.94	40.49	26.69	64.1
77	TU	2	40-50 cm		Angular Hammer	Com	Metavolcanic	1	52.44	45.98	27.03	77
78	TU	2	40-50 cm		Utilized Flake	Com	Quartzite	1	77.28	59.91	12.98	77.2
79	TU	2	40-50 cm		Faunal	Frags	Bone	45				5.3
80	TU	2	0-10 cm		Ceramic	Frags	Brown Ware	9				5.9
81	TU	2	0-10 cm		Faunal	Frags	Bone	27				4.9
82	TU	2	0-10 cm		Debitage	Com	Undiferentiated	151				0.1
83	TU	1	20-30 cm		Debitage	Com	Undiferentiated	39				25.4
84	TU	1	30-40 cm		Debitage	Com	Undiferentiated	42				14.3
85	TU	1	0-10 cm		Faunal	Frags	Bone	2				0.1
86	TU	1	0-10 cm		Debitage	Com	Undiferentiated	42				16.2
87	TU	1	50-60 cm		Debitage	Com	Undiferentiated	9				1.6
88	TU	3	50-60 cm		Biface	Frag	Volcanic	1	33.7	27.3	7.3	6.7
89	TU	3	50-60 cm		Faunal	Frag	Bone	1				0.3
90	TU	3	50-60 cm		Angular Hammer	Com	Metavolcanic	1	65.38	51.32	47.48	234.1
91	TU	3	50-60 cm		Debitage	Com	Undiferentiated	131				48.8
92	TU	2	70-80 cm		Debitage	Com	Undiferentiated	41				20.5
93	TU	2	70-80 cm		Faunal	Frags	Bone	42				4.9
94	TU	3	80-90 cm		Debitage	Com	Undiferentiated	3				0.7
95	TU	3	40-50 cm		Faunal	Frag	Bone	4				0.3
96	TU	3	40-50 cm		Debitage	Com	Undiferentiated	137				87
97	TU	3	60-70 cm		Faunal	Frags	Bone	2				0.2
98	TU	3	60-70 cm		Debitage	Com	Undiferentiated	54				23.5
99	TU	2	50-60 cm		Debitage	Com	Undiferentiated	64				40
100	TU	2	50-60 cm		Debitage	Com	Obsidian	1				0.1
101	TU	2	50-60 cm		Faunal	Frags	Bone	59				4.8
102	TU	1	40-50 cm		Faunal	Frags	Bone	2				0.05
103	TU	3	10-20 cm		Faunal	Frags	Bone	4				0.5
104	TU	3	10-20 cm		Debitage	Com	Undiferentiated	134				109.9
105	STP	14	70-80 cm		Debitage	Com	Undiferentiated	7				4.4
106	STP	14	60-70 cm		Debitage	Com	Undiferentiated	11				28.7
107	TU	3	70-80 cm		Debitage	Com	Undiferentiated	20				3.6
108	STP	3	30-40 cm		Debitage	Com	Quartz	1				0.3
109	STP	3	0-10 cm		Debitage	Com	Quartz	1				0.1
110	STP	3	10-20 cm		Debitage	Com	Quartz	2				0.6
111	STP	3	20-30 cm		Debitage	Com	Metavolcanic	1				0.1

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
112	TU	3	30-40 cm		Core	Com	PDL	1	64.18	55.77	34.15	122.9
113	TU	3	30-40 cm		Debitage	Com	Undiferentiated	137				51.4
114	TU	3	0-10 cm		Ceramic	Frag	Brown Ware	1				2.5
115	TU	3	0-10 cm		Debitage	Com	Volcanic	1				29.1
116	TU	3	0-10 cm		Fire Affected Rock	Frag		1				41.1
117	TU	3	0-10 cm		Debitage	Com	Undiferentiated	65				46.9
118	STP	8	10-20 cm		Debitage	Com	Quartz	1				0.5
119	STP	8	20-30 cm		Debitage	Com	Quartz	1				0.1
120	STP	4	0-10 cm		Debitage	Com	Undiferentiated	3				0.3
121	STP	4	10-20 cm		Debitage	Com	Undiferentiated	3				2.8
122	STP	4	20-30 cm		Debitage	Com	Undiferentiated	2				0.7
123	STP	4	30-40 cm		Debitage	Com	Metavolcanic	1				0.3
124	STP	4	40-50 cm		Debitage	Com	Quartz	2				0.6
125	STP	24	0-10 cm		Debitage	Com	Metavolcanic	1				0
126	STP	24	0-10 cm		Faunal	Frag	Shell	1				0.05
127	STP	9	20-30 cm		Debitage	Com	Quartz	2				3
128	STP	9	10-20 cm		Debitage	Com	Quartz	2				0.1
129	STP	9	0-10 cm		Debitage	Com	Quartz	3				1.1
130	STP	9	30-40 cm		Debitage	Com	Quartz	5				1.2
131	STP	9	40-50 cm		Faunal	Com	Bone	2				0.3
132	STP	9	40-50 cm		Debitage	Com	Quartz	8				1.4
133	STP	9	50-60 cm		Debitage	Com	Quartz	2				0.8
134	STP	21	50-60 cm		Faunal	Frag	Bone	1				0.05
135	STP	21	50-60 cm		Debitage	Com	Undiferentiated	5				2.4
136	STP	22	0-10 cm		Debitage	Com	Metavolcanic	1				0.1
137	STP	5	0-10 cm		Debitage	Com	Quartz	3				4.9
138	STP	5	10-20 cm		Debitage	Com	Quartz	5				0.9
139	STP	5	20-30 cm		Debitage	Com	Quartz	6				1.4
140	STP	5	60-70 cm		Debitage	Com	Quartz	4				1.1
141	STP	5	30-40 cm		Debitage	Com	Quartz	6				1.4
142	STP	5	40-50 cm		Debitage	Com	Quartz	3				1.5
143	STP	5	50-60 cm		Faunal	Frags	Bone	4				0.2
144	STP	5	50-60 cm		Debitage	Com	Quartz	3				0.3
145	STP	21	70-80 cm		Debitage	Com	Undiferentiated	2				0.1
146	STP	21	60-70 cm		Debitage	Com	Undiferentiated	2				0.5
147	STP	21	10-20 cm		Non Artifact			0				0
148	Surface			30	Debitage	Com	Volcanic	1				0.8

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
149	Surface			3	Debitage	Com	Undiferentiated	4				4.6
150	Surface			5	Debitage	Com	Undiferentiated	3				3.8
151	Surface			63	Debitage	Com	Undiferentiated	2				1.7
152	Surface			27	Debitage	Com	Quartz	4				5.5
153	Surface			62	Flake Tool	Com	Metavolcanic	1	33.42	42.22	10.37	21.5
154	Surface			61	Debitage	Com	Undiferentiated	3				10
155	Surface			52	Debitage	Com	Undiferentiated	6				19.8
156	Surface			53	Debitage	Com	Undiferentiated	3				8.9
157	Surface			73	Debitage	Com	Quartz	6				7.2
158	Surface			64	Debitage	Com	Metavolcanic	1				4
159	Surface			12	Debitage	Com	Metavolcanic	1				3
160	Surface			37	Debitage	Com	Metavolcanic	2				15.4
161	Surface			15	Debitage	Com	Quartz	2				0.5
162	Surface			6	Debitage	Com	Undiferentiated	3				12.6
163	Surface			2	Debitage	Com	Quartz	2				1.5
164	Surface			1	Debitage	Com	Quartz	2				3.9
165	Surface			9	Debitage	Com	Undiferentiated	4				12.4
166	Surface			82	Debitage	Com	Quartz	4				12.3
167	Surface			7	Debitage	Com	Metavolcanic	1				9.9
168	Surface			57	Debitage	Com	Undiferentiated	3				13.9
169	Surface			213	Debitage	Com	Quartz	1				8.4
170	Surface			211	Ceramic	Frag	Brown Ware	1				4.3
171	Surface			25	Debitage	Com	Undiferentiated	2				4.3
172	Surface			212	Debitage	Com	Undiferentiated	3				40.6
173	Surface			214	Non Artifact			0				0
174	Surface			39	Debitage	Com	Undiferentiated	2				3.4
175	Surface			36	Flake Tool	Com	Metavolcanic	1				51.1
176	Surface			36	Debitage	Com	Quartz	1				1
177	Surface			60	Debitage	Com	Undiferentiated	3				4.6
178	Surface			55	Debitage	Com	Undiferentiated	12				10.3
179	Surface			4	Debitage	Com	Undiferentiated	9				11.9
180	Surface			16	Debitage	Com	Undiferentiated	3				1.2
181	Surface			21	Debitage	Com	Quartz	1				0.4
182	Surface			108	Debitage	Com	Undiferentiated	2				0.6
183	Surface			18	Debitage	Com	Undiferentiated	2				0.8
184	Surface			24	Debitage	Com	Quartz	2				1.2
185	Surface			48	Debitage	Com	Quartz	3				1.2

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
186	Surface			45	Debitage	Com	Undiferentiated	4				10.8
187	Surface			17	Debitage	Com	Undiferentiated	3				5.7
188	Surface			59	Ceramic	Frag	Brown Ware	1				2
189	Surface			59	Debitage	Com	Undiferentiated	5				30.3
190	Surface			28	Debitage	Com	Undiferentiated	7				12
191	Surface			80	Debitage	Com	Quartz	2				0.8
192	Surface			76	Ceramic	Frag	Brown Ware	1				8.1
193	Surface			76	Debitage	Com	Quartz	2				2.2
194	Surface			79	Debitage	Com	Quartz	5				5.2
195	Surface			77	Debitage	Com	Metavolcanic	1				4.7
196	Surface			50	Debitage	Com	Undiferentiated	8				12.1
197	Surface			32	Debitage	Com	Undiferentiated	2				5.1
198	Surface			38	Debitage	Com	Quartz	2				1.6
199	Surface			31	Debitage	Com	Undiferentiated	3				8.5
200	Surface			69	Debitage	Com	Quartz	1				3.9
201	Surface			19	Debitage	Com	Quartz	1				0.7
202	Surface			65	Debitage	Com	Undiferentiated	3				7.6
203	Surface			51	Debitage	Com	Quartz	1				0.7
204	Surface			42	Debitage	Com	Undiferentiated	6				4.7
205	Surface			10	Debitage	Com	Quartz	3				1.2
206	Surface			44	Debitage	Com	Undiferentiated	8				8.5
207	Surface			84	Debitage	Com	Quartz	4				5.9
208	Surface			20	Debitage	Com	Quartz	2				0.5
209	Surface			8	Debitage	Com	Undiferentiated	2				9.3
210	Surface			23	Debitage	Com	Quartz	3				1.4
211	Surface			34	Debitage	Com	Volcanic	1				112.3
212	Surface			197	Debitage	Com	Quartz	2				0.5
213	Surface			102	Debitage	Com	Undiferentiated	2				0.3
214	Surface			102	Ceramic	Frags	Brown Ware	7				12.9
215	Surface			95	Debitage	Com	Undiferentiated	2				5.1
216	Surface			90	Debitage	Com	Quartz	1				6.5
217	Surface			22	Debitage	Com	Metavolcanic	1				9.2
218	Surface			35	Debitage	Com	Metavolcanic	1				2.7
219	Surface			85	Debitage	Com	Undiferentiated	6				40.3
220	Surface			49	Debitage	Com	Undiferentiated	2				1.8
221	Surface			49	Faunal	Frag	Shell	1				1.6
222	Surface			46	Debitage	Com	Undiferentiated	4				8

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
223	Surface			56	Debitage	Com	Undiferentiated	5				10.6
224	Surface			62	Debitage	Com	Quartz	2				1.9
225	Surface			58	Debitage	Com	Quartz	3				6.3
226	Surface			67	Debitage	Com	Quartz	1				4.1
227	Surface			81	Debitage	Com	Quartz	2				4.3
228	Surface			43	Debitage	Com	Undiferentiated	4				6.7
229	Surface			47	Debitage	Com	Quartz	4				0.8
230	Surface			87	Debitage	Com	Undiferentiated	3				3.8
231	Surface			98	Ceramic	Frag	Brown Ware	1				3.6
232	Surface			98	Debitage	Com	Metavolcanic	1				12.9
233	Surface			92	Debitage	Com	Quartz	1				0.2
234	Surface			91	Debitage	Com	Quartz	1				4.5
235	Surface			91	Faunal	Frag	Shell	1				0.3
236	Surface			96	Debitage	Com	Obsidian	1				0.9
237	Surface			94	Ceramic	Frag	Brown Ware	1				2.6
238	Surface			94	Debitage	Com	Quartz	1				0.5
239	Surface			83	Debitage	Com	Quartz	4				4.9
240	Surface			78	Debitage	Com	Quartz	6				4.1
241	Surface			78	Ceramic	Frag	Brown Ware	1				1.8
242	Surface			74	Debitage	Com	Undiferentiated	6				15.6
243	Surface			26	Debitage	Com	Undiferentiated	6				9.7
244	Surface			29	Debitage	Com	Undiferentiated	3				9.5
245	Surface			210	Debitage	Com	Quartz	1				3
246	Surface			97	Debitage	Com	Undiferentiated	2				4.1
247	Surface			104	Debitage	Com	Quartz	1				1.5
248	Surface			86	Debitage	Com	Undiferentiated	5				21.4
249	Surface			190	Debitage	Com	Quartz	7				5.9
250	Surface			144	Debitage	Com	Undiferentiated	9				5.2
251	Surface			138	Debitage	Com	Undiferentiated	3				3.3
252	Surface			124	Debitage	Com	Undiferentiated	7				48.3
253	Surface			132	Debitage	Com	Undiferentiated	2				8.2
254	Surface			111	Debitage	Com	Metavolcanic	1				0.5
255	Surface			100	Fire Affected Rock	Com	Metavolcanic	1				70.7
256	Surface			119	Debitage	Com	Undiferentiated	5				64.2
257	Surface			93	Debitage	Com	Quartz	1				1.5
258	Surface			105	Debitage	Com	Undiferentiated	6				25.3
259	Surface			105	Ceramic	Frag	Brown Ware	1				3.2

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
260	Surface			134	Debitage	Com	Undiferentiated	5				34.4
261	Surface			101	Ceramic	Frag	Brown Ware	1				15.3
262	Surface			68	Debitage	Com	Undiferentiated	3				6.6
263	Surface			11	Debitage	Com	Undiferentiated	2				9.2
264	Surface			109	Mano	Frag	Granitic	1	93.06	99.31	41.21	574.9
265	Surface			109	Debitage	Com	Quartz	1				3.8
266	Surface			41	Groundstone	Frag	Granitic	1	82.83	80.1	56.43	506.4
267	Surface			41	Debitage	Com	Metavolcanic	2				3.8
268	Surface			54	Debitage	Com	Undiferentiated	3				19.4
269	Surface			117	Debitage	Com	Metavolcanic	2				22.7
270	Surface			40	Non Artifact			0				0
271	Surface			66	Core	Frag	Quartz	1	54.57	31.41	24.91	48.7
272	Surface			66	Debitage	Com	Metasedimentary	1				27.2
273	Surface			110	Mano	Frag	Granitic	1	60.85	83.19	45.71	369
274	Surface			110	Mano	Frag	Granitic	1	65.37	62.27	52.35	271.8
275	Surface			72	Debitage	Com	Quartz	5				3.6
276	Surface			13	Debitage	Com	Undiferentiated	3				6
277	Surface			33	Debitage	Com	Undiferentiated	5				9.7
278	Surface			33	Debitage	Com	Obsidian	1				4.6
279	Surface			75	Debitage	Com	Undiferentiated	7				20.8
280	Surface			122	Debitage	Com	Undiferentiated	8				33.7
281	Surface			70	Debitage	Com	Quartz	4				3.5
282	Surface			150	Debitage	Com	Quartz	1				3.3
283	Surface			129	Debitage	Com	Undiferentiated	6				22.3
284	Surface			195	Debitage	Com	Quartz	1				2.9
285	Surface			172	Debitage	Com	Quartz	2				1.7
286	Surface			130	Debitage	Com	Metavolcanic	4				3.7
287	Surface			175	Debitage	Com	Quartz	1				0.5
288	Surface			146	Debitage	Com	Quartz	1				3.2
289	Surface			126	Debitage	Com	Metavolcanic	3				5
290	Surface			121	Debitage	Com	Undiferentiated	3				3.4
291	Surface			177	Debitage	Com	Quartz	2				2.5
292	Surface			14	Debitage	Com	Undiferentiated	2				2.7
293	Surface			136	Debitage	Com	Undiferentiated	3				15.2
294	Surface			135	Debitage	Com	Metavolcanic	2				4.3
295	Surface			135	Ceramic	Frag	Brown Ware	1				1.8
296	Surface			133	Debitage	Com	Undiferentiated	4				8.4

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
297	Surface			128	Debitage	Com	Undiferentiated	6				9.8
298	Surface			167	Debitage	Com	Quartz	2				4.9
299	Surface			71	Debitage	Com	Quartz	8				10.9
300	Surface			161	Debitage	Com	Quartz	1				2.2
301	Surface			193	Debitage	Com	Quartz	1				5.1
302	Surface			131	Debitage	Com	Undiferentiated	2				2.6
303	Surface			142	Debitage	Com	Undiferentiated	21				20.4
304	Surface			114	Debitage	Com	Quartz	1				3
305	Surface			162	Debitage	Com	Quartz	1				6.8
306	Surface			202	Debitage	Com	Quartz	1				1
307	Surface			106	Debitage	Com	Metavolcanic	3				5.3
308	Surface			166	Debitage	Com	Quartz	7				16.2
309	Surface			194	Debitage	Com	Quartz	2				2.5
310	Surface			112	Debitage	Com	Metavolcanic	1				10.4
311	Surface			203	Debitage	Com	Metavolcanic	1				3.9
312	Surface			206	Debitage	Com	Metavolcanic	1				0.4
313	Surface			149	Debitage	Com	Quartz	3				2.5
314	Surface			200	Debitage	Com	Metavolcanic	1				13.2
315	Surface			205	Debitage	Com	Undiferentiated	2				9.5
316	Surface			182	Debitage	Com	Quartz	1				4.4
317	Surface			165	Debitage	Com	Quartz	2				1.2
318	Surface			178	Debitage	Com	Quartz	1				0.4
319	Surface			204	Debitage	Com	Metavolcanic	2				1.7
320	Surface			201	Debitage	Com	Quartz	4				11.7
321	Surface			171	Debitage	Com	Quartz	2				2.2
322	Surface			154	Debitage	Com	Quartz	1				0.9
323	Surface			143	Debitage	Com	Quartz	5				11
324	Surface			143	Ceramic	Frags	Brown Ware	2				7.5
325	Surface			158	Debitage	Com	Quartz	2				1.3
326	Surface			179	Debitage	Com	Quartz	1				1.1
327	Surface			169	Debitage	Com	Quartz	2				11.2
328	Surface			168	Debitage	Com	Quartz	2				0.8
329	Surface			185	Debitage	Com	Quartz	3				4.8
330	Surface			159	Debitage	Com	Quartz	2				1.7
331	Surface			187	Debitage	Com	Quartz	3				1.8
332	Surface			199	Debitage	Com	Quartz	1				12.1
333	Surface			164	Debitage	Com	Metavolcanic	1				0.5

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
334	Surface			163	Debitage	Com	Quartz	1				13.6
335	Surface			196	Biface	Com	Quartz	1	24.9	23	7.9	4.4
336	Surface			181	Debitage	Com	Quartz	3				2.3
337	Surface			147	Debitage	Com	Quartz	2				1
338	Surface			127	Debitage	Com	Undiferentiated	17				62.5
339	Surface			160	Debitage	Com	Quartz	1				0.9
340	Surface			157	Debitage	Com	Quartz	1				3.2
341	Surface			148	Debitage	Com	Quartz	1				0.4
342	Surface			153	Debitage	Com	Quartz	1				8.2
343	Surface			151	Debitage	Com	Quartz	1				2
344	Surface			156	Debitage	Com	Undiferentiated	2				18.3
345	Surface			155	Debitage	Com	Undiferentiated	3				26
346	Surface			176	Debitage	Com	Quartz	1				0.6
347	Surface			208	Debitage	Com	Quartz	5				8.4
348	Surface			116	Debitage	Com	Undiferentiated	4				20.2
349	Surface			174	Debitage	Com	Quartz	1				1.3
350	Surface			207	Debitage	Com	Undiferentiated	2				4
351	Surface			183	Debitage	Com	Quartz	2				1.7
352	Surface			140	Debitage	Com	Undiferentiated	2				20.4
353	Surface			180	Debitage	Com	Quartz	2				0.8
354	Surface			170	Debitage	Com	Quartz	1				4.1
355	Surface			192	Debitage	Com	Quartz	3				2.4
356	Surface			123	Debitage	Com	Metavolcanic	4				3.6
357	Surface			113	Debitage	Com	Metavolcanic	1				3
358	Surface			186	Debitage	Com	Quartz	2				1.7
359	Surface			184	Debitage	Com	Undiferentiated	5				15.4
360	Surface			137	Debitage	Com	Undiferentiated	10				9.1
361	Surface			191	Debitage	Com	Metavolcanic	1				9.9
362	Surface			198	Debitage	Com	Quartz	1				3.4
363	Surface			173	Debitage	Com	Quartz	1				7.6
364	Surface			103	Debitage	Com	Undiferentiated	4				30.6
365	Surface			103	Ceramic	Frag	Brown Ware	1				2.6
366	Surface			145	Debitage	Com	Undiferentiated	2				15.9
367	Surface			152	Debitage	Com	Undiferentiated	5				52.7
368	Surface			189	Debitage	Com	Quartz	1				11.8
369	Surface			89	Debitage	Com	Undiferentiated	2				2.8
370	Surface			107	Debitage	Com	Quartz	1				0.2

CAT NO	UNIT TYPE	UNIT	LEVEL	FEAT/ITEM NO	ARTIFACT	PORTION	MATERIAL	QUAN	LENGTH	WIDTH	THICK	WEIGHT (g)
371	Surface			120	Debitage	Com	Undiferentiated	2				4.3
372	Surface			88	Debitage	Com	Quartz	1				0.4
373	Surface			139	Core	Frag	Metavolcanic	1				28
374	Surface			139	Debitage	Com	Metavolcanic	1				0.4
375	Surface			115	Debitage	Com	Metavolcanic	1				1.9
376	Surface			125	Debitage	Com	Undiferentiated	7				9.9
377	Surface			141	Debitage	Com	Undiferentiated	10				60.7
378	Surface			188	Debitage	Com	Quartz	2				4.9
379	Surface			118	Debitage	Com	Undiferentiated	3				17.9
380	Surface			118	Projectile Point	Frag	Quartz	1	15.7	11.6	4.2	0.7
381	Surface			99	Debitage	Com	Metavolcanic	2				0.8
382	Surface			152	Drill	Com	Quartz	1	38.2	23.2	7.6	4.1
383	Surface			143	Biface	Frag	Quartz	1	36.7	22.9	8.5	5
384	Surface			125	Biface	Frag	Quartz	1	23.3	18.8	6	2.8
385	Surface			133	Biface	Frag	Metavolcanic	1	25.1	28.8	6.7	6.2
386	Surface			127	Crystal	Com	Quartz	1	18.43	15.58	10.27	3.7
387	Surface			127	Biface	Frag	Quartz	1	25.3	13	6.7	2.6
388	Surface			82	Biface	Com	Quartz	1	32.1	21.5	11.6	9.3
389	Surface			74	Angular Hammer Flake	Com	Metavolcanic	1	31	29.21	8.39	6.9
390	Surface			136	Biface	Frag	Quartz	1	47.3	12.5	9	5.8
391	Surface			57	Biface	Frag	Quartz	1	26.4	19.9	8.5	4.4
392	Surface			42	Biface	Frag	Quartz	1	15	16.4	5.2	1.3
393	TU	3	20-30 cm		Biface	Frag	Quartz	1	23.4	14.6	6.4	1.9
394	TU	2	60-70 cm		Biface	Frag	Quartz	1	31.7	14.5	5.2	1.8
395	TU	2	60-70 cm		Flake Tool	Com	Metavolcanic	1	29.6	25.15	11.32	10.2
396	TU	1	40-50 cm		Debitage	Com	Undiferentiated	10				2.3

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Cat No.	Unit	Level	Specimen	Element	Portion	Side	Br. Ct	Br. Wt	Bl Ct.	Bl Wt.	Ca Ct.	Ca Wt.	Cut Ct.	Method	Quan	Weight (g)	Comments
26	STP 19	20-30 cm	sm. Mam	unid	frag	-									1	0.1	
27	STP 19	10-20 cm	sm. Mam	unid	frag	-									1	.1	
41	STP 19	0-10 cm	Rodentia	Incisor	frag	-	1	0.1							1	0.1	root etching,
41	STP 19	0-10 cm	sm. Mam	unid	frag	-									1	<0.1	
44	STP 20	0-10 cm	sm. Mam	unid	frag	-									1	<0.1	
44	STP 20	0-10 cm	sm. Mam	unid	frag	-					1	0			1	<0.1	
56	TU 2	10-20 cm	Thomomys bottae	Mandible & incisor		L									1	<0.1	
56	TU 2	10-20 cm	Thomomys bottae	innominate	frag	-									1	0.1	weathered
56	TU 2	10-20 cm	4	femur	almost complete	L									1	0.1	
56	TU 2	10-20 cm	snake	vertebra	complete	-									1	0.2	
56	TU 2	10-20 cm	Aves	tibiotarsus	distal	R	1	0.4							1	0.1	
56	TU 2	10-20 cm	sm. Mam	longbone	frag	-	7	0.6			1	<0.1			1	0.4	
56	TU 2	10-20 cm	sm. Mam	unid	frag	-	2	0.2	2	0.2	3	0.1			16	1.4	
59	TU 2	20-30 cm	Thomomys bottae	innominate	complete	L&R									27	6.5	
59	TU 2	20-30 cm	Thomomys bottae	femur	complete	R									2	0.6	bone appears relatively fresh - found in rodent burrow?
59	TU 2	20-30 cm	Sylvilagus sp.	maxillary	frag	L									1	0.3	bone appears relatively fresh - found in rodent burrow? Articulates with innominate
59	TU 2	20-30 cm	Testudines	carapace	frag	Ant.			1	0.1					1	0.2	
59	TU 2	20-30 cm	Sylvilagus sp.	scapula	frag	R									2	0.5	
59	TU 2	20-30 cm	sm. Mam	maxillary	frag	R									1	<0.1	
59	TU 2	20-30 cm	Mustelid	maxillary	frag	-					1	0.1			1	0.1	
59	TU 2	20-30 cm	sm. Mam	maxillary	frag	-									1	<0.1	
59	TU 2	20-30 cm	sm. Mam	cranial	frag	-									1	<0.1	
59	TU 2	20-30 cm	Med. Mam	rib	frag	-									1	<0.1	
59	TU 2	20-30 cm	Med. Mam	tooth	frag	-									1	0.5	
59	TU 2	20-30 cm	sm. Mam	unid	frag	-	8	1.1	2	<0.1	2	0.1			1	0.1	
59	TU 2	20-30 cm	sm. Mam	longbone	frag	-	1	0.1	1	<0.1	3	0.3			22	1.4	
61	TU 3	20-30 cm	sm. Mam	unid	frag	-			1	<0.1	1	0.1			13	0.9	1 w/ rodent gnawing
61	TU 3	20-30 cm	sm. Mam	longbone	frag										2	0.1	
61	TU 2	60-70 cm	Thomomys bottae	Mandible & incisor	complete	L									1	<0.1	
61	TU 2	60-70 cm	sm. Mam	scapula	frag	-									1	0.6	
61	TU 2	60-70 cm	sm. Mam	phalange	distal	-									1	0.1	
61	TU 2	60-70 cm	Thomomys bottae	femur	proximal	R									1	<0.1	
61	TU 2	60-70 cm	Sylvilagus sp.	calcaneus	complete	L									1	0.1	
61	TU 2	60-70 cm	Rodentia	calcaneus	almost complete	R									1	0.2	
61	TU 2	60-70 cm	sm. Mam	longbone	frag	-	3	0.3	2	0.1	1	0.1			1	0.1	
61	TU 2	60-70 cm	sm. Mam	unid	frag	-	1	0.1			12	0.8			8	0.6	
70	TU 1	10-20 cm	Med. Mam	unid	frag	-									34	2.2	
74	TU 2	30-40 cm	sm. Mam	atlas	complete	-									1	0.2	
74	TU 2	30-40 cm	Spermophilus beecheyi	tibia	distal	R	1	0.1							1	0.1	
74	TU 2	30-40 cm	Sylvilagus sp.	calcaneus	almost complete	R	1	0.1							1	0.1	
74	TU 2	30-40 cm	sm. Mam	metacarpal	proximal	-									1	<0.1	

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74	TU 2	30-40 cm	Rodentia	maxillary	frag	-	1	0.1							1	0.1	
74	TU 2	30-40 cm	sm. Mam	tibia	epiphysis	-									1	<0.1	
74	TU 2	30-40 cm	sm. Mam	femur	proximal	-	1	<0.1							1	<0.1	
74	TU 2	30-40 cm	Med. Mam	unid	frag	-	1	0.6							2	0.7	
74	TU 2	30-40 cm	sm. Mam	longbone	frag	-	2	0.2	2	0.3					15	1.3	
74	TU 2	30-40 cm	sm. Mam	unid	frag	-	5	0.5	1	0.1	5	0.3			19	1.2	
79	TU 2	40-50 cm	Testudines	carapace	frag	-									1	<0.1	
79	TU 2	40-50 cm	Mephetis mephetis	mandible w/ teeth	frag	-									1	0.4	
79	TU 2	40-50 cm	sm. Mam	maxillary	frag	-									1	0.1	
79	TU 2	40-50 cm	sm. Mam	vertebra	thoracic	-									1	0.1	
79	TU 2	40-50 cm	sm. Mam	calcaneus	complete	L									1	<0.1	
79	TU 2	40-50 cm	sm. Mam	astragalus	complete	R									1	<0.1	
79	TU 2	40-50 cm	Med. Mam	unid	frag	-									4	1.8	1 bluntforce break
79	TU 2	40-50 cm	sm. Mam	rib	frag	-									1	0.2	
79	TU 2	40-50 cm	sm. Mam	longbone	frag	-	3	0.3	2	0.4	1	<0.1			8	0.8	
79	TU 2	40-50 cm	sm. Mam	unid	frag	-	6	0.3	2	<0.1	5	0.2			28	1.4	
81	TU 2	0-10 cm	Mustelid	maxillary	frag	R									1	0.1	
81	TU 2	0-10 cm	Med. Mam	phalange	proximal	-	1	0.3							1	0.3	
81	TU 2	0-10 cm	Med. Mam	unid	frag	-	4	2.2							6	2.8	
81	TU 2	0-10 cm	sm. Mam	longbone	frag	-	5	0.3	1	<0.1					7	0.4	
81	TU 2	0-10 cm	sm. Mam	unid	frag	-	6	0.5			1	<0.1			11	0.9	
89	TU 3	50-60 cm	sm. Mam	longbone	frag	-	1	0.3							1	0.3	
93	TU 2	70-80 cm	Thomomys bottae	humerus	distal	L	1	<0.1							1	<0.1	
93	TU 2	70-80 cm	Thomomys bottae	humerus	proximal	L	1	<0.1							1	<0.1	
93	TU 2	70-80 cm	Spermophilus beecheyi	humerus	distal	L									1	0.1	
93	TU 2	70-80 cm	Sylvilagus sp.	calcaneus	proximal	R									1	0.2	
93	TU 2	70-80 cm	Sylvilagus sp.	mandible w/ teeth	frag	L									1	0.2	
93	TU 2	70-80 cm	Sylvilagus sp.	mandible w/ teeth	frag	R									1	0.4	
93	TU 2	70-80 cm	Sylvilagus sp.	calcaneus	distal	R									1	0.1	
93	TU 2	70-80 cm	sm. Mam	tympanic bulla	frag	-									1	0.1	
93	TU 2	70-80 cm	Med. Mam	longbone	frag	-	1	0.6							1	0.6	
93	TU 2	70-80 cm	sm. Mam	longbone	frag	-	5	0.3							12	1	1 fragment shows possible signs of boiling (decalcification)
93	TU 2	70-80 cm	sm. Mam	unid	frag	-	4	0.5			5	0.2			22	1.7	
95	TU 3	40-50 cm	sm. Mam	unid	frag	-					4	0.3			4	0.3	
97	TU 3	60-70 cm	sm. Mam	unid	frag	-					2	0.2			2	0.2	
101	TU 2	50-60 cm	Rodentia	Incisor	frag	-									3	0.3	2 teeth show rodent gnawing
101	TU 2	50-60 cm	sm. Mam	calcaneus	almost complete	-	1	0.2							1	0.2	
101	TU 2	50-60 cm	Aves	tibiotarsus	distal										1	0.2	
101	TU 2	50-60 cm	Sylvilagus sp.	tibia	distal	R	1	0.2							1	0.2	
101	TU 2	50-60 cm	Thomomys bottae	femur	proximal	R	1	<0.1							1	<0.1	
101	TU 2	50-60 cm	Sylvilagus sp.	mandible	frag	R	1	0.3							1	0.3	
101	TU 2	50-60 cm	sm. Mam	mandible	frag	-	1	0.1							1	0.1	
101	TU 2	50-60 cm	Aves	unid	frag	-									3	0.3	
101	TU 2	50-60 cm	sm. Mam	maxillary	frag	L									1	0.1	
101	TU 2	50-60 cm	sm. Mam	longbone	frag	-	6	0.4	1	<0.1					12	0.8	

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101	TU 2	50-60 cm	sm. Mam	unid	frag	-	7	0.5	1	<0.1	4	0.1			29	2	
103	TU 3	10-20 cm	sm. Mam	unid	frag	-					2	0.1			4	0.4	

APPENDIX D

Obsidian Source Analysis Results

Geochemical Research Laboratory Letter Report 2010-29

April 16, 2010

Tracy Stropes
Project Archaeologist
Brian F. Smith & Associates
14010 Poway Road, Suite A
Poway, CA 92064

Dear Tracy:

This letter reports the results of energy dispersive x-ray fluorescence (edxrf) analysis of three obsidian artifacts from CA-SDi-12209, located in Escondido, San Diego County, California. This research was conducted pursuant to your letter request of March 22, 2010. Laboratory analysis equipment, protocol for quantitative analysis, and comparative literature references applicable to these specimens are identical to those reported for the Faraday Project (Hughes 2006).

Table 1

Quantitative Composition Estimates for Artifacts from CA-SDi-12209

Cat. Number	Trace Element Concentrations											Ratio	Obsidian Source (Chemical Type)
	Zn	Ga	Rb	Sr	Y	Zr	Nb	Ba	Ti	Mn	$Fe_2O_3^T$	Fe/Mn	
82	nm	nm	141 ±5	28 ±4	117 ±4	355 ±5	38 ±4	454 ±36	nm	nm	nm	nm	Obsidian Butte, CA
72	nm	nm	145 ±4	24 ±3	124 ±3	339 ±4	40 ±3	428 ±34	nm	nm	nm	nm	Obsidian Butte, CA
278	nm	nm	128 ±4	33 ±3	100 ±3	361 ±4	28 ±3	500 ±32	nm	nm	nm	nm	Obsidian Butte, CA
U.S. Geological Survey Reference Standard													
RGM-1 (measured)	nm	nm	142 ±4	106 ±3	24 ±3	218 ±4	8 ±3	814 ±10	nm	nm	nm	nm	Glass Mtn., CA
RGM-1 (recommended)	32	15	149	108	25	219	9	807	1600	279	1.86	nr	Glass Mtn., CA

Values in parts per million (ppm) except total iron [in weight %] and Fe/Mn intensity ratios; ± = two σ expression of x-ray counting uncertainty and regression fitting error at 120-360 seconds livetime. nm= not measured; nr = not reported.

Edxrf data (in Table 1 and Figure 1) indicate that all three specimens from SDi-12209 were made from Obsidian Butte volcanic glass. Please contact me at my laboratory (phone: [650] 851-1410; e-mail: rehughes@silcon.com; web site: www.geochemicalresearch.com) if I can provide any further assistance or information.

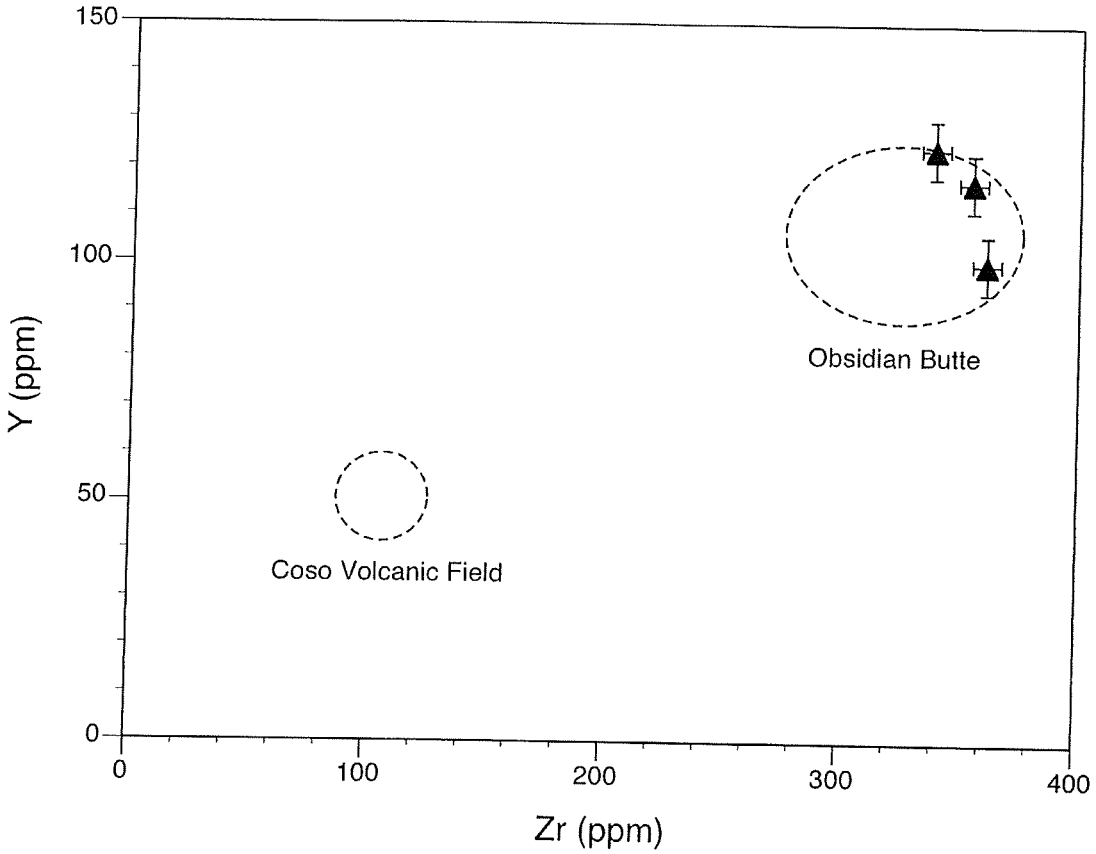
Sincerely,

Richard E. Hughes

Richard E. Hughes, Ph.D., RPA
Director, Geochemical Research Laboratory

Figure 1

Yr vs. Zr Composition for Obsidian Artifacts from CA-SDi-12209



Dashed lines represent range of variation measured in archaeologically significant geologic obsidian source samples from the southern California area. Filled triangles plot samples from Table 1. Error bars are two-sigma (95% confidence interval) composition estimates for each specimen.

Reference

Hughes, Richard E.

2006 Energy Dispersive X-ray Fluorescence Analysis of Specimens from Three Archaeological Sites (CA-SDi-5231, CA-SDi-16048, and CA-SDi-16054) in the Faraday Ranch Project in Carlsbad, San Diego County, California. Geochemical Research Laboratory Letter Report 2006-2 submitted to Sara C. Moreno, Brian F. Smith & Associates, January 20, 2006.

APPENDIX F

CITRACADO PARKWAY BRIDGE
PRELIMINARY FOUNDATION REPORT

Earth Mechanics, Inc.
Geotechnical & Earthquake Engineering

TECHNICAL MEMORANDUM

DATE: May 31, 2007 **EMI PROJECT NO:** 07-111

PREPARED FOR: Kirk Bradbury / Boyle Engineering (Boyle)
Brad Ehlers / Boyle

COPY: Joe Tognoli / TY Lin International (TY Lin)
Anthony Sanchez / TY Lin

PREPARED BY: Eric Brown / Earth Mechanics, Inc. (EMI)
Arul Arulmoli / EMI

SUBJECT: **Preliminary Foundation Report**
Citracado Parkway Bridge
City of Escondido, California

1.0 Introduction

This memorandum has been prepared to provide the necessary geotechnical information to assist the structural designers in the advanced planning study and type selection process for Citracado Parkway Bridge where Citracado Parkway is proposed to be extended over Escondido Creek in the city of Escondido.

This report follows the requirements for a Preliminary Foundation Report (PFR) in accordance with the California Department of Transportation (Caltrans) Guidelines for Structure Foundation Reports (Caltrans, 2006). This memorandum includes preliminary geotechnical, seismic, and foundation recommendations for the subject structure. The recommendations contained in this memorandum should be considered as preliminary; final design recommendations will be developed after approval of the bridge type selection and completion of a site specific field investigation.

2.0 Project Location

The project site is located in San Diego County California, in the City of Escondido. Through the project area, Citracado Parkway trends in a north-south direction on the western side of Escondido and is currently undeveloped for approximately 0.6 miles between Andreasen Drive and Avenida Del Diablo. As part of the proposed project, Citracado Parkway will be completed between Andreasen Drive and Avenida del Diablo and will span Escondido Creek approximately 0.2 miles west of the existing City of Escondido operated Hale Avenue Resource Recovery Facility (HARRF). The project site is shown in Figure 1.

3.0 Existing Site Conditions

To the north of the project site, Citracado Parkway extends from Vineyard Avenue to Andreasen Drive through the Escondido Technology and Research Center (ETRC) which is currently under development. To the south of the project site, Citracado Parkway extends through the primarily residential neighborhoods between Avenida del Diablo and Greenwood Place.

Escondido Creek begins at the upper headwater in Bear Valley above Lake Wohlford and flows more than 26 miles to meet the Pacific Ocean at the San Elijo Lagoon in the City of Solana Beach. Escondido Creek is conveyed through the City of Escondido in a concrete lined channel that terminates a few hundred feet south of Harmony Grove Road; located approximately 0.5 miles east (upstream) of the project site. At the proposed bridge site, the creek is a shallow unlined channel with a 100-year floodway width of approximately 400 feet.

4.0 Site Geology

The project area lies on the northeastern boundary of the San Diego Embayment just west of the transition between the Peninsular Range and Coastal Plain Regions. The city of Escondido lies in a small valley within the foothills of the Peninsular Range region with terrain characterized by rocky, moderately hilly topography. Mountains surround the project to the north, south, east and west that extend up to a thousand feet above the valley floor.

The area consists primarily of igneous and metamorphic basement rocks of the Santiago Peak Volcanics. The Santiago Peak Volcanics consist of a structurally complex, mildly metamorphosed unit composed of volcanic and volcanoclastic rocks of the Southern California batholith. Cretacous rocks of the Southern California batholith throughout the project area consist mostly of medium to coarse grained leucocratic granodiorite and tonalite. Depth of bedrock is generally shallow in the vicinity of the project.

No active or potentially active faults are known to traverse the site or exist in the vicinity of the site. Holocene seismic activity within the region is limited to the Whittier-Elsinore fault zone to the northeast and the Newport-Inglewood/Rose Canyon fault zone to the southwest.

5.0 Subsurface Conditions

The project site is currently undeveloped and there are no existing structures in the immediate project vicinity (less than 0.25 miles from the proposed bridge site) for which soil information is available for review.

The ETRC lies to the north of the project site along Citracado Parkway between Vineyard Avenue and Andreasen Drive. Geocon Incorporated (Geocon) prepared a Geotechnical Investigation Report for the preliminary development of the ETRC in August, 2003 (Geocon, 2003). The Geocon field investigation consisted of twenty-seven (27) trenches, thirty-one (31) air-track borings and seventeen (17) auger borings. While the majority of the investigation was performed more than a mile away from the proposed bridge site, a few of the trenches and borings were performed on the southern edge of the project near the existing intersection of Citracado Parkway and Andreasen Drive; approximately 0.3 miles north of the proposed bridge. All of these borings and trenches indicate that near the intersection of Citracado Parkway and

Andreasen Drive the alluvium is less than 8 feet deep underlain by weathered Green Valley Tolonite (granitic rock). The furthest southerly air track borings indicate that the granitic rock becomes marginally rippable to non-rippable at about 10 to 15 feet below natural grade.

In 1964 a series of soil borings were performed for the Escondido Creek Watershed – Unit No. 1 Cooperative Project along the Escondido Creek Outlet Channel. Of the borings performed, twelve (12) were performed between Harmony Grove Road and the HARRF. The borings varied in depth between 6 and 25 feet below natural grade at the time of the investigation in 1964. Soil descriptions from the borings indicate the near surface soils along the creek bed consist of predominately coarse-grained sandy soils (silty sand, sand with silt and poorly graded sand) varying in consistency from loose to very firm. Groundwater was encountered in every boring between elevation +595 and +600 feet.

In September, 2004, Western Soil and Foundation Engineering, Inc. (Western) performed a field investigation for the Brine Collection and Storage Project in the northwest corner of the HAARF. The investigation included four hollow-stem auger borings that varied in depth between 16 and 22 feet below existing grade. All four borings encountered between 12 to 20 feet of alluvium and fill before encountering practical refusal on granitic bedrock located between elevation +591 and +599 feet.

The existing groundline along the proposed road alignment is relatively flat lying near elevation +600 feet in the creek and +610 feet near the proposed bridge abutments. Up to 15 feet of fill will be placed at the bridge approaches to raise natural grade to the proposed roadway elevations.

Based on the soils information from these nearby investigations, the site is anticipated to be underlain by a thin layer of sandy alluvium overlying granitic bedrock. The alluvial soils are predominately sandy soils transported and deposited along the natural streambed of the Escondido Creek. The bedrock beneath the site is anticipated to be relatively shallow and consist of weathered granitic rock.

Groundwater. Groundwater is reported on all twelve (12) borings shown on the as-built soil boring logs for the Escondido Creek Watershed – Unit No. 1. The recorded groundwater levels vary between elevation +595 and +600 feet; generally less than 10 feet below natural grade at the time of drilling.

Groundwater was also encountered in three of the four borings performed by Western for the Brine Collection and Storage Project. The three borings encountered water between elevation +596 and +598 feet.

6.0 Seismic Evaluation

The project area is located in seismically active southern California but has a relatively low level of historical earthquake activity. Most earthquakes in the region are confined to the two major fault zones on either side of the project area; the Whittier-Elsinore fault on the northeast and the Newport-Inglewood/Rose Canyon fault on the southwest. No active faults (i.e. Earthquake Fault Zones) are known to be present within the project area. The most significant faults relative to the project area are listed in Table 1 along with estimates of their maximum earthquake magnitude and the peak bedrock acceleration.

The results based on Caltrans Seismic Hazard Map (Mualchin, 1996) were checked using the attenuation relationship by Sadigh et al. (1997), as required by Caltrans (2006). The fault controlling seismic design is the Whittier Elsinore fault with a peak bedrock acceleration (PBA) of 0.3g. The recommended preliminary design ARS curve for all the structures is the one shown in Figure B.8 (Soil Profile D) for PBA of 0.3g. It may be determined following the field investigation that Soil Profile C is applicable, but in the absence of site specific soil data and for preliminary design and cost estimating purposes, we recommend using Soil Profile D. The recommended ARS curve is shown in Figure 2.

Table 1. Local Seismic Sources

Fault or Fault Zone	Style of Faulting	Maximum Credible Earthquake (MCE) Magnitude	Approximate Distance from Site (km)	Peak Bedrock Acceleration (g)
Whittier-Elsinore (WEE)	Strike-Slip	7.5	28.9	0.22
Newport Inglewood/Rose Canyon/E (NIE)	Strike-Slip	7.0	21.1	0.21

Notes:
1. *Style of faulting as indicated in "A Technical Report to Accompany the Caltrans Seismic Hazard Map," by Mualchin (Caltrans, 1996b).*
2. *Distance from fault to the project site was obtained from the Caltrans Seismic Hazard Map (1996a).*
3. *Peak bedrock accelerations are based on attenuation relationship of Mualchin (1996b) and the Caltrans Seismic Hazard Map (1996a) and Sadigh et al. (1997).*

Since the controlling fault is located more than 15 km from the project site, per Caltrans Seismic Design Criteria (Caltrans, 2004), the design ARS curve does not need to be corrected for near-fault effects.

Maximum Horizontal Bedrock Acceleration[1]:	0.3g
Causative Fault (Style of Fault):	Whittier-Elsinore (Strike-Slip)
Distance to Causative Fault:	28.9km
MCE Magnitude[2]:	7.5
ARS Curve Recommendation (Caltrans, 2004)	See Figure 2

Notes:

1. Maximum horizontal bedrock acceleration recommendations are based on the Caltrans California Seismic Hazard Map (dated July 1996) and Sadigh et al. (1997).
2. MCE = Maximum Credible Earthquake generated by causative fault.

7.0 Liquefaction Evaluation

As described above, Escondido Creek is a natural, unlined channel at the proposed bridge site with groundwater anticipated to be encountered less than 10 feet below natural grade in the loose to compact alluvial soils.

Due to the unconsolidated nature of the alluvial deposits and shallow groundwater table, it is anticipated that the liquefaction potential of the near surface deposits above the bedrock is high. The granitic bedrock that underlies the shallow alluvial deposits is not susceptible to liquefaction.

8.0 Seismic Settlement

Seismically-induced settlement results from liquefied soils reconsolidating following excess pore pressure dissipation which occurs after earthquake shaking ceases. The extent of ground surface settlement depends on several factors such as characteristics of the soil, level and duration of shaking and extent of the liquefaction zone.

Due to the anticipated shallow depth of the alluvial soils located above the bedrock that will be susceptible to liquefaction, seismically-induced settlement is anticipated to be less than a few inches. The design implication of the seismically-induced settlement is considered minimal as spread footings can be founded on the granitic bedrock below the potentially liquefiable material or foundation piles (if necessary) can be designed to accommodate downdrag loads imposed during the seismic event.

9.0 Scour Evaluation

The proposed bridge will span Escondido Creek which conveys storm runoff from the Escondido Creek Watershed. Preliminary scour analysis indicates that the near surface alluvial deposits will be susceptible to scour down to the top of the bedrock during the 100-year event.

To accommodate the anticipated scour conditions, the footing bottom elevations for spread footings or pile tip elevations should be located below the lowest scour elevation where bridge supports encroach within the extents of the channel scour.

10.0 Seismic Slope Instability

In locations where liquefaction of the sandy soils at the bridge site is expected to occur, it is in the native material below embankment slopes of the proposed structure. Embankment fill for bridge approaches placed above the groundwater table are not expected to suffer significant loss of strength during design earthquakes. Although some limited lateral deformations may be experienced, the slopes are expected to be stable during design earthquakes.

11.0 Corrosion Evaluation

No corrosion data is available at the project site. A site specific corrosion study should be performed as part of the geotechnical scope of work for the proposed project. If the site soils are found to be corrosive, possible mitigation measures can include increased cover for reinforcing steel and corrosion resistant cement (in case of concrete piles and footings), and sacrificial steel can be provided for steel surfaces in contact with site soils (in case of steel piles).

12.0 Structure Foundation Data – Adjacent Structures

The nearest existing bridge is the Harmony Grove Road Bridge over Escondido Creek (Br. No. 57C-445) located approximately 0.5 miles to the northeast (upstream) of the proposed bridge site

along the concrete lined portion of the Escondido Creek. As-built plans indicate the two-span box-girder bridge is supported on driven steel piles (10BP42) at the abutments and a spread footing at the center pier. An estimated pile tip elevation for the abutment piles is listed as elevation +593 feet and a footing bottom elevation for the pier footing is shown as elevation +595 feet. Based upon contours shown on the site and deck plan, natural grade at the abutments varies from about +610 to +618 feet.

The Via Ambiente Bridge, completed in August, 1999 is located approximately 2.5 miles downstream from the proposed bridge site along an unlined portion of Escondido Creek. The 225 feet long, 5 span, concrete slab bridge is designed to accommodate the 100-year flood and associated scour potential. The Via Ambiente Bridge is founded on spread footings located up to about 10 feet below natural grade with an allowable bearing pressure of 5 tons per square foot (TSF) at each bridge support.

13.0 Preliminary Foundation Recommendations

Bridge Configuration. Based upon preliminary design alternatives provided by TY Lin, two bridge alternatives are currently under consideration; (1) a three-span cast-in-place concrete box girder bridge and (2) a five-span precast concrete I-girder bridge. Both structures have a total bridge length of 450 feet with abutment footings lying outside the 100-year floodway and intermediate piers located within the 100-year floodway.

Foundation Type. Based upon site reconnaissance and the available nearby soils information, it is our expectation that upon completion of a site specific soils investigation, spread footings founded on bedrock will likely be the preferred foundation alternative; however, due to the depth of fill that will be required at the bridge approaches, deep foundations may be required at the abutments.

Due to the potential for liquefaction of the alluvial soils in the creek bed, spread footings will need to be founded on competent bedrock; therefore sizeable excavations may be required for spread footings depending upon the depth to competent bedrock and footing dimensions required to meet the demands placed on the foundation.

In the event deep foundations are required, driven precast concrete piles are not recommended due to difficult driving conditions anticipated for the granitic bedrock.

Cast-In-Drilled-Hole (CIDH) piles are feasible, but “wet” pile construction will be required and difficult drilling conditions are anticipated in the granitic bedrock. While these conditions typically have a high potential for construction claims, if there are uplift demands placed upon the foundation that cannot be met with spread footings, CIDH piles would be a preferred alternative. A minimum CIDH pile diameter of 30-inches will be required to accommodate tremie pipes for concrete placement and inspections tubes for integrity testing. Additionally, pile spacing should be maximized as oversized temporary casing would likely be required during pile construction.

Driven steel piles are also a feasible alternative, but the piles are anticipated to be relatively short and depending upon the surface of the bedrock, they may have a tendency to wander during driving. Driven steel piles also may not be capable of providing enough skin friction to meet

uplift demands placed upon the foundation. In the event driven steel piles are selected, we recommend using either HP 10X42 driven Class 90 or HP10x57 driven Class 140 piles.

Spread Footings. For spread footings, it is our expectation that granitic bedrock will be encountered within 15 feet of existing grade and will have a minimum allowable bearing capacity of 3 TSF. Ultimate bearing capacity (for seismic design) is three times the allowable bearing capacity. Maximum total settlement under the allowable bearing capacity is estimated to be no more than 1 inch. Maximum differential settlement across one support location under the allowable bearing capacity is estimated to be less than ¼-inch.

Preliminary Pile Lengths. For cost estimating purposes during type selection, for 24-inch diameter CIDH piles, we recommend a minimum pile length of 30 feet at the abutments and 25 feet at the interior piers for Class 140 piles. For driven steel piles, we recommend feet 30 feet at the abutments and 25 feet at the interior piers for either Class 90 or Class 140 piles.

Settlement Period. Up to 15 feet of fill is anticipated at the bridge approaches to raise existing grade to the proposed roadway elevations. Due to the predominantly granular nature of the subsurface profile, the settlement induced by the fill is expected to be minor and will occur in a relatively short time period (less than 2 weeks) without the need for an embankment surcharge.

14.0 Future Scope of Work

A site specific field investigation is expected to be completed for the proposed bridge. Per Caltrans guidelines (Caltrans, 2006), typically one soil boring will be advanced at each proposed support for new bridge construction. At the subject site, due to the environmentally sensitive nature of the creek bed, fewer borings may be feasible if permit restrictions exist due to the natural resistance to weathering and erosion of the native bedrock.

The field investigation should be conducted in an effort primarily to determine the depth to bedrock at each proposed support as well as to identify the feasibility and potential construction issues that could be encountered for either spread footings or driven steel pile foundations. The liquefaction potential and the static settlement characteristics of the foundation soils should also be evaluated. In addition to soil classification and strength testing of samples recovered in each boring, soil corrosion laboratory tests should be obtained at locations where site soils will be in contact with structural elements.

15.0 References

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California Department of Transportation (2004). *Caltrans Seismic Design Criteria*, Version 1.3, February.

Caltrans (2000). *Memo to Designers 3-1*, December.

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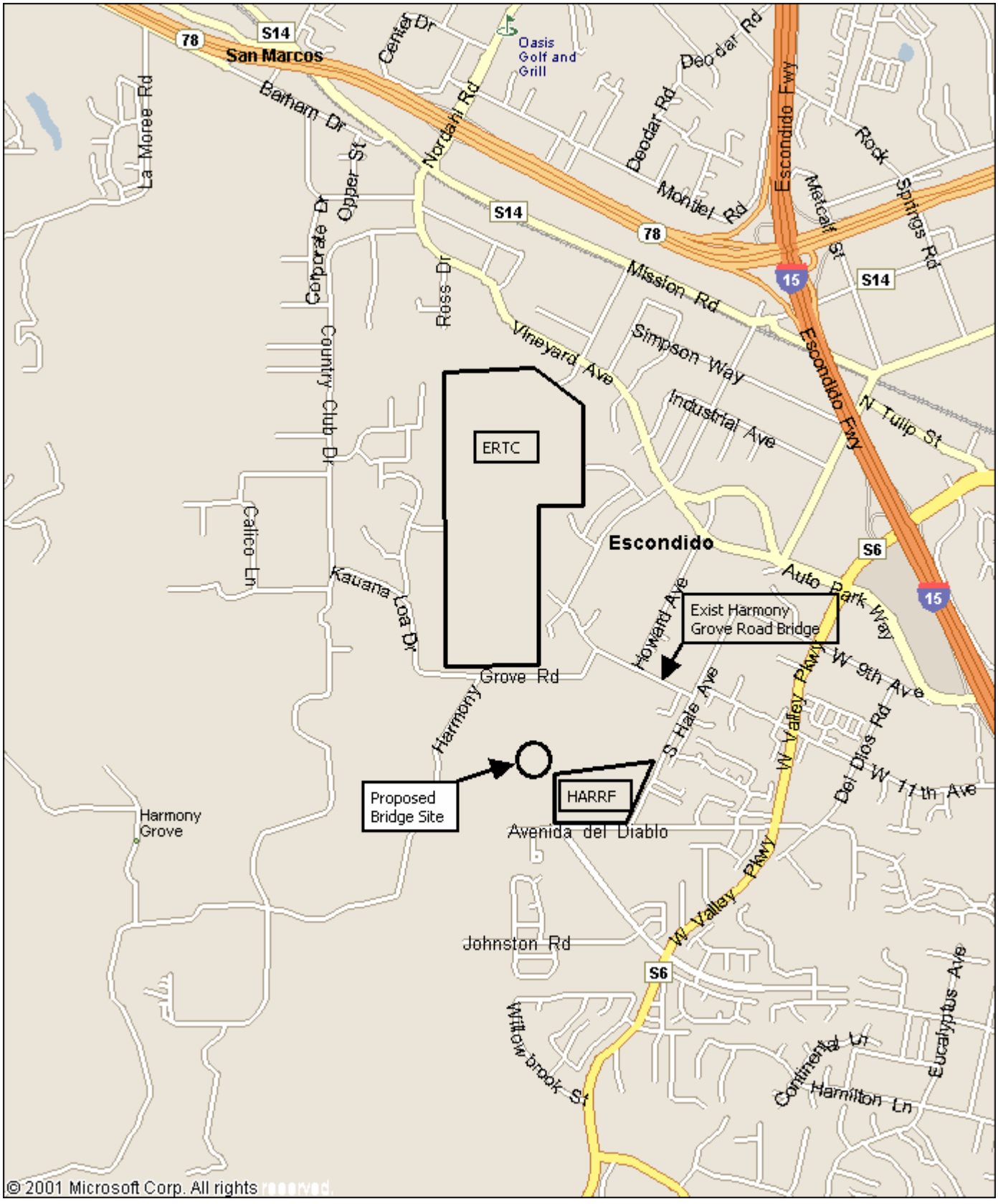
ATTACHMENTS

(1) Site Location Map

(2) ARS Curve

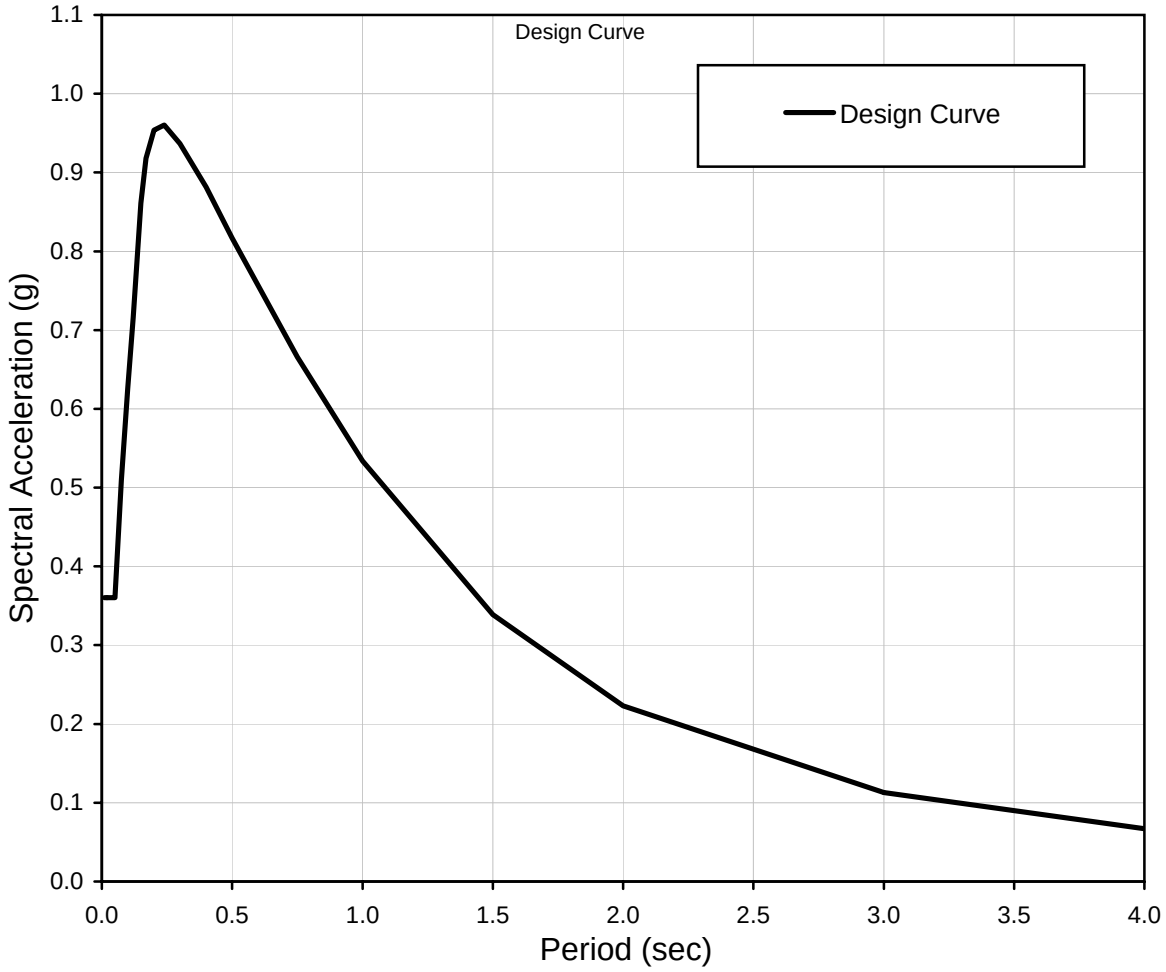


Earth Mechanics, Inc.
Geotechnical & Earthquake Engineering

SITE LOCATION MAP

Figure 1

CITRACADO PARKWAY BRIDGE	Project No.: 07-111	Date: 05/03/07



WEE Fault (M 7.5)
Peak Bedrock Acceleration (PBA)=0.3g
Soil Type D

Spectral Coordinates

Period (sec)	Acc. (g)
0.010	0.360
0.020	0.360
0.030	0.360
0.050	0.360
0.075	0.509
0.100	0.626
0.120	0.716
0.150	0.861
0.170	0.918
0.200	0.954

Period (sec)	Acc. (g)
0.240	0.960
0.300	0.937
0.400	0.881
0.500	0.817
0.750	0.666
1.000	0.534
1.500	0.339
2.000	0.223
3.000	0.113
4.000	0.067

APPENDIX G

NOISE STUDY REPORT

TECHNICAL NOISE ANALYSIS
CITRACADO PARKWAY EXTENSION PROJECT
ESCONDIDO, CALIFORNIA

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June 2011

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SECTION 1.0
INTRODUCTION

This technical noise analysis has been prepared to evaluate the potential effects of the proposed Citracado Parkway Extension Project (proposed project). The City of Escondido (City) proposes to improve and extend Citracado Parkway from West Valley Parkway to Andreasen Drive, providing an arterial connection and roadway improvements, as further discussed in Section 2. In addition, the City is proposing the annexation of three parcels in proximity to the proposed roadway extension. The above-mentioned transportation improvements are consistent with the General Plan Circulation Element, which designates the ultimate classification of Citracado Parkway as a "Major Road."

The proposed project is located partially within the western limits of the City and partially within an unincorporated area of San Diego County (County), approximately 1.5 miles west of Interstate 15 (I-15) and 1.5 miles south of State Route 78 (SR-78). Figure 1 is a regional location map and Figure 2 is a site vicinity map.

0 3.75 7.5 15 Miles

1" = 7.5 Miles

Figure 1
Regional Location Map

Source: DigitalGlobe 2008; AECOM 2010

750 375 0 750 Feet

Scale: 1 = 9,000; 1 inch = 750 feet

Figure 2
Project Vicinity Map

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\2010_mxds\JDR\Summer 2010\project_footprint.mxd, 07/06/10, LeeJ

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SECTION 2.0
PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

Escondido has experienced a pattern of consistent growth for a number of years. The City's growth and development included the redevelopment of the downtown area and the ongoing development of the outlying regions of Escondido, which have resulted in an intensification of land uses and increased traffic generation. As a result, the City has placed a new emphasis on completing planned transportation facility improvements. The proposed Citracado Parkway Extension Project would provide an arterial connection and roadway improvements from West Valley Parkway north to Andreasen Drive. The proposed roadway extension project would address needed transportation facility improvements and would also implement a planned component of the City's Circulation Element.

The proposed project is located partially within the western limits of Escondido and partially within an unincorporated area of San Diego County, approximately 1.5 miles west of I-15 and 1.5 miles south of SR-78. The proposed project area is surrounded by light industrial/heavy commercial uses to the north and east, and residential/rural residential uses within the County's Harmony Grove community to the west, south, and east. Many of the lots slated for industrial/commercial development are either under ongoing development or are graded for anticipated development.

The City's General Plan was adopted on June 6, 1990, and includes a Circulation Element. The Circulation Element identified this proposed roadway extension as a future improvement. The General Plan identified land use designations consistent with the ongoing industrial/heavy commercial development. The proposed roadway improvement and extension are consistent with the General Plan Circulation Element, which designates the ultimate classification of Citracado Parkway as a "Major Road."

2.2 PROJECT OBJECTIVES

The City seeks to complete a critical link in the General Plan Circulation Element that would enhance circulation to regional medical facilities and accommodate increased traffic generated from planned residential and industrial/commercial growth in the general area. The improvements would achieve the following primary objectives:

1. Provide more direct access for drivers traveling to recent and planned developments such as the Escondido Research and Technology Center (ERTC) and Palomar Medical Center West, residential neighborhoods, and commercial developments, and areas to the southeast (including the Felicita, Del Dios, and Lake Hodges neighborhoods in south Escondido and access to I-15).
2. Provide a direct connection between SR-78 and Del Dios Highway, and eventually connect SR-78 to I-15, which will enhance freeway access for businesses and residents in the southwestern area of the City.
3. Reduce existing and projected traffic congestion on local collector and arterial streets (e.g., Harmony Grove Road, West Valley Parkway, and 9th Avenue).
4. Provide facilities to improve connectivity and travel conditions for bicyclists and pedestrians.
5. Contribute to a safe and efficiently performing circulation system.
6. Implement a planned component of the City's General Plan Circulation Element.
7. Remain within funding constraints identified in the City's capital improvement plan.

2.3 PROJECT CHARACTERISTICS

The City proposes to improve and extend Citracado Parkway from West Valley Parkway to Andreasen Drive. The proposed project would require a new bridge crossing over Escondido Creek. The new structure may require landform alterations, cut slopes, and fill slopes. Minor street realignments and/or grade adjustments are also proposed for the intersection of Kuana Loa Drive with Harmony Grove Road. In addition, the proposed roadway extension would be built to accommodate the pending extension of Lariat Drive from the west. Potential improvements for transit, such as Americans with Disabilities Act (ADA)-compliant boarding pads and future bus stops would be developed in coordination with the North County Transit District (NCTD).

In an effort to keep the proposed roadway extension within the jurisdictional limits of Escondido, the City is also proposing the annexation of three parcels crossed by or in proximity of the proposed roadway extension. This would avoid the potential need for a joint jurisdictional operation and maintenance agreement between the County and the City. All three parcels are outside the City's Sphere of Influence (SOI) boundaries and would, therefore, require an SOI boundary adjustment in conjunction with the annexation.

2.3.1 Roadway Components

Citracado Parkway: Avenida Del Diablo to Andreasen Drive

The proposed extension of Citracado Parkway would be 1,320 feet (0.25 mile) in length between Avenida Del Diablo and Andreasen Drive. The typical cross section of the roadway extension would be 110 feet across, including sidewalks, a planted parkway between the sidewalks and the travel lanes, two lanes each in the northbound and southbound directions, and a landscaped median (14 feet wide) between the travel lanes. A retaining wall would be constructed on the east side of Citracado Parkway, north of the Lariat Drive intersection. The retaining wall would be approximately 220 feet long with a maximum height of about 12 feet. In addition, a Class 2 striped bicycle lane would accommodate bicyclists on the roadway shoulder. The planted parkway would not be continued on the proposed bridge at Escondido Creek. The roadway extension would be built on an elevated roadbed with embankments varying in height up to 22 feet. With the embankments, the total cross section width would measure up to 180 feet. Harmony Grove Road, as shown in Figure 3, would be realigned to meet Kauana Loa Drive at a 90-degree angle, and would terminate in a cul-de-sac on the east side of Citracado Parkway.

Escondido Creek Bridge

The bridge crossing at Escondido Creek is proposed as a three-span, cast-in-place, prestressed, concrete box girder structure with four columns. The bridge would be 450 feet in length with spans at 149 feet 9 inches for the two outside spans, and 162 feet 6 inches for the middle span. The bridge would be approximately 106 feet in width with an open median. The approximate bridge height would be 24 feet, with a structure depth of 6 feet 6 inches. In addition, a Class 2 striped bicycle lane would accommodate bicyclists on the roadway shoulder along the outside edge of each side of the bridge. Utilities would be accommodated within the bridge, as feasible. Traffic signals are proposed at the following intersections (Figure 3) with Citracado Parkway:

- Lariat Drive
- Mountain Shadows Mobile Home Park entrance
- Harmony Grove Road

Harmony Grove Village – Lariat Drive Connection

Lariat Drive, an engineering feature of the approved Harmony Grove Village residential development, would intersect Citracado Parkway approximately 400 feet north of Avenida Del

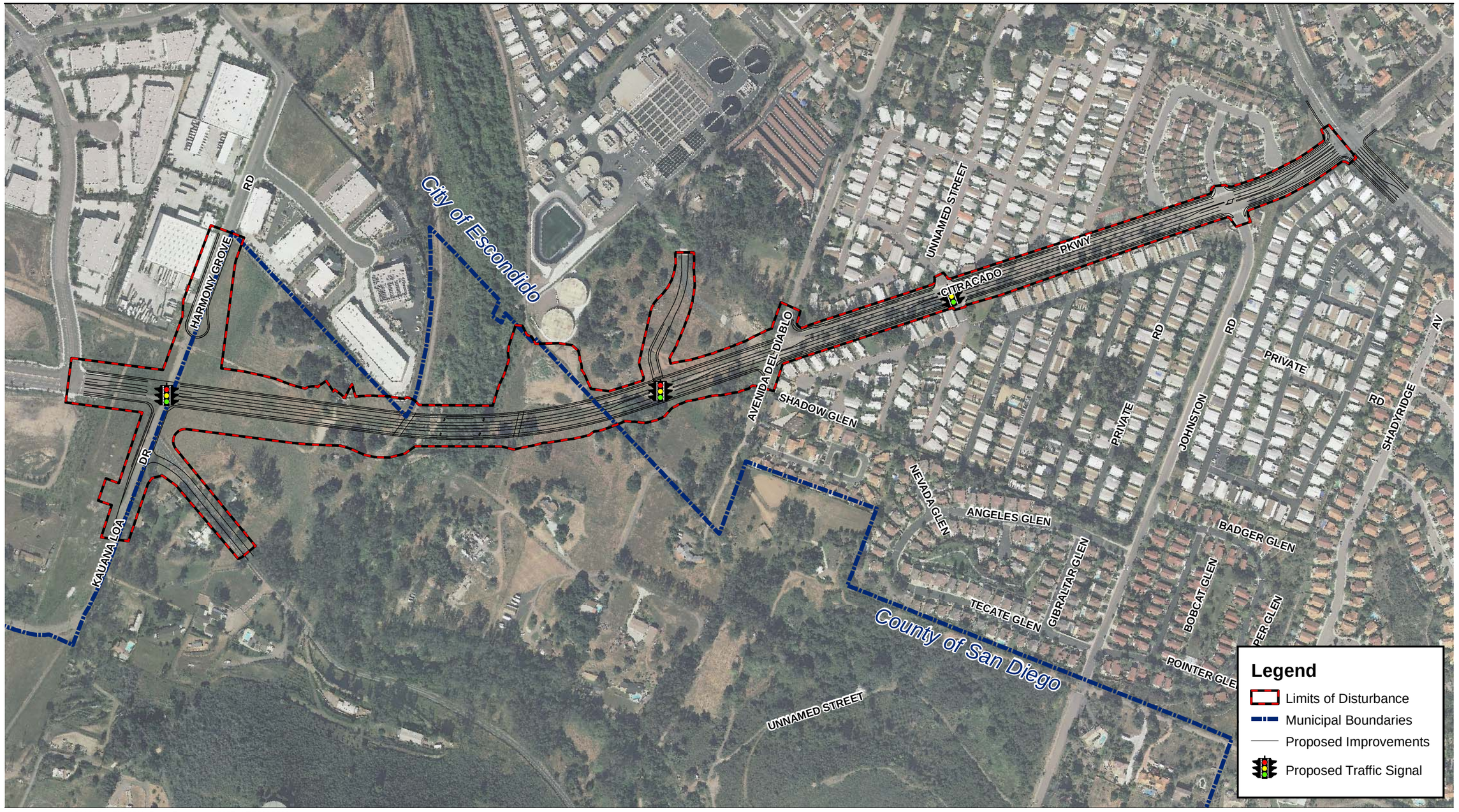
Diablo. The proposed roadway extension would be built to accommodate an intersection with Lariat Drive. This new intersection would be signalized and would provide full access from Lariat Drive to Citracado Parkway and from Citracado Parkway to Lariat Drive. In addition, there would be a controlled access roadway on the east side of Citracado Parkway sited at an appropriate point between the Lariat Drive and Avenida Del Diablo intersections. This controlled access roadway would be gated and would provide the City with an improved secondary access point into the Hale Avenue Resource Recovery Facility (HARRF).

Citracado Parkway: West Valley Parkway to Avenida Del Diablo

The existing segment of Citracado Parkway proposed for improvement extends from West Valley Parkway to Avenida Del Diablo. The proposed improvements include adding an additional travel lane in each direction through median-width reduction (35 feet to 14 feet), resulting in a four-lane roadway. The proposed improvements also include a full four-way signalization of the Mountain Shadows Mobile Home Park entrance intersection, a southbound left-turn-only pocket and a right-in/right-out-only operational restriction at Yankee Court, a northbound Citracado Parkway left-turn-only pocket and a right-in/right-out-only operational restriction at Johnston Road, and a northbound Citracado Parkway left-turn-only pocket and a right-in/right-out-only operational restriction at Avenida Del Diablo. In addition, a Class 2 striped bicycle lane would accommodate bicyclists on the roadway shoulder. Sound walls are also proposed along this existing stretch of Citracado Parkway; the height and locations of the walls are provided in Section 8. Figure 3 shows the proposed improvements.

2.3.2 Local Government Boundary Changes and Agency Reorganization

The proposed project extends beyond the existing limits of the City's jurisdiction. To have more seamless construction, operation, and maintenance of the proposed facility, the City is proposing to adjust its designated SOI and jurisdictional boundaries and to annex, through coordination with the San Diego County Local Agency Formation Commission (LAFCO), three parcels that are crossed by or are in proximity to the proposed project area. LAFCO officially designates the proposed SOI/annexation actions as a Reorganization. The proposed Reorganization would avoid the need for a joint jurisdictional and long-term operation and maintenance agreement between the County and City, and would allow the City to assume full responsibility for road operation and maintenance.



Source: Landiscor 2010; SanGIS 2011; Boyle Engineering 2007; AECOM 2011

400 200 0 400 Feet

Scale: 1 = 4,800; 1 inch = 400 feet

Figure 3
Project Features

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\Noise\Fig 3 ProjectFeatures_RoadwayWidening.mxd, 08/09/10, LeeJ

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2.3.3 Construction Methods, Staging Areas, and Schedule

Specific construction details would be established during the final design phase, and some details would be finalized by the construction contractor. For purposes of this environmental evaluation, the following construction scenario was developed based on typical roadway construction projects.

Roadway Widening Construction

Widening existing Citracado Parkway between West Valley Parkway and Avenida Del Diablo would be accomplished in phases to allow the existing roadway to remain open to traffic during construction. Flagging and temporary detours through construction areas would be implemented according to an approved Traffic Management Plan (TMP). Construction would require removal of the existing median, and possibly portions/sections of the existing paved travelway. Paved sidewalks along this section of Citracado Parkway may have to be replaced if street tree removal damages the existing sidewalks. Most street trees—those within the median and those lining the sidewalks—would be removed and different landscaping would be installed upon completion of construction. The roadway bed would be graded and paved. Traffic signals would be installed where Citracado Parkway intersects the mobile home park entrance. Sound walls would be constructed near the right-of-way boundary along Citracado Parkway between West Valley Parkway and Avenida Del Diablo.

Typical equipment that may be used during roadway widening is as follows:

- Asphalt concrete saws
- Hydraulic hammer/rock breakers
- Excavators
- Loaders
- Dump trucks
- Support trucks (pickup trucks)
- Asphalt concrete paving machines
- Asphalt concrete compaction rollers
- Lane closure equipment (cones, signs, etc.)

Roadway Extension and Bridge Construction

Extending Citracado Parkway would require construction of a new roadway bed through varying terrain. Substantial landform alteration, including excavating, grading, and placing fill material, would precede roadway paving and landscaping. The bridge over Escondido Creek would be a cast-in-place structure, which would require falsework supports placed in the creek bed. Construction of the bridge foundations would require deep excavations and possibly dewatering. Any existing flowing water would most likely be channelized into a small area to allow the placement of falsework. Depending on the soil conditions and the amount of flowing water in the creek, temporary driven piles may be used to support the falsework.

Typical equipment that may be involved in roadway and bridge construction is as follows:

- Tracked excavators
- Loaders
- Support trucks (pickup trucks)
- Cranes
- Concrete pumps
- Backhoes
- Skiploaders
- Bulldozers
- Compactors
- Motor-graders
- Water trucks

Schedule

Total project construction is expected to require approximately 18 months. The City plans to begin construction in 2012.

Staging Areas

The primary construction staging area would be located directly adjacent to the HARRF. Additional staging would be located along the proposed roadway, away from environmentally sensitive areas such as habitats, natural drainages, and culturally important areas, and within the limits of disturbance. The primary access routes would be West Valley Parkway on the south side of the project area, and Andreasen Drive and Citracado Parkway on the north.

2.4 SURROUNDING LAND USES

The proposed project site is a corridor of the proposed widening of Citracado Parkway from West Valley Parkway to Avenida Del Diablo and the proposed extension of Citracado Parkway from Avenida Del Diablo to Andreasen Drive. To the north of the project site is new and planned industrial park. To the south of the project site is residential. The project site corridor is surrounded both to the east and west by residential uses along the existing parkway segment, and the HARRF, open space, and a few rural residential dwellings along the proposed parkway extension. The nearest residences to the project site corridor are along the existing parkway segment.

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SECTION 3.0
DEFINITION OF TERMS

3.1 NOISE

Sound is a vibratory disturbance created by a moving or vibrating source that is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may, therefore, be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 2009).

3.1.1 Decibels and Frequency

In its most basic form, a continuous sound can be described by its frequency or wavelength (pitch) and its amplitude (loudness). Frequency is expressed in cycles per second, or hertz. Frequencies are heard as the pitch or tone of sound. High-pitched sounds produce high frequencies; low-pitched sounds produce low frequencies. Sound-pressure levels are described in units called the decibel (dB).

Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3-dB decrease.

3.1.2 Perception of Noise at the Receiver and A-Weighting

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are written dB(A) or dBA. Table 1 shows the relationship of various noise levels to commonly experienced noise events.

Table 1
Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 meters (1,000 feet)	--100--	
Gas Lawn Mower at 1 meter (3 feet)	--90--	
Diesel Truck at 15 meters (50 feet), at 80 km/hr (50 mph)	--80--	Food Blender at 1 meter (3 feet) Garbage Disposal at 1 meter (3 feet)
Noisy Urban Area, Daytime Gas Lawn Mower at 30 meters (100 feet)	--70--	Vacuum Cleaner at 3 meters (10 feet)
Commercial Area Heavy Traffic at 90 meters (300 feet)	--60--	Normal Speech at 1 meter (3 feet)
Quiet Urban Daytime	--50--	Large Business Office; Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater; Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night; Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans 2009

Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dBA or in terms of acoustical energy. Two noise sources do not "sound twice as loud" as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease; that a change of 5 dBA is readily perceptible; and that an increase (decrease) of 10 dBA sounds twice as loud (Caltrans 2009).

3.1.3 Noise Propagation

From the source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on the important factors described in the following discussion.

Geometric spreading from point and line sources: Sound from a small localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates, or drops off, at a rate of 6 dBA for each doubling of the distance. The movement of the vehicles makes the source of the sound appear to

emanate from a line (line source) rather than a point when viewed over some time interval. The sound level attenuates, or drops off, at a rate of 3 dBA per doubling of distance for line sources.

Ground absorption: Hard sites (i.e., sites with a reflective surface between the source and the receiver, such as parking lots or smooth bodies of water) receive no excess ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. Soft sites are sites that have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees, and receive an excess ground attenuation value of 1.5 dBA per doubling of distance.

Atmospheric effects: Wind speed will bend the path of sound to "focus" it on the downwind side and make a "shadow" on the upwind side of the source. At short distances, up to 50 meters (164 feet), the wind has minor influence on the measured sound level. For longer distances, the wind effect becomes appreciably greater. Temperature gradients create effects similar to those of wind gradients, except that they are uniform in all directions from the source. On a sunny day with no wind, temperature decreases with altitude, giving a shadow effect for sound. On a clear night, temperature may increase with altitude, focusing sound on the ground surface.

Shielding by natural and human-made features, noise barriers, diffraction, and reflection: A large object in the path between a noise source and a receiver can significantly attenuate noise levels at that receiver location. The amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, as well as human-made features such as buildings and walls, can significantly alter noise levels.

3.1.4 Noise Descriptors

Several rating scales (or noise "metrics") exist to analyze adverse effects of noise on a community. These scales include the equivalent noise level (L_{eq}), the community noise equivalent level (CNEL), and the day/night average sound level (DNL or L_{dn}). Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq}, meaning the equivalent noise level for that period of time. The period of time averaging may be specified; $L_{eq(3)}$ would be a 3-hour average. When no period is specified, a 1-hour average is assumed. It is important to understand that noise of short duration, that is, times substantially less than the averaging period, is averaged into ambient noise during the period of interest. Thus, a loud noise lasting many seconds or a few minutes may have minimal effect on the measured sound level averaged over a 1-hour period.

To evaluate community noise impacts, a descriptor was developed that accounts for human sensitivity to nighttime noise. The descriptor is called the DNL, which represents the 24-hour average sound level with a penalty for noise occurring at night. The DNL computation divides the 24-hour day into two periods: daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.). The nighttime sound levels are assigned a 10-dBA penalty prior to averaging with daytime hourly sound levels. CNEL is similar to DNL except that it separates a 24-hour day into three periods: daytime (7:00 a.m. to 7:00 p.m.), evening (7:00 p.m. to 10:00 p.m.), and nighttime (10:00 p.m. to 7:00 a.m.). The evening and nighttime sound levels are assigned a 10-dBA penalty prior to averaging with daytime hourly sound levels.

3.1.5 Noise-Sensitive Receptors

Noise-sensitive receptors are generally considered humans engaged in activities, or utilizing land uses, who may be subject to the stress of significant interference from noise. Activities usually associated with sensitive receptors include, but are not limited to, talking, reading, and sleeping. Land uses often associated with sensitive receptors include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, education facilities, and libraries.

Noise-sensitive human receptors in the project vicinity include the residences located to the east and west of the existing and future Citracado Parkway right-of-way. Noise receptor locations included in this analysis are shown in Figure 4.

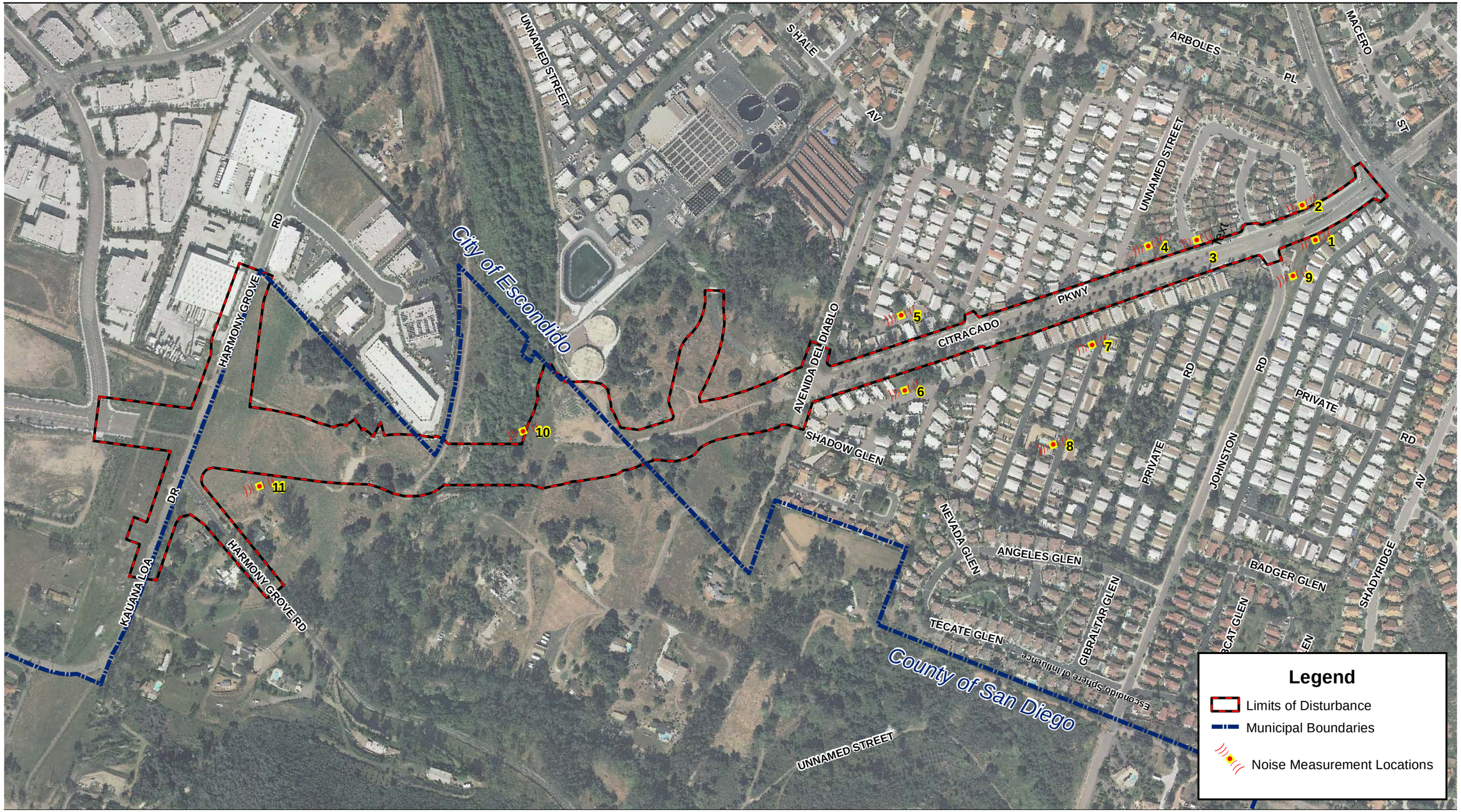
3.2 VIBRATION

3.2.1 Frequency

Groundborne vibration consists of oscillatory waves that propagate from the source through the ground to adjacent structures. The frequency of a vibrating object describes how rapidly it is oscillating. The number of cycles per second of oscillation is the vibration frequency, which is described in terms of hertz (Hz). The normal frequency range of most groundborne vibrations that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz.

3.2.2 Perception of Vibration at the Receiver

While people have varying sensitivities to vibrations at different frequencies, in general, people are most sensitive to low-frequency vibration. Vibration in buildings caused by construction



Source: Landiscor 2010; SanGIS 2011; AECOM 2010

400 200 0 400 Feet

Scale: 1:4,800; 1 inch = 400 feet

Figure 4
Noise Monitoring Locations

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activities may be perceived as motion of building surfaces, or rattling of windows, items on shelves, and pictures hanging on walls. Vibration of building components can also take the form of an audible low-frequency rumbling noise, which is referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when the structure and the construction activity are connected by foundations or utilities, such as sewer and water pipes.

Although groundborne vibration is sometimes noticeable in outdoor environments, groundborne vibration is almost never annoying to people who are outdoors (FTA 2006). The primary concern from vibration is the ability to be intrusive and annoying to local residents and other vibration-sensitive land uses.

3.2.3 Vibration Propagation

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations reduce much more rapidly than low frequencies, so that low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances. When vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls.

3.2.4 Vibration Descriptors

Vibration levels are usually expressed as a single-number measure of vibration magnitude, in terms of velocity or acceleration, which describes the severity of the vibration without the frequency variable. The peak particle velocity (ppv) is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in inches per second. Since it is related to the stresses that are experienced by buildings, ppv is often used in monitoring blasting vibrations. Although ppv is appropriate for evaluating the potential for building damage, it is not suitable for evaluating human response. It takes some time for the human body to respond to vibrations. In a sense, the human body responds to an average vibration amplitude (FTA 2006). Because vibration waves are oscillatory, the net average of a vibration signal is zero. Thus, the root mean square (rms) amplitude is used to describe the “smoothed” vibration amplitude (FTA 2006). The rms of a signal is the square root of the average of the squared amplitude of the signal, usually measured in inches per second. The average is typically

calculated over a 1-second period. The rms amplitude is always less than the ppv and is always positive. Decibel notation is used to compress the range of numbers required to describe vibration. For purposes of this report, the rms vibration velocity level in decibels is defined as follows:

$$L_v = 20 \times \log_{10}(v/v_{ref})$$

Where: L_v is the velocity level in decibels, v is the rms velocity amplitude, and v_{ref} is the reference velocity amplitude. A reference must always be specified whenever a quantity is expressed in terms of decibels. The accepted reference quantity for vibration velocity is microinches per second ($1x10^{-6}$). The abbreviation VdB is used in this report for vibration decibels to reduce the potential for confusion with sound decibels.

3.2.5 Vibration-Sensitive Receptors

Vibration-sensitive receptors are generally considered humans engaged in activities, or utilizing land uses, who may be subject to significant interference from vibration. Activities and land uses often associated with vibration-sensitive receptors are similar to those associated with noise-sensitive receptors. The primary vibration source for the proposed project would be equipment used to prepare the project site and the extension of Citracado Parkway. Thus, vibration-sensitive receptors in the project vicinity are generally limited to the residences located to the east and west of the existing and future alignment of Citracado Parkway.

SECTION 4.0
APPLICABLE STANDARDS

4.1 NOISE

4.1.1 State of California

California Environmental Quality Act (CEQA)

Under the California Environmental Quality Act (CEQA), lead agencies are directed to assess conformance to local or other agency noise standards, measure and identify the potentially significant exposure of people to (or generation of) excessive groundborne vibration or noise levels, and measure and identify potentially significant permanent or temporary increases in ambient noise levels.

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) provides vibration level thresholds for architectural and structural damage and human perception thresholds. The proposed project is not subject to Caltrans requirements; however, Caltrans vibrations are provided in Table 2 for reference.

To assess the potential for structural damage associated with vibration from construction activities, the vibratory ground motion in the vicinity of an affected structure is measured in terms of ppv, typically in units of inches per second (in/sec). Table 2 presents the vibration level thresholds for architectural and structural damage and human perception thresholds.

Table 2
General Human and Structural Response to Vibration

Effects on Structures and People	Peak Vibration Threshold (ppv) (in/sec)
Structural damage to commercial structures	6
Structural damage to residential buildings	2
Architectural damage	1.0
General threshold of human annoyance	0.1
General threshold of human perception	0.01

Source: Caltrans 2002

As shown in Table 2, damage to structures occurs when vibration levels range from 2 to 6 in/sec ppv. One-half of this minimum threshold, or 1 in/sec ppv, is considered a safe criterion that would protect against structural damage. Caltrans uses a vibration criterion of 0.2 in/sec ppv for its construction projects, except for pile driving and blasting.

California Administrative Code

Title 24 of the California Administrative Code requires that residential structures, other than detached single-family dwellings, be designed to prevent the intrusion of exterior noise so that the interior CNEL, with windows closed, attributable to exterior sources shall not exceed 45 dBA in any habitable room.

Local Standards

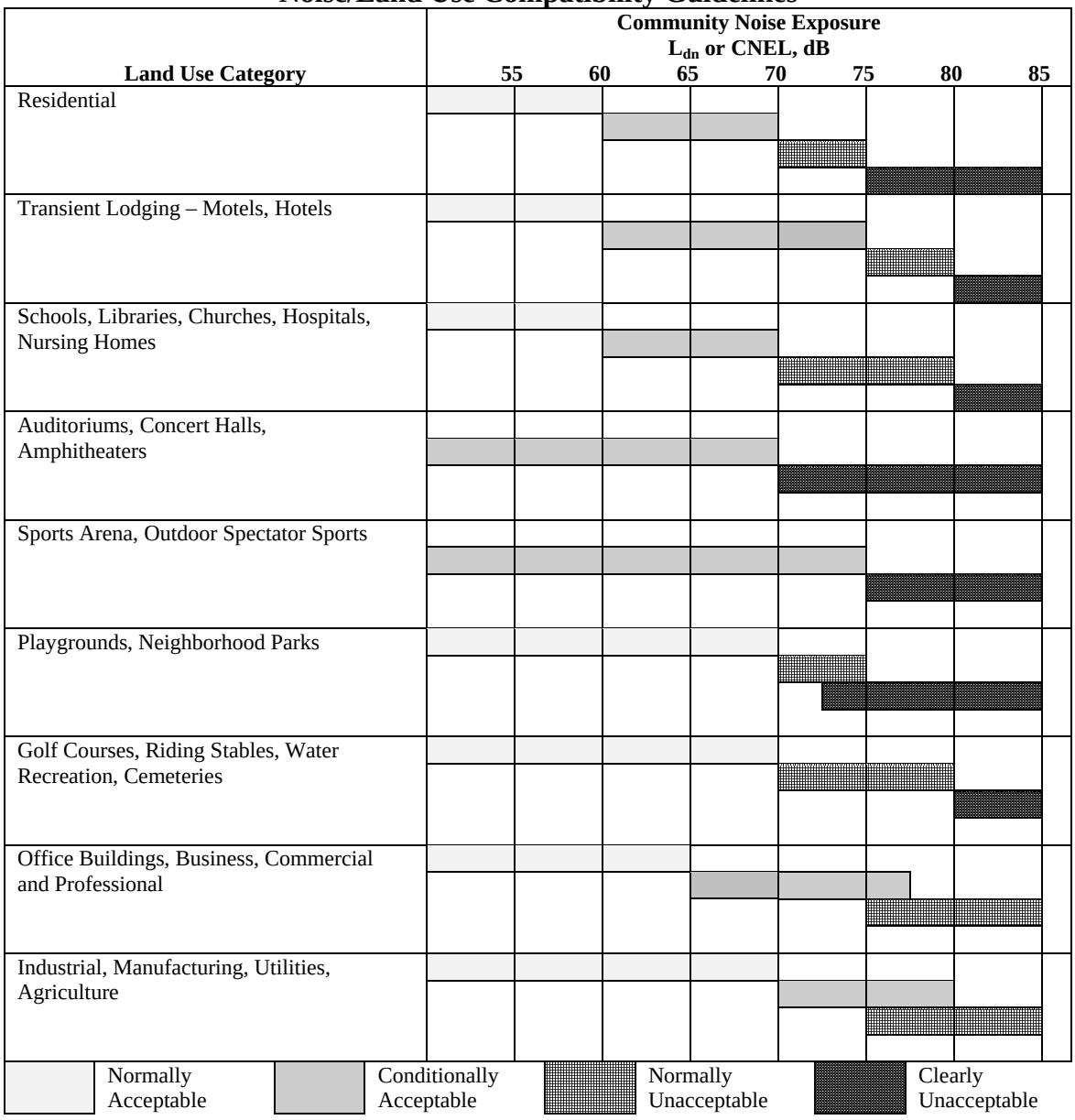
City policies and ordinances with respect to noise are included in Chapter 17, Article 12, Noise Abatement and Control, of the Municipal Code (City 2004) and the Noise Element of the City's General Plan (City 1990).

City of Escondido Noise Element

The Noise Element of the City's General Plan establishes a number of policies to provide an acceptable noise environment for new noise-sensitive developments within the City (City 1990). These policies include exterior and interior noise level guidelines; site compatibility review; site design considerations; the use of noise barriers where applicable; restriction of truck traffic on residential streets; and coordination with other local, regional, state, and federal agencies. The City's noise compatibility guidelines are provided in Table 3.

Noise Policy E.1.1 states "[n]ew projects shall be required to meet acceptable exterior noise level standards as established in the noise and land use compatibility guidelines," which are presented in Table 3 of this analysis. As shown in Table 3, the City's goal for residential areas is 60 dBA CNEL or less. However, the City does recognize that this goal is not always achievable within the realm of economic and aesthetic feasibility. Thus, Noise Policy E.1.2 states, "This goal should be applied where outdoor use is a major consideration (e.g., back yards and single-family housing developments, and recreation areas in multifamily housing developments). The goal should generally be applied at ten feet from the backyard property line. However, in certain cases such as on estate lots where backyards are typically very large, the goal could be applied

Table 3
Noise/Land Use Compatibility Guidelines



Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.	New construction or development should generally not be undertaken.

Source: City of Escondido 1990

approximately one-half the distance between the back of the main residential structure and the rear property line. The outdoor standard should not normally be applied to balconies or patios associated with residential uses." Noise Policy E.1.3 sets noise level limits for interior noise levels from exterior sources at 45 dBA or less. Noise Policy E.1.4 identifies the Noise Ordinance as the proper regulation for controlling non-traffic-related noise associated with a development, and specifically excludes the noise/land use compatibility guidelines for use in assessing impacts associated with noise generated from a project site to surrounding properties. Noise Policy E.1.4 also states that a proposed project should not increase ambient noise levels by more than 5 dBA, even if the resulting noise level would be below noise level limits identified in the Noise Ordinance. Noise Policy E.1.5 states that the City will use the Noise Ordinance to control non-traffic-related noise sources. Noise Policy E.1.6 provides site planning methods to reduce potential noise impacts on new developments. Noise-reduction methods identified include increased distances from sources to receptors, site and building layout considerations, placement of noise-sensitive areas within buildings, noise barriers, and construction materials consideration. Noise Policies E.1.7 through E.1.10 identify programs for further study, provide guidance on truck routes, and provide statements encouraging coordination with other agencies and implementing expressed policies.

In accordance with the City's goal and for CEQA purposes noise impacts are considered significant when a project contributes readily perceptible noise level increases (+5 dBA) or noise levels exceed 60 dBA CNEL at exterior use areas associated with residential land uses. However, noise levels of 65 dBA CNEL or lower are considered to be conditionally compatible with residential uses as typical construction, with windows closed, can typically provide sufficient noise attenuation to comply with the interior noise level standard.

City of Escondido Noise Ordinance

The City has jurisdiction over noise regulation, as stated in the City's Municipal Code, Chapter 17, Article 12 Noise Abatement and Control (City 2004). Noise level limits between adjacent properties are governed by Section 17-229. The applicable sound level limits are shown in Table 4.

Section 17-229(c) allows for the following corrections to the sound level limits in Table 4:

> If the noise is continuous, the L_{eq} for any hour will be represented by any lesser time period within that hour. Noise measurements of a few minutes only will thus suffice to define the noise level.

Table 4
Sound Level Limits

Zone	Time	Applicable Limit 1-Hour Average Sound Level (dBA)
Residential zones	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Multi-residential zones	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
Commercial zones	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
Light industrial/Industrial park zones	Anytime	70*
General industrial zones	Anytime	75*

*Subject to provisions of Section 17-229 (c)(5).

If the noise is intermittent, the L_{eq} for any hour may be represented by a time period typical of the operating cycle. Measurement should be made of a representative number of noisy/quiet periods. A measurement period of not less than 15 minutes is, however, strongly recommended when dealing with intermittent noise.

In the event that the alleged offensive noise, as judged by the enforcement officer, contains a steady, audible sound such as a whine, screech, or hum, or contains a repetitive impulsive noise such as hammering or riveting, the standard limits set forth in Table 4 shall be reduced by 10 dB or to the ambient noise level when such noises are not occurring.

If the measured ambient level exceeds that permissible, the allowable noise exposure standard shall be the ambient noise level. The ambient level shall be measured when the alleged noise violations source is not operating.

The sound level limit at a location on a boundary between two land use classifications is the limit applicable to the receiving land use; provided, however, that the 1-hour average sound level limit applicable to extractive industries including but not limited to borrow pits and mines, shall be 75 dB at the property line regardless of the zone where the extractive industry is actually located.

Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this section, measured at or

beyond 6 feet from the boundary of the easement upon which the equipment is located (Ord. No. 90-8, § 2, 3-28-90).

4.2 CONSTRUCTION NOISE

General construction noise is governed by Section 17-234, which limits construction operations to 7:00 a.m. through 6:00 p.m., Monday through Friday, and on Saturdays between the hours of 9:00 a.m. to 5:00 p.m., and prohibits construction on Sundays and City holidays. Noise generated by grading activities is governed by section 17-238, which limits grading operations to 7:00 a.m. to 6:00 p.m., Monday through Friday, and prohibits grading on Saturdays, Sundays, and City holidays. A variance for grading may be issued by the City manager to allow grading operations on Saturdays from 10:00 a.m. to 5:00 p.m. if it can be demonstrated that is would serve the community good. Both Sections 17-234 and 17-238 limit noise generated by construction equipment to a maximum of 75 dBA for a 1-hour average at the property line of any property developed for residential purposes, unless a variance is obtained from the City manager (pursuant to Sections 17-249 through 17-257).

4.3 VIBRATION

Vibration

Potential structural damage associated with vibration from construction activities are based on the Caltrans vibration limits identified in Table 5. For pile driving, Caltrans indicates that extreme care should be taken whenever pile driving would occur within 25 feet of any building and within 100 feet of a building in poor condition.

Table 5
Potential Structural Damage Thresholds

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: Caltrans 2004

SECTION 5.0
EXISTING CONDITIONS

5.1 PROJECT AREA

The proposed project area is surrounded by light industrial/heavy commercial uses to the north and east, and residential/rural residential to the west, south, and east. Many of the adjacent lots that are slated for industrial/commercial development are either under ongoing development or graded for anticipated development. Citracado Parkway is identified in the City's Circulation Element as a Major Road.

5.2 EXISTING NOISE LEVELS

The predominant source of noise in the project area is traffic on Citracado Parkway and the major cross streets within the project area. The existing average daily traffic (ADT) on Citracado Parkway ranges from 2,700 ADT south of Avenida Del Diablo to 4,800 ADT between Johnson and West Valley Parkway. ADT on West Valley Parkway ranges from 18,900 ADT north of Citracado Parkway to 19,300 ADT south of Citracado Parkway. ADT on Avenida Del Diablo, and Harmony Grove Road is 2,600 ADT and 6,300 ADT, respectively (VRPA 2010).

Noise measurements were taken along the project corridor on July 3, 2007. The measurement locations are shown in Figure 4 and the noise monitoring results are provided in Table 6 (detailed measurement data is provided in Appendix A). The noise monitoring results are expressed as typical 1-hour noise levels at each measurement site, with L_{eq} representing the 1-hour average noise level, L_{max} the maximum recorded noise level, and L_{min} the minimum recorded noise level.

In addition to measured noise levels, noise patterns or contours can be depicted using noise models. In 1990, noise contours were developed for the City of Escondido, which included the project area. Based on Figure IV-3 of the General Plan, the proposed project is located within the 60 dBA CNEL contour or greater (Escondido 1990).

The relationship of CNEL to average daytime noise levels is dependent on the proportions of daily traffic that occur in the daytime, evening, and nighttime. For most urban and suburban roadways, CNEL is conservatively assumed to be equal to the peak-hour noise level and 2 dBA greater than the average daytime noise level.

Table 6
Noise Measurement Data

Site ID*	Location	Start Time	L_{eq} (dBA)	L_{max} (dBA)	L_{min} (dBA)	Noise Sources
1	50 feet south of Citracado Parkway north of Escondido Views Mobile Home Park	10:11 a.m.	64.5	78.0	42.1	Traffic on Citracado Pkwy
2	At the end of S. Mammoth Place, 50 feet from Citracado Pkwy, 21 feet from wall	10:48 a.m.	52.1	68.9	37.0	Traffic on Citracado Pkwy, dogs, and birds
3	At the end of N. Mammoth Place, 50 feet from Citracado Pkwy, 25 feet from 4-foot wall along Citracado Pkwy	11:19 a.m.	44.4	58.0	37.4	Traffic on Citracado Pkwy.
4	Tennis Court at Mountain Shadows Trailer Park, 110 feet from Citracado Pkwy, and 50 feet from wall to the southeast	11:50 a.m.	51.6	66.3	37.7	Traffic on Citracado Pkwy, residents talking, birds
5	Along cul-de-sac of street in mobile home park, 100 feet from Citracado Pkwy	1:18 p.m.	60.9	81.5	40.3	Traffic on Citracado Pkwy, trash truck
6	Along cul-de-sac of street in mobile home park, 100 feet from Citracado Pkwy	1:57 p.m.	54.4	71.4	41.9	Traffic on Citracado Pkwy.
7	Along street in mobile home park, 150 feet from Citracado Pkwy	2:39 p.m.	46.5	60.9	43.0	Traffic on Citracado Pkwy.
8	At Casa de Amigo clubhouse, 12 feet from roadway	3:06 p.m.	66.3	85.2	49.3	Trash truck
9	Along eastbound Johnston Road, 150 feet south of Citracado Pkwy	3:34 p.m.	51.3	63.2	39.2	Traffic on Citracado Pkwy and air traffic
10	Adjacent to Escondido Creek upslope west of Citracado Pkwy terminus	4:09 p.m.	46.2	62.7	37.3	Distant traffic
11	At backyard boundary of property – 2327 Harmony Grove Road, 400 feet from road	4:38 p.m.	45.7	55.9	38.0	Traffic on Harmony Grove Road

*The Site ID corresponds to locations shown in Figure 4.
All measurements were taken on Wednesday, July 3, 2007, for approximately 20 minutes, which was sufficient time to represent a 1-hour equivalent noise level (L_{eq}).

SECTION 6.0
CEQA SIGNIFICANCE CRITERIA

Significance Criteria

The noise effects of a project are considered to be significant under CEQA if the project would exceed any of the City of Escondido Significance Criteria. The effects of a project on noise are considered to be significant if the proposed project would result in the following:

1. expose 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;
2. expose persons to, or generation of, excessive groundborne vibration or groundborne noise levels;
3. cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
4. cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

According to the City of Escondido's General Plan Noise Policy and Noise Ordinance guidelines, a project would cause a significant impact if it results in increased noise levels of 5 dB or greater, or results in increased noise levels that would result in incompatible noise levels. As described in Noise Policy E.1.1 on in Section 3.9.1, the City's goal is 60 dBA CNEL for residential areas. In accordance with the City's goal and for CEQA purposes, noise impacts are considered significant when a project contributes readily perceptible noise level increases (+5 dBA) or noise levels exceed 60 dBA CNEL at exterior use areas associated with residential land uses. However, noise levels of 65 dBA CNEL or lower are considered to be conditionally compatible with residential uses as typical construction, with windows closed, can typically provide sufficient noise attenuation to comply with the interior noise level standard.

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SECTION 7.0
IMPACTS

7.1 METHODOLOGY

Noise impacts associated with the proposed project would be related to construction and operation of traffic on the roadway. Construction noise would be related primarily to the use of heavy equipment, construction workers, and materials deliveries. Operation noise would be limited to traffic noise, as no other long-term noise sources are associated with the proposed project.

7.1.1 Traffic Noise Modeling

The Federal Highway Administration's (FHWA) Traffic Noise Model (TNM), version 2.5, was used to predict existing and future peak-hour traffic noise levels at specific receptor locations within the project site (FHWA 2004). Inputs to TNM include the three-dimensional coordinates of the roadways; noise receptors; topographic features; existing or planned barriers that would affect noise propagation; and vehicle volumes and speeds, by type of vehicle. Traffic volumes were taken from the project traffic report (VRPA 2010). Peak-hour traffic volumes in the project traffic report were evaluated, and the greatest peak-hour volume generally occurs during the PM peak hour; thus, this was then used in the noise model. The vehicle mix used in the model was developed from traffic counts taken during the noise measurements. Traffic speeds were taken from the San Diego Association of Governments (SANDAG) Transportation Forecast Information Center website and were assumed to be actual traffic speeds for purposes of modeling (SANDAG 2010). The model outputs are noise levels at the selected receptor points. Receptors evaluated in the model are shown in Figure 5.

7.1.2 Construction Noise Modeling

For purposes of noise assessment, construction equipment can be considered to operate in two modes: stationary and mobile. Stationary equipment operates in one location for 1 or more days at a time with either a fixed-power operation, such as pumps, generators, and compressors, or a variable noise operation, such as pile drivers, rock drills, and pavement breakers. Mobile equipment moves around the construction site with power applied in a cyclic fashion, such as bulldozers, graders, and loaders (FTA 2006). Noise impacts from stationary equipment are assessed from the center of the equipment, while noise impacts for mobile construction

equipment are assessed from the center of the equipment activity or construction site. For linear construction, such as a roadway or pipeline, construction noise is assessed from the centerline of the alignment and center of the active work area.

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FTA 2006). Typical duty cycles and noise levels generated by representative pieces of equipment are listed in Table 7.

Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some have high-impact noise levels. The L_{eq} of each phase is determined by combining the L_{eq} contributions from each piece of equipment used in that phase (FTA 2006). In typical construction projects, grading activities typically generate the highest noise levels, as grading involves the largest equipment.

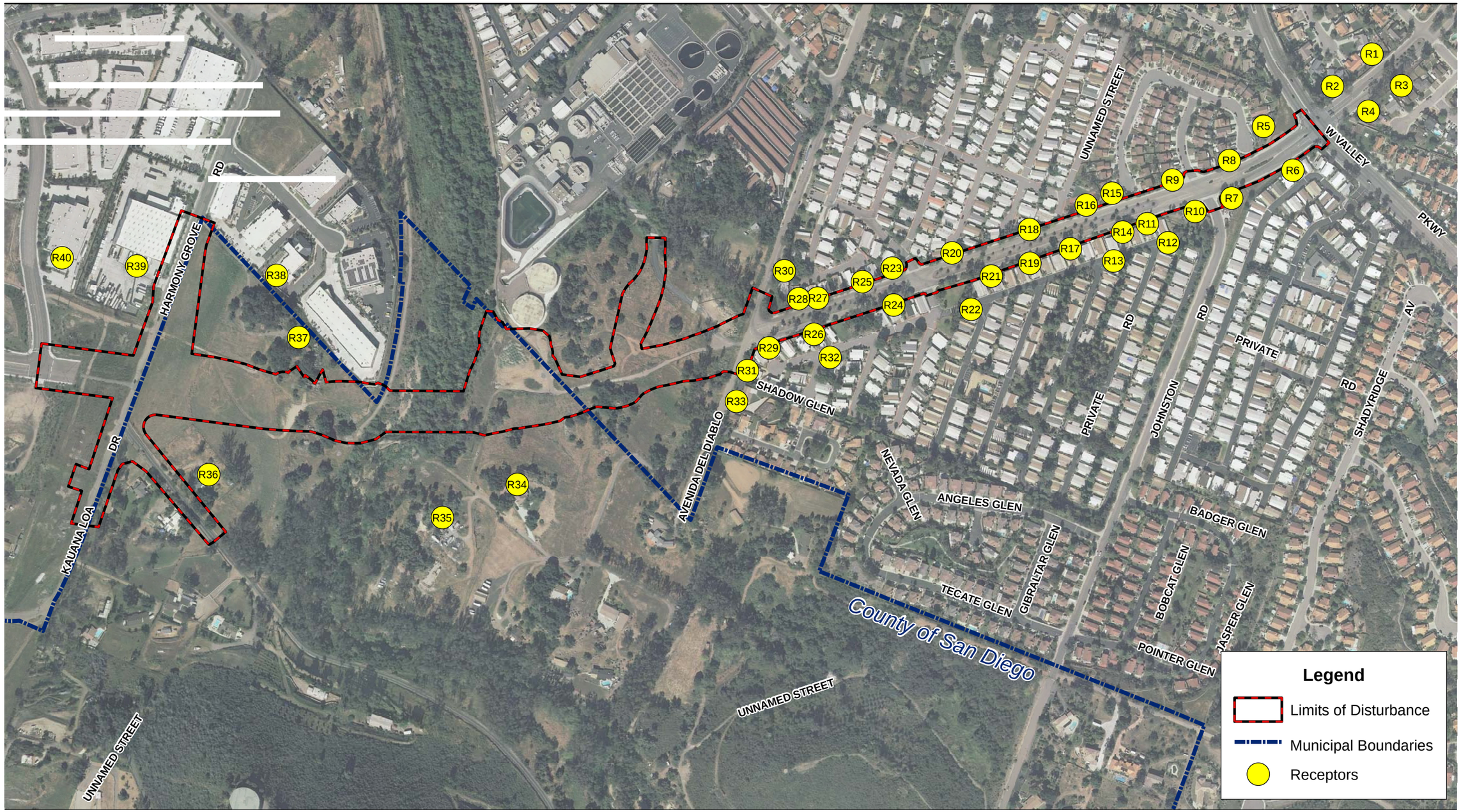
The equation used for calculation of each individual piece of construction equipment at individual receptors is as follows:

$$NL_i = NL_{max@50\ ft} - 20\ LOG\ (D_i/50) + 10\ LOG\ (UF/100) - IL_i$$

where

NL_i = noise level at receptor i, dBA
$NL_{max@50\ ft}$ = maximum equipment noise level measured at 50 feet from the noise centroid of the equipment, dBA
D_i = distance from equipment to receptor i, feet
UF = utilization factor of the equipment, percent
IL_i = insertion loss between the equipment and receptor i, dBA

This equation is described in Mitigation of Nighttime Construction Noise, Vibrations, and Other Nuisances (TRB 1999) and Construction Noise Control Program and Mitigation Strategy as the Central Artery/Tunnel Project (Thalheimer 2000). While construction of the northern portion of the project would occur in open field and would be considered acoustically soft, which typically attenuates noise at a rate of 7.5 dBA per doubling of distance, the referenced equation assumes a drop-off rate of 6 dBA per doubling of distance for the entire project and is conservative.



Source: Landiscor 2010; SanGIS 2011; Boyle Engineering 2007; AECOM 2010

400 200 0 400 Feet

Scale: 1 = 4,800; 1 inch = 400 feet

Figure 5
Modeled Noise Receptors

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Table 7
Typical Maximum Construction Equipment Noise Levels

Equipment	Noise Level at 50 Feet	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
Impact Pile Driver (diesel or drop)	95	20%
Insitu Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
Vibratory Pile Driver	95	20%

Source: Thalheimer 2000
KVA = kilovolt amps

7.1.3 Vibration Assessment

A quantitative assessment of potential vibration impacts from construction activities, such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation, may be conducted using the following equations (FTA 2006). Table 8 shows typical vibration levels for various pieces of construction equipment (FTA 2006).

Table 8
Vibration Levels Measured during Construction Activities

Equipment		PPV at 25 Feet (in/sec)	Approximate L_v[1] VdB at 25 Feet
Pile Driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	Upper range	0.734	105
	Typical	0.170	93
Hydromill (slurry wall)	Soil	0.008	66
	Rock	0.017	75
Clam Shovel Drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

[1] rms velocity in decibels (VdB) re 1 micro-inch/second
Source: FTA 2006

Damage Assessment

Vibration impacts to structures may be estimated at any distance (D) using the following equation:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

(This formula is based on point vibration sources with normal propagation conditions.)

where

PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for distance
PPV_{ref} = the reference vibration level in in/sec at 25 feet from Table 8
D = is the distance from the equipment to the receiver

Annoyance Assessment

Vibration impacts to humans due to annoyance or interference with vibration-sensitive activities may be estimated at any distance (D) using the following equation:

$L_{v(D)} = L_{v(ref)} - 30\log(D/25)$
(This formula is based on point vibration sources with normal propagation conditions.)

where

$L_{v(D)}$ = the rms of the peak velocity in micro-inches per second expressed in VdB of the equipment adjusted for distance
$L_{v(ref)}$ = the reference vibration level at 25 feet, taken from Table 8
D = the distance from the equipment to the receiver

7.2 ASSUMPTIONS

7.2.1 Construction

The proposed project site would be developed in stages; for the most part, each stage would occur sequentially. For the new portion of the alignment, it is assumed that construction phases would include clearing and grubbing, grading and excavation, trenching, road base installation, and paving. For the portion between Valley Center Parkway and Avenida Del Diablo, construction would include roadway scarifying, asphalt breaking and removal, grading, trenching, road base installation, and paving. It is assumed for purposes of this analysis that construction activities would cover a minimum 300-foot linear portion of the roadway each day.

7.2.2 Operation

Noise during project operation would be related solely to traffic. No significant vibration sources are associated with project operation.

7.3 CONSTRUCTION NOISE IMPACT ASSESSMENT

Construction noise would be generated on local roadways by workers commuting to and from the job site and by construction material deliveries. On-site, noise would be generated by construction equipment during site preparation and construction activities. It is estimated that construction activities would require an average of 16 workers per day and an average of 31

truck trips per day for material deliveries. These vehicles would access the project site via Valley Center Parkway from the south and Citracado Parkway from the north. It has been estimated that 66 trips would occur during the AM peak traffic period. This increase in volume and change in vehicular mix would result in a less than 1 dBA L_{eq} increase in noise levels along Valley Center Parkway and Citracado Parkway during the AM peak period. A 1 dBA L_{eq} noise level increase is not generally considered a perceivable change in noise level, and would be considered a less-than-significant impact.

Typical heavy construction equipment would include bulldozers, excavators, dump trucks, front-end loaders, graders, and industrial/concrete saws. It is assumed that diesel engines would power all construction equipment. Peak noise levels measured at a distance of 50 feet from an individual piece of construction equipment can reach as high as 90 dBA (FTA 2006). However, with construction equipment moving around the project site and pausing for measurements and worker breaks, average hourly noise levels would be 84 L_{eq} at 50 feet, as measured from the center of the construction site or activity. Noise levels from construction activities are typically considered as point sources and would drop off at a rate of 6 dB per doubling of distance over hard sites, such as streets and parking lots. The drop-off rate would increase slightly over soft sites, such as grass fields and open terrain with vegetation. For this analysis, a conservative drop-off rate of 6 dBA per doubling of distance has been used.

As the project site is currently a roadway or undeveloped land, there are no on-site noise-sensitive receptors. The nearest noise-sensitive receptors, for construction assessment purposes, are the single-family residences located east and west of Citracado Parkway between West Valley Parkway and Avenida Del Diablo. Additional residences are located along the proposed alignment north of Avenida Del Diablo; however, these residences are at greater distances, and the intervening terrain would be considered acoustically soft, increasing the attenuation rate to 7.5 dBA per doubling of distance. The residences located along Citracado Parkway between West Valley Parkway and Avenida Del Diablo are approximately 50 feet from the edge of Citracado Parkway. Considering the linear distance equipment would likely move during various activities, the effective center of construction would be approximately 125 feet from nearby residences. At these distances, short-term construction noise levels from roadway construction are estimated to reach 69 dBA L_{eq} at the residences without shielding. Maximum noise levels at these residences could reach as high as 83 dBA for short periods when equipment is under maximum load and adjacent to the property lines. Maximum construction noise levels at the nearest residences would be heard above the existing noise levels and could create temporary annoyance; however, maximum noise levels would typically last a few minutes and would occur only sporadically, and are not considered significant.

The City has identified construction noise levels of 75 dBA L_{eq} at exterior locations of residential uses as acceptable during daytime hours. While typical construction would occur between 7:00 a.m. and 6:00 p.m., Monday through Friday, construction might occasionally occur on Saturday between 9:00 a.m. and 5:00 p.m., as allowed by Sections 17-234 and 17-238 of the City's Municipal Code. No construction would occur on Sundays or federal holidays. Thus, construction of the proposed project would comply with the City's Noise Ordinance. Since construction noise would not exceed 75 dBA L_{eq} at the nearest residence and would comply with the time limits of the Noise Ordinance, construction of the proposed project would not result in significant noise impacts to noise-sensitive receptors.

7.3.1 Construction Vibration Impact Assessment

Although it is possible for vibrations from construction projects to cause building damage, the vibrations from construction activities are almost never of sufficient amplitude to cause more than minor cosmetic damage to buildings (FTA 2006). Groundborne vibration generated by construction projects is usually highest during pile driving, soil compacting, jackhammering, and demolition-related activities.

The vibration data provided in Table 8 and the propagation equations for structural damage and human annoyance indicate that construction equipment vibration levels, with the exception of pile drivers, are well below the threshold of damage at distances ranging beyond 65 feet and below the threshold for vibration perception beyond 80 feet. The nearest sensitive receptors would be the residences along the existing alignment of Citracado Parkway, approximately 50 feet from the nearest point of construction. At this distance, these receptors would be exposed to approximately 0.03 ppv in/sec during grading and scarifying operations. Vibration levels of this magnitude would be perceivable but would be well below the levels required to cause architectural damage; thus, local receptors would not be exposed to substantial vibration during project construction. All other receptors are farther away; thus, vibrations at those locations would be less than at these receptors. Therefore, the proposed project would not expose local sensitive receptors to significant impacts resulting from groundborne vibrations.

7.4 OPERATION NOISE IMPACT ASSESSMENT

7.4.1 Traffic Noise

The primary source of noise in the project area is traffic. Table 9 presents the existing peak-hour traffic volumes for Citracado Parkway. See Appendix B for a complete breakdown of existing

Table 9
Citracado Parkway – PM Peak-Hour Traffic Volumes

Street/Segment	Existing 2010	2014 No Build	2014 Build	2030 No Build	2030 Build
Citracado					
North of Andreasen Drive	109	670	3,296	664	2,358
Andreasen Drive to Harmony Grove Road/Kauana Loa Drive	0	0	2,973	0	2,460
Harmony Grove Road/Kauana Loa Drive to Lariat Drive	0	0	2,303	0	2,063
Lariat Drive to Avenida Del Diablo	0	297	2,598	665	2,572
Avenida Del Diablo to Driveway	238	801	2,883	1,851	2,538
Driveway to Johnston Road	238	801	2,883	1,851	2,538
Johnston Road to West Valley Parkway	315	887	2,733	1,922	2,743
South of West Valley Parkway	124	246	538	1,898	2,254

Source: VRPA 2010

and future traffic volumes for all roadways. The traffic noise levels for this project were estimated using the FHWA TNM. TNM determines a predicted noise level through a series of adjustments to a reference sound level. These adjustments account for traffic flows, speed, truck mix, varying distances from the roadway, length of exposed roadway, and noise shielding. The long-term project-related noise analysis is based on traffic projections contained in the project traffic report (VRPA 2010).

Vehicle speeds on each roadway were assumed to be the posted speed limit, and no reduction in speed was assigned due to congested traffic flows. Current roadway characteristics, such as the number of lanes and roadway inclines, were determined from field observations and project conceptual design drawings. Receptor and building locations and elevations were taken from topographic survey data provided by the project engineer (AECOM 2010). Existing and future roadway geometric data were also developed from project conceptual design drawings provided by the project engineer. Model input and output data are included in Appendix B. Based on available traffic data, the CNEL is estimated to be 1 dBA higher than the loudest hour noise level calculated by TNM. Appendix B includes the model input and output sheets for both the No Build and Build Alternatives. Modeled traffic noise levels are presented in Table 10.

Noise levels under the 2010 existing condition range from 38 to 63 dBA CNEL. Under existing conditions, noise levels equal or exceed the City's 60 dBA CNEL goal for residential uses at 4 receptors. No receptors are exposed to noise levels in excess of 65 dBA CNEL.

Year 2014

Under the No Build Alternative, noise levels in 2014 would range from 39 to 69 dBA CNEL. Seventeen receptors would be exposed to noise levels greater than 60 dBA CNEL and 2 receptors would be exposed to noise levels in excess of 65 dBA CNEL. Noise level increase under the No Build Alternative in 2014 would range from 0 to 13 dBA over existing noise levels, and 18 receptors would be exposed to a noise level increase of 5 dBA or greater. Increased traffic and related noise levels would be the result of ambient growth of traffic in the project area from planned projects, such as the Harmony Grove Development.

With implementation of the proposed project, 2014 noise levels would range from 54 to 71 dBA CNEL. Twenty-eight receptors would be exposed to noise levels greater than 60 dBA CNEL and 10 receptors would be exposed to noise level greater than 65 dBA CNEL. Noise level changes under the Build Alternative in 2014 would range from -4 to 21 dBA as compared to the projected 2014 No Build and would increase 1 to 24 dBA over existing 2010 noise levels; 16 receptors

would be exposed to a noise level increases of 5 dBA or greater when comparing the 2014 Build and No Build.

Year 2030

Under the No Build Alternative, noise levels in 2030 would range from 42 to 70 dBA CNEL and 26 receptors would be exposed to noise levels of greater than 60 dBA CNEL and 10 receptors would be exposed to noise levels greater than 65 dBA CNEL. Under the No Build Alternative in 2030, noise level changes would range from -1 to 12 dBA over existing noise levels and 31 receptors would be exposed to a noise level increase of 5 dBA or greater.

With implementation of the proposed project, 2030 noise levels would range from 51 to 70 dBA CNEL. Thirty receptors would be exposed to noise levels of greater than 60 dBA CNEL and 8 receptors would be exposed to noise levels in excess of 65 dBA CNEL. Noise level changes under the proposed project in 2030 would range from -4 to 18 as compared to the projected 2030 No Build and would increase 1 to 24 dBA over existing 2010 noise levels; 5 receptors would be exposed to a noise level increases of 5 dBA or greater when comparing the 2030 Build and No Build. Based on the predicted noise levels, there would be fewer impacts under the 2030 build condition than in 2014 due to the projected redistribution of local traffic (VRPA 2010).

The majority of the impacted receptors are residences located along Citracado Parkway south of Avenida Del Diablo. Primarily, these residences are located in the Casa De Amigos Mobile Home Estates and the Mountain Shadow Mobile Home Park and share common areas. The residences fronting Yankee Court, Mammoth Place, Fantero Avenue, and Macero Street are single-family residences and do not share a common area for recreation. Similarly, the residences along the proposed extension are single-family residences. These are located on large lots as compared to those along the existing alignment. Air conditioners or mechanical venting was observed at all of the residences visited during field surveys and it is assumed all residences in the project area are equipped with air conditioners or mechanical venting and can keep windows closed when desired.

Summary of Impacts and Mitigation Feasibility

As described in Section 6, the project would cause a significant impact if it results in increased noise levels of 5 dB or greater, or results in increased noise levels that would result in incompatible noise levels. As described in Noise Policy E.1.1 on in Section 3.9.1, the City's goal is 60 dBA CNEL for residential areas. In accordance with the City's goal and for CEQA

Table 10
Predicted Traffic Noise Impacts

Receiver ID	Location or Address	Type of Development	Predicted Existing Noise Level (CNEL)	Future 2014					Future 2030				
				No Build		Build			No Build		Build		
				Predicted Noise Level (CNEL)	Change Less Existing (CNEL)	Predicted Noise Level (CNEL)	Change Less Existing (CNEL)	Change Less No Build (CNEL)	Predicted Noise Level (CNEL)	Change Less Existing (CNEL)	Predicted Noise Level (CNEL)	Change Less Existing (CNEL)	Change Less No Build (CNEL)
R1	1758 Macero Street	Single-family Residential	57	59	2	60	3	1	**64**	7	**64**	**7**	0
R2	1773 Macero Street	Single-family Residential	63	**64**	1	**65**	2	1	**66**	3	**66**	**3**	0
R3	2126 Fantero Avenue	Single-family Residential	56	58	2	58	2	0	**61**	5	**62**	**6**	1
R4	2142 Fantero Avenue	Single-family Residential	60	**62**	2	**62**	2	0	**65**	5	**65**	**5**	0
R5	1758 South Mammoth Place	Single-family Residential	61	**64**	3	**68**	**7**	4	**67**	6	**67**	**6**	0
R6	Escondido Views, 2400 West Valley Parkway	Mobile Home	58	**61**	3	**65**	**7**	4	**64**	6	**63**	**5**	-1
R7	2160 Johnston Road	Single-family Residential	57	**61**	4	**63**	**6**	2	**64**	7	**62**	**5**	-2
R8	1763 South Mammoth Place	Single-family Residential	58	**63**	5	**66**	**8**	3	**66**	8	**66**	**8**	0
R9	2142 Yankee Court	Single-family Residential	59	**62**	3	**66**	**7**	4	**66**	7	**65**	**6**	-1
R10	2159 Johnston Road	Single-family Residential	54	**61**	7	**64**	**10**	3	**66**	12	**65**	**11**	-1
R11	Casa De Amigos Mobile Home Estates, 1751 Citracado Parkway	Mobile Home	55	60	5	59	4	-1	**64**	9	**63**	**8**	-1
R12	Casa De Amigos Mobile Home Estates,	Mobile Home	51	55	4	59	**8**	4	59	8	58	**7**	-1
R13	Casa De Amigos Mobile Home Estates	Mobile Home	50	55	5	58	**8**	3	58	8	57	**7**	-1
R14	Casa De Amigos Mobile Home Estates	Mobile Home	57	**62**	5	**66**	**9**	4	**66**	9	**66**	**9**	0
R15	2156 North Mammoth Place	Single-family Residential	56	**61**	5	**66**	**10**	**5**	**65**	9	**65**	**9**	0
R16	Mountain Shadow Mobile Home Park, Tennis Court	Mobile Home	61	**67**	6	**71**	**10**	4	**70**	9	**70**	**9**	0
R17	Casa De Amigos Mobile Home Estates,	Mobile Home	51	56	5	60	**9**	4	59	8	60	**9**	1
R18	Mountain Shadow Mobile Home Park	Mobile Home	56	**69**	13	**65**	**9**	-4	**66**	10	**65**	**9**	-1
R19	Casa De Amigos Mobile Home Estates	Mobile Home	57	**62**	5	**67**	**10**	**5**	**66**	9	**67**	**10**	1
R20	Mountain Shadow Mobile Home Park	Mobile Home	57	**62**	5	**66**	**9**	4	**66**	9	**66**	**9**	0
R21	Casa De Amigos Mobile Home Estates	Mobile Home	52	57	5	**62**	**10**	**5**	**61**	9	**62**	**10**	1
R22	Casa De Amigos Mobile Home Estates	Mobile Home	51	56	5	**62**	**11**	**6**	**60**	9	**62**	**11**	**2**
R23	Mountain Shadow Mobile Home Park	Mobile Home	54	59	5	**65**	**11**	**6**	**63**	9	**64**	**10**	1
R24	Casa De Amigos Mobile Home Estates	Mobile Home	58	59	1	**65**	**7**	**6**	**62**	4	**63**	**5**	1

Receiver ID	Location or Address	Type of Development	Predicted Existing Noise Level (CNEL)	Future 2014					Future 2030				
				No Build		Build			No Build		Build		
				Predicted Noise Level (CNEL)	Change Less Existing (CNEL)	Predicted Noise Level (CNEL)	Change Less Existing (CNEL)	Change Less No Build (CNEL)	Predicted Noise Level (CNEL)	Change Less Existing (CNEL)	Predicted Noise Level (CNEL)	Change Less Existing (CNEL)	Change Less No Build (CNEL)
R25	Mountain Shadow Mobile Home Park	Mobile Home	55	60	5	**65**	**10**	**5**	**64**	**9**	**65**	**10**	1
R26	Casa De Amigos Mobile Home Estates	Mobile Home	56	**61**	5	**62**	**6**	1	**64**	**8**	**61**	**5**	-3
R27	Mountain Shadow Mobile Home Park	Mobile Home	57	**61**	4	**67**	**10**	**6**	**65**	**8**	**67**	**10**	**2**
R28	Mountain Shadow Mobile Home Park	Mobile Home	56	60	4	**66**	**10**	**6**	**63**	**7**	**65**	**9**	**2**
R29	Casa De Amigos Mobile Home Estates	Mobile Home	57	**62**	5	**63**	**6**	1	**65**	**8**	**61**	4	-4
R30	Mountain Shadow Mobile Home Park	Mobile Home	57	57	0	**64**	**7**	**7**	**62**	**5**	**65**	**8**	**3**
R31	Casa De Amigos Mobile Home Estates	Mobile Home	53	56	3	**64**	**11**	**8**	59	**6**	**62**	**9**	**3**
R32	Casa De Amigos Mobile Home Estates	Mobile Home	51	56	5	60	**9**	4	60	**9**	59	**8**	-1
R33	2343 Avenida Del Diablo	Single-family Residential	57	57	0	58	1	1	57	0	58	1	1
R34	2368 Avenida Del Diablo	Single-family Residential	39	42	3	**63**	**24**	**21**	45	**6**	**63**	**24**	**18**
R35	2358 Avenida Del Diablo	Single-family Residential	38	39	1	57	**19**	**18**	42	4	57	**19**	**15**
R36	2327 Harmony Grove Road	Single-family Residential	59	59	0	**63**	4	4	58	-1	**62**	3	**4**
R37	2207 Harmony Grove Road	Single-family Residential	44	45	1	**61**	**17**	**16**	46	2	58	**14**	**12**
R38	1277 Pacific Oaks Place	Commercial	45	45	0	54	**9**	**9**	46	1	51	**6**	**5**
R39	2208 Harmony Grove Road	Commercial	53	54	1	56	3	2	54	1	54	1	0
R40	1040 Andreasen Drive	Commercial	45	46	1	55	**10**	**9**	46	1	52	**7**	**6**

Note: **Bolded** numbers represent potential impacts due to absolute noise levels (i.e. greater than 60 dBA CNEL) or substantial increase (i.e. 5 dBA or greater)
All noise levels were calculated as loudest hour and adjusted upward 1 dBA to reflect the CNEL

purposes, noise impacts are considered significant when a project contributes readily perceptible noise level increases (+5 dBA) or noise levels exceed 60 dBA CNEL at exterior use areas associated with residential land uses.

Therefore, as shown in Table 11, in 2014 with implementation of the proposed project, 28 receptors would be exposed to noise levels greater than 60 dBA CNEL and impacts of the proposed project would be considered significant. In addition, 16 receptors would be exposed to a noise level increases of 5 dBA or greater when comparing the 2014 Build and No Build. Two receptors are not considered noise sensitive (R38 and R40) and impacts at these locations are considered less than significant. Impacts at the remaining 14 receptor locations would be considered significant due to substantial increase in noise levels.

Table 11
Significant Impact Summary by Receiver Site

Receptor	Over 60 dBA	Substantial Increase	Mitigation Proposed	Level of Impact After Mitigation
R2	Yes	No	No mitigation proposed. Does not represent substantial increase and noise level is at or below 65 dBA. Noise level remains above 60 dBA.	Significant and unavoidable
R4	Yes	No	No mitigation proposed. Does not represent substantial increase, and noise level is at or below 65dBA. Noise level remains above 60 dBA.	Significant and unavoidable
R5	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R6	Yes	No	No mitigation proposed. Does not represent substantial increase and noise level is at or below 65dBA. Noise level remains above 60 dBA.	Significant and unavoidable
R7	Yes	No	No mitigation proposed. Does not represent substantial increase and noise level is at or below 65dBA. Noise level remains above 60 dBA.	Significant and unavoidable
R8	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R9	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R10	Yes	No	No mitigation proposed. Does not represent substantial increase and noise level is at or below 65dBA. Noise level remains above 60 dBA.	Significant and unavoidable
R14	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R15	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable

Receptor	Over 60 dBA	Substantial Increase	Mitigation Proposed	Level of Impact After Mitigation
R16	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R18	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R19	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R20	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R21	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level will be at 60 dBA.	Impacts reduced to less than significant at this receiver site.
R22	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level will be at 60 dBA.	Impacts reduced to less than significant at this receiver site.
R23	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R24	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R25	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R26	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R27	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R28	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R29	Yes	No	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level remains above 60 dBA.	Significant and unavoidable
R30	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level will be below 60 dBA.	Impacts reduced to less than significant at this receiver site.
R31	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level will be at 60 dBA.	Significant and unavoidable
R34	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level will be at 60 dBA. However, mitigation is proposed on private property. If permission is not granted, impacts will remain.	Significant and unavoidable

Receptor	Over 60 dBA	Substantial Increase	Mitigation Proposed	Level of Impact After Mitigation
R35	No	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level will be at 60 dBA. However, mitigation is proposed on private property. If permission is not granted, impacts will remain.	Significant and unavoidable
R36	Yes	No	No mitigation was determined feasible at this location, as no mitigation would achieve a noticeable reduction in noise levels (greater than 3 dBA). Noise levels will remain above 60 dBA.	Significant and unavoidable
R37	Yes	Yes	Mitigation proposed to reduce noise levels to at or below 65 dBA. With mitigation, noise level will be at 60 dBA. However, mitigation is proposed on private property. If permission is not granted, impacts will remain.	Significant and unavoidable
R38	No	Yes	Not a noise sensitive receptor. No mitigation required.	Less than significant impact
R40	No	Yes	Not a noise sensitive receptor. No mitigation required.	Less than significant impact

Initially, all mitigation was designed to reduce noise levels to 60 dBA CNEL or less at every receptor; however, noise level reductions of this nature would require wall heights equal to or greater than 14 feet for many locations. Walls of this height would result in additional environmental impacts, including impacts associated with construction of more substantial footings, shading/lighting impacts, visual impacts, and traffic safety impacts due to limited sight distances. Additionally, a noise level of 65 dBA CNEL is generally considered compatible with residential uses, as typical construction, with windows closed, can generally provide sufficient noise attenuation to comply with the interior noise level standard of 45 dBA CNEL (FHWA 1995). Thus, mitigation has been designed to reduce noise levels to 65 dBA CNEL where the predicted noise level would exceed 65 dBA CNEL or where noise level increases would equal or exceed 5 dBA under the 2014 Build condition as compared to the 2014 No Build condition. Where noise level increases would equal or exceed 5 dBA under 2014 Build condition as compared to the 2014 No Build condition, mitigation was designed to achieve a noticeable attenuation, defined as 3 dBA, regardless of absolute noise level.

As shown in Table 10, noise levels at R5, R8, R9, R14 through R16, R19, R20, R27, and R28 would exceed 65 dBA CNEL, and noise levels would increase by 5 dBA CNEL or more at R15, R19, R21 through R25, R27, R28, R30, R31, R34, R35, R37, R38, and R40. However, R38 and R40 are not noise sensitive receptors. Therefore, mitigation was designed for R5, R8, R9, R14 through R16, R19, R20, R27, and R28 to reduce noise levels to 65 dBA CNEL or less and for R21 through R25, R30, R31, R34, R35, and R37 to achieve a noise level reduction of at least 3

dBA. As many of these receptors represent multiple residences or are located in line with several other residences, some walls would provide attenuation to a larger area than the single receptor point.

Cumulative Impacts and Mitigation Feasibility

Under 2030 conditions, cumulative impacts, i.e. noise levels greater than 60 dBA CNEL or noise level increased of 5 dBA or more over existing conditions, would occur at all receptors except R33 and R39. While cumulative noise impacts would occur when comparing the 2030 conditions to the 2010 conditions, traffic-related noise levels between West Valley Parkway and Andreasen Drive would be lower due to reduced traffic volumes between the 2014 Build and the 2030 Build conditions. The reduced traffic volumes would be the result of future improvements in the local and regional transportation network (VRPA 2010). The project would result in a cumulatively considerable substantial increase in noise levels, i.e., an increase greater than 1 dBA with project, at receptors R22, R27, R28, R30, R31, R34, R35, R36, R37, R38, and R40. However, R38 and R40 are not noise sensitive receptors. Therefore, mitigation would be required for R22, R27, R28, R30, R31, R34, R35, R36, and R37. As noted above, it is not always feasible to reduce noise levels to comply with the City's goal without resulting in additional impacts; thus the goal would be to achieve a noticeable noise level reduction and achieve interior noise levels at these locations that are compatible with the land uses. Mitigation is proposed at these receiver sites, as described in Table 11. With mitigation, noise levels would remain above 60 dBA at all locations but R22, which will have an estimated noise level with sound walls of 60 dBA. All receiver sites would be mitigated to below 65 dBA.

Annexation

The proposed project also involves annexation of three parcels to the City. These parcels would be rezoned consistent with the City's General Plan. Two parcels would be rezoned consistent with their existing County Zoning (Rural Residential to Estate) and one parcel (APN #23504015) would be rezoned to Industrial Park from Rural Residential. Noise analysis considers only existing structures and land uses when analyzing impacts of the proposed project. Any future industrial park development on that parcel would be required to comply with CEQA and the City's Noise Policies, when considering a proposed industrial development adjacent to existing rural residential and other land uses. When considering projected traffic noise levels from the Citracado Parkway extension and a proposed industrial land use zone, no land use conflict exists, since industrial land uses are subject to higher noise level standards than rural residential, as shown in Table 3.

Off-site Traffic Noise

Off-site traffic impacts were assessed based on ADT volumes presented the traffic study (VRPA 2010) for the following roadway segments: Citracado north of Andreasen and south of Valley Parkway, Harmony Grove, Valley Parkway south of Citracado and north of Citracado, Avenida Del Diablo, and Kuana Loa Drive. The 2014 and 2030 Build versus No Build conditions along these segments were analyzed for potential noise impacts (see Appendix B). This analysis indicates increases of less than 5 dBA CNEL along all affected off-site roadways with project implementation, with the exception of Citracado Parkway north of Andreasen Drive where noise levels would increase by approximately 7 dBA. The existing land uses along Citracado Parkway north of Andreasen Drive are industrial in nature and no noise sensitive land uses exist. Thus, while this 7 dBA CNEL increase would represent a substantial increase in noise levels, impacts related to noise along this segment are considered less than significant, because no noise sensitive land uses are present.

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SECTION 8.0
MITIGATION MEASURES

8.1 REQUIRED MITIGATION MEASURES

8.1.1 Construction

No construction-related noise impacts to sensitive receptors were determined in the preceding analysis. As a result, no mitigation is required for project-related construction.

8.1.2 Operation

Based on the preceding analysis, the proposed project would result in potentially significant impacts at receptors located along the existing and proposed alignment. Therefore, mitigation measures are required to reduce predicted noise levels. The proposed sound walls along the existing segment of Citracado Parkway are at the location of existing walls/fences along the alignment or at the edge of the future right-of-way. In addition, three walls are proposed on private property at R34, R35, and R37 due to increase of greater than 10 dBA at these locations. Mitigation was designed for R36 due to a cumulatively considerable impact but was determined infeasible, as no configuration could achieve a 3 dBA reduction due to the design and access requirements of the lot. Table 12 presents the noise level reduction associated with various wall heights. As discussed, all mitigation was initially designed to reduce noise levels to 60 dBA CNEL or less at every receptor; however, noise level reductions of this nature would require wall heights equal to or greater than 14 feet for many locations. Walls of this height would result in additional environmental impacts, including impacts associated with construction of more substantial footings, shading/lighting impacts, visual impacts, and traffic safety impacts due to limited sight distances. Thus, mitigation has been deemed feasible if it would reduce noise levels below 65 dBA CNEL and result in at least a 3 dBA decrease in noise levels, or result in noise levels of 60 dBA CNEL or less.

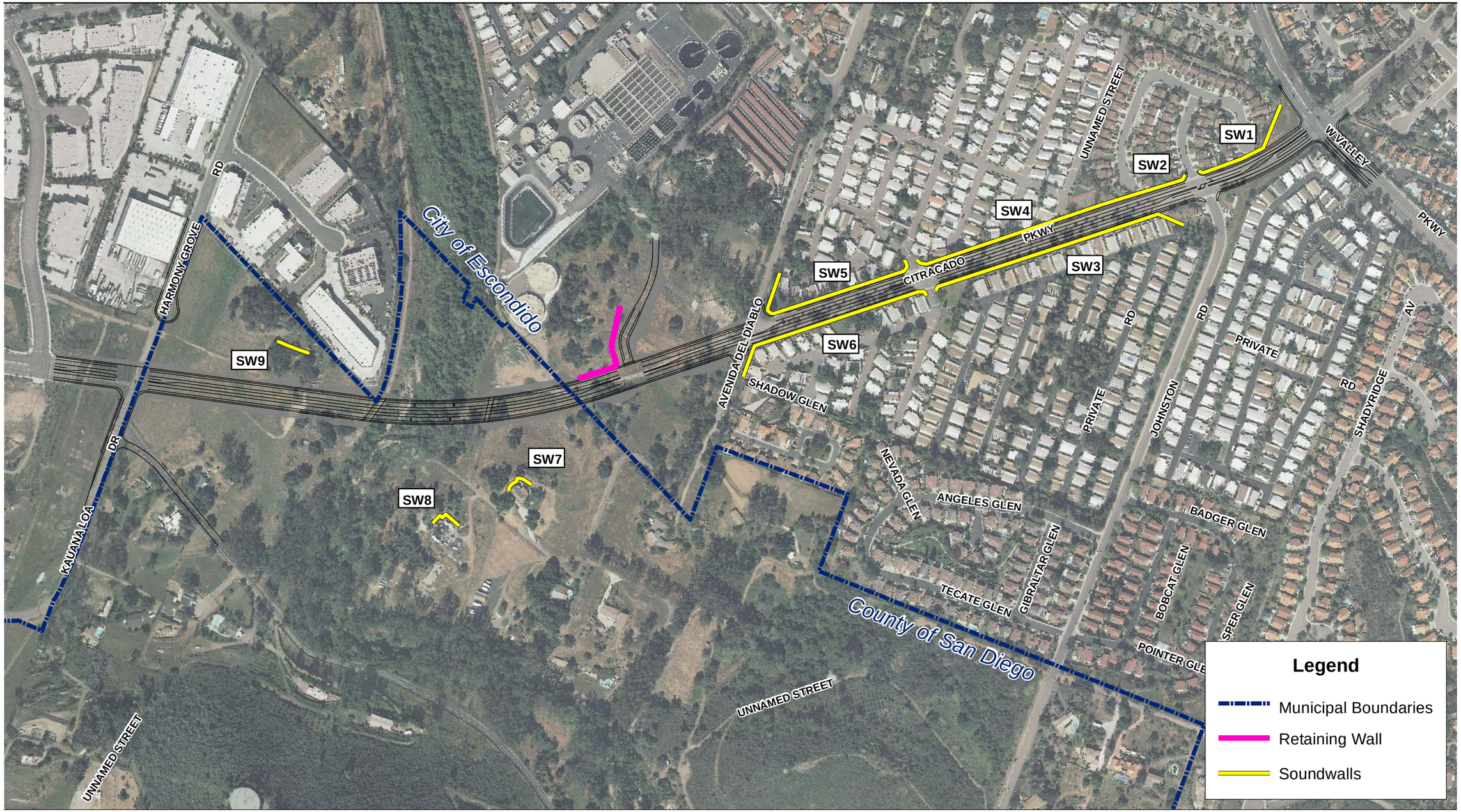
Based on the information presented in Table 12, to reduce noise levels to 65 dBA CNEL or less, SW1 and SW2 are required to be 10 feet in height and all other soundwalls are required to be 8 feet in height or less. See Table 13 for a summary of all proposed soundwall lengths in the proposed project area and Figure 6 for sound wall locations. Additionally, to achieve a noticeable reduction (i.e., 3 dBA) an 8-foot-high soundwall (SW6) would be required for R24 and R31, 6-foot-high soundwalls would be required for R34 and R35, and a 12-foot-high soundwall would

Table 12
Predicted Noise Level Reductions for Sound Walls at Various Heights

Soundwall	Benefited Receptors	2014 Noise Level, w/o Wall dBA L_{eq}	Wall height = 6 feet		Wall height = 8 feet		Wall height = 10 feet		Wall height = 12 feet		Wall height = 14 feet	
			Noise Level dBA L_{eq}	Reduction dBA	Noise Level dBA L_{eq}	Reduction dBA	Noise Level dBA L_{eq}	Reduction dBA	Noise Level dBA L_{eq}	Reduction dBA	Noise Level dBA L_{eq}	Reduction dBA
SW1	R5	68	EC	NA	66	-2	63	-5	61	-7	60	-8
	R8	66	EC	NA	64	-2	62	-4	61	-5	60	-6
SW2	R9	66	EC	NA	63	-3	61	-5	60	-6	59	-7
	R15	66	EC	NA	65	-1	63	-3	63	-3	62	-4
SW3	R11	59	EC	NA	57	-2	55	-4	54	-5	53	-6
	R12	59	EC	NA	58	-1	58	-1	56	-3	56	-3
	R13	58	EC	NA	57	-1	57	-1	56	-2	56	-2
	R14	66	EC	NA	63	-3	61	-5	60	-6	58	-8
	R17	60	EC	NA	59	-1	57	-3	56	-4	58	-2
	R19	67	EC	NA	63	-4	60	-7	59	-8	58	-9
	R21	62	EC	NA	60	-2	59	-3	58	-4	57	-5
	R22	62	EC	NA	60	-2	60	-2	60	-2	60	-2
SW4	R16	71	66	-5	65	-6	63	-8	60	-11	58	-13
	R18	65	EC	NA	62	-3	59	-6	57	-8	56	-9
	R20	66	EC	NA	63	-3	61	-5	59	-7	58	-8
SW5	R23	65	EC	NA	62	-3	61	-4	60	-5	59	-6
	R25	65	EC	NA	62	-3	60	-5	59	-6	58	-7
	R27	67	EC	NA	63	-4	60	-7	59	-8	58	-9
	R28	66	EC	NA	63	-3	61	-5	60	-6	59	-7
	R30	65	EC	NA	58	-7	57	-8	55	-10	54	-11
SW6	R24	65	EC	NA	62	-3	60	-5	59	-6	58	-7
	R26	62	EC	NA	61	-1	60	-2	59	-3	58	-4
	R29	63	EC	NA	62	-1	60	-3	59	-4	59	-4
	R31	64	EC	NA	60	-4	58	-6	57	-7	56	-8
	R32	60	EC	NA	60	0	59	-1	57	-3	56	-4
SW7	R34	63	57	-6	55	-8	53	-10	52	-11	51	-12
SW8	R35	57	51	-6	50	-7	49	-8	49	-8	48	-9
SW9	R37	61	61	0	60	-1	59	-2	58	-3	57	-4

Notes: EC = Existing Condition, NA = Not Applicable

Shaded column represents proposed wall height.



Source: Landiscor 2010; SanGIS 2011; Boyle Engineering 2007; AECOM 2010

400 200 0 400 Feet

Scale: 1 = 4,800; 1 inch = 400 feet

Figure 6
Soundwall Locations

Path: P:\2006\06080144 Citracado Pkwy\5GIS\MXD\Noise\Fig 6 Sound Walls.mxd, 6/2/2011, LeeJ

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Table 13
Summary of Soundwall Lengths

Sound Wall	Affected Receptors	Length (feet)
SW1	R5, R8	420
SW2	R9, R15	380
SW3	R11–14, R17, R19, R21, R22	1,005
SW4	R16, R18, R20	1,200
SW5	R23, R25, R27, R28, R30	815
SW6	R24, R26, R29, R31, R32	935
SW7	R34	135
SW8	R35	150
SW9	R36	140

be required for R37. While the proposed project would result in a substantial permanent increase in noise levels, with inclusion of the modeled walls in the proposed project at the specified heights, the proposed Project would not expose local noise-sensitive receptors to noise levels in excess of 65 dBA CNEL and would not exceed interior noise level standards. However, even with implementation of proposed mitigation, the proposed project would result in a significant unavoidable impacts at R1, R2, R4 through R10, R14 through R16, R18 through R20, R23, R24, R26 through R29, and R36 as noise levels would exceed 60 dBA CNEL under future conditions.

Additionally, as the walls for R34, R35, and R37 are located on private property, permission would be required by the property owners to construct the soundwalls. Thus, it cannot be guaranteed that the soundwalls for these locations can be built. If the identified soundwalls cannot be built, in addition to the substantial noise level increase impacts, noise impacts at these receptors would be significant and unavoidable.

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SECTION 9.0
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APPENDIX A

NOISE MEASUREMENT DATA

SLM & RTA Summary

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File Translated:	P:\2006\06080144 Citracado Pkwy\2Work Folder\Environmental\Air Quali
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Firmware Rev:	4.261
Software Version:	3.12
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Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 1
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 10:11:51		
Elapsed Time:	00:34.3		
	A Weight	C Weight	Flat
Leq:	64.5 dBA	67.5 dBC	67.8 dBF
SEL:	79.9 dBA	82.9 dBC	83.2 dBF
Peak:	93.8 dBA	94.1 dBC	94.3 dBF
	7/3/2007 10:11	7/3/2007 10:11	7/3/2007 10:11
Lmax (slow):	78.0 dBA	79.0 dBC	79.0 dBF
	7/3/2007 10:11	7/3/2007 10:11	7/3/2007 10:11
Lmin (slow):	42.1 dBA	53.4 dBC	56.5 dBF
	7/3/2007 10:11	7/3/2007 10:11	7/3/2007 10:11
Lmax (fast):	84.3 dBA	85.1 dBC	85.1 dBF
	7/3/2007 10:11	7/3/2007 10:11	7/3/2007 10:11
Lmin (fast):	41.6 dBA	51.2 dBC	53.2 dBF
	7/3/2007 10:11	7/3/2007 10:12	7/3/2007 10:12
Lmax (impulse):	85.5 dBA	86.3 dBC	86.3 dBF
	7/3/2007 10:11	7/3/2007 10:11	7/3/2007 10:11
Lmin (impulse):	41.8 dBA	53.4 dBC	56.6 dBF
	7/3/2007 10:11	7/3/2007 10:11	7/3/2007 10:11

SLM & RTA Summary

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Serial Number:	A3007
Firmware Rev:	4.261
Software Version:	3.12
Name:	EDAW, Inc.
Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 2
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 10:47:42		
Elapsed Time:	15:02.6		
	A Weight	C Weight	Flat
Leq:	52.1 dBA	70.6 dBC	71.7 dBF
SEL:	81.6 dBA	100.2 dBC	101.3 dBF
Peak:	85.9 dBA	97.4 dBC	98.3 dBF
	7/3/2007 10:52	7/3/2007 10:57	7/3/2007 10:57
Lmax (slow):	68.9 dBA	87.8 dBC	88.3 dBF
	7/3/2007 10:57	7/3/2007 10:57	7/3/2007 10:57
Lmin (slow):	37.0 dBA	56.0 dBC	57.3 dBF
	7/3/2007 10:54	7/3/2007 10:55	7/3/2007 10:55
Lmax (fast):	71.1 dBA	90.2 dBC	90.6 dBF
	7/3/2007 10:57	7/3/2007 10:57	7/3/2007 10:57
Lmin (fast):	36.4 dBA	52.1 dBC	53.5 dBF
	7/3/2007 10:55	7/3/2007 10:54	7/3/2007 10:54
Lmax (impulse):	72.2 dBA	91.5 dBC	91.8 dBF
	7/3/2007 10:57	7/3/2007 10:57	7/3/2007 10:57
Lmin (impulse):	36.8 dBA	56.3 dBC	57.3 dBF
	7/3/2007 10:54	7/3/2007 10:55	7/3/2007 10:55

SLM & RTA Summary

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Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 3
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 11:19:08		
Elapsed Time:	15:19.0		
	A Weight	C Weight	Flat
Leq:	44.4 dBA	57.7 dBC	59.1 dBF
SEL:	74.1 dBA	87.4 dBC	88.7 dBF
Peak:	83.1 dBA	81.4 dBC	84.7 dBF
	7/3/2007 11:26	7/3/2007 11:26	7/3/2007 11:26
Lmax (slow):	58.0 dBA	69.1 dBC	69.9 dBF
	7/3/2007 11:29	7/3/2007 11:21	7/3/2007 11:21
Lmin (slow):	37.4 dBA	50.9 dBC	52.6 dBF
	7/3/2007 11:21	7/3/2007 11:31	7/3/2007 11:31
Lmax (fast):	59.9 dBA	71.1 dBC	71.8 dBF
	7/3/2007 11:26	7/3/2007 11:21	7/3/2007 11:21
Lmin (fast):	36.4 dBA	48.4 dBC	50.4 dBF
	7/3/2007 11:33	7/3/2007 11:31	7/3/2007 11:31
Lmax (impulse):	62.9 dBA	72.2 dBC	73.2 dBF
	7/3/2007 11:26	7/3/2007 11:21	7/3/2007 11:33
Lmin (impulse):	37.2 dBA	52.2 dBC	53.8 dBF
	7/3/2007 11:21	7/3/2007 11:31	7/3/2007 11:31

SLM & RTA Summary

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Software Version:	3.12
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Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 4
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 11:49:25		
Elapsed Time:	15:15.2		
	A Weight	C Weight	Flat
Leq:	51.6 dBA	66.8 dBC	67.6 dBF
SEL:	81.2 dBA	96.4 dBC	97.2 dBF
Peak:	81.6 dBA	93.5 dBC	93.9 dBF
	7/3/2007 12:04	7/3/2007 11:58	7/3/2007 11:58
Lmax (slow):	66.3 dBA	86.9 dBC	87.1 dBF
	7/3/2007 11:51	7/3/2007 11:58	7/3/2007 11:58
Lmin (slow):	37.7 dBA	52.2 dBC	54.1 dBF
	7/3/2007 11:54	7/3/2007 11:53	7/3/2007 11:56
Lmax (fast):	68.7 dBA	89.7 dBC	89.9 dBF
	7/3/2007 11:58	7/3/2007 11:58	7/3/2007 11:58
Lmin (fast):	36.1 dBA	49.5 dBC	51.7 dBF
	7/3/2007 11:54	7/3/2007 11:56	7/3/2007 11:56
Lmax (impulse):	69.1 dBA	90.1 dBC	90.4 dBF
	7/3/2007 11:58	7/3/2007 11:58	7/3/2007 11:58
Lmin (impulse):	37.1 dBA	52.6 dBC	54.5 dBF
	7/3/2007 11:54	7/3/2007 12:01	7/3/2007 12:01

SLM & RTA Summary

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Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 5
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 13:18:02		
Elapsed Time:	16:48.5		
	A Weight	C Weight	Flat
Leq:	60.9 dBA	74.6 dBC	75.4 dBF
SEL:	90.9 dBA	104.6 dBC	105.5 dBF
Peak:	95.2 dBA	98.8 dBC	99.3 dBF
	7/3/2007 13:29	7/3/2007 13:27	7/3/2007 13:29
Lmax (slow):	81.5 dBA	91.4 dBC	92.0 dBF
	7/3/2007 13:29	7/3/2007 13:29	7/3/2007 13:29
Lmin (slow):	40.3 dBA	54.0 dBC	55.5 dBF
	7/3/2007 13:18	7/3/2007 13:34	7/3/2007 13:34
Lmax (fast):	83.7 dBA	93.3 dBC	93.9 dBF
	7/3/2007 13:29	7/3/2007 13:29	7/3/2007 13:29
Lmin (fast):	39.5 dBA	52.4 dBC	53.7 dBF
	7/3/2007 13:34	7/3/2007 13:34	7/3/2007 13:34
Lmax (impulse):	84.4 dBA	93.9 dBC	94.5 dBF
	7/3/2007 13:29	7/3/2007 13:29	7/3/2007 13:29
Lmin (impulse):	40.0 dBA	54.7 dBC	56.9 dBF
	7/3/2007 13:34	7/3/2007 13:34	7/3/2007 13:34

SLM & RTA Summary

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Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 6
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 13:57:14		
Elapsed Time:	15:33.7		
	A Weight	C Weight	Flat
Leq:	54.4 dBA	67.9 dBC	69.4 dBF
SEL:	84.1 dBA	97.6 dBC	99.2 dBF
Peak:	86.4 dBA	97.7 dBC	98.0 dBF
	7/3/2007 13:58	7/3/2007 14:01	7/3/2007 14:01
Lmax (slow):	71.4 dBA	86.8 dBC	87.1 dBF
	7/3/2007 14:01	7/3/2007 14:01	7/3/2007 14:01
Lmin (slow):	41.9 dBA	53.6 dBC	55.8 dBF
	7/3/2007 14:12	7/3/2007 14:12	7/3/2007 14:11
Lmax (fast):	73.3 dBA	89.2 dBC	89.4 dBF
	7/3/2007 14:01	7/3/2007 14:01	7/3/2007 14:01
Lmin (fast):	41.2 dBA	52.3 dBC	54.1 dBF
	7/3/2007 14:12	7/3/2007 14:11	7/3/2007 14:11
Lmax (impulse):	74.0 dBA	90.9 dBC	91.1 dBF
	7/3/2007 14:01	7/3/2007 14:01	7/3/2007 14:01
Lmin (impulse):	41.3 dBA	54.7 dBC	56.9 dBF
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SLM & RTA Summary

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Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 7
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 14:38:34		
Elapsed Time:	15:15.7		
	A Weight	C Weight	Flat
Leq:	46.5 dBA	58.8 dBC	61.4 dBF
SEL:	76.1 dBA	88.4 dBC	91.0 dBF
Peak:	89.0 dBA	88.4 dBC	88.9 dBF
	7/3/2007 14:38	7/3/2007 14:38	7/3/2007 14:38
Lmax (slow):	60.9 dBA	70.1 dBC	71.9 dBF
	7/3/2007 14:50	7/3/2007 14:44	7/3/2007 14:48
Lmin (slow):	43.0 dBA	54.7 dBC	56.3 dBF
	7/3/2007 14:49	7/3/2007 14:51	7/3/2007 14:51
Lmax (fast):	65.5 dBA	73.4 dBC	75.8 dBF
	7/3/2007 14:38	7/3/2007 14:44	7/3/2007 14:48
Lmin (fast):	42.5 dBA	53.1 dBC	54.4 dBF
	7/3/2007 14:47	7/3/2007 14:51	7/3/2007 14:51
Lmax (impulse):	70.3 dBA	74.6 dBC	78.4 dBF
	7/3/2007 14:38	7/3/2007 14:44	7/3/2007 14:48
Lmin (impulse):	42.9 dBA	55.0 dBC	57.1 dBF
	7/3/2007 14:50	7/3/2007 14:51	7/3/2007 14:51

SLM & RTA Summary

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Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	Short-term Measurements
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 15:06:26		
Elapsed Time:	10:22.1		
	A Weight	C Weight	Flat
Leq:	66.3 dBA	73.2 dBC	73.9 dBF
SEL:	94.2 dBA	101.1 dBC	101.8 dBF
Peak:	99.7 dBA	104.4 dBC	105.4 dBF
	7/3/2007 15:12	7/3/2007 15:12	7/3/2007 15:12
Lmax (slow):	85.2 dBA	91.3 dBC	92.0 dBF
	7/3/2007 15:12	7/3/2007 15:12	7/3/2007 15:12
Lmin (slow):	49.3 dBA	59.4 dBC	60.7 dBF
	7/3/2007 15:13	7/3/2007 15:06	7/3/2007 15:16
Lmax (fast):	88.7 dBA	96.4 dBC	97.1 dBF
	7/3/2007 15:12	7/3/2007 15:12	7/3/2007 15:12
Lmin (fast):	48.8 dBA	58.2 dBC	59.1 dBF
	7/3/2007 15:13	7/3/2007 15:16	7/3/2007 15:16
Lmax (impulse):	89.8 dBA	98.5 dBC	99.3 dBF
	7/3/2007 15:12	7/3/2007 15:12	7/3/2007 15:12
Lmin (impulse):	49.0 dBA	59.7 dBC	61.1 dBF
	7/3/2007 15:13	7/3/2007 15:11	7/3/2007 15:06

SLM & RTA Summary

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Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	Short-term Measurements
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 15:34:08		
Elapsed Time:	15:30.0		
	A Weight	C Weight	Flat
Leq:	51.3 dBA	64.6 dBC	67.8 dBF
SEL:	81.0 dBA	94.3 dBC	97.5 dBF
Peak:	85.6 dBA	86.7 dBC	90.2 dBF
	7/3/2007 15:36	7/3/2007 15:43	7/3/2007 15:42
Lmax (slow):	63.2 dBA	78.4 dBC	79.0 dBF
	7/3/2007 15:43	7/3/2007 15:43	7/3/2007 15:43
Lmin (slow):	39.2 dBA	56.0 dBC	59.6 dBF
	7/3/2007 15:41	7/3/2007 15:41	7/3/2007 15:49
Lmax (fast):	64.0 dBA	80.0 dBC	81.5 dBF
	7/3/2007 15:43	7/3/2007 15:43	7/3/2007 15:42
Lmin (fast):	38.8 dBA	54.1 dBC	56.4 dBF
	7/3/2007 15:49	7/3/2007 15:41	7/3/2007 15:41
Lmax (impulse):	64.6 dBA	80.7 dBC	84.5 dBF
	7/3/2007 15:43	7/3/2007 15:43	7/3/2007 15:42
Lmin (impulse):	39.2 dBA	57.3 dBC	60.4 dBF
	7/3/2007 15:49	7/3/2007 15:41	7/3/2007 15:48

SLM & RTA Summary

Translated:	20-Aug-07 17:04:17
File Translated:	P:\2006\06080144 Citracado Pkwy\2Work Folder\Environmental\Air Qualit
Model Number:	824
Serial Number:	A3007
Firmware Rev:	4.261
Software Version:	3.12
Name:	EDAW, Inc.
Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 10
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 16:09:12		
Elapsed Time:	10:27.7		
	A Weight	C Weight	Flat
Leq:	46.2 dBA	60.2 dBC	62.7 dBF
SEL:	74.2 dBA	88.1 dBC	90.7 dBF
Peak:	87.8 dBA	86.2 dBC	86.1 dBF
	7/3/2007 16:09	7/3/2007 16:09	7/3/2007 16:09
Lmax (slow):	62.7 dBA	75.3 dBC	75.4 dBF
	7/3/2007 16:18	7/3/2007 16:18	7/3/2007 16:18
Lmin (slow):	37.3 dBA	52.5 dBC	54.5 dBF
	7/3/2007 16:14	7/3/2007 16:13	7/3/2007 16:13
Lmax (fast):	65.6 dBA	76.6 dBC	77.4 dBF
	7/3/2007 16:09	7/3/2007 16:18	7/3/2007 16:12
Lmin (fast):	36.9 dBA	50.7 dBC	52.8 dBF
	7/3/2007 16:14	7/3/2007 16:13	7/3/2007 16:15
Lmax (impulse):	70.4 dBA	77.1 dBC	79.5 dBF
	7/3/2007 16:09	7/3/2007 16:18	7/3/2007 16:12
Lmin (impulse):	37.0 dBA	53.6 dBC	55.9 dBF
	7/3/2007 16:14	7/3/2007 16:13	7/3/2007 16:13

SLM & RTA Summary

Translated:	20-Aug-07 17:04:43
File Translated:	P:\2006\06080144 Citracado Pkwy\2Work Folder\Environmental\Air Qualit
Model Number:	824
Serial Number:	A3007
Firmware Rev:	4.261
Software Version:	3.12
Name:	EDAW, Inc.
Descr1:	1420 Kettner Blvd., Ste. 620
Descr2:	San Diego, CA 92101
Setup:	1M-1S.ssa
Setup Descr:	SLM & RTA 1min-1Sec
Location:	Escondido - Citracado Parkway Project Area
Note 1:	MS 11
Note 2:	

Overall Any Data

Start Time:	3-Jul-07 16:37:57		
Elapsed Time:	10:21.5		
	A Weight	C Weight	Flat
Leq:	45.7 dBA	63.2 dBC	64.8 dBF
SEL:	73.6 dBA	91.1 dBC	92.7 dBF
Peak:	84.5 dBA	82.9 dBC	82.7 dBF
	7/3/2007 16:39	7/3/2007 16:39	7/3/2007 16:39
Lmax (slow):	55.9 dBA	73.9 dBC	75.0 dBF
	7/3/2007 16:42	7/3/2007 16:39	7/3/2007 16:39
Lmin (slow):	38.0 dBA	53.5 dBC	55.5 dBF
	7/3/2007 16:44	7/3/2007 16:44	7/3/2007 16:44
Lmax (fast):	61.7 dBA	75.3 dBC	76.4 dBF
	7/3/2007 16:39	7/3/2007 16:42	7/3/2007 16:39
Lmin (fast):	37.4 dBA	52.4 dBC	53.9 dBF
	7/3/2007 16:44	7/3/2007 16:44	7/3/2007 16:44
Lmax (impulse):	66.8 dBA	75.8 dBC	77.2 dBF
	7/3/2007 16:39	7/3/2007 16:39	7/3/2007 16:39
Lmin (impulse):	37.8 dBA	54.2 dBC	56.5 dBF
	7/3/2007 16:44	7/3/2007 16:44	7/3/2007 16:44

APPENDIX B

CALCULATIONS

AECOM 13 June 2011
Maddux TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: Existing

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Citracado Pkwy NB Seg 1	12.0	point1	1	6,298,529.5	1,980,061.8	699.00				Average	
		point2	2	6,298,442.0	1,980,106.8	697.00				Average	
		point3	3	6,298,283.0	1,980,197.4	695.00				Average	
		point4	4	6,298,030.0	1,980,358.0	699.00					
Citracado Pkwy SB Seg 1	12.0	point5	5	6,298,108.0	1,980,251.4	698.00	Signal	0.00	100	Average	
		point6	6	6,298,258.0	1,980,157.1	695.02				Average	
		point7	7	6,298,416.0	1,980,061.6	697.00				Average	
		point8	8	6,298,506.5	1,980,011.8	699.00					
Citracado Prkwy NB Seg 2	12.0	point9	9	6,298,030.0	1,980,358.0	699.00	Signal	0.00	100	Average	
		point10	10	6,297,966.5	1,980,398.5	700.00				Average	
		point11	11	6,297,895.5	1,980,452.9	699.00				Average	
		point12	12	6,297,812.5	1,980,530.6	698.00				Average	
		point13	13	6,297,702.0	1,980,654.8	694.00				Average	
		point14	14	6,297,639.5	1,980,733.6	690.00					
Citracado Prkwy SB Seg 2	12.0	point23	23	6,296,405.0	1,982,219.0	642.50	Stop	0.00	100	Average	
		point24	24	6,296,504.5	1,982,093.5	643.00				Average	
		point25	25	6,296,583.0	1,981,993.5	643.00				Average	
		point26	26	6,296,832.5	1,981,676.5	648.50				Average	
		point27	27	6,296,925.0	1,981,558.0	651.00				Average	
		point28	28	6,297,064.5	1,981,382.0	654.50				Average	
		point29	29	6,297,192.5	1,981,219.1	659.00				Average	
		point30	30	6,297,528.0	1,980,795.6	686.00				Average	
		point31	31	6,297,605.5	1,980,704.9	690.00					
Avenida Del Diablo Seg 2	24.0	point37	37	6,297,489.0	1,982,226.0	635.00				Average	
		point38	38	6,296,759.0	1,982,221.6	640.00				Average	

		point39	39	6,296,574.0	1,982,221.6	643.00					
Johnston Rd Seg 2	24.0	point49	49	6,297,670.0	1,980,700.5	694.00	Stop	0.00	100	Average	
		point47	47	6,297,702.5	1,980,737.5	694.00				Average	
		point46	46	6,297,776.0	1,980,796.4	694.00				Average	
		point45	45	6,297,813.0	1,980,813.9	694.00				Average	
		point44	44	6,297,857.0	1,980,826.1	694.00				Average	
		point43	43	6,297,901.0	1,980,832.9	694.00					
Johnston Rd Seg 1	24.0	point59	59	6,297,656.0	1,980,638.1	694.00	Stop	0.00	100	Average	
		point58	58	6,297,613.5	1,980,605.5	695.00				Average	
		point57	57	6,297,595.5	1,980,590.5	696.00				Average	
		point56	56	6,297,579.0	1,980,573.9	697.00				Average	
		point55	55	6,297,561.0	1,980,560.9	698.00				Average	
		point54	54	6,297,543.0	1,980,549.0	699.00				Average	
		point53	53	6,297,523.0	1,980,539.9	700.00				Average	
		point52	52	6,297,500.5	1,980,529.4	701.00				Average	
		point51	51	6,297,453.0	1,980,516.4	702.00				Average	
		point50	50	6,297,419.5	1,980,513.5	703.00					
West Valley Prkwy EB Seg 1	24.0	point60	60	6,297,972.0	1,980,062.8	695.00				Average	
		point61	61	6,298,055.0	1,980,240.1	698.00				Average	
		point62	62	6,298,071.5	1,980,270.0	699.00					
West Valley Prkwy EB Seg 2	24.0	point63	63	6,298,104.5	1,980,322.6	699.00	Signal	0.00	100	Average	
		point64	64	6,298,119.5	1,980,350.1	698.00				Average	
		point65	65	6,298,132.5	1,980,369.1	697.00				Average	
		point66	66	6,298,159.5	1,980,408.4	696.00				Average	
		point67	67	6,298,188.0	1,980,446.1	695.00				Average	
		point68	68	6,298,238.5	1,980,508.2	694.50					
West Valley Prkwy WB Seg 2	24.0	point69	69	6,298,206.5	1,980,530.2	694.50				Average	
		point70	70	6,298,166.0	1,980,483.4	695.00				Average	
		point71	71	6,298,137.0	1,980,446.1	696.00				Average	
		point72	72	6,298,095.0	1,980,388.2	697.00				Average	
		point73	73	6,298,082.5	1,980,369.4	698.00				Average	
		point74	74	6,298,068.0	1,980,346.9	699.00					
West Valley Prkwy WB Seg 1	24.0	point75	75	6,298,034.5	1,980,293.4	699.00	Signal	0.00	100	Average	
		point76	76	6,298,018.0	1,980,258.8	698.00				Average	
		point77	77	6,297,935.5	1,980,082.9	695.00					
Kauana Loa Dr	24.0	point80	80	6,294,305.0	1,984,547.6	634.20				Average	
		point81	81	6,294,791.5	1,984,542.4	634.20				Average	
		point82	82	6,294,893.0	1,984,541.2	634.20				Average	
		point83	83	6,295,037.0	1,984,540.1	634.20				Average	

		point84	84	6,295,251.0	1,984,538.0	634.20					
Harmon Grove Rd	24.0	point92	92	6,294,891.5	1,983,977.1	634.16				Average	
		point93	93	6,295,225.5	1,984,538.0	634.16					
Avenida Del Diablo Seg 1	24.0	point94	94	6,296,574.0	1,982,221.6	643.00	Stop	0.00	100	Average	
		point40	40	6,296,361.5	1,982,219.9	644.00				Average	
		point41	41	6,296,280.0	1,982,219.1	648.00				Average	
		point42	42	6,296,080.0	1,982,218.9	653.00					
Citracado Prkwy SB Seg 2-2	12.0	point95	95	6,297,605.5	1,980,704.9	690.00	Signal	0.00	100	Average	
		point32	32	6,297,670.0	1,980,624.0	694.00				Average	
		point33	33	6,297,777.0	1,980,496.1	698.00				Average	
		point34	34	6,297,870.0	1,980,422.5	699.00				Average	
		point78	78	6,297,949.5	1,980,365.5	700.00				Average	
		point79	79	6,298,028.5	1,980,308.4	699.00				Average	
		point35	35	6,298,108.0	1,980,251.4	698.00					
Citracado Prkwy NB Seg 2-2	12.0	point96	96	6,297,639.5	1,980,733.6	690.00	Signal	0.00	100	Average	
		point15	15	6,297,594.0	1,980,801.9	686.00				Average	
		point16	16	6,297,237.5	1,981,254.8	659.00				Average	
		point17	17	6,297,109.5	1,981,417.8	654.50				Average	
		point18	18	6,296,970.5	1,981,594.1	651.00				Average	
		point19	19	6,296,877.0	1,981,711.9	648.50				Average	
		point20	20	6,296,627.5	1,982,029.2	643.00				Average	
		point21	21	6,296,550.0	1,982,128.6	643.00				Average	
		point22	22	6,296,484.0	1,982,220.8	642.50					
Kauana Loa Dr-2	24.0	point97	97	6,295,251.0	1,984,538.0	634.20				Average	
		point85	85	6,295,312.0	1,984,537.4	634.20				Average	
		point86	86	6,295,532.5	1,984,534.1	634.20				Average	
		point87	87	6,295,762.0	1,984,532.0	634.20				Average	
		point88	88	6,295,998.5	1,984,533.1	634.20				Average	
		point89	89	6,296,208.0	1,984,532.1	634.20				Average	
		point90	90	6,296,428.0	1,984,529.0	634.20				Average	
		point91	91	6,296,779.0	1,984,529.0	634.20					

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INPUT: RECEIVERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: Existing

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1	1	1	6,298,415.0	1,980,199.6	684.00	4.92	0.00	66	10.0	8.0	Y
R2	2	1	6,298,234.5	1,980,307.4	684.00	4.92	0.00	66	10.0	8.0	Y
R3	3	1	6,298,335.0	1,980,040.8	695.00	4.92	0.00	66	10.0	8.0	Y
R4	4	1	6,298,188.5	1,980,133.1	695.00	4.92	0.00	66	10.0	8.0	Y
R5	5	1	6,297,982.0	1,980,518.8	708.00	4.92	0.00	66	10.0	8.0	Y
R6	6	1	6,297,853.0	1,980,343.1	716.25	4.92	0.00	66	10.0	8.0	
R7	7	1	6,297,679.0	1,980,531.4	695.00	4.92	0.00	66	10.0	8.0	
R8	8	1	6,297,801.0	1,980,603.8	694.00	4.92	0.00	66	10.0	8.0	Y
R9	9	1	6,297,645.0	1,980,796.9	692.00	4.92	0.00	66	10.0	8.0	Y
R10	10	1	6,297,535.0	1,980,625.0	690.00	4.92	0.00	66	10.0	8.0	Y
R11	12	1	6,297,440.0	1,980,833.2	678.00	4.92	0.00	66	10.0	8.0	Y
R12	13	1	6,297,395.5	1,980,725.6	679.00	4.92	0.00	66	10.0	8.0	Y
R13	14	1	6,297,248.0	1,980,911.1	671.00	4.92	0.00	66	10.0	8.0	Y
R14	15	1	6,297,372.5	1,980,916.6	678.00	4.92	0.00	66	10.0	8.0	Y
R15	16	1	6,297,508.5	1,981,013.1	677.00	4.92	0.00	66	10.0	8.0	Y
R16	17	1	6,297,426.0	1,981,096.4	666.00	4.92	0.00	66	10.0	8.0	Y
R17	18	1	6,297,234.0	1,981,096.6	667.00	4.92	0.00	66	10.0	8.0	Y
R18	19	1	6,297,250.5	1,981,283.1	651.00	4.92	0.00	66	10.0	8.0	Y
R19	20	1	6,297,120.0	1,981,233.5	664.00	4.92	0.00	66	10.0	8.0	Y
R20	21	1	6,297,050.5	1,981,550.0	650.00	4.92	0.00	66	10.0	8.0	Y
R21	22	1	6,297,016.0	1,981,365.1	657.00	4.92	0.00	66	10.0	8.0	Y
R22	24	1	6,296,858.5	1,981,396.9	654.00	4.92	0.00	66	10.0	8.0	Y

R23	25	1	6,296,907.0	1,981,761.1	647.00	4.92	0.00	66	10.0	8.0	Y
R24	26	1	6,296,766.0	1,981,703.5	648.00	4.92	0.00	66	10.0	8.0	Y
R25	27	1	6,296,812.0	1,981,857.9	647.00	4.92	0.00	66	10.0	8.0	Y
R26	28	1	6,296,539.5	1,981,971.6	645.00	4.92	0.00	66	10.0	8.0	Y
R27	29	1	6,296,685.0	1,982,008.9	647.00	4.92	0.00	66	10.0	8.0	Y
R28	30	1	6,296,655.5	1,982,081.5	646.00	4.92	0.00	66	10.0	8.0	Y
R29	31	1	6,296,423.0	1,982,127.2	645.00	4.92	0.00	66	10.0	8.0	Y
R30	33	1	6,296,743.5	1,982,176.5	637.00	4.92	0.00	66	10.0	8.0	Y
R31	34	1	6,296,304.5	1,982,178.9	648.00	4.92	0.00	66	10.0	8.0	Y
R32	35	1	6,296,472.5	1,981,876.9	650.00	4.92	0.00	66	10.0	8.0	Y
R33	36	1	6,296,189.5	1,982,078.1	650.00	4.92	0.00	66	10.0	8.0	Y
R34	38	1	6,295,538.0	1,982,912.0	653.00	4.92	0.00	66	10.0	8.0	Y
R35	39	1	6,295,606.0	1,982,970.6	633.00	4.92	0.00	66	10.0	8.0	Y
R36	40	1	6,295,358.5	1,983,225.2	628.00	4.92	0.00	66	10.0	8.0	Y
R37	41	1	6,295,303.5	1,983,156.0	634.00	4.92	0.00	66	10.0	8.0	Y
R38	42	1	6,295,139.5	1,983,113.5	634.00	4.92	0.00	66	10.0	8.0	Y
R39	43	1	6,295,140.0	1,984,124.2	640.61	4.92	0.00	66	10.0	8.0	Y
R40	46	1	6,295,798.5	1,983,968.5	659.03	4.92	0.00	66	10.0	8.0	Y
R41	47	1	6,296,008.0	1,984,142.0	626.50	4.92	0.00	66	10.0	8.0	Y
R42	49	1	6,295,847.0	1,984,698.4	633.00	4.92	0.00	66	10.0	8.0	Y
R43	51	1	6,295,773.0	1,985,000.0	658.00	4.92	0.00	66	10.0	8.0	Y

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INPUT: BARRIERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: Existing

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht Perturbs			On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	6,298,145.0	1,980,568.2	700.00	6.00	2.00	4	1		
									point2	2	6,298,142.0	1,980,504.9	703.00	6.00	2.00	4	1		
									point3	3	6,298,088.0	1,980,481.4	704.00	6.00	2.00	4	1		
									point4	4	6,297,896.0	1,980,487.0	704.00	6.00	2.00	4	1		
									point5	5	6,297,821.5	1,980,557.9	695.00	6.00	2.00	4	1		
									point6	6	6,297,754.0	1,980,636.8	695.00	6.00	2.00	4	1		
									point7	7	6,297,738.0	1,980,656.5	695.00	6.00	2.00	4	1		
									point8	8	6,297,718.5	1,980,680.8	695.00	6.00	2.00	4	1		
									point9	9	6,297,714.0	1,980,695.8	695.00	6.00	2.00	4	1		
									point10	10	6,297,717.5	1,980,704.5	695.00	6.00					
Barrier5	W	0.00	99.99	0.00				0.00	point26	26	6,296,909.0	1,981,418.2	655.00	6.00	2.00	4	1		
									point27	27	6,296,976.0	1,981,435.1	657.00	6.00	2.00	4	1		
									point28	28	6,297,100.5	1,981,277.2	660.00	6.00	2.00	4	1		
									point29	29	6,297,269.5	1,981,063.5	672.00	6.00	2.00	4	1		
									point30	30	6,297,491.0	1,980,801.6	681.00	6.00	2.00	4	1		
									point31	31	6,297,486.5	1,980,682.2	681.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point32	32	6,297,608.5	1,981,175.5	666.00	6.00	2.00	4	1		
									point33	33	6,297,502.5	1,981,178.1	666.00	6.00	2.00	4	1		
									point34	34	6,297,501.0	1,981,159.0	666.00	6.00	2.00	4	1		
									point35	35	6,297,431.0	1,981,159.2	666.00	6.00	2.00	4	1		
									point36	36	6,297,422.0	1,981,170.2	666.00	6.00	2.00	4	1		
									point37	37	6,297,375.5	1,981,132.6	666.00	6.00	2.00	4	1		
									point38	38	6,297,347.0	1,981,155.1	666.00	6.00	2.00	4	1		
									point39	39	6,297,345.5	1,981,154.1	666.00	6.00	2.00	4	1		
									point40	40	6,297,332.0	1,981,175.2	655.00	6.00	2.00	4	1		
									point41	41	6,297,228.5	1,981,306.8	650.00	6.00	2.00	4	1		
									point42	42	6,297,069.5	1,981,508.5	650.00	6.00	2.00	4	1		
									point43	43	6,297,042.5	1,981,543.0	650.00	6.00	2.00	4	1		
									point44	44	6,296,982.5	1,981,619.8	649.00	6.00	2.00	4	1		
									point45	45	6,297,040.5	1,981,637.8	645.00	6.00	2.00	4	1		
									point46	46	6,297,047.0	1,981,637.5	645.00	6.00	2.00	4	1		
									point47	47	6,297,092.5	1,981,639.6	645.00	6.00					
Barrier10	W	0.00	99.99	0.00				0.00	point78	78	6,298,040.0	1,980,075.4	702.21	0.00	0.00	0	0		
									point79	79	6,298,035.0	1,980,075.6	702.21	0.00	0.00	0	0		
									point80	80	6,298,021.0	1,980,054.9	702.21	0.00	0.00	0	0		

									point81	81	6,298,020.5	1,980,031.0	702.21	0.00						
Barrier11	W	0.00	99.99	0.00				0.00	point82	82	6,295,085.0	1,984,108.8	640.61	0.00	0.00	0	0		
									point83	83	6,295,110.0	1,984,098.0	640.61	0.00	0.00	0	0		
									point84	84	6,295,113.0	1,984,114.9	640.61	0.00	0.00	0	0		
									point85	85	6,295,123.0	1,984,114.2	640.61	0.00	0.00	0	0		
									point86	86	6,295,136.5	1,984,146.0	640.61	0.00	0.00	0	0		
									point87	87	6,295,106.0	1,984,159.1	640.61	0.00					
Barrier12	W	0.00	99.99	0.00				0.00	point88	88	6,295,833.5	1,983,958.2	659.03	0.00	0.00	0	0		
									point89	89	6,295,807.5	1,983,968.5	659.03	0.00	0.00	0	0		
									point90	90	6,295,791.0	1,983,924.9	659.03	0.00	0.00	0	0		
									point91	91	6,295,818.0	1,983,915.1	659.03	0.00					
Barrier13	W	0.00	99.99	0.00				0.00	point92	92	6,297,515.5	1,980,772.1	695.00	6.00	2.00	4	1		
									point93	93	6,297,600.0	1,980,664.1	695.00	6.00	2.00	4	1		
									point94	94	6,297,603.0	1,980,653.8	695.00	6.00	2.00	4	1		
									point95	95	6,297,601.5	1,980,648.1	695.00	6.00	2.00	4	1		
									point96	96	6,297,599.5	1,980,642.8	695.00	6.00					
Barrier14	W	0.00	99.99	0.00				0.00	point97	97	6,297,562.0	1,980,633.9	695.00	6.00	2.00	4	1		
									point98	98	6,297,559.5	1,980,618.8	695.00	6.00	2.00	4	1		
									point99	99	6,297,559.5	1,980,597.4	695.00	6.00	2.00	4	1		
									point100	100	6,297,524.0	1,980,576.9	695.00	6.00	2.00	4	1		
									point101	101	6,297,488.0	1,980,558.4	695.00	6.00	2.00	4	1		
									point102	102	6,297,424.0	1,980,544.8	700.00	6.00	2.00	4	1		
									point103	103	6,297,393.0	1,980,545.1	700.00	6.00					
Barrier15	W	0.00	99.99	0.00				0.00	point104	104	6,297,685.0	1,980,751.0	692.19	6.00	2.00	4	1		
									point105	105	6,297,675.5	1,980,746.1	692.19	6.00	2.00	4	1		
									point106	106	6,297,662.0	1,980,755.0	692.00	6.00	2.00	4	1		
									point107	107	6,297,631.5	1,980,794.2	692.00	6.00	2.00	4	1		
									point108	108	6,297,621.5	1,980,814.4	692.00	6.00	2.00	4	1		
									point109	109	6,297,602.5	1,980,842.5	685.00	6.00	2.00	4	1		
									point110	110	6,297,567.5	1,980,888.2	682.00	6.00	2.00	4	1		
									point111	111	6,297,497.0	1,980,966.5	678.00	6.00	2.00	4	1		
									point112	112	6,297,457.5	1,981,022.4	675.00	6.00	2.00	4	1		
									point113	113	6,297,451.0	1,981,039.2	666.00	6.00					
Barrier18	W	0.00	99.99	0.00				0.00	point118	118	6,298,150.0	1,980,153.5	697.41	6.00	2.00	5	0		
									point119	119	6,298,152.5	1,980,173.5	697.41	6.00	2.00	5	0		
									point120	120	6,298,299.5	1,980,081.8	697.41	6.00	2.00	5	0		
									point121	121	6,298,308.5	1,980,073.9	697.41	6.00	2.00	5	0		
									point122	122	6,298,374.5	1,980,032.9	697.41	6.00	2.00	5	0		
									point123	123	6,298,445.0	1,979,999.0	697.41	6.00	2.00	5	0		
									point124	124	6,298,507.0	1,979,966.2	697.41	6.00					
Barrier7	W	0.00	99.99	0.00				0.00	point48	48	6,296,955.0	1,981,724.9	645.00	6.00	2.00	4	1		
									point50	50	6,296,953.5	1,981,723.0	645.00	6.00	2.00	4	1		
									point51	51	6,296,946.0	1,981,711.2	646.00	6.00	2.00	4	1		
									point52	52	6,296,934.0	1,981,702.4	648.00	6.00	2.00	4	1		
									point53	53	6,296,927.0	1,981,702.4	648.00	6.00	2.00	4	1		
									point54	54	6,296,916.0	1,981,706.2	648.00	6.00	2.00	4	1		
									point55	55	6,296,911.0	1,981,709.4	648.00	6.00	2.00	4	1		
									point56	56	6,296,762.5	1,981,898.6	647.00	6.00	2.00	4	1		
									point57	57	6,296,640.0	1,982,054.4	646.00	6.00	2.00	4	1		

									point58	58	6,296,585.5	1,982,123.8	643.00	6.00	2.00	4	1		
									point59	59	6,296,568.0	1,982,145.9	642.00	6.00	2.00	4	1		
									point60	60	6,296,562.0	1,982,154.8	641.00	6.00	2.00	4	1		
									point62	62	6,296,560.5	1,982,173.5	641.00	6.00	2.00	4	1		
									point63	63	6,296,569.0	1,982,183.9	640.00	6.00	2.00	4	1		
									point64	64	6,296,611.0	1,982,186.0	640.00	6.00	2.00	4	1		
									point65	65	6,296,636.5	1,982,186.0	639.00	6.00	2.00	4	1		
									point66	66	6,296,728.5	1,982,185.9	638.00	6.00					
Barrier3	W	0.00	99.99	0.00				0.00	point114	114	6,297,460.5	1,980,461.2	718.00	6.00	0.00	0	0		
									point115	115	6,297,686.5	1,980,452.6	718.00	6.00	0.00	0	0		
									point11	11	6,297,904.0	1,980,328.1	714.00	6.00	0.00	0	0		
									point12	12	6,297,948.0	1,980,302.1	714.00	6.00	0.00	0	0		
									point13	13	6,297,968.5	1,980,288.2	714.00	6.00	0.00	0	0		
									point14	14	6,297,972.0	1,980,276.8	714.00	6.00	0.00	0	0		
									point15	15	6,297,969.0	1,980,262.9	714.00	6.00	0.00	0	0		
									point17	17	6,297,903.0	1,980,103.0	714.00	6.00					
Barrier9	W	0.00	99.99	0.00				0.00	point67	67	6,296,271.5	1,982,183.4	648.00	6.00	2.00	4	0		
									point68	68	6,296,311.0	1,982,183.4	648.00	6.00	2.00	4	0		
									point69	69	6,296,391.5	1,982,184.0	649.00	6.00	2.00	4	0		
									point70	70	6,296,398.0	1,982,183.0	649.00	6.00	2.00	4	0		
									point71	71	6,296,404.5	1,982,179.6	647.00	6.00	2.00	4	0		
									point72	72	6,296,441.0	1,982,135.8	645.00	6.00	2.00	4	0		
									point73	73	6,296,500.0	1,982,060.8	645.00	6.00	2.00	4	0		
									point74	74	6,296,587.0	1,981,948.1	645.00	6.00	2.00	4	0		
									point75	75	6,296,599.5	1,981,929.4	645.00	6.00	2.00	4	0		
									point76	76	6,296,598.5	1,981,922.0	645.00	6.00	2.00	4	0		
									point126	126	6,296,634.5	1,981,877.8	645.00	0.00	0.00	0	0		
									point127	127	6,296,714.0	1,981,778.9	647.00	0.00	0.00	0	0		
									point128	128	6,296,829.5	1,981,640.1	647.00	0.00	0.00	0	0		
									point129	129	6,296,853.0	1,981,608.9	647.00	0.00	0.00	0	0		
									point130	130	6,296,855.5	1,981,601.5	647.00	0.00	0.00	0	0		
									point131	131	6,296,855.0	1,981,595.8	647.00	0.00	0.00	0	0		
									point132	132	6,296,803.5	1,981,547.8	647.00	0.00					
Barrier24	W	0.00	99.99	0.00				0.00	point133	133	6,297,621.0	1,980,511.0	700.00	6.00	0.00	0	0		
									point134	134	6,297,726.0	1,980,508.4	700.00	6.00	0.00	0	0		
									point135	135	6,297,658.5	1,980,587.9	700.00	6.00	0.00	0	0		
									point136	136	6,297,633.5	1,980,590.4	700.00	6.00	0.00	0	0		
									point137	137	6,297,630.0	1,980,587.4	700.00	6.00	0.00	0	0		
									point138	138	6,297,592.0	1,980,552.2	698.00	6.00					
Barrier25	W	0.00	99.99	0.00				0.00	point138	139	6,298,275.0	1,980,486.5	685.00	6.00	2.00	5	0		
									point139	140	6,298,181.0	1,980,373.5	685.00	6.00	2.00	5	0		
									point140	141	6,298,182.0	1,980,343.5	685.00	6.00	2.00	5	0		
									point141	142	6,298,187.5	1,980,323.8	685.00	6.00	2.00	5	0		
									point142	143	6,298,209.0	1,980,304.0	685.00	6.00	2.00	5	0		
									point143	144	6,298,219.5	1,980,286.2	685.00	6.00	2.00	5	0		
									point144	145	6,298,426.5	1,980,167.0	685.00	6.00	2.00	5	0		
									point145	146	6,298,472.5	1,980,213.6	685.00	6.00					
Barrier26	W	0.00	99.99	0.00				0.00	point147	147	6,297,559.0	1,980,632.8	695.00	30.00	0.00	0	0		
									point148	148	6,297,592.0	1,980,661.5	695.00	30.00	0.00	0	0		

									point149	149	6,297,556.0	1,980,709.0	695.00	30.00						
Barrier27	W	0.00	99.99	0.00				0.00	point150	150	6,296,248.5	1,982,103.9	650.00	20.00	0.00	0	0		
									point151	151	6,296,248.5	1,982,160.0	650.00	20.00	0.00	0	0		
									point152	152	6,296,227.0	1,982,160.0	650.00	20.00	0.00	0	0		
									point153	153	6,296,227.0	1,982,164.5	650.00	20.00	0.00	0	0		
									point154	154	6,296,206.5	1,982,164.6	650.00	20.00	0.00	0	0		
									point155	155	6,296,206.5	1,982,166.8	650.00	20.00	0.00	0	0		
									point156	156	6,296,176.0	1,982,166.9	650.00	20.00	0.00	0	0		
									point157	157	6,296,175.5	1,982,131.5	650.00	20.00					

AECOM **13 June 2011**
Maddux **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **Citracado Parkway Extension**
RUN: **Existing**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Citracado Pkwy NB Seg 1	point1	1	52	45	2	45	1	45	0	0	0	0
	point2	2	52	45	2	45	1	45	0	0	0	0
	point3	3	52	45	2	45	1	45	0	0	0	0
	point4	4										
Citracado Pkwy SB Seg 1	point5	5	52	45	2	45	1	45	0	0	0	0
	point6	6	52	45	2	45	1	45	0	0	0	0
	point7	7	52	45	2	45	1	45	0	0	0	0
	point8	8										
Citracado Prkwy NB Seg 2	point9	9	150	45	5	45	3	45	0	0	0	0
	point10	10	150	45	5	45	3	45	0	0	0	0
	point11	11	150	45	5	45	3	45	0	0	0	0
	point12	12	150	45	5	45	3	45	0	0	0	0
	point13	13	150	45	5	45	3	45	0	0	0	0
	point14	14										
Citracado Prkwy SB Seg 2	point23	23	113	45	4	45	2	45	0	0	0	0
	point24	24	113	45	4	45	2	45	0	0	0	0
	point25	25	113	45	4	45	2	45	0	0	0	0
	point26	26	113	45	4	45	2	45	0	0	0	0
	point27	27	113	45	4	45	2	45	0	0	0	0
	point28	28	113	45	4	45	2	45	0	0	0	0
	point29	29	113	45	4	45	2	45	0	0	0	0
	point30	30	113	45	4	45	2	45	0	0	0	0
	point31	31										

Avenida Del Diablo Seg 2	point37	37	86	40	3	40	2	40	0	0	0	0
	point38	38	86	40	3	40	2	40	0	0	0	0
	point39	39										
Johnston Rd Seg 2	point49	49	34	25	0	0	0	0	0	0	0	0
	point47	47	34	25	0	0	0	0	0	0	0	0
	point46	46	34	25	0	0	0	0	0	0	0	0
	point45	45	34	25	0	0	0	0	0	0	0	0
	point44	44	34	25	0	0	0	0	0	0	0	0
	point43	43										
Johnston Rd Seg 1	point59	59	105	35	3	35	2	35	0	0	0	0
	point58	58	105	35	3	35	2	35	0	0	0	0
	point57	57	105	35	3	35	2	35	0	0	0	0
	point56	56	105	35	3	35	2	35	0	0	0	0
	point55	55	105	35	3	35	2	35	0	0	0	0
	point54	54	105	35	3	35	2	35	0	0	0	0
	point53	53	105	35	3	35	2	35	0	0	0	0
	point52	52	105	35	3	35	2	35	0	0	0	0
	point51	51	105	35	3	35	2	35	0	0	0	0
	point50	50										
West Valley Prkwy EB Seg 1	point60	60	752	45	24	45	16	45	0	0	0	0
	point61	61	752	45	24	45	16	45	0	0	0	0
	point62	62										
West Valley Prkwy EB Seg 2	point63	63	796	45	25	45	17	45	0	0	0	0
	point64	64	796	45	25	45	17	45	0	0	0	0
	point65	65	796	45	25	45	17	45	0	0	0	0
	point66	66	796	45	25	45	17	45	0	0	0	0
	point67	67	796	45	25	45	17	45	0	0	0	0
	point68	68										
West Valley Prkwy WB Seg 2	point69	69	796	45	25	45	17	45	0	0	0	0
	point70	70	796	45	25	45	17	45	0	0	0	0
	point71	71	796	45	25	45	17	45	0	0	0	0
	point72	72	0	45	25	45	17	45	0	0	0	0
	point73	73	796	45	25	45	17	45	0	0	0	0
	point74	74										
West Valley Prkwy WB Seg 1	point75	75	752	45	24	45	16	45	0	0	0	0
	point76	76	752	45	24	45	16	45	0	0	0	0

	point77	77										
Kauana Loa Dr	point80	80	149	45	5	45	3	45	0	0	0	0
	point81	81	149	45	5	45	3	45	0	0	0	0
	point82	82	149	45	5	45	3	45	0	0	0	0
	point83	83	149	45	5	45	3	45	0	0	0	0
	point84	84										
Harmon Grove Rd	point92	92	537	45	17	45	11	45	0	0	0	0
	point93	93										
Avenida Del Diablo Seg 1	point94	94	86	25	3	25	2	25	0	0	0	0
	point40	40	86	25	3	25	2	25	0	0	0	0
	point41	41	86	25	3	25	2	25	0	0	0	0
	point42	42										
Citracado Prkwy SB Seg 2-2	point95	95	150	45	5	45	3	45	0	0	0	0
	point32	32	150	45	5	45	3	45	0	0	0	0
	point33	33	150	45	5	45	3	45	0	0	0	0
	point34	34	150	45	5	45	3	45	0	0	0	0
	point78	78	150	45	5	45	3	45	0	0	0	0
	point79	79	150	45	5	45	3	45	0	0	0	0
	point35	35										
Citracado Prkwy NB Seg 2-2	point96	96	113	45	4	45	2	45	0	0	0	0
	point15	15	113	45	4	45	2	45	0	0	0	0
	point16	16	113	45	4	45	2	45	0	0	0	0
	point17	17	113	45	4	45	2	45	0	0	0	0
	point18	18	113	45	4	45	2	45	0	0	0	0
	point19	19	113	45	4	45	2	45	0	0	0	0
	point20	20	113	45	4	45	2	45	0	0	0	0
	point21	21	113	45	4	45	2	45	0	0	0	0
	point22	22										
Kauana Loa Dr-2	point97	97	210	45	7	45	4	45	0	0	0	0
	point85	85	210	45	7	45	4	45	0	0	0	0
	point86	86	210	45	7	45	4	45	0	0	0	0
	point87	87	210	45	7	45	4	45	0	0	0	0
	point88	88	210	45	7	45	4	45	0	0	0	0
	point89	89	210	45	7	45	4	45	0	0	0	0
	point90	90	210	45	7	45	4	45	0	0	0	0
	point91	91										

AECOM			**13 June 2011**	
Maddux			**TNM 2.5**	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	**Citracado Parkway Extension**			
RUN:	**Existing**			
Terrain Line	**Points**			
Name	**No.**	**Coordinates (ground)**		
		X	**Y**	**Z**
		ft	ft	ft
Terrain Line4	8	6,297,621.5	1,980,814.4	692.00
	9	6,297,621.5	1,980,823.4	692.00
	10	6,297,625.5	1,980,830.0	692.00
	11	6,297,692.0	1,980,875.4	692.00
Terrain Line5	12	6,297,602.5	1,980,842.5	685.00
	13	6,297,644.5	1,980,874.6	685.00
	14	6,297,650.0	1,980,870.4	685.00
	15	6,297,685.5	1,980,896.2	685.00
Terrain Line6	16	6,297,408.0	1,980,760.8	678.00
	17	6,297,421.0	1,980,743.6	680.00
	18	6,297,446.5	1,980,708.0	681.00
	19	6,297,453.0	1,980,700.9	682.00
	20	6,297,460.0	1,980,667.9	683.00
	21	6,297,461.5	1,980,656.6	685.00
	22	6,297,461.5	1,980,633.6	686.00
	23	6,297,449.0	1,980,602.2	687.00
	24	6,297,435.5	1,980,589.5	688.00
	25	6,297,430.0	1,980,582.1	689.00
	26	6,297,415.0	1,980,570.9	690.00
	27	6,297,399.0	1,980,564.0	690.00
	28	6,297,385.0	1,980,563.1	691.00
	29	6,297,374.5	1,980,563.1	691.00
Terrain Line7	30	6,297,515.5	1,980,771.1	685.00
	31	6,297,529.0	1,980,747.6	687.00

	32	6,297,532.5	1,980,733.8	688.00
	33	6,297,535.5	1,980,715.9	692.00
	34	6,297,497.0	1,980,625.5	692.00
	35	6,297,484.5	1,980,565.1	692.00
	36	6,297,483.0	1,980,558.6	692.00
Terrain Line9	37	6,297,880.5	1,980,504.2	709.30
	38	6,297,925.5	1,980,508.0	709.30
	39	6,297,980.0	1,980,508.8	709.30
	40	6,298,020.0	1,980,508.4	709.30
	41	6,298,048.5	1,980,502.1	709.30
	42	6,298,056.5	1,980,503.5	709.30
	43	6,298,082.5	1,980,504.2	709.30
	44	6,298,097.0	1,980,510.5	709.30
	45	6,298,110.0	1,980,522.5	709.30
	46	6,298,115.0	1,980,532.9	709.30
	47	6,298,112.5	1,980,572.2	709.30
	48	6,298,115.0	1,980,579.2	709.30
Terrain Line10	49	6,298,273.0	1,980,486.5	685.00
	50	6,298,180.0	1,980,372.5	685.00
	51	6,298,178.0	1,980,365.9	685.00
	52	6,298,181.0	1,980,342.5	685.00
	53	6,298,187.5	1,980,322.8	685.00
	54	6,298,209.0	1,980,302.0	685.00
	55	6,298,219.5	1,980,285.2	685.00
	56	6,298,427.5	1,980,166.0	685.00
	57	6,298,473.5	1,980,213.6	685.00
Terrain Line11	58	6,298,507.0	1,979,967.2	697.41
	59	6,298,445.0	1,980,000.0	697.41
	60	6,298,374.5	1,980,034.9	697.41
	61	6,298,308.5	1,980,074.9	697.41
	62	6,298,299.5	1,980,082.8	697.41
	63	6,298,152.5	1,980,174.5	697.41
	64	6,298,149.0	1,980,154.5	697.41
Terrain Line12	65	6,295,050.0	1,983,232.6	623.00
	66	6,295,079.0	1,983,219.2	626.00
	67	6,295,179.0	1,983,176.2	629.00

	68	6,295,241.5	1,983,177.9	634.00
	69	6,295,264.0	1,983,210.6	634.00
	70	6,295,316.5	1,983,210.6	634.00
	71	6,295,350.5	1,983,178.4	634.00
	72	6,295,364.5	1,983,114.9	634.00
	74	6,295,364.5	1,983,056.5	633.00
	75	6,295,386.0	1,983,029.9	631.00
	76	6,295,410.5	1,983,014.9	631.00
	77	6,295,458.0	1,982,894.1	653.00
	78	6,295,484.0	1,982,912.9	653.00
	79	6,295,518.5	1,982,925.4	653.00
	80	6,295,546.5	1,982,917.0	653.00
	81	6,295,554.5	1,982,889.6	653.00
	82	6,295,550.0	1,982,856.2	653.00
	83	6,295,530.5	1,982,820.1	653.00
	84	6,295,498.0	1,982,793.4	653.00
	85	6,295,486.0	1,982,777.8	651.00
	86	6,295,470.0	1,982,764.0	649.00
	87	6,295,463.5	1,982,745.0	647.00
	88	6,295,457.0	1,982,718.4	645.00
	89	6,295,415.0	1,982,683.8	645.00
	90	6,295,391.0	1,982,610.1	645.00
Terrain Line13	91	6,295,597.0	1,983,103.0	612.00
	92	6,295,679.0	1,983,078.5	612.00
	93	6,295,737.0	1,983,028.0	612.00
	94	6,295,788.5	1,982,986.0	612.00
	95	6,295,808.0	1,982,935.0	612.00
	96	6,295,848.0	1,982,830.5	613.00
	97	6,295,772.0	1,982,793.6	618.00
	98	6,295,693.5	1,982,692.1	626.00
	99	6,295,585.0	1,982,613.0	634.00
	100	6,295,506.0	1,982,573.5	638.00
	101	6,295,450.5	1,982,549.9	643.00
Terrain Line14	102	6,295,919.0	1,984,109.0	650.00
	103	6,295,849.0	1,984,149.6	650.00
	104	6,295,833.5	1,984,151.2	650.00

	105	6,295,800.0	1,984,075.1	650.00
	106	6,295,792.0	1,984,068.6	650.00
	107	6,295,776.0	1,984,042.0	650.00
	108	6,295,762.5	1,984,034.1	650.00
	109	6,295,726.0	1,984,024.2	650.00
	110	6,295,695.0	1,984,032.5	650.00
	111	6,295,651.0	1,984,007.0	650.00
	112	6,295,637.5	1,983,979.5	650.00
	113	6,295,636.0	1,983,963.1	650.00
	114	6,295,639.5	1,983,946.4	650.00
	115	6,295,636.5	1,983,928.6	650.00
	116	6,295,640.0	1,983,908.5	650.00
	117	6,295,667.0	1,983,881.8	650.00
	118	6,295,676.5	1,983,865.8	650.00
	119	6,295,675.0	1,983,852.9	650.00
	120	6,295,680.0	1,983,849.8	650.00
	121	6,295,708.5	1,983,848.0	650.00
	122	6,295,734.5	1,983,850.9	650.00
	123	6,295,767.0	1,983,866.1	650.00
	124	6,295,774.5	1,983,876.6	650.00
	125	6,295,791.5	1,983,886.0	650.00
	126	6,295,804.5	1,983,915.0	650.00
Terrain Line15	127	6,295,735.0	1,983,991.0	655.00
	128	6,295,694.5	1,984,005.6	655.00
	129	6,295,687.0	1,984,004.2	655.00
	130	6,295,680.0	1,983,994.9	655.00
	131	6,295,670.0	1,983,991.0	655.00
	132	6,295,666.5	1,983,968.5	655.00
	133	6,295,659.5	1,983,945.9	655.00
	134	6,295,648.5	1,983,927.0	655.00
	135	6,295,649.5	1,983,918.1	655.00
	136	6,295,662.0	1,983,905.6	655.00
	137	6,295,670.5	1,983,897.0	655.00
	138	6,295,676.5	1,983,890.5	655.00
	139	6,295,680.0	1,983,889.8	655.00
	140	6,295,694.0	1,983,866.1	655.00

	141	6,295,711.5	1,983,871.8	655.00
	142	6,295,716.5	1,983,870.0	655.00
	143	6,295,737.5	1,983,872.8	656.00
	144	6,295,753.5	1,983,882.4	655.00
	145	6,295,764.0	1,983,897.0	655.00
Terrain Line16	146	6,295,735.0	1,983,965.8	655.00
	147	6,295,735.0	1,983,946.9	660.00
	148	6,295,735.5	1,983,925.8	661.00
	149	6,295,737.0	1,983,903.0	661.00
	150	6,295,737.5	1,983,872.8	656.00
Terrain Line18	151	6,294,912.5	1,984,859.6	673.40
	152	6,294,935.0	1,984,858.6	673.40
	153	6,294,949.0	1,984,857.2	673.40
	154	6,294,964.0	1,984,857.2	673.40
	155	6,295,008.0	1,984,856.0	673.40
	156	6,295,133.5	1,984,860.2	673.40
	157	6,295,163.0	1,984,860.2	673.40
	158	6,295,203.5	1,984,862.0	673.40
	159	6,295,214.5	1,984,856.1	673.40
	160	6,295,227.0	1,984,852.5	673.40
	161	6,295,241.0	1,984,845.2	673.40
	162	6,295,249.5	1,984,838.5	673.40
	163	6,295,261.0	1,984,825.2	673.40
	164	6,295,264.0	1,984,816.0	673.40
Terrain Line20	165	6,295,380.0	1,984,879.6	673.40
	166	6,295,386.5	1,984,910.4	673.40
	167	6,295,403.0	1,984,920.0	673.40
	168	6,295,425.5	1,984,928.0	673.40
	169	6,295,586.5	1,985,005.1	673.40
Terrain Line21	170	6,295,264.0	1,984,816.0	673.40
	171	6,295,271.5	1,984,777.2	673.40
	172	6,295,402.5	1,984,780.6	673.40
	173	6,295,380.0	1,984,879.6	673.40
Terrain Line22	174	6,295,139.0	1,984,210.8	629.00
	175	6,295,158.5	1,984,184.5	629.00
	176	6,295,154.5	1,984,164.0	629.00

	177	6,295,159.0	1,984,158.0	629.00
	178	6,295,150.0	1,984,143.8	629.00
	179	6,295,146.0	1,984,122.9	629.00
	180	6,295,142.0	1,984,117.5	629.00
	181	6,295,125.5	1,984,114.1	629.00
	182	6,295,115.0	1,984,108.2	629.00
	183	6,295,115.0	1,984,078.0	629.00
Terrain Line23	184	6,296,800.5	1,982,181.0	644.00
	185	6,296,712.5	1,982,173.6	644.00
	186	6,296,646.0	1,982,159.8	640.00
	187	6,296,645.5	1,982,153.2	639.00
	188	6,296,605.0	1,982,104.1	638.00
	189	6,296,664.0	1,982,027.5	637.00

AECOM 13 June 2011
Maddux TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: No Build

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Citracado Pkwy NB Seg 1	12.0	point1	1	6,298,529.5	1,980,061.8	699.00				Average	
		point2	2	6,298,442.0	1,980,106.8	697.00				Average	
		point3	3	6,298,283.0	1,980,197.4	695.00				Average	
		point4	4	6,298,030.0	1,980,358.0	699.00					
Citracado Pkwy SB Seg 1	12.0	point5	5	6,298,108.0	1,980,251.4	698.00	Signal	0.00	100	Average	
		point6	6	6,298,258.0	1,980,157.1	695.02				Average	
		point7	7	6,298,416.0	1,980,061.6	697.00				Average	
		point8	8	6,298,506.5	1,980,011.8	699.00					
Citracado Prkwy NB Seg 2	12.0	point9	9	6,298,030.0	1,980,358.0	699.00	Signal	0.00	100	Average	
		point10	10	6,297,966.5	1,980,398.5	700.00				Average	
		point11	11	6,297,895.5	1,980,452.9	699.00				Average	
		point12	12	6,297,812.5	1,980,530.6	698.00				Average	
		point13	13	6,297,702.0	1,980,654.8	694.00					
Citracado Prkwy SB Seg 2	12.0	point23	23	6,296,405.0	1,982,219.0	642.50	Stop	0.00	100	Average	
		point24	24	6,296,504.5	1,982,093.5	643.00				Average	
		point25	25	6,296,583.0	1,981,993.5	643.00				Average	
		point26	26	6,296,832.5	1,981,676.5	648.50				Average	
		point27	27	6,296,925.0	1,981,558.0	651.00				Average	
		point28	28	6,297,064.5	1,981,382.0	654.50				Average	
		point29	29	6,297,192.5	1,981,219.1	659.00				Average	
		point30	30	6,297,528.0	1,980,795.6	686.00				Average	
		point31	31	6,297,605.5	1,980,704.9	690.00				Average	
		point32	32	6,297,670.0	1,980,624.0	694.00					
Avenida Del Diablo Seg 2	24.0	point37	37	6,297,489.0	1,982,226.0	635.00				Average	
		point38	38	6,296,759.0	1,982,221.6	640.00				Average	

		point39	39	6,296,574.0	1,982,221.6	643.00					
Johnston Rd Seg 2	24.0	point49	49	6,297,670.0	1,980,700.5	694.00	Stop	0.00	100	Average	
		point47	47	6,297,702.5	1,980,737.5	694.00				Average	
		point46	46	6,297,776.0	1,980,796.4	694.00				Average	
		point45	45	6,297,813.0	1,980,813.9	694.00				Average	
		point44	44	6,297,857.0	1,980,826.1	694.00				Average	
		point43	43	6,297,901.0	1,980,832.9	694.00					
Johnston Rd Seg 1	24.0	point59	59	6,297,656.0	1,980,638.1	694.00	Stop	0.00	100	Average	
		point58	58	6,297,613.5	1,980,605.5	695.00				Average	
		point57	57	6,297,595.5	1,980,590.5	696.00				Average	
		point56	56	6,297,579.0	1,980,573.9	697.00				Average	
		point55	55	6,297,561.0	1,980,560.9	698.00				Average	
		point54	54	6,297,543.0	1,980,549.0	699.00				Average	
		point53	53	6,297,523.0	1,980,539.9	700.00				Average	
		point52	52	6,297,500.5	1,980,529.4	701.00				Average	
		point51	51	6,297,453.0	1,980,516.4	702.00				Average	
		point50	50	6,297,419.5	1,980,513.5	703.00					
West Valley Prkwy EB Seg 1	24.0	point60	60	6,297,972.0	1,980,062.8	695.00				Average	
		point61	61	6,298,055.0	1,980,240.1	698.00				Average	
		point62	62	6,298,071.5	1,980,270.0	699.00					
West Valley Prkwy EB Seg 2	24.0	point63	63	6,298,104.5	1,980,322.6	699.00	Signal	0.00	100	Average	
		point64	64	6,298,119.5	1,980,350.1	698.00				Average	
		point65	65	6,298,132.5	1,980,369.1	697.00				Average	
		point66	66	6,298,159.5	1,980,408.4	696.00				Average	
		point67	67	6,298,188.0	1,980,446.1	695.00				Average	
		point68	68	6,298,238.5	1,980,508.2	694.50					
West Valley Prkwy WB Seg 2	24.0	point69	69	6,298,206.5	1,980,530.2	694.50				Average	
		point70	70	6,298,166.0	1,980,483.4	695.00				Average	
		point71	71	6,298,137.0	1,980,446.1	696.00				Average	
		point72	72	6,298,095.0	1,980,388.2	697.00				Average	
		point73	73	6,298,082.5	1,980,369.4	698.00				Average	
		point74	74	6,298,068.0	1,980,346.9	699.00					
West Valley Prkwy WB Seg 1	24.0	point75	75	6,298,034.5	1,980,293.4	699.00	Signal	0.00	100	Average	
		point76	76	6,298,018.0	1,980,258.8	698.00				Average	
		point77	77	6,297,935.5	1,980,082.9	695.00					
Kauana Loa Dr	24.0	point80	80	6,294,305.0	1,984,547.6	634.20				Average	
		point81	81	6,294,791.5	1,984,542.4	634.20				Average	
		point82	82	6,294,893.0	1,984,541.2	634.20				Average	
		point83	83	6,295,037.0	1,984,540.1	634.20				Average	

		point84	84	6,295,251.0	1,984,538.0	634.20					
Harmon Grove Rd	24.0	point92	92	6,294,891.5	1,983,977.1	634.16				Average	
		point93	93	6,295,225.5	1,984,538.0	634.16					
Avenida Del Diablo Seg 1	24.0	point94	94	6,296,574.0	1,982,221.6	643.00	Stop	0.00	100	Average	
		point40	40	6,296,361.5	1,982,219.9	644.00				Average	
		point41	41	6,296,280.0	1,982,219.1	648.00				Average	
		point42	42	6,296,080.0	1,982,218.9	653.00					
Citracado Prkwy SB Seg 2-2	12.0	point95	95	6,297,670.0	1,980,624.0	694.00	Signal	0.00	100	Average	
		point33	33	6,297,777.0	1,980,496.1	698.00				Average	
		point34	34	6,297,870.0	1,980,422.5	699.00				Average	
		point78	78	6,297,949.5	1,980,365.5	700.00				Average	
		point79	79	6,298,028.5	1,980,308.4	699.00				Average	
		point35	35	6,298,108.0	1,980,251.4	698.00					
Citracado Prkwy NB Seg 2-2	12.0	point96	96	6,297,702.0	1,980,654.8	694.00	Signal	0.00	100	Average	
		point14	14	6,297,639.5	1,980,733.6	690.00				Average	
		point15	15	6,297,594.0	1,980,801.9	686.00				Average	
		point16	16	6,297,237.5	1,981,254.8	659.00				Average	
		point17	17	6,297,109.5	1,981,417.8	654.50				Average	
		point18	18	6,296,970.5	1,981,594.1	651.00				Average	
		point19	19	6,296,877.0	1,981,711.9	648.50				Average	
		point20	20	6,296,627.5	1,982,029.2	643.00				Average	
		point21	21	6,296,550.0	1,982,128.6	643.00				Average	
		point22	22	6,296,484.0	1,982,220.8	642.50					
Kauana Loa Dr-2	24.0	point97	97	6,295,251.0	1,984,538.0	634.20				Average	
		point85	85	6,295,312.0	1,984,537.4	634.20				Average	
		point86	86	6,295,532.5	1,984,534.1	634.20				Average	
		point87	87	6,295,762.0	1,984,532.0	634.20				Average	
		point88	88	6,295,998.5	1,984,533.1	634.20				Average	
		point89	89	6,296,208.0	1,984,532.1	634.20				Average	
		point90	90	6,296,428.0	1,984,529.0	634.20				Average	
		point91	91	6,296,779.0	1,984,529.0	634.20					

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Maddux TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: No Build

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1	1	1	6,298,415.0	1,980,199.6	684.00	4.92	0.00	66	10.0	8.0	Y
R2	2	1	6,298,234.5	1,980,307.4	684.00	4.92	0.00	66	10.0	8.0	Y
R3	3	1	6,298,335.0	1,980,040.8	695.00	4.92	0.00	66	10.0	8.0	Y
R4	4	1	6,298,188.5	1,980,133.1	695.00	4.92	0.00	66	10.0	8.0	Y
R5	5	1	6,297,982.0	1,980,518.8	708.00	4.92	0.00	66	10.0	8.0	Y
R6	6	1	6,297,853.0	1,980,343.1	716.25	4.92	0.00	66	10.0	8.0	
R7	7	1	6,297,679.0	1,980,531.4	695.00	4.92	0.00	66	10.0	8.0	
R8	8	1	6,297,801.0	1,980,603.8	694.00	4.92	0.00	66	10.0	8.0	Y
R9	9	1	6,297,645.0	1,980,796.9	692.00	4.92	0.00	66	10.0	8.0	Y
R10	10	1	6,297,535.0	1,980,625.0	690.00	4.92	0.00	66	10.0	8.0	Y
R11	12	1	6,297,440.0	1,980,833.2	678.00	4.92	0.00	66	10.0	8.0	Y
R12	13	1	6,297,395.5	1,980,725.6	679.00	4.92	0.00	66	10.0	8.0	Y
R13	14	1	6,297,248.0	1,980,911.1	671.00	4.92	0.00	66	10.0	8.0	Y
R14	15	1	6,297,372.5	1,980,916.6	678.00	4.92	0.00	66	10.0	8.0	Y
R15	16	1	6,297,508.5	1,981,013.1	677.00	4.92	0.00	66	10.0	8.0	Y
R16	17	1	6,297,426.0	1,981,096.4	666.00	4.92	0.00	66	10.0	8.0	Y
R17	18	1	6,297,234.0	1,981,096.6	667.00	4.92	0.00	66	10.0	8.0	Y
R18	19	1	6,297,250.5	1,981,283.1	651.00	4.92	0.00	66	10.0	8.0	Y
R19	20	1	6,297,120.0	1,981,233.5	664.00	4.92	0.00	66	10.0	8.0	Y
R20	21	1	6,297,050.5	1,981,550.0	650.00	4.92	0.00	66	10.0	8.0	Y
R21	22	1	6,297,016.0	1,981,365.1	657.00	4.92	0.00	66	10.0	8.0	Y
R22	24	1	6,296,858.5	1,981,396.9	654.00	4.92	0.00	66	10.0	8.0	Y

R23	25	1	6,296,907.0	1,981,761.1	647.00	4.92	0.00	66	10.0	8.0	Y
R24	26	1	6,296,766.0	1,981,703.5	648.00	4.92	0.00	66	10.0	8.0	Y
R25	27	1	6,296,812.0	1,981,857.9	647.00	4.92	0.00	66	10.0	8.0	Y
R26	28	1	6,296,539.5	1,981,971.6	645.00	4.92	0.00	66	10.0	8.0	Y
R27	29	1	6,296,685.0	1,982,008.9	647.00	4.92	0.00	66	10.0	8.0	Y
R28	30	1	6,296,655.5	1,982,081.5	646.00	4.92	0.00	66	10.0	8.0	Y
R29	31	1	6,296,423.0	1,982,127.2	645.00	4.92	0.00	66	10.0	8.0	Y
R30	33	1	6,296,743.5	1,982,176.5	637.00	4.92	0.00	66	10.0	8.0	Y
R31	34	1	6,296,304.5	1,982,178.9	648.00	4.92	0.00	66	10.0	8.0	Y
R32	35	1	6,296,472.5	1,981,876.9	650.00	4.92	0.00	66	10.0	8.0	Y
R33	36	1	6,296,189.5	1,982,078.1	650.00	4.92	0.00	66	10.0	8.0	Y
R34	38	1	6,295,538.0	1,982,912.0	653.00	4.92	0.00	66	10.0	8.0	Y
R35	39	1	6,295,606.0	1,982,970.6	633.00	4.92	0.00	66	10.0	8.0	Y
R36	40	1	6,295,358.5	1,983,225.2	628.00	4.92	0.00	66	10.0	8.0	Y
R37	41	1	6,295,303.5	1,983,156.0	634.00	4.92	0.00	66	10.0	8.0	Y
R38	42	1	6,295,139.5	1,983,113.5	634.00	4.92	0.00	66	10.0	8.0	Y
R39	43	1	6,295,140.0	1,984,124.2	640.61	4.92	0.00	66	10.0	8.0	Y
R40	46	1	6,295,798.5	1,983,968.5	659.03	4.92	0.00	66	10.0	8.0	Y
R41	47	1	6,296,008.0	1,984,142.0	626.50	4.92	0.00	66	10.0	8.0	Y
R42	49	1	6,295,847.0	1,984,698.4	633.00	4.92	0.00	66	10.0	8.0	Y
R43	51	1	6,295,773.0	1,985,000.0	658.00	4.92	0.00	66	10.0	8.0	Y

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Maddux TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: No Build

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht	Perturbs		On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	6,298,145.0	1,980,568.2	700.00	6.00	2.00	4	1		
									point2	2	6,298,142.0	1,980,504.9	703.00	6.00	2.00	4	1		
									point3	3	6,298,088.0	1,980,481.4	704.00	6.00	2.00	4	1		
									point4	4	6,297,896.0	1,980,487.0	704.00	6.00	2.00	4	1		
									point5	5	6,297,821.5	1,980,557.9	695.00	6.00	2.00	4	1		
									point6	6	6,297,754.0	1,980,636.8	695.00	6.00	2.00	4	1		
									point7	7	6,297,738.0	1,980,656.5	695.00	6.00	2.00	4	1		
									point8	8	6,297,718.5	1,980,680.8	695.00	6.00	2.00	4	1		
									point9	9	6,297,714.0	1,980,695.8	695.00	6.00	2.00	4	1		
									point10	10	6,297,717.5	1,980,704.5	695.00	6.00					
Barrier5	W	0.00	99.99	0.00				0.00	point26	26	6,296,909.0	1,981,418.2	655.00	6.00	2.00	4	1		
									point27	27	6,296,976.0	1,981,435.1	657.00	6.00	2.00	4	1		
									point28	28	6,297,100.5	1,981,277.2	660.00	6.00	2.00	4	1		
									point29	29	6,297,269.5	1,981,063.5	672.00	6.00	2.00	4	1		
									point30	30	6,297,491.0	1,980,801.6	681.00	6.00	2.00	4	1		
									point31	31	6,297,486.5	1,980,682.2	681.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point32	32	6,297,608.5	1,981,175.5	666.00	6.00	2.00	4	1		
									point33	33	6,297,502.5	1,981,178.1	666.00	6.00	2.00	4	1		
									point34	34	6,297,501.0	1,981,159.0	666.00	6.00	2.00	4	1		
									point35	35	6,297,431.0	1,981,159.2	666.00	6.00	2.00	4	1		
									point36	36	6,297,422.0	1,981,170.2	666.00	6.00	2.00	4	1		
									point37	37	6,297,375.5	1,981,132.6	666.00	6.00	2.00	4	1		
									point38	38	6,297,347.0	1,981,155.1	666.00	6.00	2.00	4	1		
									point39	39	6,297,345.5	1,981,154.1	666.00	6.00	2.00	4	1		
									point40	40	6,297,332.0	1,981,175.2	655.00	6.00	2.00	4	1		
									point41	41	6,297,228.5	1,981,306.8	650.00	6.00	2.00	4	1		
									point42	42	6,297,069.5	1,981,508.5	650.00	6.00	2.00	4	1		
									point43	43	6,297,042.5	1,981,543.0	650.00	6.00	2.00	4	1		
									point44	44	6,296,982.5	1,981,619.8	649.00	6.00	2.00	4	1		
									point45	45	6,297,040.5	1,981,637.8	645.00	6.00	2.00	4	1		
									point46	46	6,297,047.0	1,981,637.5	645.00	6.00	2.00	4	1		
									point47	47	6,297,092.5	1,981,639.6	645.00	6.00					
Barrier10	W	0.00	99.99	0.00				0.00	point78	78	6,298,040.0	1,980,075.4	702.21	0.00	0.00	0	0		
									point79	79	6,298,035.0	1,980,075.6	702.21	0.00	0.00	0	0		
									point80	80	6,298,021.0	1,980,054.9	702.21	0.00	0.00	0	0		

									point81	81	6,298,020.5	1,980,031.0	702.21	0.00						
Barrier11	W	0.00	99.99	0.00				0.00	point82	82	6,295,085.0	1,984,108.8	640.61	0.00	0.00	0	0		
									point83	83	6,295,110.0	1,984,098.0	640.61	0.00	0.00	0	0		
									point84	84	6,295,113.0	1,984,114.9	640.61	0.00	0.00	0	0		
									point85	85	6,295,123.0	1,984,114.2	640.61	0.00	0.00	0	0		
									point86	86	6,295,136.5	1,984,146.0	640.61	0.00	0.00	0	0		
									point87	87	6,295,106.0	1,984,159.1	640.61	0.00						
Barrier12	W	0.00	99.99	0.00				0.00	point88	88	6,295,833.5	1,983,958.2	659.03	0.00	0.00	0	0		
									point89	89	6,295,807.5	1,983,968.5	659.03	0.00	0.00	0	0		
									point90	90	6,295,791.0	1,983,924.9	659.03	0.00	0.00	0	0		
									point91	91	6,295,818.0	1,983,915.1	659.03	0.00						
Barrier13	W	0.00	99.99	0.00				0.00	point92	92	6,297,515.5	1,980,772.1	695.00	6.00	2.00	4	1		
									point93	93	6,297,600.0	1,980,664.1	695.00	6.00	2.00	4	1		
									point94	94	6,297,603.0	1,980,653.8	695.00	6.00	2.00	4	1		
									point95	95	6,297,601.5	1,980,648.1	695.00	6.00	2.00	4	1		
									point96	96	6,297,599.5	1,980,642.8	695.00	6.00						
Barrier14	W	0.00	99.99	0.00				0.00	point97	97	6,297,562.0	1,980,633.9	695.00	6.00	2.00	4	1		
									point98	98	6,297,559.5	1,980,618.8	695.00	6.00	2.00	4	1		
									point99	99	6,297,559.5	1,980,597.4	695.00	6.00	2.00	4	1		
									point100	100	6,297,524.0	1,980,576.9	695.00	6.00	2.00	4	1		
									point101	101	6,297,488.0	1,980,558.4	695.00	6.00	2.00	4	1		
									point102	102	6,297,424.0	1,980,544.8	700.00	6.00	2.00	4	1		
									point103	103	6,297,393.0	1,980,545.1	700.00	6.00						
Barrier15	W	0.00	99.99	0.00				0.00	point104	104	6,297,685.0	1,980,751.0	692.19	6.00	2.00	4	1		
									point105	105	6,297,675.5	1,980,746.1	692.19	6.00	2.00	4	1		
									point106	106	6,297,662.0	1,980,755.0	692.00	6.00	2.00	4	1		
									point107	107	6,297,631.5	1,980,794.2	692.00	6.00	2.00	4	1		
									point108	108	6,297,621.5	1,980,814.4	692.00	6.00	2.00	4	1		
									point109	109	6,297,602.5	1,980,842.5	685.00	6.00	2.00	4	1		
									point110	110	6,297,567.5	1,980,888.2	682.00	6.00	2.00	4	1		
									point111	111	6,297,497.0	1,980,966.5	678.00	6.00	2.00	4	1		
									point112	112	6,297,457.5	1,981,022.4	675.00	6.00	2.00	4	1		
									point113	113	6,297,451.0	1,981,039.2	666.00	6.00						
Barrier18	W	0.00	99.99	0.00				0.00	point118	118	6,298,150.0	1,980,153.5	697.41	6.00	2.00	5	0		
									point119	119	6,298,152.5	1,980,173.5	697.41	6.00	2.00	5	0		
									point120	120	6,298,299.5	1,980,081.8	697.41	6.00	2.00	5	0		
									point121	121	6,298,308.5	1,980,073.9	697.41	6.00	2.00	5	0		
									point122	122	6,298,374.5	1,980,032.9	697.41	6.00	2.00	5	0		
									point123	123	6,298,445.0	1,979,999.0	697.41	6.00	2.00	5	0		
									point124	124	6,298,507.0	1,979,966.2	697.41	6.00						
Barrier7	W	0.00	99.99	0.00				0.00	point48	48	6,296,955.0	1,981,724.9	645.00	6.00	2.00	4	1		
									point50	50	6,296,953.5	1,981,723.0	645.00	6.00	2.00	4	1		
									point51	51	6,296,946.0	1,981,711.2	646.00	6.00	2.00	4	1		
									point52	52	6,296,934.0	1,981,702.4	648.00	6.00	2.00	4	1		
									point53	53	6,296,927.0	1,981,702.4	648.00	6.00	2.00	4	1		
									point54	54	6,296,916.0	1,981,706.2	648.00	6.00	2.00	4	1		
									point55	55	6,296,911.0	1,981,709.4	648.00	6.00	2.00	4	1		
									point56	56	6,296,762.5	1,981,898.6	647.00	6.00	2.00	4	1		
									point57	57	6,296,640.0	1,982,054.4	646.00	6.00	2.00	4	1		

									point58	58	6,296,585.5	1,982,123.8	643.00	6.00	2.00	4	1		
									point59	59	6,296,568.0	1,982,145.9	642.00	6.00	2.00	4	1		
									point60	60	6,296,562.0	1,982,154.8	641.00	6.00	2.00	4	1		
									point62	62	6,296,560.5	1,982,173.5	641.00	6.00	2.00	4	1		
									point63	63	6,296,569.0	1,982,183.9	640.00	6.00	2.00	4	1		
									point64	64	6,296,611.0	1,982,186.0	640.00	6.00	2.00	4	1		
									point65	65	6,296,636.5	1,982,186.0	639.00	6.00	2.00	4	1		
									point66	66	6,296,728.5	1,982,185.9	638.00	6.00					
Barrier3	W	0.00	99.99	0.00				0.00	point114	114	6,297,460.5	1,980,461.2	718.00	6.00	0.00	0	0		
									point115	115	6,297,686.5	1,980,452.6	718.00	6.00	0.00	0	0		
									point11	11	6,297,904.0	1,980,328.1	714.00	6.00	0.00	0	0		
									point12	12	6,297,948.0	1,980,302.1	714.00	6.00	0.00	0	0		
									point13	13	6,297,968.5	1,980,288.2	714.00	6.00	0.00	0	0		
									point14	14	6,297,972.0	1,980,276.8	714.00	6.00	0.00	0	0		
									point15	15	6,297,969.0	1,980,262.9	714.00	6.00	0.00	0	0		
									point17	17	6,297,903.0	1,980,103.0	714.00	6.00					
Barrier9	W	0.00	99.99	0.00				0.00	point67	67	6,296,271.5	1,982,183.4	648.00	6.00	2.00	4	0		
									point68	68	6,296,311.0	1,982,183.4	648.00	6.00	2.00	4	0		
									point69	69	6,296,391.5	1,982,184.0	649.00	6.00	2.00	4	0		
									point70	70	6,296,398.0	1,982,183.0	649.00	6.00	2.00	4	0		
									point71	71	6,296,404.5	1,982,179.6	647.00	6.00	2.00	4	0		
									point72	72	6,296,441.0	1,982,135.8	645.00	6.00	2.00	4	0		
									point73	73	6,296,500.0	1,982,060.8	645.00	6.00	2.00	4	0		
									point74	74	6,296,587.0	1,981,948.1	645.00	6.00	2.00	4	0		
									point75	75	6,296,599.5	1,981,929.4	645.00	6.00	2.00	4	0		
									point76	76	6,296,598.5	1,981,922.0	645.00	6.00	2.00	4	0		
									point126	126	6,296,634.5	1,981,877.8	645.00	6.00	2.00	4	0		
									point127	127	6,296,714.0	1,981,778.9	647.00	6.00	2.00	4	0		
									point128	128	6,296,829.5	1,981,640.1	647.00	6.00	2.00	4	0		
									point129	129	6,296,853.0	1,981,608.9	647.00	6.00	2.00	4	0		
									point130	130	6,296,855.5	1,981,601.5	647.00	6.00	2.00	4	0		
									point131	131	6,296,855.0	1,981,595.8	647.00	6.00	2.00	4	0		
									point132	132	6,296,803.5	1,981,547.8	647.00	6.00					
Barrier24	W	0.00	99.99	0.00				0.00	point133	133	6,297,621.0	1,980,511.0	700.00	6.00	0.00	0	0		
									point134	134	6,297,726.0	1,980,508.4	700.00	6.00	0.00	0	0		
									point135	135	6,297,658.5	1,980,587.9	700.00	6.00	0.00	0	0		
									point136	136	6,297,633.5	1,980,590.4	700.00	6.00	0.00	0	0		
									point137	137	6,297,630.0	1,980,587.4	700.00	6.00	0.00	0	0		
									point138	138	6,297,592.0	1,980,552.2	698.00	6.00					
Barrier25	W	0.00	99.99	0.00				0.00	point138	139	6,298,275.0	1,980,486.5	685.00	6.00	2.00	0	0		
									point139	140	6,298,181.0	1,980,373.5	685.00	6.00	2.00	0	0		
									point140	141	6,298,182.0	1,980,343.5	685.00	6.00	2.00	0	0		
									point141	142	6,298,187.5	1,980,323.8	685.00	6.00	2.00	0	0		
									point142	143	6,298,209.0	1,980,304.0	685.00	6.00	2.00	0	0		
									point143	144	6,298,219.5	1,980,286.2	685.00	6.00	2.00	0	0		
									point144	145	6,298,426.5	1,980,167.0	685.00	6.00	2.00	0	0		
									point145	146	6,298,472.5	1,980,213.6	685.00	6.00					
Barrier26	W	0.00	99.99	0.00				0.00	point147	147	6,297,559.0	1,980,632.8	695.00	30.00	0.00	0	0		
									point148	148	6,297,592.0	1,980,661.5	695.00	30.00	0.00	0	0		

									point149	149	6,297,556.0	1,980,709.0	695.00	30.00						
Barrier27	W	0.00	99.99	0.00				0.00	point150	150	6,296,248.5	1,982,103.9	650.00	20.00	0.00	0	0		
									point151	151	6,296,248.5	1,982,160.0	650.00	20.00	0.00	0	0		
									point152	152	6,296,227.0	1,982,160.0	650.00	20.00	0.00	0	0		
									point153	153	6,296,227.0	1,982,164.5	650.00	20.00	0.00	0	0		
									point154	154	6,296,206.5	1,982,164.6	650.00	20.00	0.00	0	0		
									point155	155	6,296,206.5	1,982,166.8	650.00	20.00	0.00	0	0		
									point156	156	6,296,176.0	1,982,166.9	650.00	20.00	0.00	0	0		
									point157	157	6,296,175.5	1,982,131.5	650.00	20.00					

AECOM **13 June 2011**
Maddux **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **Citracado Parkway Extension**
RUN: **No Build**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Citracado Pkwy NB Seg 1	point1	1	117	45	4	45	2	45	0	0	0	0
	point2	2	117	45	4	45	2	45	0	0	0	0
	point3	3	117	45	4	45	2	45	0	0	0	0
	point4	4										
Citracado Pkwy SB Seg 1	point5	5	117	45	4	45	2	45	0	0	0	0
	point6	6	117	45	4	45	2	45	0	0	0	0
	point7	7	117	45	4	45	2	45	0	0	0	0
	point8	8										
Citracado Prkwy NB Seg 2	point9	9	421	45	13	45	9	45	0	0	0	0
	point10	10	421	45	13	45	9	45	0	0	0	0
	point11	11	421	45	13	45	9	45	0	0	0	0
	point12	12	421	45	13	45	9	45	0	0	0	0
	point13	13										
Citracado Prkwy SB Seg 2	point23	23	380	45	12	45	8	45	0	0	0	0
	point24	24	380	45	12	45	8	45	0	0	0	0
	point25	25	380	45	12	45	8	45	0	0	0	0
	point26	26	380	45	12	45	8	45	0	0	0	0
	point27	27	380	45	12	45	8	45	0	0	0	0
	point28	28	380	45	12	45	8	45	0	0	0	0
	point29	29	380	45	12	45	8	45	0	0	0	0
	point30	30	380	45	12	45	8	45	0	0	0	0
	point31	31	380	45	12	45	8	45	0	0	0	0
	point32	32										

Avenida Del Diablo Seg 2	point37	37	116	35	4	35	2	35	0	0	0	0
	point38	38	116	35	4	35	2	35	0	0	0	0
	point39	39										
Johnston Rd Seg 2	point49	49	40	25	0	0	0	0	0	0	0	0
	point47	47	40	25	0	0	0	0	0	0	0	0
	point46	46	40	25	0	0	0	0	0	0	0	0
	point45	45	40	25	0	0	0	0	0	0	0	0
	point44	44	40	25	0	0	0	0	0	0	0	0
	point43	43										
Johnston Rd Seg 1	point59	59	113	30	4	30	2	30	0	0	0	0
	point58	58	113	30	4	30	0	30	0	0	0	0
	point57	57	113	30	4	30	2	30	0	0	0	0
	point56	56	113	30	4	30	2	30	0	0	0	0
	point55	55	113	30	4	30	2	30	0	0	0	0
	point54	54	113	30	4	30	2	30	0	0	0	0
	point53	53	113	30	4	30	2	30	0	0	0	0
	point52	52	113	30	4	30	2	30	0	0	0	0
	point51	51	113	30	4	30	2	30	0	0	0	0
	point50	50										
West Valley Prkwy EB Seg 1	point60	60	958	45	30	45	20	45	0	0	0	0
	point61	61	958	45	30	45	20	45	0	0	0	0
	point62	62										
West Valley Prkwy EB Seg 2	point63	63	1036	45	33	45	22	45	0	0	0	0
	point64	64	1036	45	33	45	22	45	0	0	0	0
	point65	65	1036	45	33	45	22	45	0	0	0	0
	point66	66	1036	45	33	45	22	45	0	0	0	0
	point67	67	1036	45	33	45	22	45	0	0	0	0
	point68	68										
West Valley Prkwy WB Seg 2	point69	69	1036	45	33	45	22	45	0	0	0	0
	point70	70	1036	45	33	45	22	45	0	0	0	0
	point71	71	1036	45	33	45	22	45	0	0	0	0
	point72	72	1036	45	33	45	22	45	0	0	0	0
	point73	73	1036	45	33	45	22	45	0	0	0	0
	point74	74										
West Valley Prkwy WB Seg 1	point75	75	958	45	30	45	20	45	0	0	0	0
	point76	76	958	45	30	45	20	45	0	0	0	0

	point77	77										
Kauana Loa Dr	point80	80	162	45	5	45	3	45	0	0	0	0
	point81	81	162	45	5	45	3	45	0	0	0	0
	point82	82	162	45	5	45	3	45	0	0	0	0
	point83	83	162	45	5	45	3	45	0	0	0	0
	point84	84										
Harmon Grove Rd	point92	92	591	45	19	45	12	45	0	0	0	0
	point93	93										
Avenida Del Diablo Seg 1	point94	94	25	25	1	25	1	25	0	0	0	0
	point40	40	25	25	1	25	1	25	0	0	0	0
	point41	41	25	25	1	25	1	25	0	0	0	0
	point42	42										
Citracado Prkwy SB Seg 2-2	point95	95	421	45	13	45	9	45	0	0	0	0
	point33	33	421	45	13	45	9	45	0	0	0	0
	point34	34	421	45	13	45	9	45	0	0	0	0
	point78	78	421	45	13	45	9	45	0	0	0	0
	point79	79	421	45	13	45	9	45	0	0	0	0
	point35	35										
Citracado Prkwy NB Seg 2-2	point96	96	380	45	12	45	8	45	0	0	0	0
	point14	14	380	45	12	45	8	45	0	0	0	0
	point15	15	380	45	12	45	8	45	0	0	0	0
	point16	16	380	45	12	45	8	45	0	0	0	0
	point17	17	380	45	12	45	8	45	0	0	0	0
	point18	18	380	45	12	45	8	45	0	0	0	0
	point19	19	380	45	12	45	8	45	0	0	0	0
	point20	20	380	45	12	45	8	45	0	0	0	0
	point21	21	380	45	12	45	8	45	0	0	0	0
	point22	22										
Kauana Loa Dr-2	point97	97	229	45	7	45	5	45	0	0	0	0
	point85	85	229	45	7	45	5	45	0	0	0	0
	point86	86	229	45	7	45	5	45	0	0	0	0
	point87	87	229	45	7	45	5	45	0	0	0	0
	point88	88	229	45	7	45	5	45	0	0	0	0
	point89	89	229	45	7	45	5	45	0	0	0	0
	point90	90	229	45	7	45	5	45	0	0	0	0
	point91	91										

AECOM			**13 June 2011**	
Maddux			**TNM 2.5**	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	**Citracado Parkway Extension**			
RUN:	**No Build**			
Terrain Line	**Points**			
Name	**No.**	**Coordinates (ground)**		
		X	**Y**	**Z**
		ft	ft	ft
Terrain Line4	8	6,297,621.5	1,980,814.4	692.00
	9	6,297,621.5	1,980,823.4	692.00
	10	6,297,625.5	1,980,830.0	692.00
	11	6,297,692.0	1,980,875.4	692.00
Terrain Line5	12	6,297,602.5	1,980,842.5	685.00
	13	6,297,644.5	1,980,874.6	685.00
	14	6,297,650.0	1,980,870.4	685.00
	15	6,297,685.5	1,980,896.2	685.00
Terrain Line6	16	6,297,408.0	1,980,760.8	678.00
	17	6,297,421.0	1,980,743.6	680.00
	18	6,297,446.5	1,980,708.0	681.00
	19	6,297,453.0	1,980,700.9	682.00
	20	6,297,460.0	1,980,667.9	683.00
	21	6,297,461.5	1,980,656.6	685.00
	22	6,297,461.5	1,980,633.6	686.00
	23	6,297,449.0	1,980,602.2	687.00
	24	6,297,435.5	1,980,589.5	688.00
	25	6,297,430.0	1,980,582.1	689.00
	26	6,297,415.0	1,980,570.9	690.00
	27	6,297,399.0	1,980,564.0	690.00
	28	6,297,385.0	1,980,563.1	691.00
	29	6,297,374.5	1,980,563.1	691.00
Terrain Line7	30	6,297,515.5	1,980,771.1	685.00
	31	6,297,529.0	1,980,747.6	687.00

	32	6,297,532.5	1,980,733.8	688.00
	33	6,297,535.5	1,980,715.9	692.00
	34	6,297,497.0	1,980,625.5	692.00
	35	6,297,484.5	1,980,565.1	692.00
	36	6,297,483.0	1,980,558.6	692.00
Terrain Line9	37	6,297,880.5	1,980,504.2	709.30
	38	6,297,925.5	1,980,508.0	709.30
	39	6,297,980.0	1,980,508.8	709.30
	40	6,298,020.0	1,980,508.4	709.30
	41	6,298,048.5	1,980,502.1	709.30
	42	6,298,056.5	1,980,503.5	709.30
	43	6,298,082.5	1,980,504.2	709.30
	44	6,298,097.0	1,980,510.5	709.30
	45	6,298,110.0	1,980,522.5	709.30
	46	6,298,115.0	1,980,532.9	709.30
	47	6,298,112.5	1,980,572.2	709.30
	48	6,298,115.0	1,980,579.2	709.30
Terrain Line10	49	6,298,273.0	1,980,486.5	685.00
	50	6,298,180.0	1,980,372.5	685.00
	51	6,298,178.0	1,980,365.9	685.00
	52	6,298,181.0	1,980,342.5	685.00
	53	6,298,187.5	1,980,322.8	685.00
	54	6,298,209.0	1,980,302.0	685.00
	55	6,298,219.5	1,980,285.2	685.00
	56	6,298,427.5	1,980,166.0	685.00
	57	6,298,473.5	1,980,213.6	685.00
Terrain Line11	58	6,298,507.0	1,979,967.2	697.41
	59	6,298,445.0	1,980,000.0	697.41
	60	6,298,374.5	1,980,034.9	697.41
	61	6,298,308.5	1,980,074.9	697.41
	62	6,298,299.5	1,980,082.8	697.41
	63	6,298,152.5	1,980,174.5	697.41
	64	6,298,149.0	1,980,154.5	697.41
Terrain Line12	65	6,295,050.0	1,983,232.6	623.00
	66	6,295,079.0	1,983,219.2	626.00
	67	6,295,179.0	1,983,176.2	629.00

	68	6,295,241.5	1,983,177.9	634.00
	69	6,295,264.0	1,983,210.6	634.00
	70	6,295,316.5	1,983,210.6	634.00
	71	6,295,350.5	1,983,178.4	634.00
	72	6,295,364.5	1,983,114.9	634.00
	74	6,295,364.5	1,983,056.5	633.00
	75	6,295,386.0	1,983,029.9	631.00
	76	6,295,410.5	1,983,014.9	631.00
	77	6,295,458.0	1,982,894.1	653.00
	78	6,295,484.0	1,982,912.9	653.00
	79	6,295,518.5	1,982,925.4	653.00
	80	6,295,546.5	1,982,917.0	653.00
	81	6,295,554.5	1,982,889.6	653.00
	82	6,295,550.0	1,982,856.2	653.00
	83	6,295,530.5	1,982,820.1	653.00
	84	6,295,498.0	1,982,793.4	653.00
	85	6,295,486.0	1,982,777.8	651.00
	86	6,295,470.0	1,982,764.0	649.00
	87	6,295,463.5	1,982,745.0	647.00
	88	6,295,457.0	1,982,718.4	645.00
	89	6,295,415.0	1,982,683.8	645.00
	90	6,295,391.0	1,982,610.1	645.00
Terrain Line13	91	6,295,597.0	1,983,103.0	612.00
	92	6,295,679.0	1,983,078.5	612.00
	93	6,295,737.0	1,983,028.0	612.00
	94	6,295,788.5	1,982,986.0	612.00
	95	6,295,808.0	1,982,935.0	612.00
	96	6,295,848.0	1,982,830.5	613.00
	97	6,295,772.0	1,982,793.6	618.00
	98	6,295,693.5	1,982,692.1	626.00
	99	6,295,585.0	1,982,613.0	634.00
	100	6,295,506.0	1,982,573.5	638.00
	101	6,295,450.5	1,982,549.9	643.00
Terrain Line14	102	6,295,919.0	1,984,109.0	650.00
	103	6,295,849.0	1,984,149.6	650.00
	104	6,295,833.5	1,984,151.2	650.00

	105	6,295,800.0	1,984,075.1	650.00
	106	6,295,792.0	1,984,068.6	650.00
	107	6,295,776.0	1,984,042.0	650.00
	108	6,295,762.5	1,984,034.1	650.00
	109	6,295,726.0	1,984,024.2	650.00
	110	6,295,695.0	1,984,032.5	650.00
	111	6,295,651.0	1,984,007.0	650.00
	112	6,295,637.5	1,983,979.5	650.00
	113	6,295,636.0	1,983,963.1	650.00
	114	6,295,639.5	1,983,946.4	650.00
	115	6,295,636.5	1,983,928.6	650.00
	116	6,295,640.0	1,983,908.5	650.00
	117	6,295,667.0	1,983,881.8	650.00
	118	6,295,676.5	1,983,865.8	650.00
	119	6,295,675.0	1,983,852.9	650.00
	120	6,295,680.0	1,983,849.8	650.00
	121	6,295,708.5	1,983,848.0	650.00
	122	6,295,734.5	1,983,850.9	650.00
	123	6,295,767.0	1,983,866.1	650.00
	124	6,295,774.5	1,983,876.6	650.00
	125	6,295,791.5	1,983,886.0	650.00
	126	6,295,804.5	1,983,915.0	650.00
Terrain Line15	127	6,295,735.0	1,983,991.0	655.00
	128	6,295,694.5	1,984,005.6	655.00
	129	6,295,687.0	1,984,004.2	655.00
	130	6,295,680.0	1,983,994.9	655.00
	131	6,295,670.0	1,983,991.0	655.00
	132	6,295,666.5	1,983,968.5	655.00
	133	6,295,659.5	1,983,945.9	655.00
	134	6,295,648.5	1,983,927.0	655.00
	135	6,295,649.5	1,983,918.1	655.00
	136	6,295,662.0	1,983,905.6	655.00
	137	6,295,670.5	1,983,897.0	655.00
	138	6,295,676.5	1,983,890.5	655.00
	139	6,295,680.0	1,983,889.8	655.00
	140	6,295,694.0	1,983,866.1	655.00

	141	6,295,711.5	1,983,871.8	655.00
	142	6,295,716.5	1,983,870.0	655.00
	143	6,295,737.5	1,983,872.8	656.00
	144	6,295,753.5	1,983,882.4	655.00
	145	6,295,764.0	1,983,897.0	655.00
Terrain Line16	146	6,295,735.0	1,983,965.8	655.00
	147	6,295,735.0	1,983,946.9	660.00
	148	6,295,735.5	1,983,925.8	661.00
	149	6,295,737.0	1,983,903.0	661.00
	150	6,295,737.5	1,983,872.8	656.00
Terrain Line18	151	6,294,912.5	1,984,859.6	673.40
	152	6,294,935.0	1,984,858.6	673.40
	153	6,294,949.0	1,984,857.2	673.40
	154	6,294,964.0	1,984,857.2	673.40
	155	6,295,008.0	1,984,856.0	673.40
	156	6,295,133.5	1,984,860.2	673.40
	157	6,295,163.0	1,984,860.2	673.40
	158	6,295,203.5	1,984,862.0	673.40
	159	6,295,214.5	1,984,856.1	673.40
	160	6,295,227.0	1,984,852.5	673.40
	161	6,295,241.0	1,984,845.2	673.40
	162	6,295,249.5	1,984,838.5	673.40
	163	6,295,261.0	1,984,825.2	673.40
	164	6,295,264.0	1,984,816.0	673.40
Terrain Line20	165	6,295,380.0	1,984,879.6	673.40
	166	6,295,386.5	1,984,910.4	673.40
	167	6,295,403.0	1,984,920.0	673.40
	168	6,295,425.5	1,984,928.0	673.40
	169	6,295,586.5	1,985,005.1	673.40
Terrain Line21	170	6,295,264.0	1,984,816.0	673.40
	171	6,295,271.5	1,984,777.2	673.40
	172	6,295,402.5	1,984,780.6	673.40
	173	6,295,380.0	1,984,879.6	673.40
Terrain Line22	174	6,295,139.0	1,984,210.8	629.00
	175	6,295,158.5	1,984,184.5	629.00
	176	6,295,154.5	1,984,164.0	629.00

	177	6,295,159.0	1,984,158.0	629.00
	178	6,295,150.0	1,984,143.8	629.00
	179	6,295,146.0	1,984,122.9	629.00
	180	6,295,142.0	1,984,117.5	629.00
	181	6,295,125.5	1,984,114.1	629.00
	182	6,295,115.0	1,984,108.2	629.00
	183	6,295,115.0	1,984,078.0	629.00
Terrain Line23	184	6,296,800.5	1,982,181.0	644.00
	185	6,296,712.5	1,982,173.6	644.00
	186	6,296,646.0	1,982,159.8	640.00
	187	6,296,645.5	1,982,153.2	639.00
	188	6,296,605.0	1,982,104.1	638.00
	189	6,296,664.0	1,982,027.5	637.00

AECOM 13 June 2011
Maddux TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2030 No Build

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Citracado Pkwy NB Seg 1	12.0	point1	1	6,298,529.5	1,980,061.8	699.00				Average	
		point2	2	6,298,442.0	1,980,106.8	697.00				Average	
		point3	3	6,298,283.0	1,980,197.4	695.00				Average	
		point4	4	6,298,030.0	1,980,358.0	699.00					
Citracado Pkwy SB Seg 1	12.0	point5	5	6,298,108.0	1,980,251.4	698.00	Signal	0.00	100	Average	
		point6	6	6,298,258.0	1,980,157.1	695.02				Average	
		point7	7	6,298,416.0	1,980,061.6	697.00				Average	
		point8	8	6,298,506.5	1,980,011.8	699.00					
Citracado Prkwy NB Seg 2	12.0	point9	9	6,298,030.0	1,980,358.0	699.00	Signal	0.00	100	Average	
		point10	10	6,297,966.5	1,980,398.5	700.00				Average	
		point11	11	6,297,895.5	1,980,452.9	699.00				Average	
		point12	12	6,297,812.5	1,980,530.6	698.00				Average	
		point13	13	6,297,702.0	1,980,654.8	694.00					
Citracado Prkwy SB Seg 2	12.0	point23	23	6,296,405.0	1,982,219.0	642.50	Stop	0.00	100	Average	
		point24	24	6,296,504.5	1,982,093.5	643.00				Average	
		point25	25	6,296,583.0	1,981,993.5	643.00				Average	
		point26	26	6,296,832.5	1,981,676.5	648.50				Average	
		point27	27	6,296,925.0	1,981,558.0	651.00				Average	
		point28	28	6,297,064.5	1,981,382.0	654.50				Average	
		point29	29	6,297,192.5	1,981,219.1	659.00				Average	
		point30	30	6,297,528.0	1,980,795.6	686.00				Average	
		point31	31	6,297,605.5	1,980,704.9	690.00				Average	
		point32	32	6,297,670.0	1,980,624.0	694.00					
Avenida Del Diablo Seg 2	24.0	point37	37	6,297,489.0	1,982,226.0	635.00				Average	
		point38	38	6,296,759.0	1,982,221.6	640.00				Average	

		point39	39	6,296,574.0	1,982,221.6	643.00					
Johnston Rd Seg 2	24.0	point49	49	6,297,670.0	1,980,700.5	694.00	Stop	0.00	100	Average	
		point47	47	6,297,702.5	1,980,737.5	694.00				Average	
		point46	46	6,297,776.0	1,980,796.4	694.00				Average	
		point45	45	6,297,813.0	1,980,813.9	694.00				Average	
		point44	44	6,297,857.0	1,980,826.1	694.00				Average	
		point43	43	6,297,901.0	1,980,832.9	694.00					
Johnston Rd Seg 1	24.0	point59	59	6,297,656.0	1,980,638.1	694.00	Stop	0.00	100	Average	
		point58	58	6,297,613.5	1,980,605.5	695.00				Average	
		point57	57	6,297,595.5	1,980,590.5	696.00				Average	
		point56	56	6,297,579.0	1,980,573.9	697.00				Average	
		point55	55	6,297,561.0	1,980,560.9	698.00				Average	
		point54	54	6,297,543.0	1,980,549.0	699.00				Average	
		point53	53	6,297,523.0	1,980,539.9	700.00				Average	
		point52	52	6,297,500.5	1,980,529.4	701.00				Average	
		point51	51	6,297,453.0	1,980,516.4	702.00				Average	
		point50	50	6,297,419.5	1,980,513.5	703.00					
West Valley Prkwy EB Seg 1	24.0	point60	60	6,297,972.0	1,980,062.8	695.00				Average	
		point61	61	6,298,055.0	1,980,240.1	698.00				Average	
		point62	62	6,298,071.5	1,980,270.0	699.00					
West Valley Prkwy EB Seg 2	24.0	point63	63	6,298,104.5	1,980,322.6	699.00	Signal	0.00	100	Average	
		point64	64	6,298,119.5	1,980,350.1	698.00				Average	
		point65	65	6,298,132.5	1,980,369.1	697.00				Average	
		point66	66	6,298,159.5	1,980,408.4	696.00				Average	
		point67	67	6,298,188.0	1,980,446.1	695.00				Average	
		point68	68	6,298,238.5	1,980,508.2	694.50					
West Valley Prkwy WB Seg 2	24.0	point69	69	6,298,206.5	1,980,530.2	694.50				Average	
		point70	70	6,298,166.0	1,980,483.4	695.00				Average	
		point71	71	6,298,137.0	1,980,446.1	696.00				Average	
		point72	72	6,298,095.0	1,980,388.2	697.00				Average	
		point73	73	6,298,082.5	1,980,369.4	698.00				Average	
		point74	74	6,298,068.0	1,980,346.9	699.00					
West Valley Prkwy WB Seg 1	24.0	point75	75	6,298,034.5	1,980,293.4	699.00	Signal	0.00	100	Average	
		point76	76	6,298,018.0	1,980,258.8	698.00				Average	
		point77	77	6,297,935.5	1,980,082.9	695.00					
Kauana Loa Dr	24.0	point80	80	6,294,305.0	1,984,547.6	634.20				Average	
		point81	81	6,294,791.5	1,984,542.4	634.20				Average	
		point82	82	6,294,893.0	1,984,541.2	634.20				Average	
		point83	83	6,295,037.0	1,984,540.1	634.20				Average	

		point84	84	6,295,251.0	1,984,538.0	634.20					
Harmon Grove Rd	24.0	point92	92	6,294,891.5	1,983,977.1	634.16				Average	
		point93	93	6,295,225.5	1,984,538.0	634.16					
Avenida Del Diablo Seg 1	24.0	point94	94	6,296,574.0	1,982,221.6	643.00	Stop	0.00	100	Average	
		point40	40	6,296,361.5	1,982,219.9	644.00				Average	
		point41	41	6,296,280.0	1,982,219.1	648.00				Average	
		point42	42	6,296,080.0	1,982,218.9	653.00					
Citracado Prkwy SB Seg 2-2	12.0	point95	95	6,297,670.0	1,980,624.0	694.00	Signal	0.00	100	Average	
		point33	33	6,297,777.0	1,980,496.1	698.00				Average	
		point34	34	6,297,870.0	1,980,422.5	699.00				Average	
		point78	78	6,297,949.5	1,980,365.5	700.00				Average	
		point79	79	6,298,028.5	1,980,308.4	699.00				Average	
		point35	35	6,298,108.0	1,980,251.4	698.00					
Citracado Prkwy NB Seg 2-2	12.0	point96	96	6,297,702.0	1,980,654.8	694.00	Signal	0.00	100	Average	
		point14	14	6,297,639.5	1,980,733.6	690.00				Average	
		point15	15	6,297,594.0	1,980,801.9	686.00				Average	
		point16	16	6,297,237.5	1,981,254.8	659.00				Average	
		point17	17	6,297,109.5	1,981,417.8	654.50				Average	
		point18	18	6,296,970.5	1,981,594.1	651.00				Average	
		point19	19	6,296,877.0	1,981,711.9	648.50				Average	
		point20	20	6,296,627.5	1,982,029.2	643.00				Average	
		point21	21	6,296,550.0	1,982,128.6	643.00				Average	
		point22	22	6,296,484.0	1,982,220.8	642.50					
Kauana Loa Dr-2	24.0	point97	97	6,295,251.0	1,984,538.0	634.20				Average	
		point85	85	6,295,312.0	1,984,537.4	634.20				Average	
		point86	86	6,295,532.5	1,984,534.1	634.20				Average	
		point87	87	6,295,762.0	1,984,532.0	634.20				Average	
		point88	88	6,295,998.5	1,984,533.1	634.20				Average	
		point89	89	6,296,208.0	1,984,532.1	634.20				Average	
		point90	90	6,296,428.0	1,984,529.0	634.20				Average	
		point91	91	6,296,779.0	1,984,529.0	634.20					

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INPUT: RECEIVERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2030 No Build

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1	1	1	6,298,415.0	1,980,199.6	684.00	4.92	0.00	66	10.0	8.0	Y
R2	2	1	6,298,234.5	1,980,307.4	684.00	4.92	0.00	66	10.0	8.0	Y
R3	3	1	6,298,335.0	1,980,040.8	695.00	4.92	0.00	66	10.0	8.0	Y
R4	4	1	6,298,188.5	1,980,133.1	695.00	4.92	0.00	66	10.0	8.0	Y
R5	5	1	6,297,982.0	1,980,518.8	708.00	4.92	0.00	66	10.0	8.0	Y
R6	6	1	6,297,853.0	1,980,343.1	716.25	4.92	0.00	66	10.0	8.0	
R7	7	1	6,297,679.0	1,980,531.4	695.00	4.92	0.00	66	10.0	8.0	
R8	8	1	6,297,801.0	1,980,603.8	694.00	4.92	0.00	66	10.0	8.0	Y
R9	9	1	6,297,645.0	1,980,796.9	692.00	4.92	0.00	66	10.0	8.0	Y
R10	10	1	6,297,535.0	1,980,625.0	690.00	4.92	0.00	66	10.0	8.0	Y
R11	12	1	6,297,440.0	1,980,833.2	678.00	4.92	0.00	66	10.0	8.0	Y
R12	13	1	6,297,395.5	1,980,725.6	679.00	4.92	0.00	66	10.0	8.0	Y
R13	14	1	6,297,248.0	1,980,911.1	671.00	4.92	0.00	66	10.0	8.0	Y
R14	15	1	6,297,372.5	1,980,916.6	678.00	4.92	0.00	66	10.0	8.0	Y
R15	16	1	6,297,508.5	1,981,013.1	677.00	4.92	0.00	66	10.0	8.0	Y
R16	17	1	6,297,426.0	1,981,096.4	666.00	4.92	0.00	66	10.0	8.0	Y
R17	18	1	6,297,234.0	1,981,096.6	667.00	4.92	0.00	66	10.0	8.0	Y
R18	19	1	6,297,250.5	1,981,283.1	651.00	4.92	0.00	66	10.0	8.0	Y
R19	20	1	6,297,120.0	1,981,233.5	664.00	4.92	0.00	66	10.0	8.0	Y
R20	21	1	6,297,050.5	1,981,550.0	650.00	4.92	0.00	66	10.0	8.0	Y
R21	22	1	6,297,016.0	1,981,365.1	657.00	4.92	0.00	66	10.0	8.0	Y
R22	24	1	6,296,858.5	1,981,396.9	654.00	4.92	0.00	66	10.0	8.0	Y

R23	25	1	6,296,907.0	1,981,761.1	647.00	4.92	0.00	66	10.0	8.0	Y
R24	26	1	6,296,766.0	1,981,703.5	648.00	4.92	0.00	66	10.0	8.0	Y
R25	27	1	6,296,812.0	1,981,857.9	647.00	4.92	0.00	66	10.0	8.0	Y
R26	28	1	6,296,539.5	1,981,971.6	645.00	4.92	0.00	66	10.0	8.0	Y
R27	29	1	6,296,685.0	1,982,008.9	647.00	4.92	0.00	66	10.0	8.0	Y
R28	30	1	6,296,655.5	1,982,081.5	646.00	4.92	0.00	66	10.0	8.0	Y
R29	31	1	6,296,423.0	1,982,127.2	645.00	4.92	0.00	66	10.0	8.0	Y
R30	33	1	6,296,743.5	1,982,176.5	637.00	4.92	0.00	66	10.0	8.0	Y
R31	34	1	6,296,304.5	1,982,178.9	648.00	4.92	0.00	66	10.0	8.0	Y
R32	35	1	6,296,472.5	1,981,876.9	650.00	4.92	0.00	66	10.0	8.0	Y
R33	36	1	6,296,189.5	1,982,078.1	650.00	4.92	0.00	66	10.0	8.0	Y
R34	38	1	6,295,538.0	1,982,912.0	653.00	4.92	0.00	66	10.0	8.0	Y
R35	39	1	6,295,606.0	1,982,970.6	633.00	4.92	0.00	66	10.0	8.0	Y
R36	40	1	6,295,358.5	1,983,225.2	628.00	4.92	0.00	66	10.0	8.0	Y
R37	41	1	6,295,303.5	1,983,156.0	634.00	4.92	0.00	66	10.0	8.0	Y
R38	42	1	6,295,139.5	1,983,113.5	634.00	4.92	0.00	66	10.0	8.0	Y
R39	43	1	6,295,140.0	1,984,124.2	640.61	4.92	0.00	66	10.0	8.0	Y
R40	46	1	6,295,798.5	1,983,968.5	659.03	4.92	0.00	66	10.0	8.0	Y
R41	47	1	6,296,008.0	1,984,142.0	626.50	4.92	0.00	66	10.0	8.0	Y
R42	49	1	6,295,847.0	1,984,698.4	633.00	4.92	0.00	66	10.0	8.0	Y
R43	51	1	6,295,773.0	1,985,000.0	658.00	4.92	0.00	66	10.0	8.0	Y

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INPUT: BARRIERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2030 No Build

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht	Perturbs		On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	6,298,145.0	1,980,568.2	700.00	6.00	2.00	4	1		
									point2	2	6,298,142.0	1,980,504.9	703.00	6.00	2.00	4	1		
									point3	3	6,298,088.0	1,980,481.4	704.00	6.00	2.00	4	1		
									point4	4	6,297,896.0	1,980,487.0	704.00	6.00	2.00	4	1		
									point5	5	6,297,821.5	1,980,557.9	695.00	6.00	2.00	4	1		
									point6	6	6,297,754.0	1,980,636.8	695.00	6.00	2.00	4	1		
									point7	7	6,297,738.0	1,980,656.5	695.00	6.00	2.00	4	1		
									point8	8	6,297,718.5	1,980,680.8	695.00	6.00	2.00	4	1		
									point9	9	6,297,714.0	1,980,695.8	695.00	6.00	2.00	4	1		
									point10	10	6,297,717.5	1,980,704.5	695.00	6.00					
Barrier5	W	0.00	99.99	0.00				0.00	point26	26	6,296,909.0	1,981,418.2	655.00	6.00	2.00	4	1		
									point27	27	6,296,976.0	1,981,435.1	657.00	6.00	2.00	4	1		
									point28	28	6,297,100.5	1,981,277.2	660.00	6.00	2.00	4	1		
									point29	29	6,297,269.5	1,981,063.5	672.00	6.00	2.00	4	1		
									point30	30	6,297,491.0	1,980,801.6	681.00	6.00	2.00	4	1		
									point31	31	6,297,486.5	1,980,682.2	681.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point32	32	6,297,608.5	1,981,175.5	666.00	6.00	2.00	4	1		
									point33	33	6,297,502.5	1,981,178.1	666.00	6.00	2.00	4	1		
									point34	34	6,297,501.0	1,981,159.0	666.00	6.00	2.00	4	1		
									point35	35	6,297,431.0	1,981,159.2	666.00	6.00	2.00	4	1		
									point36	36	6,297,422.0	1,981,170.2	666.00	6.00	2.00	4	1		
									point37	37	6,297,375.5	1,981,132.6	666.00	6.00	2.00	4	1		
									point38	38	6,297,347.0	1,981,155.1	666.00	6.00	2.00	4	1		
									point39	39	6,297,345.5	1,981,154.1	666.00	6.00	2.00	4	1		
									point40	40	6,297,332.0	1,981,175.2	655.00	6.00	2.00	4	1		
									point41	41	6,297,228.5	1,981,306.8	650.00	6.00	2.00	4	1		
									point42	42	6,297,069.5	1,981,508.5	650.00	6.00	2.00	4	1		
									point43	43	6,297,042.5	1,981,543.0	650.00	6.00	2.00	4	1		
									point44	44	6,296,982.5	1,981,619.8	649.00	6.00	2.00	4	1		
									point45	45	6,297,040.5	1,981,637.8	645.00	6.00	2.00	4	1		
									point46	46	6,297,047.0	1,981,637.5	645.00	6.00	2.00	4	1		
									point47	47	6,297,092.5	1,981,639.6	645.00	6.00					
Barrier10	W	0.00	99.99	0.00				0.00	point78	78	6,298,040.0	1,980,075.4	702.21	0.00	0.00	0	0		
									point79	79	6,298,035.0	1,980,075.6	702.21	0.00	0.00	0	0		
									point80	80	6,298,021.0	1,980,054.9	702.21	0.00	0.00	0	0		

									point81	81	6,298,020.5	1,980,031.0	702.21	0.00							
Barrier11	W	0.00	99.99	0.00				0.00	point82	82	6,295,085.0	1,984,108.8	640.61	0.00	0.00	0	0			
									point83	83	6,295,110.0	1,984,098.0	640.61	0.00	0.00	0	0			
									point84	84	6,295,113.0	1,984,114.9	640.61	0.00	0.00	0	0			
									point85	85	6,295,123.0	1,984,114.2	640.61	0.00	0.00	0	0			
									point86	86	6,295,136.5	1,984,146.0	640.61	0.00	0.00	0	0			
									point87	87	6,295,106.0	1,984,159.1	640.61	0.00						
Barrier12	W	0.00	99.99	0.00				0.00	point88	88	6,295,833.5	1,983,958.2	659.03	0.00	0.00	0	0			
									point89	89	6,295,807.5	1,983,968.5	659.03	0.00	0.00	0	0			
									point90	90	6,295,791.0	1,983,924.9	659.03	0.00	0.00	0	0			
									point91	91	6,295,818.0	1,983,915.1	659.03	0.00						
Barrier13	W	0.00	99.99	0.00				0.00	point92	92	6,297,515.5	1,980,772.1	695.00	6.00	2.00	4	1			
									point93	93	6,297,600.0	1,980,664.1	695.00	6.00	2.00	4	1			
									point94	94	6,297,603.0	1,980,653.8	695.00	6.00	2.00	4	1			
									point95	95	6,297,601.5	1,980,648.1	695.00	6.00	2.00	4	1			
									point96	96	6,297,599.5	1,980,642.8	695.00	6.00						
Barrier14	W	0.00	99.99	0.00				0.00	point97	97	6,297,562.0	1,980,633.9	695.00	6.00	2.00	4	1			
									point98	98	6,297,559.5	1,980,618.8	695.00	6.00	2.00	4	1			
									point99	99	6,297,559.5	1,980,597.4	695.00	6.00	2.00	4	1			
									point100	100	6,297,524.0	1,980,576.9	695.00	6.00	2.00	4	1			
									point101	101	6,297,488.0	1,980,558.4	695.00	6.00	2.00	4	1			
									point102	102	6,297,424.0	1,980,544.8	700.00	6.00	2.00	4	1			
									point103	103	6,297,393.0	1,980,545.1	700.00	6.00						
Barrier15	W	0.00	99.99	0.00				0.00	point104	104	6,297,685.0	1,980,751.0	692.19	6.00	2.00	4	1			
									point105	105	6,297,675.5	1,980,746.1	692.19	6.00	2.00	4	1			
									point106	106	6,297,662.0	1,980,755.0	692.00	6.00	2.00	4	1			
									point107	107	6,297,631.5	1,980,794.2	692.00	6.00	2.00	4	1			
									point108	108	6,297,621.5	1,980,814.4	692.00	6.00	2.00	4	1			
									point109	109	6,297,602.5	1,980,842.5	685.00	6.00	2.00	4	1			
									point110	110	6,297,567.5	1,980,888.2	682.00	6.00	2.00	4	1			
									point111	111	6,297,497.0	1,980,966.5	678.00	6.00	2.00	4	1			
									point112	112	6,297,457.5	1,981,022.4	675.00	6.00	2.00	4	1			
									point113	113	6,297,451.0	1,981,039.2	666.00	6.00						
Barrier18	W	0.00	99.99	0.00				0.00	point118	118	6,298,150.0	1,980,153.5	697.41	6.00	2.00	5	0			
									point119	119	6,298,152.5	1,980,173.5	697.41	6.00	2.00	5	0			
									point120	120	6,298,299.5	1,980,081.8	697.41	6.00	2.00	5	0			
									point121	121	6,298,308.5	1,980,073.9	697.41	6.00	2.00	5	0			
									point122	122	6,298,374.5	1,980,032.9	697.41	6.00	2.00	5	0			
									point123	123	6,298,445.0	1,979,999.0	697.41	6.00	2.00	5	0			
									point124	124	6,298,507.0	1,979,966.2	697.41	6.00						
Barrier7	W	0.00	99.99	0.00				0.00	point48	48	6,296,955.0	1,981,724.9	645.00	6.00	2.00	4	1			
									point50	50	6,296,953.5	1,981,723.0	645.00	6.00	2.00	4	1			
									point51	51	6,296,946.0	1,981,711.2	646.00	6.00	2.00	4	1			
									point52	52	6,296,934.0	1,981,702.4	648.00	6.00	2.00	4	1			
									point53	53	6,296,927.0	1,981,702.4	648.00	6.00	2.00	4	1			
									point54	54	6,296,916.0	1,981,706.2	648.00	6.00	2.00	4	1			
									point55	55	6,296,911.0	1,981,709.4	648.00	6.00	2.00	4	1			
									point56	56	6,296,762.5	1,981,898.6	647.00	6.00	2.00	4	1			
									point57	57	6,296,640.0	1,982,054.4	646.00	6.00	2.00	4	1			

									point58	58	6,296,585.5	1,982,123.8	643.00	6.00	2.00	4	1		
									point59	59	6,296,568.0	1,982,145.9	642.00	6.00	2.00	4	1		
									point60	60	6,296,562.0	1,982,154.8	641.00	6.00	2.00	4	1		
									point62	62	6,296,560.5	1,982,173.5	641.00	6.00	2.00	4	1		
									point63	63	6,296,569.0	1,982,183.9	640.00	6.00	2.00	4	1		
									point64	64	6,296,611.0	1,982,186.0	640.00	6.00	2.00	4	1		
									point65	65	6,296,636.5	1,982,186.0	639.00	6.00	2.00	4	1		
									point66	66	6,296,728.5	1,982,185.9	638.00	6.00					
Barrier3	W	0.00	99.99	0.00				0.00	point114	114	6,297,460.5	1,980,461.2	718.00	6.00	0.00	0	0		
									point115	115	6,297,686.5	1,980,452.6	718.00	6.00	0.00	0	0		
									point11	11	6,297,904.0	1,980,328.1	714.00	6.00	0.00	0	0		
									point12	12	6,297,948.0	1,980,302.1	714.00	6.00	0.00	0	0		
									point13	13	6,297,968.5	1,980,288.2	714.00	6.00	0.00	0	0		
									point14	14	6,297,972.0	1,980,276.8	714.00	6.00	0.00	0	0		
									point15	15	6,297,969.0	1,980,262.9	714.00	6.00	0.00	0	0		
									point17	17	6,297,903.0	1,980,103.0	714.00	6.00					
Barrier9	W	0.00	99.99	0.00				0.00	point67	67	6,296,271.5	1,982,183.4	648.00	6.00	2.00	4	0		
									point68	68	6,296,311.0	1,982,183.4	648.00	6.00	2.00	4	0		
									point69	69	6,296,391.5	1,982,184.0	649.00	6.00	2.00	4	0		
									point70	70	6,296,398.0	1,982,183.0	649.00	6.00	2.00	4	0		
									point71	71	6,296,404.5	1,982,179.6	647.00	6.00	2.00	4	0		
									point72	72	6,296,441.0	1,982,135.8	645.00	6.00	2.00	4	0		
									point73	73	6,296,500.0	1,982,060.8	645.00	6.00	2.00	4	0		
									point74	74	6,296,587.0	1,981,948.1	645.00	6.00	2.00	4	0		
									point75	75	6,296,599.5	1,981,929.4	645.00	6.00	2.00	4	0		
									point76	76	6,296,598.5	1,981,922.0	645.00	6.00	2.00	4	0		
									point126	126	6,296,634.5	1,981,877.8	645.00	6.00	2.00	4	0		
									point127	127	6,296,714.0	1,981,778.9	647.00	6.00	2.00	4	0		
									point128	128	6,296,829.5	1,981,640.1	647.00	6.00	2.00	4	0		
									point129	129	6,296,853.0	1,981,608.9	647.00	6.00	2.00	4	0		
									point130	130	6,296,855.5	1,981,601.5	647.00	6.00	2.00	4	0		
									point131	131	6,296,855.0	1,981,595.8	647.00	6.00	2.00	4	0		
									point132	132	6,296,803.5	1,981,547.8	647.00	6.00					
Barrier24	W	0.00	99.99	0.00				0.00	point133	133	6,297,621.0	1,980,511.0	700.00	6.00	0.00	0	0		
									point134	134	6,297,726.0	1,980,508.4	700.00	6.00	0.00	0	0		
									point135	135	6,297,658.5	1,980,587.9	700.00	6.00	0.00	0	0		
									point136	136	6,297,633.5	1,980,590.4	700.00	6.00	0.00	0	0		
									point137	137	6,297,630.0	1,980,587.4	700.00	6.00	0.00	0	0		
									point138	138	6,297,592.0	1,980,552.2	698.00	6.00					
Barrier25	W	0.00	99.99	0.00				0.00	point138	139	6,298,275.0	1,980,486.5	685.00	6.00	2.00	5	0		
									point139	140	6,298,181.0	1,980,373.5	685.00	6.00	2.00	5	0		
									point140	141	6,298,182.0	1,980,343.5	685.00	6.00	2.00	5	0		
									point141	142	6,298,187.5	1,980,323.8	685.00	6.00	2.00	5	0		
									point142	143	6,298,209.0	1,980,304.0	685.00	6.00	2.00	5	0		
									point143	144	6,298,219.5	1,980,286.2	685.00	6.00	2.00	5	0		
									point144	145	6,298,426.5	1,980,167.0	685.00	6.00	2.00	5	0		
									point145	146	6,298,472.5	1,980,213.6	685.00	6.00					
Barrier26	W	0.00	99.99	0.00				0.00	point150	147	6,296,248.5	1,982,103.9	650.00	20.00	0.00	0	0		
									point151	148	6,296,248.5	1,982,160.0	650.00	20.00	0.00	0	0		

									point152	149	6,296,227.0	1,982,160.0	650.00	20.00	0.00	0	0		
									point153	150	6,296,227.0	1,982,164.5	650.00	20.00	0.00	0	0		
									point154	151	6,296,206.5	1,982,164.6	650.00	20.00	0.00	0	0		
									point155	152	6,296,206.5	1,982,166.8	650.00	20.00	0.00	0	0		
									point156	153	6,296,176.0	1,982,166.9	650.00	20.00	0.00	0	0		
									point157	154	6,296,175.5	1,982,131.5	650.00	20.00					
Barrier27	W	0.00	99.99	0.00				0.00	point147	155	6,297,559.0	1,980,632.8	695.00	30.00	0.00	0	0		
									point148	156	6,297,592.0	1,980,661.5	695.00	30.00	0.00	0	0		
									point149	157	6,297,556.0	1,980,709.0	695.00	30.00					

AECOM **13 June 2011**
Maddux **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **Citracado Parkway Extension**
RUN: **2030 No Build**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Citracado Pkwy NB Seg 1	point1	1	902	45	28	45	19	45	0	0	0	0
	point2	2	902	45	28	45	19	45	0	0	0	0
	point3	3	902	45	28	45	19	45	0	0	0	0
	point4	4										
Citracado Pkwy SB Seg 1	point5	5	902	45	28	45	19	45	0	0	0	0
	point6	6	902	45	28	45	19	45	0	0	0	0
	point7	7	902	45	28	45	19	45	0	0	0	0
	point8	8										
Citracado Prkwy NB Seg 2	point9	9	913	45	29	45	19	45	0	0	0	0
	point10	10	913	45	29	45	19	45	0	0	0	0
	point11	11	913	45	29	45	19	45	0	0	0	0
	point12	12	913	45	29	45	19	45	0	0	0	0
	point13	13										
Citracado Prkwy SB Seg 2	point23	23	879	45	28	45	19	45	0	0	0	0
	point24	24	879	45	28	45	19	45	0	0	0	0
	point25	25	879	45	28	45	19	45	0	0	0	0
	point26	26	879	45	28	45	19	45	0	0	0	0
	point27	27	879	45	28	45	19	45	0	0	0	0
	point28	28	879	45	28	45	19	45	0	0	0	0
	point29	29	879	45	28	45	19	45	0	0	0	0
	point30	30	879	45	28	45	19	45	0	0	0	0
	point31	31	879	45	28	45	19	45	0	0	0	0
	point32	32										

Avenida Del Diablo Seg 2	point37	37	324	35	10	35	7	35	0	0	0	0
	point38	38	324	35	10	35	7	35	0	0	0	0
	point39	39										
Johnston Rd Seg 2	point49	49	45	25	0	0	0	0	0	0	0	0
	point47	47	45	25	0	0	0	0	0	0	0	0
	point46	46	45	25	0	0	0	0	0	0	0	0
	point45	45	45	25	0	0	0	0	0	0	0	0
	point44	44	45	25	0	0	0	0	0	0	0	0
	point43	43										
Johnston Rd Seg 1	point59	59	166	30	5	30	4	30	0	0	0	0
	point58	58	166	30	5	30	4	30	0	0	0	0
	point57	57	166	30	5	30	4	30	0	0	0	0
	point56	56	166	30	5	30	4	30	0	0	0	0
	point55	55	166	30	5	30	4	30	0	0	0	0
	point54	54	166	30	5	30	4	30	0	0	0	0
	point53	53	166	30	5	30	4	30	0	0	0	0
	point52	52	166	30	5	30	4	30	0	0	0	0
	point51	51	166	30	5	30	4	30	0	0	0	0
	point50	50										
West Valley Prkwy EB Seg 1	point60	60	1426	45	45	45	30	45	0	0	0	0
	point61	61	1426	45	45	45	30	45	0	0	0	0
	point62	62										
West Valley Prkwy EB Seg 2	point63	63	1355	45	43	45	29	45	0	0	0	0
	point64	64	1355	45	43	45	29	45	0	0	0	0
	point65	65	1355	45	43	45	29	45	0	0	0	0
	point66	66	1355	45	43	45	29	45	0	0	0	0
	point67	67	1355	45	43	45	29	45	0	0	0	0
	point68	68										
West Valley Prkwy WB Seg 2	point69	69	1355	45	43	45	29	45	0	0	0	0
	point70	70	1355	45	43	45	29	45	0	0	0	0
	point71	71	1355	45	43	45	29	45	0	0	0	0
	point72	72	1355	45	43	45	29	45	0	0	0	0
	point73	73	1355	45	43	45	29	45	0	0	0	0
	point74	74										
West Valley Prkwy WB Seg 1	point75	75	1426	45	45	45	30	45	0	0	0	0
	point76	76	1426	45	45	45	30	45	0	0	0	0

	point77	77										
Kauana Loa Dr	point80	80	150	45	5	45	3	45	0	0	0	0
	point81	81	150	45	5	45	3	45	0	0	0	0
	point82	82	150	45	5	45	3	45	0	0	0	0
	point83	83	150	45	5	45	3	45	0	0	0	0
	point84	84										
Harmon Grove Rd	point92	92	474	45	16	45	10	45	0	0	0	0
	point93	93										
Avenida Del Diablo Seg 1	point94	94	32	25	1	25	1	25	0	0	0	0
	point40	40	32	25	1	25	1	25	0	0	0	0
	point41	41	32	25	1	25	1	25	0	0	0	0
	point42	42										
Citracado Prkwy SB Seg 2-2	point95	95	913	45	29	45	19	45	0	0	0	0
	point33	33	913	45	29	45	19	45	0	0	0	0
	point34	34	913	45	29	45	19	45	0	0	0	0
	point78	78	913	45	29	45	19	45	0	0	0	0
	point79	79	913	45	29	45	19	45	0	0	0	0
	point35	35										
Citracado Prkwy NB Seg 2-2	point96	96	879	45	28	45	19	45	0	0	0	0
	point14	14	879	45	28	45	19	45	0	0	0	0
	point15	15	879	45	28	45	19	45	0	0	0	0
	point16	16	879	45	28	45	19	45	0	0	0	0
	point17	17	879	45	28	45	19	45	0	0	0	0
	point18	18	879	45	28	45	19	45	0	0	0	0
	point19	19	879	45	28	45	19	45	0	0	0	0
	point20	20	879	45	28	45	19	45	0	0	0	0
	point21	21	879	45	28	45	19	45	0	0	0	0
	point22	22										
Kauana Loa Dr-2	point97	97	267	45	8	45	6	45	0	0	0	0
	point85	85	267	45	8	45	6	45	0	0	0	0
	point86	86	267	45	8	45	6	45	0	0	0	0
	point87	87	267	45	8	45	6	45	0	0	0	0
	point88	88	267	45	8	45	6	45	0	0	0	0
	point89	89	267	45	8	45	6	45	0	0	0	0
	point90	90	267	45	8	45	6	45	0	0	0	0
	point91	91										

AECOM			**13 June 2011**	
Maddux			**TNM 2.5**	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	**Citracado Parkway Extension**			
RUN:	**2030 Build**			
Terrain Line	**Points**			
Name	**No.**	**Coordinates (ground)**		
		X	**Y**	**Z**
		ft	ft	ft
Terrain Line4	8	6,297,621.5	1,980,814.4	692.00
	9	6,297,621.5	1,980,823.4	692.00
	10	6,297,625.5	1,980,830.0	692.00
	11	6,297,692.0	1,980,875.4	692.00
Terrain Line5	12	6,297,602.5	1,980,842.5	685.00
	13	6,297,644.5	1,980,874.6	685.00
	14	6,297,650.0	1,980,870.4	685.00
	15	6,297,685.5	1,980,896.2	685.00
Terrain Line6	16	6,297,408.0	1,980,760.8	678.00
	17	6,297,421.0	1,980,743.6	680.00
	18	6,297,446.5	1,980,708.0	681.00
	19	6,297,453.0	1,980,700.9	682.00
	20	6,297,460.0	1,980,667.9	683.00
	21	6,297,461.5	1,980,656.6	685.00
	22	6,297,461.5	1,980,633.6	686.00
	23	6,297,449.0	1,980,602.2	687.00
	24	6,297,435.5	1,980,589.5	688.00
	25	6,297,430.0	1,980,582.1	689.00
	26	6,297,415.0	1,980,570.9	690.00
	27	6,297,399.0	1,980,564.0	690.00
	28	6,297,385.0	1,980,563.1	691.00
	29	6,297,374.5	1,980,563.1	691.00
Terrain Line7	30	6,297,515.5	1,980,771.1	685.00
	31	6,297,529.0	1,980,747.6	687.00

	32	6,297,532.5	1,980,733.8	688.00
	33	6,297,535.5	1,980,715.9	692.00
	34	6,297,497.0	1,980,625.5	692.00
	35	6,297,484.5	1,980,565.1	692.00
	36	6,297,483.0	1,980,558.6	692.00
Terrain Line9	37	6,297,880.5	1,980,504.2	709.30
	38	6,297,925.5	1,980,508.0	709.30
	39	6,297,980.0	1,980,508.8	709.30
	40	6,298,020.0	1,980,508.4	709.30
	41	6,298,048.5	1,980,502.1	709.30
	42	6,298,056.5	1,980,503.5	709.30
	43	6,298,082.5	1,980,504.2	709.30
	44	6,298,097.0	1,980,510.5	709.30
	45	6,298,110.0	1,980,522.5	709.30
	46	6,298,115.0	1,980,532.9	709.30
	47	6,298,112.5	1,980,572.2	709.30
	48	6,298,115.0	1,980,579.2	709.30
Terrain Line10	49	6,298,273.0	1,980,486.5	685.00
	50	6,298,180.0	1,980,372.5	685.00
	51	6,298,178.0	1,980,365.9	685.00
	52	6,298,181.0	1,980,342.5	685.00
	53	6,298,187.5	1,980,322.8	685.00
	54	6,298,209.0	1,980,302.0	685.00
	55	6,298,219.5	1,980,285.2	685.00
	56	6,298,427.5	1,980,166.0	685.00
	57	6,298,473.5	1,980,213.6	685.00
Terrain Line11	58	6,298,507.0	1,979,967.2	697.41
	59	6,298,445.0	1,980,000.0	697.41
	60	6,298,374.5	1,980,034.9	697.41
	61	6,298,308.5	1,980,074.9	697.41
	62	6,298,299.5	1,980,082.8	697.41
	63	6,298,152.5	1,980,174.5	697.41
	64	6,298,149.0	1,980,154.5	697.41
Terrain Line12	65	6,295,050.0	1,983,232.6	624.69
	66	6,295,079.0	1,983,219.2	624.69
	67	6,295,179.0	1,983,176.2	624.69

	68	6,295,241.5	1,983,177.9	624.69
	69	6,295,264.0	1,983,210.6	624.69
	70	6,295,316.5	1,983,210.6	624.69
	71	6,295,350.5	1,983,178.4	624.69
	72	6,295,364.5	1,983,114.9	624.69
	74	6,295,364.5	1,983,056.5	624.69
	75	6,295,386.0	1,983,029.9	624.69
	76	6,295,410.5	1,983,014.9	624.69
	77	6,295,458.0	1,982,894.1	624.69
	78	6,295,484.0	1,982,912.9	624.69
	79	6,295,518.5	1,982,925.4	624.69
	80	6,295,546.5	1,982,917.0	624.69
	81	6,295,554.5	1,982,889.6	624.69
	82	6,295,550.0	1,982,856.2	624.69
	83	6,295,530.5	1,982,820.1	624.69
	84	6,295,498.0	1,982,793.4	624.69
	85	6,295,486.0	1,982,777.8	624.69
	86	6,295,470.0	1,982,764.0	624.69
	87	6,295,463.5	1,982,745.0	624.69
	88	6,295,457.0	1,982,718.4	624.69
	89	6,295,415.0	1,982,683.8	624.69
	90	6,295,391.0	1,982,610.1	624.69
Terrain Line13	91	6,295,597.0	1,983,103.0	612.00
	92	6,295,679.0	1,983,078.5	612.00
	93	6,295,737.0	1,983,028.0	612.00
	94	6,295,788.5	1,982,986.0	612.00
	95	6,295,808.0	1,982,935.0	612.00
	96	6,295,848.0	1,982,830.5	612.00
	97	6,295,772.0	1,982,793.6	612.00
	98	6,295,693.5	1,982,692.1	612.00
	99	6,295,585.0	1,982,613.0	612.00
	100	6,295,506.0	1,982,573.5	612.00
	101	6,295,450.5	1,982,549.9	612.00
Terrain Line14	102	6,295,919.0	1,984,109.0	650.00
	103	6,295,849.0	1,984,149.6	650.00
	104	6,295,833.5	1,984,151.2	650.00

	105	6,295,800.0	1,984,075.1	650.00
	106	6,295,792.0	1,984,068.6	650.00
	107	6,295,776.0	1,984,042.0	650.00
	108	6,295,762.5	1,984,034.1	650.00
	109	6,295,726.0	1,984,024.2	650.00
	110	6,295,695.0	1,984,032.5	650.00
	111	6,295,651.0	1,984,007.0	650.00
	112	6,295,637.5	1,983,979.5	650.00
	113	6,295,636.0	1,983,963.1	650.00
	114	6,295,639.5	1,983,946.4	650.00
	115	6,295,636.5	1,983,928.6	650.00
	116	6,295,640.0	1,983,908.5	650.00
	117	6,295,667.0	1,983,881.8	650.00
	118	6,295,676.5	1,983,865.8	650.00
	119	6,295,675.0	1,983,852.9	650.00
	120	6,295,680.0	1,983,849.8	650.00
	121	6,295,708.5	1,983,848.0	650.00
	122	6,295,734.5	1,983,850.9	650.00
	123	6,295,767.0	1,983,866.1	650.00
	124	6,295,774.5	1,983,876.6	650.00
	125	6,295,791.5	1,983,886.0	650.00
	126	6,295,804.5	1,983,915.0	650.00
Terrain Line15	127	6,295,735.0	1,983,991.0	655.00
	128	6,295,694.5	1,984,005.6	655.00
	129	6,295,687.0	1,984,004.2	655.00
	130	6,295,680.0	1,983,994.9	655.00
	131	6,295,670.0	1,983,991.0	655.00
	132	6,295,666.5	1,983,968.5	655.00
	133	6,295,659.5	1,983,945.9	655.00
	134	6,295,648.5	1,983,927.0	655.00
	135	6,295,649.5	1,983,918.1	655.00
	136	6,295,662.0	1,983,905.6	655.00
	137	6,295,670.5	1,983,897.0	655.00
	138	6,295,676.5	1,983,890.5	655.00
	139	6,295,680.0	1,983,889.8	655.00
	140	6,295,694.0	1,983,866.1	655.00

	141	6,295,711.5	1,983,871.8	655.00
	142	6,295,716.5	1,983,870.0	655.00
	143	6,295,737.5	1,983,872.8	656.00
	144	6,295,753.5	1,983,882.4	655.00
	145	6,295,764.0	1,983,897.0	655.00
Terrain Line16	146	6,295,735.0	1,983,965.8	656.00
	147	6,295,735.0	1,983,946.9	656.00
	148	6,295,735.5	1,983,925.8	656.00
	149	6,295,737.0	1,983,903.0	656.00
	150	6,295,737.5	1,983,872.8	656.00
Terrain Line18	151	6,294,912.5	1,984,859.6	673.40
	152	6,294,935.0	1,984,858.6	673.40
	153	6,294,949.0	1,984,857.2	673.40
	154	6,294,964.0	1,984,857.2	673.40
	155	6,295,008.0	1,984,856.0	673.40
	156	6,295,133.5	1,984,860.2	673.40
	157	6,295,163.0	1,984,860.2	673.40
	158	6,295,203.5	1,984,862.0	673.40
	159	6,295,214.5	1,984,856.1	673.40
	160	6,295,227.0	1,984,852.5	673.40
	161	6,295,241.0	1,984,845.2	673.40
	162	6,295,249.5	1,984,838.5	673.40
	163	6,295,261.0	1,984,825.2	673.40
	164	6,295,264.0	1,984,816.0	673.40
Terrain Line20	165	6,295,380.0	1,984,879.6	673.40
	166	6,295,386.5	1,984,910.4	673.40
	167	6,295,403.0	1,984,920.0	673.40
	168	6,295,425.5	1,984,928.0	673.40
	169	6,295,586.5	1,985,005.1	673.40
Terrain Line21	170	6,295,264.0	1,984,816.0	673.40
	171	6,295,271.5	1,984,777.2	673.40
	184	6,295,334.0	1,984,779.5	673.40
Terrain Line22	174	6,295,139.0	1,984,210.8	629.00
	175	6,295,158.5	1,984,184.5	629.00
	176	6,295,154.5	1,984,164.0	629.00
	177	6,295,159.0	1,984,158.0	629.00

	178	6,295,150.0	1,984,143.8	629.00
	179	6,295,146.0	1,984,122.9	629.00
	180	6,295,142.0	1,984,117.5	629.00
	181	6,295,125.5	1,984,114.1	629.00
	182	6,295,115.0	1,984,108.2	629.00
	183	6,295,115.0	1,984,078.0	629.00
Terrain Line21-2	185	6,295,379.0	1,984,781.0	673.40
	172	6,295,402.5	1,984,780.6	673.40
	173	6,295,380.0	1,984,879.6	673.40

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INPUT: ROADWAYS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2014 Build

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Citracado Pkwy NB Seg 1	24.0	point1	1	6,298,529.5	1,980,061.8	699.00				Average	
		point2	2	6,298,442.0	1,980,106.8	697.00				Average	
		point3	3	6,298,278.5	1,980,191.6	695.00				Average	
		point4	4	6,298,025.5	1,980,352.2	699.00					
Citracado Pkwy SB Seg 1	24.0	point5	5	6,298,108.0	1,980,251.4	698.00	Signal	0.00	100	Average	
		point6	6	6,298,258.0	1,980,157.1	695.02				Average	
		point7	7	6,298,416.0	1,980,061.6	697.00				Average	
		point8	8	6,298,506.5	1,980,011.8	699.00					
Johnston Rd Seg 2	24.0	point49	49	6,297,670.0	1,980,700.5	694.00	Stop	0.00	100	Average	
		point47	47	6,297,702.5	1,980,737.5	694.00				Average	
		point46	46	6,297,776.0	1,980,796.4	694.00				Average	
		point45	45	6,297,813.0	1,980,813.9	694.00				Average	
		point44	44	6,297,857.0	1,980,826.1	694.00				Average	
		point43	43	6,297,901.0	1,980,832.9	694.00					
Johnston Rd Seg 1	24.0	point59	59	6,297,656.0	1,980,638.1	694.00	Stop	0.00	100	Average	
		point58	58	6,297,613.5	1,980,605.5	695.00				Average	
		point57	57	6,297,595.5	1,980,590.5	696.00				Average	
		point56	56	6,297,579.0	1,980,573.9	697.00				Average	
		point55	55	6,297,561.0	1,980,560.9	698.00				Average	
		point54	54	6,297,543.0	1,980,549.0	699.00				Average	
		point53	53	6,297,523.0	1,980,539.9	700.00				Average	
		point52	52	6,297,500.5	1,980,529.4	701.00				Average	
		point51	51	6,297,453.0	1,980,516.4	702.00				Average	
		point50	50	6,297,419.5	1,980,513.5	703.00					
West Valley Prkwy EB Seg 1	24.0	point60	60	6,297,972.0	1,980,062.8	695.00				Average	

		point61	61	6,298,055.0	1,980,240.1	698.00				Average	
		point62	62	6,298,071.5	1,980,270.0	699.00					
West Valley Prkwy EB Seg 2	24.0	point63	63	6,298,098.5	1,980,311.8	699.00	Signal	0.00	100	Average	
		point64	64	6,298,119.5	1,980,350.1	698.00				Average	
		point65	65	6,298,132.5	1,980,369.1	697.00				Average	
		point66	66	6,298,159.5	1,980,408.4	696.00				Average	
		point67	67	6,298,188.0	1,980,446.1	695.00				Average	
		point68	68	6,298,238.5	1,980,508.2	694.50					
West Valley Prkwy WB Seg 2	24.0	point69	69	6,298,206.5	1,980,530.2	694.50				Average	
		point70	70	6,298,166.0	1,980,483.4	695.00				Average	
		point71	71	6,298,137.0	1,980,446.1	696.00				Average	
		point72	72	6,298,095.0	1,980,388.2	697.00				Average	
		point73	73	6,298,082.5	1,980,369.4	698.00				Average	
		point74	74	6,298,063.5	1,980,334.5	699.00					
West Valley Prkwy WB Seg 1	24.0	point75	75	6,298,034.5	1,980,293.4	699.00	Signal	0.00	100	Average	
		point76	76	6,298,018.0	1,980,258.8	698.00				Average	
		point77	77	6,297,935.5	1,980,082.9	695.00					
Roadway16	24.0	point95	95	6,298,024.5	1,980,353.5	699.00	Signal	0.00	100	Average	
		point96	96	6,297,913.0	1,980,430.2	700.00				Average	
		point97	97	6,297,812.0	1,980,520.4	698.00				Average	
		point98	98	6,297,716.0	1,980,631.1	694.00					
Roadway17	24.0	point103	103	6,297,274.5	1,981,192.4	658.50				Average	
		point104	104	6,296,950.0	1,981,604.6	651.00				Average	
		point105	105	6,296,886.0	1,981,685.6	648.00				Average	
		point106	106	6,296,512.5	1,982,160.6	643.00				Average	
		point107	107	6,296,463.5	1,982,224.2	642.00					
Roadway18	24.0	point108	108	6,296,373.0	1,982,276.5	640.00				Average	
		point110	110	6,296,416.0	1,982,221.9	642.00				Average	
		point111	111	6,296,866.5	1,981,649.4	649.00				Average	
		point112	112	6,296,930.0	1,981,568.4	651.00				Average	
		point113	113	6,297,244.5	1,981,168.9	658.50					
Roadway19	24.0	point115	115	6,297,244.5	1,981,168.9	658.50				Average	
		point116	116	6,297,605.5	1,980,704.9	690.00				Average	
		point117	117	6,297,681.5	1,980,613.8	694.00					
Avenida Del Diablo Seg 1	24.0	point127	127	6,296,414.5	1,982,220.2	643.75	Stop	0.00	100	Average	
		point40	40	6,296,361.5	1,982,219.9	644.00				Average	
		point41	41	6,296,280.0	1,982,219.1	648.00				Average	
		point42	42	6,296,080.0	1,982,218.9	653.00					
Avenida Del Diablo Seg 2	24.0	point37	37	6,297,489.0	1,982,226.0	635.00				Average	

		point38	38	6,296,759.0	1,982,221.6	640.00				Average	
		point94	94	6,296,574.0	1,982,221.6	643.00				Average	
		point123	123	6,296,521.0	1,982,221.2	643.25				Average	
		point124	124	6,296,468.0	1,982,220.8	643.50					
Roadway23	24.0	point128	128	6,296,463.5	1,982,224.5	642.00				Average	
		point129	129	6,296,197.0	1,982,558.6	635.00				Average	
		point268	268	6,296,132.0	1,982,638.8	630.00					
Roadway24	24.0	point139	139	6,295,318.0	1,984,864.9	660.00				Average	
		point140	140	6,295,382.0	1,984,575.8	652.50				Average	
		point271	271	6,295,389.0	1,984,537.9	648.75					
Roadway31	24.0	point230	230	6,296,208.0	1,984,532.1	634.00				Average	
		point231	231	6,295,998.5	1,984,533.1	634.00				Average	
		point232	232	6,295,660.5	1,984,532.9	634.00					
Roadway32	24.0	point240	240	6,294,891.5	1,983,977.1	634.16				Average	
		point242	242	6,295,057.0	1,984,258.2	634.16				Average	
		point247	247	6,295,097.5	1,984,327.1	634.16				Average	
		point243	243	6,295,129.0	1,984,404.6	634.16				Average	
		point244	244	6,295,141.0	1,984,480.0	634.16				Average	
		point245	245	6,295,140.5	1,984,513.6	634.16				Average	
		point241	241	6,295,140.5	1,984,539.5	634.16					
Roadway31-2	24.0	point234	234	6,295,386.5	1,984,537.4	640.00				Average	
		point235	235	6,295,251.0	1,984,538.0	635.00				Average	
		point270	270	6,295,137.0	1,984,540.1	634.50					
Roadway34	24.0	point248	248	6,295,391.0	1,982,085.6	630.00				Average	
		point249	249	6,295,485.0	1,982,162.6	630.00				Average	
		point250	250	6,295,565.5	1,982,246.4	630.00				Average	
		point251	251	6,295,664.5	1,982,347.2	630.00				Average	
		point252	252	6,295,779.0	1,982,424.2	630.00				Average	
		point253	253	6,295,905.5	1,982,482.4	630.00				Average	
		point254	254	6,296,022.0	1,982,545.6	630.00				Average	
		point255	255	6,296,107.5	1,982,603.9	630.00					
Roadway34-2	24.0	point267	267	6,296,142.5	1,982,627.9	630.00				Average	
		point266	266	6,296,191.5	1,982,663.5	630.00				Average	
		point256	256	6,296,235.5	1,982,694.4	630.00				Average	
		point257	257	6,296,261.5	1,982,701.2	630.00				Average	
		point258	258	6,296,295.5	1,982,699.5	630.00				Average	
		point259	259	6,296,439.0	1,982,680.6	630.00				Average	
		point260	260	6,296,502.5	1,982,675.5	630.00				Average	
		point261	261	6,296,538.5	1,982,677.2	630.00				Average	

		point262	262	6,296,608.5	1,982,690.9	630.00				Average	
		point263	263	6,296,690.5	1,982,718.2	630.00					
Roadway19-2	24.0	point273	273	6,297,681.5	1,980,613.8	694.00	Signal	0.00	100	Average	
		point119	119	6,297,785.0	1,980,493.6	698.00				Average	
		point120	120	6,297,889.5	1,980,400.5	700.00				Average	
		point121	121	6,298,003.5	1,980,321.8	699.00				Average	
		point122	122	6,298,108.0	1,980,251.4	698.00					
Roadway16-2	24.0	point274	274	6,297,716.0	1,980,631.1	694.00				Average	
		point99	99	6,297,637.0	1,980,731.5	690.00				Average	
		point100	100	6,297,275.5	1,981,190.6	658.50					
Roadway24-2	24.0	point275	275	6,296,099.0	1,982,615.0	630.00	Signal	0.00	100	Average	
		point147	147	6,296,163.0	1,982,536.1	635.00				Average	
		point148	148	6,296,372.5	1,982,277.1	642.00					
Roadway23-2	24.0	point276	276	6,296,132.0	1,982,638.8	630.00	Signal	0.00	100	Average	
		point130	130	6,296,066.5	1,982,718.9	625.00				Average	
		point131	131	6,295,939.0	1,982,895.8	627.00				Average	
		point132	132	6,295,801.5	1,983,143.1	627.00				Average	
		point133	133	6,295,717.0	1,983,347.8	628.00				Average	
		point134	134	6,295,652.0	1,983,554.1	630.00				Average	
		point135	135	6,295,607.0	1,983,750.2	632.00				Average	
		point136	136	6,295,450.5	1,984,442.5	645.00				Average	
		point272	272	6,295,428.5	1,984,542.6	648.75					
Roadway23-2-2	24.0	point277	277	6,295,428.5	1,984,542.6	648.75	Signal	0.00	100	Average	
		point137	137	6,295,419.0	1,984,584.0	652.50				Average	
		point138	138	6,295,355.0	1,984,873.1	660.00					
Roadway24-2	24.0	point278	278	6,295,389.0	1,984,537.9	648.75	Signal	0.00	100	Average	
		point141	141	6,295,412.5	1,984,438.8	645.00				Average	
		point142	142	6,295,564.5	1,983,733.8	632.00				Average	
		point143	143	6,295,607.5	1,983,546.1	630.00				Average	
		point264	264	6,295,677.0	1,983,328.5	628.00				Average	
		point144	144	6,295,763.5	1,983,122.1	627.00				Average	
		point145	145	6,295,900.5	1,982,879.2	627.00				Average	
		point146	146	6,296,035.0	1,982,693.9	625.00				Average	
		point269	269	6,296,099.0	1,982,615.0	630.00					
Roadway31-2-2	24.0	point279	279	6,295,137.0	1,984,540.1	634.50				Average	
		point236	236	6,295,037.0	1,984,540.1	634.00				Average	
		point237	237	6,294,893.0	1,984,541.2	634.00				Average	
		point238	238	6,294,791.5	1,984,542.4	634.00					

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INPUT: RECEIVERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2014 Build

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1	1	1	6,298,415.0	1,980,199.6	684.00	4.92	0.00	66	10.0	8.0	Y
R2	2	1	6,298,234.5	1,980,307.4	684.00	4.92	0.00	66	10.0	8.0	Y
R3	3	1	6,298,335.0	1,980,040.8	695.00	4.92	0.00	66	10.0	8.0	Y
R4	4	1	6,298,188.5	1,980,133.1	695.00	4.92	0.00	66	10.0	8.0	Y
R5	5	1	6,297,982.0	1,980,518.8	708.00	4.92	0.00	66	10.0	8.0	Y
R6	6	1	6,297,853.0	1,980,343.1	716.25	4.92	0.00	66	10.0	8.0	Y
R7	7	1	6,297,679.0	1,980,531.4	695.00	4.92	0.00	66	10.0	8.0	
R8	8	1	6,297,801.0	1,980,603.8	700.00	4.92	0.00	66	10.0	8.0	Y
R9	9	1	6,297,645.0	1,980,796.9	692.00	4.92	0.00	66	10.0	8.0	Y
R10	10	1	6,297,535.0	1,980,625.0	690.00	4.92	0.00	66	10.0	8.0	Y
R11	11	1	6,297,440.0	1,980,833.2	678.00	4.92	0.00	66	10.0	8.0	Y
R12	12	1	6,297,395.5	1,980,725.6	679.00	4.92	0.00	66	10.0	8.0	Y
R13	13	1	6,297,248.0	1,980,911.1	671.00	4.92	0.00	66	10.0	8.0	Y
R14	14	1	6,297,372.5	1,980,916.6	678.00	4.92	0.00	66	10.0	8.0	Y
R15	15	1	6,297,508.5	1,981,013.1	677.00	4.92	0.00	66	10.0	8.0	Y
R16	16	1	6,297,426.0	1,981,096.4	666.00	4.92	0.00	66	10.0	8.0	Y
R17	17	1	6,297,234.0	1,981,096.6	667.00	4.92	0.00	66	10.0	8.0	Y
R18	18	1	6,297,250.5	1,981,283.1	651.00	4.92	0.00	66	10.0	8.0	Y
R19	19	1	6,297,120.0	1,981,233.5	664.00	4.92	0.00	66	10.0	8.0	Y
R20	20	1	6,297,050.5	1,981,550.0	650.00	4.92	0.00	66	10.0	8.0	Y
R21	21	1	6,297,016.0	1,981,365.1	657.00	4.92	0.00	66	10.0	8.0	Y
R22	22	1	6,296,858.5	1,981,396.9	654.00	4.92	0.00	66	10.0	8.0	Y

R23	23	1	6,296,907.0	1,981,761.1	647.00	4.92	0.00	66	10.0	8.0	Y
R24	24	1	6,296,766.0	1,981,703.5	648.00	4.92	0.00	66	10.0	8.0	Y
R25	25	1	6,296,812.0	1,981,857.9	647.00	4.92	0.00	66	10.0	8.0	Y
R26	26	1	6,296,539.5	1,981,971.6	645.00	4.92	0.00	66	10.0	8.0	Y
R27	27	1	6,296,685.0	1,982,008.9	647.00	4.92	0.00	66	10.0	8.0	Y
R28	28	1	6,296,655.5	1,982,081.5	646.00	4.92	0.00	66	10.0	8.0	Y
R29	29	1	6,296,423.0	1,982,127.2	645.00	4.92	0.00	66	10.0	8.0	Y
R30	30	1	6,296,743.5	1,982,176.5	637.00	4.92	0.00	66	10.0	8.0	Y
R31	31	1	6,296,304.5	1,982,178.9	648.00	4.92	0.00	66	10.0	8.0	Y
R32	32	1	6,296,472.5	1,981,876.9	650.00	4.92	0.00	66	10.0	8.0	Y
R33	33	1	6,296,169.5	1,982,178.1	650.00	4.92	0.00	66	10.0	8.0	Y
R34	34	1	6,295,538.0	1,982,912.0	653.00	4.92	0.00	66	10.0	8.0	Y
R35	35	1	6,295,606.0	1,982,970.6	633.00	4.92	0.00	66	10.0	8.0	Y
R36	36	1	6,295,358.5	1,983,225.2	628.00	4.92	0.00	66	10.0	8.0	Y
R37	37	1	6,295,303.5	1,983,156.0	634.00	4.92	0.00	66	10.0	8.0	Y
R38	38	1	6,295,139.5	1,983,113.5	634.00	4.92	0.00	66	10.0	8.0	Y
R39	39	1	6,295,140.0	1,984,124.2	640.61	4.92	0.00	66	10.0	8.0	Y
R40	44	1	6,295,798.5	1,983,968.5	659.03	4.92	0.00	66	10.0	8.0	Y
R41	45	1	6,296,008.0	1,984,142.0	626.50	4.92	0.00	66	10.0	8.0	Y
R42	47	1	6,295,847.0	1,984,698.4	633.00	4.92	0.00	66	10.0	8.0	Y
R43	48	1	6,295,773.0	1,985,000.0	658.00	4.92	0.00	66	10.0	8.0	Y

AECOM 13 June 2011
Maddux TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2014 Build

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht Perturbs			On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	6,298,145.0	1,980,568.2	700.00	6.00	2.00	4	1		
									point2	2	6,298,142.0	1,980,504.9	703.00	6.00	2.00	4	1		
									point3	3	6,298,088.0	1,980,481.4	704.00	6.00	2.00	4	1		
									point4	4	6,297,896.0	1,980,487.0	704.00	6.00	2.00	4	1		
									point5	5	6,297,821.5	1,980,557.9	695.00	6.00	2.00	4	1		
									point6	6	6,297,754.0	1,980,636.8	695.00	6.00	2.00	4	1		
									point7	7	6,297,738.0	1,980,656.5	695.00	6.00	2.00	4	1		
									point8	8	6,297,718.5	1,980,680.8	695.00	6.00	2.00	4	1		
									point9	9	6,297,714.0	1,980,695.8	695.00	6.00	2.00	4	1		
									point10	10	6,297,717.5	1,980,704.5	695.00	6.00					
Barrier5	W	0.00	99.99	0.00				0.00	point26	26	6,296,909.0	1,981,418.2	655.00	6.00	2.00	4	1		
									point27	27	6,296,976.0	1,981,435.1	657.00	6.00	2.00	4	1		
									point28	28	6,297,100.5	1,981,277.2	660.00	6.00	2.00	4	1		
									point29	29	6,297,269.5	1,981,063.5	672.00	6.00	2.00	4	1		
									point30	30	6,297,491.0	1,980,801.6	681.00	6.00	2.00	4	1		
									point31	31	6,297,486.5	1,980,682.2	681.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point32	32	6,297,608.5	1,981,175.5	666.00	6.00	2.00	4	1		
									point33	33	6,297,502.5	1,981,178.1	666.00	6.00	2.00	4	1		
									point34	34	6,297,501.0	1,981,159.0	666.00	6.00	2.00	4	1		
									point35	35	6,297,431.0	1,981,159.2	666.00	6.00	2.00	4	1		
									point36	36	6,297,422.0	1,981,170.2	666.00	6.00	2.00	4	1		
									point37	37	6,297,375.5	1,981,132.6	666.00	6.00	2.00	4	1		
									point38	38	6,297,347.0	1,981,155.1	666.00	6.00	2.00	4	1		
									point39	39	6,297,345.5	1,981,154.1	666.00	6.00	2.00	4	1		
									point40	40	6,297,332.0	1,981,175.2	655.00	6.00	2.00	4	1		
									point41	41	6,297,228.5	1,981,306.8	650.00	6.00	2.00	4	1		
									point42	42	6,297,069.5	1,981,508.5	650.00	6.00	2.00	4	1		
									point43	43	6,297,042.5	1,981,543.0	650.00	6.00	2.00	4	1		
									point44	44	6,296,982.5	1,981,619.8	649.00	6.00	2.00	4	1		
									point45	45	6,297,040.5	1,981,637.8	645.00	6.00	2.00	4	1		
									point46	46	6,297,047.0	1,981,637.5	645.00	6.00	2.00	4	1		
									point47	47	6,297,092.5	1,981,639.6	645.00	6.00					
Barrier10	W	0.00	99.99	0.00				0.00	point78	78	6,298,040.0	1,980,075.4	702.21	0.00	0.00	0	0		
									point79	79	6,298,035.0	1,980,075.6	702.21	0.00	0.00	0	0		
									point80	80	6,298,021.0	1,980,054.9	702.21	0.00	0.00	0	0		

									point81	81	6,298,020.5	1,980,031.0	702.21	0.00						
Barrier11	W	0.00	99.99	0.00				0.00	point82	82	6,295,085.0	1,984,108.8	640.61	0.00	0.00	0	0		
									point83	83	6,295,110.0	1,984,098.0	640.61	0.00	0.00	0	0		
									point84	84	6,295,113.0	1,984,114.9	640.61	0.00	0.00	0	0		
									point85	85	6,295,123.0	1,984,114.2	640.61	0.00	0.00	0	0		
									point86	86	6,295,136.5	1,984,146.0	640.61	0.00	0.00	0	0		
									point87	87	6,295,106.0	1,984,159.1	640.61	0.00					
Barrier12	W	0.00	99.99	0.00				0.00	point88	88	6,295,833.5	1,983,958.2	659.03	0.00	0.00	0	0		
									point89	89	6,295,807.5	1,983,968.5	659.03	0.00	0.00	0	0		
									point90	90	6,295,791.0	1,983,924.9	659.03	0.00	0.00	0	0		
									point91	91	6,295,818.0	1,983,915.1	659.03	0.00					
Barrier13	W	0.00	99.99	0.00				0.00	point92	92	6,297,515.5	1,980,772.1	695.00	6.00	2.00	4	1		
									point93	93	6,297,600.0	1,980,664.1	695.00	6.00	2.00	4	1		
									point94	94	6,297,603.0	1,980,653.8	695.00	6.00	2.00	4	1		
									point95	95	6,297,601.5	1,980,648.1	695.00	6.00	2.00	4	1		
									point96	96	6,297,599.5	1,980,642.8	695.00	6.00					
Barrier14	W	0.00	99.99	0.00				0.00	point97	97	6,297,562.0	1,980,633.9	695.00	6.00	2.00	4	1		
									point98	98	6,297,559.5	1,980,618.8	695.00	6.00	2.00	4	1		
									point99	99	6,297,559.5	1,980,597.4	695.00	6.00	2.00	4	1		
									point100	100	6,297,524.0	1,980,576.9	695.00	6.00	2.00	4	1		
									point101	101	6,297,488.0	1,980,558.4	695.00	6.00	2.00	4	1		
									point102	102	6,297,424.0	1,980,544.8	700.00	6.00	2.00	4	1		
									point103	103	6,297,393.0	1,980,545.1	700.00	6.00					
Barrier15	W	0.00	99.99	0.00				0.00	point104	104	6,297,685.0	1,980,751.0	692.19	6.00	2.00	4	1		
									point105	105	6,297,675.5	1,980,746.1	692.19	6.00	2.00	4	1		
									point106	106	6,297,662.0	1,980,755.0	692.00	6.00	2.00	4	1		
									point107	107	6,297,631.5	1,980,794.2	692.00	6.00	2.00	4	1		
									point108	108	6,297,621.5	1,980,814.4	692.00	6.00	2.00	4	1		
									point109	109	6,297,602.5	1,980,842.5	685.00	6.00	2.00	4	1		
									point110	110	6,297,567.5	1,980,888.2	682.00	6.00	2.00	4	1		
									point111	111	6,297,497.0	1,980,966.5	678.00	6.00	2.00	4	1		
									point112	112	6,297,457.5	1,981,022.4	675.00	6.00	2.00	4	1		
									point113	113	6,297,451.0	1,981,039.2	666.00	6.00					
Barrier18	W	0.00	99.99	0.00				0.00	point118	118	6,298,150.0	1,980,153.5	697.41	6.00	2.00	5	0		
									point119	119	6,298,152.5	1,980,173.5	697.41	6.00	2.00	5	0		
									point120	120	6,298,299.5	1,980,081.8	697.41	6.00	2.00	5	0		
									point121	121	6,298,308.5	1,980,073.9	697.41	6.00	2.00	5	0		
									point122	122	6,298,374.5	1,980,032.9	697.41	6.00	2.00	5	0		
									point123	123	6,298,445.0	1,979,999.0	697.41	6.00	2.00	5	0		
									point124	124	6,298,507.0	1,979,966.2	697.41	6.00					
Barrier7	W	0.00	99.99	0.00				0.00	point48	48	6,296,955.0	1,981,724.9	645.00	6.00	2.00	4	1		
									point50	50	6,296,953.5	1,981,723.0	645.00	6.00	2.00	4	1		
									point51	51	6,296,946.0	1,981,711.2	646.00	6.00	2.00	4	1		
									point52	52	6,296,934.0	1,981,702.4	648.00	6.00	2.00	4	1		
									point53	53	6,296,927.0	1,981,702.4	648.00	6.00	2.00	4	1		
									point54	54	6,296,916.0	1,981,706.2	648.00	6.00	2.00	4	1		
									point55	55	6,296,911.0	1,981,709.4	648.00	6.00	2.00	4	1		
									point56	56	6,296,762.5	1,981,898.6	647.00	6.00	2.00	4	1		
									point57	57	6,296,640.0	1,982,054.4	646.00	6.00	2.00	4	1		

									point58	58	6,296,585.5	1,982,123.8	643.00	6.00	2.00	4	1		
									point59	59	6,296,568.0	1,982,145.9	642.00	6.00	2.00	4	1		
									point60	60	6,296,562.0	1,982,154.8	641.00	6.00	2.00	4	1		
									point62	62	6,296,560.5	1,982,173.5	641.00	6.00	2.00	4	1		
									point63	63	6,296,569.0	1,982,183.9	640.00	6.00	2.00	4	1		
									point64	64	6,296,611.0	1,982,186.0	640.00	6.00	2.00	4	1		
									point65	65	6,296,636.5	1,982,186.0	639.00	6.00	2.00	4	1		
									point66	66	6,296,728.5	1,982,185.9	638.00	6.00					
Barrier3	W	0.00	99.99	0.00				0.00	point114	114	6,297,460.5	1,980,461.2	718.00	6.00	0.00	0	0		
									point115	115	6,297,686.5	1,980,452.6	718.00	6.00	0.00	0	0		
									point11	11	6,297,904.0	1,980,328.1	714.00	6.00	0.00	0	0		
									point12	12	6,297,948.0	1,980,302.1	714.00	6.00	0.00	0	0		
									point13	13	6,297,968.5	1,980,288.2	714.00	6.00	0.00	0	0		
									point14	14	6,297,972.0	1,980,276.8	714.00	6.00	0.00	0	0		
									point15	15	6,297,969.0	1,980,262.9	714.00	6.00	0.00	0	0		
									point17	17	6,297,903.0	1,980,103.0	714.00	6.00					
Barrier22	W	0.00	99.99	0.00				0.00	point125	125	6,297,621.0	1,980,511.0	700.00	6.00	0.00	0	0		
									point126	126	6,297,726.0	1,980,508.4	700.00	6.00	0.00	0	0		
									point127	127	6,297,658.5	1,980,587.9	700.00	6.00	0.00	0	0		
									point128	128	6,297,633.5	1,980,590.4	700.00	6.00	0.00	0	0		
									point129	129	6,297,630.0	1,980,587.4	700.00	6.00	0.00	0	0		
									point130	130	6,297,592.0	1,980,552.2	698.00	6.00					
Barrier23	W	0.00	99.99	0.00				0.00	point131	131	6,296,271.5	1,982,183.4	647.00	6.00	2.00	5	0		
									point132	132	6,296,395.0	1,982,184.6	647.00	6.00	2.00	5	0		
									point133	133	6,296,404.0	1,982,181.1	647.00	6.00	2.00	5	0		
									point134	134	6,296,853.0	1,981,611.5	650.00	6.00	2.00	5	0		
									point135	135	6,296,856.5	1,981,599.2	650.00	6.00	2.00	5	0		
									point136	136	6,296,854.0	1,981,591.8	650.00	6.00	2.00	5	0		
									point137	137	6,296,813.0	1,981,554.5	650.00	6.00					
Barrier24	W	0.00	99.99	0.00				0.00	point138	138	6,298,275.0	1,980,486.5	685.00	6.00	2.00	5	0		
									point139	139	6,298,181.0	1,980,373.5	685.00	6.00	2.00	5	0		
									point140	140	6,298,182.0	1,980,343.5	685.00	6.00	2.00	5	0		
									point141	141	6,298,187.5	1,980,323.8	685.00	6.00	2.00	5	0		
									point142	142	6,298,209.0	1,980,304.0	685.00	6.00	2.00	5	0		
									point143	143	6,298,219.5	1,980,286.2	685.00	6.00	2.00	5	0		
									point144	144	6,298,426.5	1,980,167.0	685.00	6.00	2.00	5	0		
									point145	145	6,298,472.5	1,980,213.6	685.00	6.00					
Barrier25	W	0.00	99.99	0.00				0.00	point147	146	6,297,559.0	1,980,632.8	695.00	30.00	0.00	0	0		
									point148	147	6,297,592.0	1,980,661.5	695.00	30.00	0.00	0	0		
									point149	148	6,297,556.0	1,980,709.0	695.00	30.00					

AECOM **13 June 2011**
Maddux **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **Citracado Parkway Extension**
RUN: **2014 Build**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Citracado Pkwy NB Seg 1	point1	1	256	45	8	45	5	45	0	0	0	0
	point2	2	256	45	8	45	5	45	0	0	0	0
	point3	3	256	45	8	45	5	45	0	0	0	0
	point4	4										
Citracado Pkwy SB Seg 1	point5	5	256	45	8	45	5	45	0	0	0	0
	point6	6	256	45	8	45	5	45	0	0	0	0
	point7	7	256	45	8	45	5	45	0	0	0	0
	point8	8										
Johnston Rd Seg 2	point49	49	45	25	0	0	0	0	0	0	0	0
	point47	47	45	25	0	0	0	0	0	0	0	0
	point46	46	45	25	0	0	0	0	0	0	0	0
	point45	45	45	25	0	0	0	0	0	0	0	0
	point44	44	45	25	0	0	0	0	0	0	0	0
	point43	43										
Johnston Rd Seg 1	point59	59	136	30	4	30	1	30	0	0	0	0
	point58	58	136	30	4	30	1	30	0	0	0	0
	point57	57	136	30	4	30	1	30	0	0	0	0
	point56	56	136	30	4	30	1	30	0	0	0	0
	point55	55	136	30	4	30	1	30	0	0	0	0
	point54	54	136	30	4	30	1	30	0	0	0	0
	point53	53	136	30	4	30	1	30	0	0	0	0
	point52	52	136	30	4	30	1	30	0	0	0	0
	point51	51	136	30	4	30	1	30	0	0	0	0

	point50	50										
West Valley Prkwy EB Seg 1	point60	60	1409	45	44	45	30	45	0	0	0	0
	point61	61	1409	45	44	45	30	45	0	0	0	0
	point62	62										
West Valley Prkwy EB Seg 2	point63	63	1314	45	42	45	28	45	0	0	0	0
	point64	64	1314	45	42	45	28	45	0	0	0	0
	point65	65	1314	45	42	45	28	45	0	0	0	0
	point66	66	1314	45	42	45	28	45	0	0	0	0
	point67	67	1314	45	42	45	28	45	0	0	0	0
	point68	68										
West Valley Prkwy WB Seg 2	point69	69	1314	45	42	45	28	45	0	0	0	0
	point70	70	1314	45	42	45	28	45	0	0	0	0
	point71	71	1314	45	42	45	28	45	0	0	0	0
	point72	72	1314	45	42	45	28	45	0	0	0	0
	point73	73	1314	45	42	45	28	45	0	0	0	0
	point74	74										
West Valley Prkwy WB Seg 1	point75	75	1409	45	44	45	30	45	0	0	0	0
	point76	76	1409	45	44	45	30	45	0	0	0	0
	point77	77										
Roadway16	point95	95	1298	45	41	45	27	45	0	0	0	0
	point96	96	1298	45	41	45	27	45	0	0	0	0
	point97	97	1298	45	41	45	27	45	0	0	0	0
	point98	98										
Roadway17	point103	103	1369	45	43	45	29	45	0	0	0	0
	point104	104	1369	45	43	45	29	45	0	0	0	0
	point105	105	1369	45	43	45	29	45	0	0	0	0
	point106	106	1369	45	43	45	29	45	0	0	0	0
	point107	107										
Roadway18	point108	108	1369	45	43	45	29	45	0	0	0	0
	point110	110	1369	45	43	45	29	45	0	0	0	0
	point111	111	1369	45	43	45	29	45	0	0	0	0
	point112	112	1369	45	43	45	29	45	0	0	0	0
	point113	113										
Roadway19	point115	115	1369	45	43	45	29	45	0	0	0	0
	point116	116	1369	45	43	45	29	45	0	0	0	0
	point117	117										

Avenida Del Diablo Seg 1	point127	127	51	25	2	25	1	25	0	0	0	0
	point40	40	51	25	2	25	1	25	0	0	0	0
	point41	41	51	25	2	25	1	25	0	0	0	0
	point42	42										
Avenida Del Diablo Seg 2	point37	37	256	40	8	40	5	40	0	0	0	0
	point38	38	256	40	8	40	5	40	0	0	0	0
	point94	94	256	40	8	40	5	40	0	0	0	0
	point123	123	256	40	8	40	5	40	0	0	0	0
	point124	124										
Roadway23	point128	128	1234	45	39	45	26	45	0	0	0	0
	point129	129	1234	45	39	45	26	45	0	0	0	0
	point268	268										
Roadway24	point139	139	1412	45	45	45	30	45	0	0	0	0
	point140	140	1412	45	45	45	30	45	0	0	0	0
	point271	271										
Roadway31	point230	230	122	35	4	35	0	0	0	0	0	0
	point231	231	122	35	4	35	0	0	0	0	0	0
	point232	232										
Roadway32	point240	240	748	35	24	35	16	35	0	0	0	0
	point242	242	748	35	24	35	16	35	0	0	0	0
	point247	247	748	35	24	35	16	35	0	0	0	0
	point243	243	748	35	24	35	16	35	0	0	0	0
	point244	244	748	35	24	35	16	35	0	0	0	0
	point245	245	748	35	24	35	16	35	0	0	0	0
	point241	241										
Roadway31-2	point234	234	1101	35	35	35	23	35	0	0	0	0
	point235	235	1101	35	35	35	23	35	0	0	0	0
	point270	270										
Roadway34	point248	248	508	35	16	35	11	35	0	0	0	0
	point249	249	508	35	16	35	11	35	0	0	0	0
	point250	250	508	35	16	35	11	35	0	0	0	0
	point251	251	508	35	16	35	11	35	0	0	0	0
	point252	252	508	35	16	35	11	35	0	0	0	0
	point253	253	508	35	16	35	11	35	0	0	0	0
	point254	254	508	35	16	35	11	35	0	0	0	0
	point255	255										

Roadway34-2	point267	267	236	35	7	35	5	35	0	0	0	0
	point266	266	236	35	7	35	5	35	0	0	0	0
	point256	256	236	35	7	35	5	35	0	0	0	0
	point257	257	236	35	7	35	5	35	0	0	0	0
	point258	258	236	35	7	35	5	35	0	0	0	0
	point259	259	236	35	7	35	5	35	0	0	0	0
	point260	260	236	35	7	35	5	35	0	0	0	0
	point261	261	236	35	7	35	5	35	0	0	0	0
	point262	262	236	35	7	35	5	35	0	0	0	0
	point263	263										
Roadway19-2	point273	273	1298	45	41	45	27	45	0	0	0	0
	point119	119	1298	45	41	45	27	45	0	0	0	0
	point120	120	1298	45	41	45	27	45	0	0	0	0
	point121	121	1298	45	41	45	27	45	0	0	0	0
	point122	122										
Roadway16-2	point274	274	1369	45	43	45	29	45	0	0	0	0
	point99	99	1369	45	43	45	29	45	0	0	0	0
	point100	100										
Roadway24-2	point275	275	1234	45	39	45	26	45	0	0	0	0
	point147	147	1234	45	39	45	26	45	0	0	0	0
	point148	148										
Roadway23-2	point276	276	1094	45	35	45	23	45	0	0	0	0
	point130	130	1094	45	35	45	23	45	0	0	0	0
	point131	131	1094	45	35	45	23	45	0	0	0	0
	point132	132	1094	45	35	45	23	45	0	0	0	0
	point133	133	1094	45	35	45	23	45	0	0	0	0
	point134	134	1094	45	35	45	23	45	0	0	0	0
	point135	135	1094	45	35	45	23	45	0	0	0	0
	point136	136	1094	45	35	45	23	45	0	0	0	0
	point272	272										
Roadway23-2-2	point277	277	1412	45	45	45	30	45	0	0	0	0
	point137	137	1412	45	45	45	30	45	0	0	0	0
	point138	138										
Roadway24-2	point278	278	1094	45	35	45	23	45	0	0	0	0
	point141	141	1094	45	35	45	23	45	0	0	0	0
	point142	142	1094	45	35	45	23	45	0	0	0	0

	point143	143	1094	45	35	45	23	45	0	0	0	0
	point264	264	1094	45	35	45	23	45	0	0	0	0
	point144	144	1094	45	35	45	23	45	0	0	0	0
	point145	145	1094	45	35	45	23	45	0	0	0	0
	point146	146	1094	45	35	45	23	45	0	0	0	0
	point269	269										
Roadway31-2-2	point279	279	494	35	16	35	10	35	0	0	0	0
	point236	236	494	35	16	35	10	35	0	0	0	0
	point237	237	494	35	16	35	10	35	0	0	0	0
	point238	238										

AECOM			**13 June 2011**	
Maddux			**TNM 2.5**	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	**Citracado Parkway Extension**			
RUN:	**2014 Build**			
Terrain Line	**Points**			
Name	**No.**	**Coordinates (ground)**		
		X	**Y**	**Z**
		ft	ft	ft
Terrain Line4	8	6,297,621.5	1,980,814.4	692.00
	9	6,297,621.5	1,980,823.4	692.00
	10	6,297,625.5	1,980,830.0	692.00
	11	6,297,692.0	1,980,875.4	692.00
Terrain Line5	12	6,297,602.5	1,980,842.5	685.00
	13	6,297,644.5	1,980,874.6	685.00
	14	6,297,650.0	1,980,870.4	685.00
	15	6,297,685.5	1,980,896.2	685.00
Terrain Line6	16	6,297,408.0	1,980,760.8	678.00
	17	6,297,421.0	1,980,743.6	680.00
	18	6,297,446.5	1,980,708.0	681.00
	19	6,297,453.0	1,980,700.9	682.00
	20	6,297,460.0	1,980,667.9	683.00
	21	6,297,461.5	1,980,656.6	685.00
	22	6,297,461.5	1,980,633.6	686.00
	23	6,297,449.0	1,980,602.2	687.00
	24	6,297,435.5	1,980,589.5	688.00
	25	6,297,430.0	1,980,582.1	689.00
	26	6,297,415.0	1,980,570.9	690.00
	27	6,297,399.0	1,980,564.0	690.00
	28	6,297,385.0	1,980,563.1	691.00
	29	6,297,374.5	1,980,563.1	691.00
Terrain Line7	30	6,297,515.5	1,980,771.1	685.00
	31	6,297,529.0	1,980,747.6	687.00

	32	6,297,532.5	1,980,733.8	688.00
	33	6,297,535.5	1,980,715.9	692.00
	34	6,297,497.0	1,980,625.5	692.00
	35	6,297,484.5	1,980,565.1	692.00
	36	6,297,483.0	1,980,558.6	692.00
Terrain Line9	37	6,297,880.5	1,980,504.2	709.30
	38	6,297,925.5	1,980,508.0	709.30
	39	6,297,980.0	1,980,508.8	709.30
	40	6,298,020.0	1,980,508.4	709.30
	41	6,298,048.5	1,980,502.1	709.30
	42	6,298,056.5	1,980,503.5	709.30
	43	6,298,082.5	1,980,504.2	709.30
	44	6,298,097.0	1,980,510.5	709.30
	45	6,298,110.0	1,980,522.5	709.30
	46	6,298,115.0	1,980,532.9	709.30
	47	6,298,112.5	1,980,572.2	709.30
	48	6,298,115.0	1,980,579.2	709.30
Terrain Line10	49	6,298,273.0	1,980,486.5	685.00
	50	6,298,180.0	1,980,372.5	685.00
	51	6,298,178.0	1,980,365.9	685.00
	52	6,298,181.0	1,980,342.5	685.00
	53	6,298,187.5	1,980,322.8	685.00
	54	6,298,209.0	1,980,302.0	685.00
	55	6,298,219.5	1,980,285.2	685.00
	56	6,298,427.5	1,980,166.0	685.00
	57	6,298,473.5	1,980,213.6	685.00
Terrain Line11	58	6,298,507.0	1,979,967.2	697.41
	59	6,298,445.0	1,980,000.0	697.41
	60	6,298,374.5	1,980,034.9	697.41
	61	6,298,308.5	1,980,074.9	697.41
	62	6,298,299.5	1,980,082.8	697.41
	63	6,298,152.5	1,980,174.5	697.41
	64	6,298,149.0	1,980,154.5	697.41
Terrain Line12	65	6,295,050.0	1,983,232.6	624.69
	66	6,295,079.0	1,983,219.2	624.69
	67	6,295,179.0	1,983,176.2	624.69

	68	6,295,241.5	1,983,177.9	624.69
	69	6,295,264.0	1,983,210.6	624.69
	70	6,295,316.5	1,983,210.6	624.69
	71	6,295,350.5	1,983,178.4	624.69
	72	6,295,364.5	1,983,114.9	624.69
	74	6,295,364.5	1,983,056.5	624.69
	75	6,295,386.0	1,983,029.9	624.69
	76	6,295,410.5	1,983,014.9	624.69
	77	6,295,458.0	1,982,894.1	624.69
	78	6,295,484.0	1,982,912.9	624.69
	79	6,295,518.5	1,982,925.4	624.69
	80	6,295,546.5	1,982,917.0	624.69
	81	6,295,554.5	1,982,889.6	624.69
	82	6,295,550.0	1,982,856.2	624.69
	83	6,295,530.5	1,982,820.1	624.69
	84	6,295,498.0	1,982,793.4	624.69
	85	6,295,486.0	1,982,777.8	624.69
	86	6,295,470.0	1,982,764.0	624.69
	87	6,295,463.5	1,982,745.0	624.69
	88	6,295,457.0	1,982,718.4	624.69
	89	6,295,415.0	1,982,683.8	624.69
	90	6,295,391.0	1,982,610.1	624.69
Terrain Line13	91	6,295,597.0	1,983,103.0	612.00
	92	6,295,679.0	1,983,078.5	612.00
	93	6,295,737.0	1,983,028.0	612.00
	94	6,295,788.5	1,982,986.0	612.00
	95	6,295,808.0	1,982,935.0	612.00
	96	6,295,848.0	1,982,830.5	612.00
	97	6,295,772.0	1,982,793.6	612.00
	98	6,295,693.5	1,982,692.1	612.00
	99	6,295,585.0	1,982,613.0	612.00
	100	6,295,506.0	1,982,573.5	612.00
	101	6,295,450.5	1,982,549.9	612.00
Terrain Line14	102	6,295,919.0	1,984,109.0	650.00
	103	6,295,849.0	1,984,149.6	650.00
	104	6,295,833.5	1,984,151.2	650.00

	105	6,295,800.0	1,984,075.1	650.00
	106	6,295,792.0	1,984,068.6	650.00
	107	6,295,776.0	1,984,042.0	650.00
	108	6,295,762.5	1,984,034.1	650.00
	109	6,295,726.0	1,984,024.2	650.00
	110	6,295,695.0	1,984,032.5	650.00
	111	6,295,651.0	1,984,007.0	650.00
	112	6,295,637.5	1,983,979.5	650.00
	113	6,295,636.0	1,983,963.1	650.00
	114	6,295,639.5	1,983,946.4	650.00
	115	6,295,636.5	1,983,928.6	650.00
	116	6,295,640.0	1,983,908.5	650.00
	117	6,295,667.0	1,983,881.8	650.00
	118	6,295,676.5	1,983,865.8	650.00
	119	6,295,675.0	1,983,852.9	650.00
	120	6,295,680.0	1,983,849.8	650.00
	121	6,295,708.5	1,983,848.0	650.00
	122	6,295,734.5	1,983,850.9	650.00
	123	6,295,767.0	1,983,866.1	650.00
	124	6,295,774.5	1,983,876.6	650.00
	125	6,295,791.5	1,983,886.0	650.00
	126	6,295,804.5	1,983,915.0	650.00
Terrain Line15	127	6,295,735.0	1,983,991.0	655.00
	128	6,295,694.5	1,984,005.6	655.00
	129	6,295,687.0	1,984,004.2	655.00
	130	6,295,680.0	1,983,994.9	655.00
	131	6,295,670.0	1,983,991.0	655.00
	132	6,295,666.5	1,983,968.5	655.00
	133	6,295,659.5	1,983,945.9	655.00
	134	6,295,648.5	1,983,927.0	655.00
	135	6,295,649.5	1,983,918.1	655.00
	136	6,295,662.0	1,983,905.6	655.00
	137	6,295,670.5	1,983,897.0	655.00
	138	6,295,676.5	1,983,890.5	655.00
	139	6,295,680.0	1,983,889.8	655.00
	140	6,295,694.0	1,983,866.1	655.00

	141	6,295,711.5	1,983,871.8	655.00
	142	6,295,716.5	1,983,870.0	655.00
	143	6,295,737.5	1,983,872.8	656.00
	144	6,295,753.5	1,983,882.4	655.00
	145	6,295,764.0	1,983,897.0	655.00
Terrain Line16	146	6,295,735.0	1,983,965.8	656.00
	147	6,295,735.0	1,983,946.9	656.00
	148	6,295,735.5	1,983,925.8	656.00
	149	6,295,737.0	1,983,903.0	656.00
	150	6,295,737.5	1,983,872.8	656.00
Terrain Line18	151	6,294,912.5	1,984,859.6	673.40
	152	6,294,935.0	1,984,858.6	673.40
	153	6,294,949.0	1,984,857.2	673.40
	154	6,294,964.0	1,984,857.2	673.40
	155	6,295,008.0	1,984,856.0	673.40
	156	6,295,133.5	1,984,860.2	673.40
	157	6,295,163.0	1,984,860.2	673.40
	158	6,295,203.5	1,984,862.0	673.40
	159	6,295,214.5	1,984,856.1	673.40
	160	6,295,227.0	1,984,852.5	673.40
	161	6,295,241.0	1,984,845.2	673.40
	162	6,295,249.5	1,984,838.5	673.40
	163	6,295,261.0	1,984,825.2	673.40
	164	6,295,264.0	1,984,816.0	673.40
Terrain Line20	165	6,295,380.0	1,984,879.6	673.40
	166	6,295,386.5	1,984,910.4	673.40
	167	6,295,403.0	1,984,920.0	673.40
	168	6,295,425.5	1,984,928.0	673.40
	169	6,295,586.5	1,985,005.1	673.40
Terrain Line21	170	6,295,264.0	1,984,816.0	673.40
	171	6,295,271.5	1,984,777.2	673.40
	184	6,295,334.0	1,984,779.5	673.40
Terrain Line22	174	6,295,139.0	1,984,210.8	629.00
	175	6,295,158.5	1,984,184.5	629.00
	176	6,295,154.5	1,984,164.0	629.00
	177	6,295,159.0	1,984,158.0	629.00

	178	6,295,150.0	1,984,143.8	629.00
	179	6,295,146.0	1,984,122.9	629.00
	180	6,295,142.0	1,984,117.5	629.00
	181	6,295,125.5	1,984,114.1	629.00
	182	6,295,115.0	1,984,108.2	629.00
	183	6,295,115.0	1,984,078.0	629.00
Terrain Line21-2	185	6,295,379.0	1,984,781.0	673.40
	172	6,295,402.5	1,984,780.6	673.40
	173	6,295,380.0	1,984,879.6	673.40

AECOM 13 June 2011
Maddux TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2030 Build

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Citracado Pkwy NB Seg 1	24.0	point1	1	6,298,529.5	1,980,061.8	699.00				Average	
		point2	2	6,298,442.0	1,980,106.8	697.00				Average	
		point3	3	6,298,278.5	1,980,191.6	695.00				Average	
		point4	4	6,298,025.5	1,980,352.2	699.00					
Citracado Pkwy SB Seg 1	24.0	point5	5	6,298,108.0	1,980,251.4	698.00	Signal	0.00	100	Average	
		point6	6	6,298,258.0	1,980,157.1	695.02				Average	
		point7	7	6,298,416.0	1,980,061.6	697.00				Average	
		point8	8	6,298,506.5	1,980,011.8	699.00					
Johnston Rd Seg 2	24.0	point49	49	6,297,670.0	1,980,700.5	694.00	Stop	0.00	100	Average	
		point47	47	6,297,702.5	1,980,737.5	694.00				Average	
		point46	46	6,297,776.0	1,980,796.4	694.00				Average	
		point45	45	6,297,813.0	1,980,813.9	694.00				Average	
		point44	44	6,297,857.0	1,980,826.1	694.00				Average	
		point43	43	6,297,901.0	1,980,832.9	694.00					
Johnston Rd Seg 1	24.0	point59	59	6,297,656.0	1,980,638.1	694.00	Stop	0.00	100	Average	
		point58	58	6,297,613.5	1,980,605.5	695.00				Average	
		point57	57	6,297,595.5	1,980,590.5	696.00				Average	
		point56	56	6,297,579.0	1,980,573.9	697.00				Average	
		point55	55	6,297,561.0	1,980,560.9	698.00				Average	
		point54	54	6,297,543.0	1,980,549.0	699.00				Average	
		point53	53	6,297,523.0	1,980,539.9	700.00				Average	
		point52	52	6,297,500.5	1,980,529.4	701.00				Average	
		point51	51	6,297,453.0	1,980,516.4	702.00				Average	
		point50	50	6,297,419.5	1,980,513.5	703.00					
West Valley Prkwy EB Seg 1	24.0	point60	60	6,297,972.0	1,980,062.8	695.00				Average	

		point61	61	6,298,055.0	1,980,240.1	698.00				Average	
		point62	62	6,298,071.5	1,980,270.0	699.00					
West Valley Prkwy EB Seg 2	24.0	point63	63	6,298,098.5	1,980,311.8	699.00	Signal	0.00	100	Average	
		point64	64	6,298,119.5	1,980,350.1	698.00				Average	
		point65	65	6,298,132.5	1,980,369.1	697.00				Average	
		point66	66	6,298,159.5	1,980,408.4	696.00				Average	
		point67	67	6,298,188.0	1,980,446.1	695.00				Average	
		point68	68	6,298,238.5	1,980,508.2	694.50					
West Valley Prkwy WB Seg 2	24.0	point69	69	6,298,206.5	1,980,530.2	694.50				Average	
		point70	70	6,298,166.0	1,980,483.4	695.00				Average	
		point71	71	6,298,137.0	1,980,446.1	696.00				Average	
		point72	72	6,298,095.0	1,980,388.2	697.00				Average	
		point73	73	6,298,082.5	1,980,369.4	698.00				Average	
		point74	74	6,298,063.5	1,980,334.5	699.00					
West Valley Prkwy WB Seg 1	24.0	point75	75	6,298,034.5	1,980,293.4	699.00	Signal	0.00	100	Average	
		point76	76	6,298,018.0	1,980,258.8	698.00				Average	
		point77	77	6,297,935.5	1,980,082.9	695.00					
Roadway16	24.0	point95	95	6,298,024.5	1,980,353.5	699.00				Average	
		point96	96	6,297,913.0	1,980,430.2	700.00				Average	
		point97	97	6,297,812.0	1,980,520.4	698.00				Average	
		point98	98	6,297,716.0	1,980,631.1	694.00				Average	
		point99	99	6,297,637.0	1,980,731.5	690.00					
Roadway17	24.0	point103	103	6,297,274.5	1,981,192.4	658.50				Average	
		point104	104	6,296,950.0	1,981,604.6	651.00				Average	
		point105	105	6,296,886.0	1,981,685.6	648.00				Average	
		point106	106	6,296,512.5	1,982,160.6	643.00				Average	
		point107	107	6,296,463.5	1,982,224.2	642.00					
Roadway18	24.0	point108	108	6,296,373.0	1,982,276.5	640.00				Average	
		point110	110	6,296,416.0	1,982,221.9	642.00				Average	
		point111	111	6,296,866.5	1,981,649.4	649.00				Average	
		point112	112	6,296,930.0	1,981,568.4	651.00				Average	
		point113	113	6,297,244.5	1,981,168.9	658.50					
Roadway19	24.0	point115	115	6,297,244.5	1,981,168.9	658.50				Average	
		point116	116	6,297,605.5	1,980,704.9	690.00				Average	
		point117	117	6,297,681.5	1,980,613.8	694.00					
Avenida Del Diablo Seg 1	24.0	point127	127	6,296,414.5	1,982,220.2	643.75	Stop	0.00	100	Average	
		point40	40	6,296,361.5	1,982,219.9	644.00				Average	
		point41	41	6,296,280.0	1,982,219.1	648.00				Average	
		point42	42	6,296,080.0	1,982,218.9	653.00					

Avenida Del Diablo Seg 2	24.0	point37	37	6,297,489.0	1,982,226.0	635.00				Average	
		point38	38	6,296,759.0	1,982,221.6	640.00				Average	
		point94	94	6,296,574.0	1,982,221.6	643.00				Average	
		point123	123	6,296,521.0	1,982,221.2	643.25				Average	
		point124	124	6,296,468.0	1,982,220.8	643.50					
Roadway23	24.0	point128	128	6,296,463.5	1,982,224.5	642.00				Average	
		point129	129	6,296,197.0	1,982,558.6	635.00				Average	
		point268	268	6,296,132.0	1,982,638.8	630.00					
Roadway24	24.0	point139	139	6,295,318.0	1,984,864.9	660.00				Average	
		point140	140	6,295,382.0	1,984,575.8	652.50				Average	
		point271	271	6,295,389.0	1,984,537.9	648.75					
Roadway31	24.0	point230	230	6,296,208.0	1,984,532.1	634.00				Average	
		point231	231	6,295,998.5	1,984,533.1	634.00				Average	
		point232	232	6,295,660.5	1,984,532.9	634.00					
Roadway32	24.0	point240	240	6,294,891.5	1,983,977.1	634.16				Average	
		point242	242	6,295,057.0	1,984,258.2	634.16				Average	
		point247	247	6,295,097.5	1,984,327.1	634.16				Average	
		point243	243	6,295,129.0	1,984,404.6	634.16				Average	
		point244	244	6,295,141.0	1,984,480.0	634.16				Average	
		point245	245	6,295,140.5	1,984,513.6	634.16				Average	
		point241	241	6,295,140.5	1,984,539.5	634.16					
Roadway31-2	24.0	point234	234	6,295,386.5	1,984,537.4	640.00				Average	
		point235	235	6,295,251.0	1,984,538.0	635.00				Average	
		point270	270	6,295,137.0	1,984,540.1	634.50				Average	
		point236	236	6,295,037.0	1,984,540.1	634.00				Average	
		point237	237	6,294,893.0	1,984,541.2	634.00				Average	
		point238	238	6,294,791.5	1,984,542.4	634.00					
Roadway34	24.0	point248	248	6,295,391.0	1,982,085.6	630.00				Average	
		point249	249	6,295,485.0	1,982,162.6	630.00				Average	
		point250	250	6,295,565.5	1,982,246.4	630.00				Average	
		point251	251	6,295,664.5	1,982,347.2	630.00				Average	
		point252	252	6,295,779.0	1,982,424.2	630.00				Average	
		point253	253	6,295,905.5	1,982,482.4	630.00				Average	
		point254	254	6,296,022.0	1,982,545.6	630.00				Average	
		point255	255	6,296,107.5	1,982,603.9	630.00					
Roadway34-2	24.0	point267	267	6,296,142.5	1,982,627.9	630.00				Average	
		point266	266	6,296,191.5	1,982,663.5	630.00				Average	
		point256	256	6,296,235.5	1,982,694.4	630.00				Average	
		point257	257	6,296,261.5	1,982,701.2	630.00				Average	

		point258	258	6,296,295.5	1,982,699.5	630.00				Average	
		point259	259	6,296,439.0	1,982,680.6	630.00				Average	
		point260	260	6,296,502.5	1,982,675.5	630.00				Average	
		point261	261	6,296,538.5	1,982,677.2	630.00				Average	
		point262	262	6,296,608.5	1,982,690.9	630.00				Average	
		point263	263	6,296,690.5	1,982,718.2	630.00					
Roadway19-2	24.0	point273	273	6,297,681.5	1,980,613.8	694.00				Average	
		point119	119	6,297,785.0	1,980,493.6	698.00				Average	
		point120	120	6,297,889.5	1,980,400.5	700.00				Average	
		point121	121	6,298,003.5	1,980,321.8	699.00				Average	
		point122	122	6,298,108.0	1,980,251.4	698.00					
Roadway16-2	24.0	point274	274	6,297,637.0	1,980,731.5	690.00				Average	
		point100	100	6,297,275.5	1,981,190.6	658.50					
Roadway24-2	24.0	point275	275	6,296,099.0	1,982,615.0	630.00				Average	
		point147	147	6,296,163.0	1,982,536.1	635.00				Average	
		point148	148	6,296,372.5	1,982,277.1	642.00					
Roadway23-2	24.0	point276	276	6,296,132.0	1,982,638.8	630.00				Average	
		point130	130	6,296,066.5	1,982,718.9	625.00				Average	
		point131	131	6,295,939.0	1,982,895.8	627.00				Average	
		point132	132	6,295,801.5	1,983,143.1	627.00				Average	
		point133	133	6,295,717.0	1,983,347.8	628.00				Average	
		point134	134	6,295,652.0	1,983,554.1	630.00				Average	
		point135	135	6,295,607.0	1,983,750.2	632.00				Average	
		point136	136	6,295,450.5	1,984,442.5	645.00				Average	
		point272	272	6,295,428.5	1,984,542.6	648.75					
Roadway24-2	24.0	point277	277	6,295,389.0	1,984,537.9	648.75				Average	
		point141	141	6,295,412.5	1,984,438.8	645.00				Average	
		point142	142	6,295,564.5	1,983,733.8	632.00				Average	
		point143	143	6,295,607.5	1,983,546.1	630.00				Average	
		point264	264	6,295,677.0	1,983,328.5	628.00				Average	
		point144	144	6,295,763.5	1,983,122.1	627.00				Average	
		point145	145	6,295,900.5	1,982,879.2	627.00				Average	
		point146	146	6,296,035.0	1,982,693.9	625.00				Average	
		point269	269	6,296,099.0	1,982,615.0	630.00					
Roadway23-2-2	24.0	point278	278	6,295,428.5	1,984,542.6	648.75				Average	
		point137	137	6,295,419.0	1,984,584.0	652.50				Average	
		point138	138	6,295,355.0	1,984,873.1	660.00					

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INPUT: RECEIVERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2030 Build

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1	1	1	6,298,415.0	1,980,199.6	684.00	4.92	0.00	66	10.0	8.0	Y
R2	2	1	6,298,234.5	1,980,307.4	684.00	4.92	0.00	66	10.0	8.0	Y
R3	3	1	6,298,335.0	1,980,040.8	695.00	4.92	0.00	66	10.0	8.0	Y
R4	4	1	6,298,188.5	1,980,133.1	695.00	4.92	0.00	66	10.0	8.0	Y
R5	5	1	6,297,982.0	1,980,518.8	708.00	4.92	0.00	66	10.0	8.0	Y
R6	6	1	6,297,853.0	1,980,343.1	716.25	4.92	0.00	66	10.0	8.0	
R7	7	1	6,297,679.0	1,980,531.4	695.00	4.92	0.00	66	10.0	8.0	
R8	8	1	6,297,801.0	1,980,603.8	700.00	4.92	0.00	66	10.0	8.0	Y
R9	9	1	6,297,645.0	1,980,796.9	692.00	4.92	0.00	66	10.0	8.0	Y
R10	10	1	6,297,535.0	1,980,625.0	690.00	4.92	0.00	66	10.0	8.0	Y
R11	11	1	6,297,440.0	1,980,833.2	678.00	4.92	0.00	66	10.0	8.0	Y
R12	12	1	6,297,395.5	1,980,725.6	679.00	4.92	0.00	66	10.0	8.0	Y
R13	13	1	6,297,248.0	1,980,911.1	671.00	4.92	0.00	66	10.0	8.0	Y
R14	14	1	6,297,372.5	1,980,916.6	678.00	4.92	0.00	66	10.0	8.0	Y
R15	15	1	6,297,508.5	1,981,013.1	677.00	4.92	0.00	66	10.0	8.0	Y
R16	16	1	6,297,426.0	1,981,096.4	666.00	4.92	0.00	66	10.0	8.0	Y
R17	17	1	6,297,234.0	1,981,096.6	667.00	4.92	0.00	66	10.0	8.0	Y
R18	18	1	6,297,250.5	1,981,283.1	651.00	4.92	0.00	66	10.0	8.0	Y
R19	19	1	6,297,120.0	1,981,233.5	664.00	4.92	0.00	66	10.0	8.0	Y
R20	20	1	6,297,050.5	1,981,550.0	650.00	4.92	0.00	66	10.0	8.0	Y
R21	21	1	6,297,016.0	1,981,365.1	657.00	4.92	0.00	66	10.0	8.0	Y
R22	22	1	6,296,858.5	1,981,396.9	654.00	4.92	0.00	66	10.0	8.0	Y

R23	23	1	6,296,907.0	1,981,761.1	647.00	4.92	0.00	66	10.0	8.0	Y
R24	24	1	6,296,766.0	1,981,703.5	658.00	4.92	0.00	66	10.0	8.0	Y
R25	25	1	6,296,812.0	1,981,857.9	647.00	4.92	0.00	66	10.0	8.0	Y
R26	26	1	6,296,539.5	1,981,971.6	645.00	4.92	0.00	66	10.0	8.0	Y
R27	27	1	6,296,685.0	1,982,008.9	647.00	4.92	0.00	66	10.0	8.0	Y
R28	28	1	6,296,655.5	1,982,081.5	646.00	4.92	0.00	66	10.0	8.0	Y
R29	29	1	6,296,423.0	1,982,127.2	645.00	4.92	0.00	66	10.0	8.0	Y
R30	30	1	6,296,743.5	1,982,176.5	637.00	4.92	0.00	66	10.0	8.0	Y
R31	31	1	6,296,304.5	1,982,178.9	648.00	4.92	0.00	66	10.0	8.0	Y
R32	32	1	6,296,472.5	1,981,876.9	650.00	4.92	0.00	66	10.0	8.0	Y
R33	33	1	6,296,169.5	1,982,178.1	650.00	4.92	0.00	66	10.0	8.0	Y
R34	34	1	6,295,538.0	1,982,912.0	653.00	4.92	0.00	66	10.0	8.0	Y
R35	35	1	6,295,606.0	1,982,970.6	633.00	4.92	0.00	66	10.0	8.0	Y
R36	36	1	6,295,358.5	1,983,225.2	628.00	4.92	0.00	66	10.0	8.0	Y
R37	37	1	6,295,303.5	1,983,156.0	634.00	4.92	0.00	66	10.0	8.0	Y
R38	38	1	6,295,139.5	1,983,113.5	634.00	4.92	0.00	66	10.0	8.0	Y
R39	39	1	6,295,140.0	1,984,124.2	640.61	4.92	0.00	66	10.0	8.0	Y
R40	44	1	6,295,798.5	1,983,968.5	659.03	4.92	0.00	66	10.0	8.0	Y
R41	45	1	6,296,008.0	1,984,142.0	626.50	4.92	0.00	66	10.0	8.0	Y
R42	47	1	6,295,847.0	1,984,698.4	633.00	4.92	0.00	66	10.0	8.0	Y
R43	48	1	6,295,773.0	1,985,000.0	658.00	4.92	0.00	66	10.0	8.0	Y

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INPUT: BARRIERS
PROJECT/CONTRACT: Citracado Parkway Extension
RUN: 2030 Build

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht	Perturbs		On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	6,298,145.0	1,980,568.2	700.00	6.00	2.00	4	1		
									point2	2	6,298,142.0	1,980,504.9	703.00	6.00	2.00	4	1		
									point3	3	6,298,088.0	1,980,481.4	704.00	6.00	2.00	4	1		
									point4	4	6,297,896.0	1,980,487.0	704.00	6.00	2.00	4	1		
									point5	5	6,297,821.5	1,980,557.9	695.00	6.00	2.00	4	1		
									point6	6	6,297,754.0	1,980,636.8	695.00	6.00	2.00	4	1		
									point7	7	6,297,738.0	1,980,656.5	695.00	6.00	2.00	4	1		
									point8	8	6,297,718.5	1,980,680.8	695.00	6.00	2.00	4	1		
									point9	9	6,297,714.0	1,980,695.8	695.00	6.00	2.00	4	1		
									point10	10	6,297,717.5	1,980,704.5	695.00	6.00					
Barrier5	W	0.00	99.99	0.00				0.00	point26	26	6,296,909.0	1,981,418.2	655.00	6.00	2.00	4	1		
									point27	27	6,296,976.0	1,981,435.1	657.00	6.00	2.00	4	1		
									point28	28	6,297,100.5	1,981,277.2	660.00	6.00	2.00	4	1		
									point29	29	6,297,269.5	1,981,063.5	672.00	6.00	2.00	4	1		
									point30	30	6,297,491.0	1,980,801.6	681.00	6.00	2.00	4	1		
									point31	31	6,297,486.5	1,980,682.2	681.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point32	32	6,297,608.5	1,981,175.5	666.00	6.00	2.00	4	1		
									point33	33	6,297,502.5	1,981,178.1	666.00	6.00	2.00	4	1		
									point34	34	6,297,501.0	1,981,159.0	666.00	6.00	2.00	4	1		
									point35	35	6,297,431.0	1,981,159.2	666.00	6.00	2.00	4	1		
									point36	36	6,297,422.0	1,981,170.2	666.00	6.00	2.00	4	1		
									point37	37	6,297,375.5	1,981,132.6	666.00	6.00	2.00	4	1		
									point38	38	6,297,347.0	1,981,155.1	666.00	6.00	2.00	4	1		
									point39	39	6,297,345.5	1,981,154.1	666.00	6.00	2.00	4	1		
									point40	40	6,297,332.0	1,981,175.2	655.00	6.00	2.00	4	1		
									point41	41	6,297,228.5	1,981,306.8	650.00	6.00	2.00	4	1		
									point42	42	6,297,069.5	1,981,508.5	650.00	6.00	2.00	4	1		
									point43	43	6,297,042.5	1,981,543.0	650.00	6.00	2.00	4	1		
									point44	44	6,296,982.5	1,981,619.8	649.00	6.00	2.00	4	1		
									point45	45	6,297,040.5	1,981,637.8	645.00	6.00	2.00	4	1		
									point46	46	6,297,047.0	1,981,637.5	645.00	6.00	2.00	4	1		
									point47	47	6,297,092.5	1,981,639.6	645.00	6.00					
Barrier10	W	0.00	99.99	0.00				0.00	point78	78	6,298,040.0	1,980,075.4	702.21	0.00	0.00	0	0		
									point79	79	6,298,035.0	1,980,075.6	702.21	0.00	0.00	0	0		
									point80	80	6,298,021.0	1,980,054.9	702.21	0.00	0.00	0	0		

									point81	81	6,298,020.5	1,980,031.0	702.21	0.00							
Barrier11	W	0.00	99.99	0.00				0.00	point82	82	6,295,085.0	1,984,108.8	640.61	0.00	0.00	0	0				
									point83	83	6,295,110.0	1,984,098.0	640.61	0.00	0.00	0	0				
									point84	84	6,295,113.0	1,984,114.9	640.61	0.00	0.00	0	0				
									point85	85	6,295,123.0	1,984,114.2	640.61	0.00	0.00	0	0				
									point86	86	6,295,136.5	1,984,146.0	640.61	0.00	0.00	0	0				
									point87	87	6,295,106.0	1,984,159.1	640.61	0.00							
Barrier12	W	0.00	99.99	0.00				0.00	point88	88	6,295,833.5	1,983,958.2	659.03	0.00	0.00	0	0				
									point89	89	6,295,807.5	1,983,968.5	659.03	0.00	0.00	0	0				
									point90	90	6,295,791.0	1,983,924.9	659.03	0.00	0.00	0	0				
									point91	91	6,295,818.0	1,983,915.1	659.03	0.00							
Barrier13	W	0.00	99.99	0.00				0.00	point92	92	6,297,515.5	1,980,772.1	695.00	6.00	2.00	4	1				
									point93	93	6,297,600.0	1,980,664.1	695.00	6.00	2.00	4	1				
									point94	94	6,297,603.0	1,980,653.8	695.00	6.00	2.00	4	1				
									point95	95	6,297,601.5	1,980,648.1	695.00	6.00	2.00	4	1				
									point96	96	6,297,599.5	1,980,642.8	695.00	6.00							
Barrier14	W	0.00	99.99	0.00				0.00	point97	97	6,297,562.0	1,980,633.9	695.00	6.00	2.00	4	1				
									point98	98	6,297,559.5	1,980,618.8	695.00	6.00	2.00	4	1				
									point99	99	6,297,559.5	1,980,597.4	695.00	6.00	2.00	4	1				
									point100	100	6,297,524.0	1,980,576.9	695.00	6.00	2.00	4	1				
									point101	101	6,297,488.0	1,980,558.4	695.00	6.00	2.00	4	1				
									point102	102	6,297,424.0	1,980,544.8	700.00	6.00	2.00	4	1				
									point103	103	6,297,393.0	1,980,545.1	700.00	6.00							
Barrier15	W	0.00	99.99	0.00				0.00	point104	104	6,297,685.0	1,980,751.0	692.19	6.00	2.00	4	1				
									point105	105	6,297,675.5	1,980,746.1	692.19	6.00	2.00	4	1				
									point106	106	6,297,662.0	1,980,755.0	692.00	6.00	2.00	4	1				
									point107	107	6,297,631.5	1,980,794.2	692.00	6.00	2.00	4	1				
									point108	108	6,297,621.5	1,980,814.4	692.00	6.00	2.00	4	1				
									point109	109	6,297,602.5	1,980,842.5	685.00	6.00	2.00	4	1				
									point110	110	6,297,567.5	1,980,888.2	682.00	6.00	2.00	4	1				
									point111	111	6,297,497.0	1,980,966.5	678.00	6.00	2.00	4	1				
									point112	112	6,297,457.5	1,981,022.4	675.00	6.00	2.00	4	1				
									point113	113	6,297,451.0	1,981,039.2	666.00	6.00							
Barrier18	W	0.00	99.99	0.00				0.00	point118	118	6,298,150.0	1,980,153.5	697.41	6.00	2.00	5	0				
									point119	119	6,298,152.5	1,980,173.5	697.41	6.00	2.00	5	0				
									point120	120	6,298,299.5	1,980,081.8	697.41	6.00	2.00	5	0				
									point121	121	6,298,308.5	1,980,073.9	697.41	6.00	2.00	5	0				
									point122	122	6,298,374.5	1,980,032.9	697.41	6.00	2.00	5	0				
									point123	123	6,298,445.0	1,979,999.0	697.41	6.00	2.00	5	0				
									point124	124	6,298,507.0	1,979,966.2	697.41	6.00							
Barrier7	W	0.00	99.99	0.00				0.00	point48	48	6,296,955.0	1,981,724.9	645.00	6.00	2.00	4	1				
									point50	50	6,296,953.5	1,981,723.0	645.00	6.00	2.00	4	1				
									point51	51	6,296,946.0	1,981,711.2	646.00	6.00	2.00	4	1				
									point52	52	6,296,934.0	1,981,702.4	648.00	6.00	2.00	4	1				
									point53	53	6,296,927.0	1,981,702.4	648.00	6.00	2.00	4	1				
									point54	54	6,296,916.0	1,981,706.2	648.00	6.00	2.00	4	1				
									point55	55	6,296,911.0	1,981,709.4	648.00	6.00	2.00	4	1				
									point56	56	6,296,762.5	1,981,898.6	647.00	6.00	2.00	4	1				
									point57	57	6,296,640.0	1,982,054.4	646.00	6.00	2.00	4	1				

									point58	58	6,296,585.5	1,982,123.8	643.00	6.00	2.00	4	1		
									point59	59	6,296,568.0	1,982,145.9	642.00	6.00	2.00	4	1		
									point60	60	6,296,562.0	1,982,154.8	641.00	6.00	2.00	4	1		
									point62	62	6,296,560.5	1,982,173.5	641.00	6.00	2.00	4	1		
									point63	63	6,296,569.0	1,982,183.9	640.00	6.00	2.00	4	1		
									point64	64	6,296,611.0	1,982,186.0	640.00	6.00	2.00	4	1		
									point65	65	6,296,636.5	1,982,186.0	639.00	6.00	2.00	4	1		
									point66	66	6,296,728.5	1,982,185.9	638.00	6.00					
Barrier3	W	0.00	99.99	0.00				0.00	point114	114	6,297,460.5	1,980,461.2	718.00	6.00	0.00	0	0		
									point115	115	6,297,686.5	1,980,452.6	718.00	6.00	0.00	0	0		
									point11	11	6,297,904.0	1,980,328.1	714.00	6.00	0.00	0	0		
									point12	12	6,297,948.0	1,980,302.1	714.00	6.00	0.00	0	0		
									point13	13	6,297,968.5	1,980,288.2	714.00	6.00	0.00	0	0		
									point14	14	6,297,972.0	1,980,276.8	714.00	6.00	0.00	0	0		
									point15	15	6,297,969.0	1,980,262.9	714.00	6.00	0.00	0	0		
									point17	17	6,297,903.0	1,980,103.0	714.00	6.00					
Barrier22	W	0.00	99.99	0.00				0.00	point125	125	6,297,621.0	1,980,511.0	700.00	6.00	0.00	0	0		
									point126	126	6,297,726.0	1,980,508.4	700.00	6.00	0.00	0	0		
									point127	127	6,297,658.5	1,980,587.9	700.00	6.00	0.00	0	0		
									point128	128	6,297,633.5	1,980,590.4	700.00	6.00	0.00	0	0		
									point129	129	6,297,630.0	1,980,587.4	700.00	6.00	0.00	0	0		
									point130	130	6,297,592.0	1,980,552.2	698.00	6.00					
Barrier23	W	0.00	99.99	0.00				0.00	point131	131	6,296,271.5	1,982,183.4	647.00	6.00	2.00	5	0		
									point132	132	6,296,395.0	1,982,184.6	647.00	6.00	2.00	5	0		
									point133	133	6,296,404.0	1,982,181.1	647.00	6.00	2.00	5	0		
									point134	134	6,296,853.0	1,981,611.5	650.00	6.00	2.00	5	0		
									point135	135	6,296,856.5	1,981,599.2	650.00	6.00	2.00	5	0		
									point136	136	6,296,854.0	1,981,591.8	650.00	6.00	2.00	5	0		
									point137	137	6,296,813.0	1,981,554.5	650.00	6.00					
Barrier24	W	0.00	99.99	0.00				0.00	point138	138	6,298,275.0	1,980,486.5	685.00	6.00	2.00	5	0		
									point139	139	6,298,181.0	1,980,373.5	685.00	6.00	2.00	5	0		
									point140	140	6,298,182.0	1,980,343.5	685.00	6.00	2.00	5	0		
									point141	141	6,298,187.5	1,980,323.8	685.00	6.00	2.00	5	0		
									point142	142	6,298,209.0	1,980,304.0	685.00	6.00	2.00	5	0		
									point143	143	6,298,219.5	1,980,286.2	685.00	6.00	2.00	5	0		
									point144	144	6,298,426.5	1,980,167.0	685.00	6.00	2.00	5	0		
									point145	145	6,298,472.5	1,980,213.6	685.00	6.00					
Barrier25	W	0.00	99.99	0.00				0.00	point147	146	6,297,559.0	1,980,632.8	695.00	30.00	0.00	0	0		
									point148	147	6,297,592.0	1,980,661.5	695.00	30.00	0.00	0	0		
									point149	148	6,297,556.0	1,980,709.0	695.00	30.00					

AECOM **13 June 2011**
Maddux **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **Citracado Parkway Extension**
RUN: **2030 Build**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Citracado Pkwy NB Seg 1	point1	1	1071	45	34	45	23	45	0	0	0	0
	point2	2	1071	45	34	45	23	45	0	0	0	0
	point3	3	1071	45	34	45	23	45	0	0	0	0
	point4	4										
Citracado Pkwy SB Seg 1	point5	5	1071	45	34	45	23	45	0	0	0	0
	point6	6	1071	45	34	45	23	45	0	0	0	0
	point7	7	1071	45	34	45	23	45	0	0	0	0
	point8	8										
Johnston Rd Seg 2	point49	49	43	25	0	0	0	0	0	0	0	0
	point47	47	43	25	0	0	0	0	0	0	0	0
	point46	46	43	25	0	0	0	0	0	0	0	0
	point45	45	43	25	0	0	0	0	0	0	0	0
	point44	44	43	25	0	0	0	0	0	0	0	0
	point43	43										
Johnston Rd Seg 1	point59	59	124	25	4	25	3	25	0	0	0	0
	point58	58	124	25	4	25	3	25	0	0	0	0
	point57	57	124	25	4	25	3	25	0	0	0	0
	point56	56	124	25	4	25	3	25	0	0	0	0
	point55	55	124	25	4	25	3	25	0	0	0	0
	point54	54	124	25	4	25	3	25	0	0	0	0
	point53	53	124	25	4	25	3	25	0	0	0	0
	point52	52	124	25	4	25	3	25	0	0	0	0
	point51	51	124	25	4	25	3	25	0	0	0	0

	point50	50										
West Valley Prkwy EB Seg 1	point60	60	1498	45	47	45	32	45	0	0	0	0
	point61	61	1498	45	47	45	32	45	0	0	0	0
	point62	62										
West Valley Prkwy EB Seg 2	point63	63	1362	45	43	45	29	45	0	0	0	0
	point64	64	1362	45	43	45	29	45	0	0	0	0
	point65	65	1362	45	43	45	29	45	0	0	0	0
	point66	66	1362	45	43	45	29	45	0	0	0	0
	point67	67	1362	45	43	45	29	45	0	0	0	0
	point68	68										
West Valley Prkwy WB Seg 2	point69	69	1362	45	43	45	29	45	0	0	0	0
	point70	0	1362	45	43	45	29	45	0	0	0	0
	point71	71	1362	45	43	45	29	45	0	0	0	0
	point72	72	1362	45	43	45	29	45	0	0	0	0
	point73	73	1362	45	43	45	29	45	0	0	0	0
	point74	74										
West Valley Prkwy WB Seg 1	point75	75	1498	45	47	45	32	45	0	0	0	0
	point76	76	1498	45	47	45	32	45	0	0	0	0
	point77	77										
Roadway16	point95	95	1303	45	41	45	27	45	0	0	0	0
	point96	96	1303	45	41	45	27	45	0	0	0	0
	point97	97	1303	45	41	45	27	45	0	0	0	0
	point98	98	1303	45	41	45	27	45	0	0	0	0
	point99	99										
Roadway17	point103	103	1206	45	38	45	25	45	0	0	0	0
	point104	104	1206	45	38	45	25	45	0	0	0	0
	point105	105	1206	45	38	45	25	45	0	0	0	0
	point106	106	1206	45	38	45	25	45	0	0	0	0
	point107	107										
Roadway18	point108	108	1206	45	38	45	25	45	0	0	0	0
	point110	110	1206	45	38	45	25	45	0	0	0	0
	point111	111	1206	45	38	45	25	45	0	0	0	0
	point112	112	1206	45	38	45	25	45	0	0	0	0
	point113	113										
Roadway19	point115	115	1206	45	38	45	25	45	0	0	0	0
	point116	116	1206	45	38	45	25	45	0	0	0	0

	point117	117										
Avenida Del Diablo Seg 1	point127	127	53	35	2	35	1	35	0	0	0	0
	point40	40	53	35	2	35	1	35	0	0	0	0
	point41	41	53	35	2	35	1	35	0	0	0	0
	point42	42										
Avenida Del Diablo Seg 2	point37	37	377	40	12	40	8	40	0	0	0	0
	point38	38	377	40	12	40	8	40	0	0	0	0
	point94	94	377	40	12	40	8	40	0	0	0	0
	point123	123	377	40	12	40	8	40	0	0	0	0
	point124	124										
Roadway23	point128	128	1222	45	39	45	26	45	0	0	0	0
	point129	129	1222	45	39	45	26	45	0	0	0	0
	point268	268										
Roadway24	point139	139	1169	45	37	45	25	45	0	0	0	0
	point140	140	1169	45	37	45	25	45	0	0	0	0
	point271	271										
Roadway31	point230	230	217	35	7	35	5	35	0	0	0	0
	point231	231	217	35	7	35	5	35	0	0	0	0
	point232	232										
Roadway32	point240	240	501	45	16	45	11	45	0	0	0	0
	point242	242	501	45	16	45	11	45	0	0	0	0
	point247	247	501	45	16	45	11	45	0	0	0	0
	point243	243	501	45	16	45	11	45	0	0	0	0
	point244	244	501	45	16	45	11	45	0	0	0	0
	point245	245	501	45	16	45	11	45	0	0	0	0
	point241	241										
Roadway31-2	point234	234	206	45	16	45	11	45	0	0	0	0
	point235	235	206	45	16	45	11	45	0	0	0	0
	point270	270	206	45	16	45	11	45	0	0	0	0
	point236	236	206	45	16	45	11	45	0	0	0	0
	point237	237	206	45	16	45	11	45	0	0	0	0
	point238	238										
Roadway34	point248	248	760	35	24	35	16	35	0	0	0	0
	point249	249	760	35	24	35	16	35	0	0	0	0
	point250	250	760	35	24	35	16	35	0	0	0	0
	point251	251	760	35	24	35	16	35	0	0	0	0

	point252	252	760	35	24	35	16	35	0	0	0	0
	point253	253	760	35	24	35	16	35	0	0	0	0
	point254	254	760	35	24	35	16	35	0	0	0	0
	point255	255										
Roadway34-2	point267	267	301	35	10	35	6	35	0	0	0	0
	point266	266	301	35	10	35	6	35	0	0	0	0
	point256	256	301	35	10	35	6	35	0	0	0	0
	point257	257	301	35	10	35	6	35	0	0	0	0
	point258	258	301	35	10	35	6	35	0	0	0	0
	point259	259	301	35	10	35	6	35	0	0	0	0
	point260	260	301	35	10	35	6	35	0	0	0	0
	point261	261	301	35	10	35	6	35	0	0	0	0
	point262	262	301	35	10	35	6	35	0	0	0	0
	point263	263										
Roadway19-2	point273	273	1303	45	41	45	27	45	0	0	0	0
	point119	119	1303	45	41	45	27	45	0	0	0	0
	point120	120	1303	45	41	45	27	45	0	0	0	0
	point121	121	1303	45	41	45	27	45	0	0	0	0
	point122	122										
Roadway16-2	point274	274	1206	45	38	45	25	45	0	0	0	0
	point100	100										
Roadway24-2	point275	275	1222	45	39	45	26	45	0	0	0	0
	point147	147	1222	45	39	45	26	45	0	0	0	0
	point148	148										
Roadway23-2	point276	276	980	45	31	45	21	45	0	0	0	0
	point130	130	980	45	31	45	21	45	0	0	0	0
	point131	131	980	45	31	45	21	45	0	0	0	0
	point132	132	980	45	31	45	21	45	0	0	0	0
	point133	133	980	45	31	45	21	45	0	0	0	0
	point134	134	980	45	31	45	21	45	0	0	0	0
	point135	135	980	45	31	45	21	45	0	0	0	0
	point136	136	980	45	31	45	21	45	0	0	0	0
	point272	272										
Roadway24-2	point277	277	980	45	31	45	21	45	0	0	0	0
	point141	141	980	45	31	45	21	45	0	0	0	0
	point142	142	980	45	31	45	21	45	0	0	0	0

	point143	143	980	45	31	45	21	45	0	0	0	0
	point264	264	980	45	31	45	21	45	0	0	0	0
	point144	144	980	45	31	45	21	45	0	0	0	0
	point145	145	980	45	31	45	21	45	0	0	0	0
	point146	146	980	45	31	45	21	45	0	0	0	0
	point269	269										
Roadway23-2-2	point278	278	1169	45	37	45	25	45	0	0	0	0
	point137	137	1169	45	37	45	25	45	0	0	0	0
	point138	138										

AECOM			**13 June 2011**	
Maddux			**TNM 2.5**	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	**Citracado Parkway Extension**			
RUN:	**2030 Build**			
Terrain Line	**Points**			
Name	**No.**	**Coordinates (ground)**		
		X	**Y**	**Z**
		ft	ft	ft
Terrain Line4	8	6,297,621.5	1,980,814.4	692.00
	9	6,297,621.5	1,980,823.4	692.00
	10	6,297,625.5	1,980,830.0	692.00
	11	6,297,692.0	1,980,875.4	692.00
Terrain Line5	12	6,297,602.5	1,980,842.5	685.00
	13	6,297,644.5	1,980,874.6	685.00
	14	6,297,650.0	1,980,870.4	685.00
	15	6,297,685.5	1,980,896.2	685.00
Terrain Line6	16	6,297,408.0	1,980,760.8	678.00
	17	6,297,421.0	1,980,743.6	680.00
	18	6,297,446.5	1,980,708.0	681.00
	19	6,297,453.0	1,980,700.9	682.00
	20	6,297,460.0	1,980,667.9	683.00
	21	6,297,461.5	1,980,656.6	685.00
	22	6,297,461.5	1,980,633.6	686.00
	23	6,297,449.0	1,980,602.2	687.00
	24	6,297,435.5	1,980,589.5	688.00
	25	6,297,430.0	1,980,582.1	689.00
	26	6,297,415.0	1,980,570.9	690.00
	27	6,297,399.0	1,980,564.0	690.00
	28	6,297,385.0	1,980,563.1	691.00
	29	6,297,374.5	1,980,563.1	691.00
Terrain Line7	30	6,297,515.5	1,980,771.1	685.00
	31	6,297,529.0	1,980,747.6	687.00

	32	6,297,532.5	1,980,733.8	688.00
	33	6,297,535.5	1,980,715.9	692.00
	34	6,297,497.0	1,980,625.5	692.00
	35	6,297,484.5	1,980,565.1	692.00
	36	6,297,483.0	1,980,558.6	692.00
Terrain Line9	37	6,297,880.5	1,980,504.2	709.30
	38	6,297,925.5	1,980,508.0	709.30
	39	6,297,980.0	1,980,508.8	709.30
	40	6,298,020.0	1,980,508.4	709.30
	41	6,298,048.5	1,980,502.1	709.30
	42	6,298,056.5	1,980,503.5	709.30
	43	6,298,082.5	1,980,504.2	709.30
	44	6,298,097.0	1,980,510.5	709.30
	45	6,298,110.0	1,980,522.5	709.30
	46	6,298,115.0	1,980,532.9	709.30
	47	6,298,112.5	1,980,572.2	709.30
	48	6,298,115.0	1,980,579.2	709.30
Terrain Line10	49	6,298,273.0	1,980,486.5	685.00
	50	6,298,180.0	1,980,372.5	685.00
	51	6,298,178.0	1,980,365.9	685.00
	52	6,298,181.0	1,980,342.5	685.00
	53	6,298,187.5	1,980,322.8	685.00
	54	6,298,209.0	1,980,302.0	685.00
	55	6,298,219.5	1,980,285.2	685.00
	56	6,298,427.5	1,980,166.0	685.00
	57	6,298,473.5	1,980,213.6	685.00
Terrain Line11	58	6,298,507.0	1,979,967.2	697.41
	59	6,298,445.0	1,980,000.0	697.41
	60	6,298,374.5	1,980,034.9	697.41
	61	6,298,308.5	1,980,074.9	697.41
	62	6,298,299.5	1,980,082.8	697.41
	63	6,298,152.5	1,980,174.5	697.41
	64	6,298,149.0	1,980,154.5	697.41
Terrain Line12	65	6,295,050.0	1,983,232.6	624.69
	66	6,295,079.0	1,983,219.2	624.69
	67	6,295,179.0	1,983,176.2	624.69

	68	6,295,241.5	1,983,177.9	624.69
	69	6,295,264.0	1,983,210.6	624.69
	70	6,295,316.5	1,983,210.6	624.69
	71	6,295,350.5	1,983,178.4	624.69
	72	6,295,364.5	1,983,114.9	624.69
	74	6,295,364.5	1,983,056.5	624.69
	75	6,295,386.0	1,983,029.9	624.69
	76	6,295,410.5	1,983,014.9	624.69
	77	6,295,458.0	1,982,894.1	624.69
	78	6,295,484.0	1,982,912.9	624.69
	79	6,295,518.5	1,982,925.4	624.69
	80	6,295,546.5	1,982,917.0	624.69
	81	6,295,554.5	1,982,889.6	624.69
	82	6,295,550.0	1,982,856.2	624.69
	83	6,295,530.5	1,982,820.1	624.69
	84	6,295,498.0	1,982,793.4	624.69
	85	6,295,486.0	1,982,777.8	624.69
	86	6,295,470.0	1,982,764.0	624.69
	87	6,295,463.5	1,982,745.0	624.69
	88	6,295,457.0	1,982,718.4	624.69
	89	6,295,415.0	1,982,683.8	624.69
	90	6,295,391.0	1,982,610.1	624.69
Terrain Line13	91	6,295,597.0	1,983,103.0	612.00
	92	6,295,679.0	1,983,078.5	612.00
	93	6,295,737.0	1,983,028.0	612.00
	94	6,295,788.5	1,982,986.0	612.00
	95	6,295,808.0	1,982,935.0	612.00
	96	6,295,848.0	1,982,830.5	612.00
	97	6,295,772.0	1,982,793.6	612.00
	98	6,295,693.5	1,982,692.1	612.00
	99	6,295,585.0	1,982,613.0	612.00
	100	6,295,506.0	1,982,573.5	612.00
	101	6,295,450.5	1,982,549.9	612.00
Terrain Line14	102	6,295,919.0	1,984,109.0	650.00
	103	6,295,849.0	1,984,149.6	650.00
	104	6,295,833.5	1,984,151.2	650.00

	105	6,295,800.0	1,984,075.1	650.00
	106	6,295,792.0	1,984,068.6	650.00
	107	6,295,776.0	1,984,042.0	650.00
	108	6,295,762.5	1,984,034.1	650.00
	109	6,295,726.0	1,984,024.2	650.00
	110	6,295,695.0	1,984,032.5	650.00
	111	6,295,651.0	1,984,007.0	650.00
	112	6,295,637.5	1,983,979.5	650.00
	113	6,295,636.0	1,983,963.1	650.00
	114	6,295,639.5	1,983,946.4	650.00
	115	6,295,636.5	1,983,928.6	650.00
	116	6,295,640.0	1,983,908.5	650.00
	117	6,295,667.0	1,983,881.8	650.00
	118	6,295,676.5	1,983,865.8	650.00
	119	6,295,675.0	1,983,852.9	650.00
	120	6,295,680.0	1,983,849.8	650.00
	121	6,295,708.5	1,983,848.0	650.00
	122	6,295,734.5	1,983,850.9	650.00
	123	6,295,767.0	1,983,866.1	650.00
	124	6,295,774.5	1,983,876.6	650.00
	125	6,295,791.5	1,983,886.0	650.00
	126	6,295,804.5	1,983,915.0	650.00
Terrain Line15	127	6,295,735.0	1,983,991.0	655.00
	128	6,295,694.5	1,984,005.6	655.00
	129	6,295,687.0	1,984,004.2	655.00
	130	6,295,680.0	1,983,994.9	655.00
	131	6,295,670.0	1,983,991.0	655.00
	132	6,295,666.5	1,983,968.5	655.00
	133	6,295,659.5	1,983,945.9	655.00
	134	6,295,648.5	1,983,927.0	655.00
	135	6,295,649.5	1,983,918.1	655.00
	136	6,295,662.0	1,983,905.6	655.00
	137	6,295,670.5	1,983,897.0	655.00
	138	6,295,676.5	1,983,890.5	655.00
	139	6,295,680.0	1,983,889.8	655.00
	140	6,295,694.0	1,983,866.1	655.00

	141	6,295,711.5	1,983,871.8	655.00
	142	6,295,716.5	1,983,870.0	655.00
	143	6,295,737.5	1,983,872.8	656.00
	144	6,295,753.5	1,983,882.4	655.00
	145	6,295,764.0	1,983,897.0	655.00
Terrain Line16	146	6,295,735.0	1,983,965.8	656.00
	147	6,295,735.0	1,983,946.9	656.00
	148	6,295,735.5	1,983,925.8	656.00
	149	6,295,737.0	1,983,903.0	656.00
	150	6,295,737.5	1,983,872.8	656.00
Terrain Line18	151	6,294,912.5	1,984,859.6	673.40
	152	6,294,935.0	1,984,858.6	673.40
	153	6,294,949.0	1,984,857.2	673.40
	154	6,294,964.0	1,984,857.2	673.40
	155	6,295,008.0	1,984,856.0	673.40
	156	6,295,133.5	1,984,860.2	673.40
	157	6,295,163.0	1,984,860.2	673.40
	158	6,295,203.5	1,984,862.0	673.40
	159	6,295,214.5	1,984,856.1	673.40
	160	6,295,227.0	1,984,852.5	673.40
	161	6,295,241.0	1,984,845.2	673.40
	162	6,295,249.5	1,984,838.5	673.40
	163	6,295,261.0	1,984,825.2	673.40
	164	6,295,264.0	1,984,816.0	673.40
Terrain Line20	165	6,295,380.0	1,984,879.6	673.40
	166	6,295,386.5	1,984,910.4	673.40
	167	6,295,403.0	1,984,920.0	673.40
	168	6,295,425.5	1,984,928.0	673.40
	169	6,295,586.5	1,985,005.1	673.40
Terrain Line21	170	6,295,264.0	1,984,816.0	673.40
	171	6,295,271.5	1,984,777.2	673.40
	184	6,295,334.0	1,984,779.5	673.40
Terrain Line22	174	6,295,139.0	1,984,210.8	629.00
	175	6,295,158.5	1,984,184.5	629.00
	176	6,295,154.5	1,984,164.0	629.00
	177	6,295,159.0	1,984,158.0	629.00

	178	6,295,150.0	1,984,143.8	629.00
	179	6,295,146.0	1,984,122.9	629.00
	180	6,295,142.0	1,984,117.5	629.00
	181	6,295,125.5	1,984,114.1	629.00
	182	6,295,115.0	1,984,108.2	629.00
	183	6,295,115.0	1,984,078.0	629.00
Terrain Line21-2	185	6,295,379.0	1,984,781.0	673.40
	172	6,295,402.5	1,984,780.6	673.40
	173	6,295,380.0	1,984,879.6	673.40

APPENDIX H
TRAFFIC IMPACT REPORT

CITRACADO PARKWAY EXTENSION
TRAFFIC TECHNICAL REPORT

Prepared for:

CITY OF ESCONDIDO

Prepared by:

VRPA Technologies
9520 Padgett Street, Suite 213
San Diego, CA 92126

In association with:

AECOM

June 7, 2011

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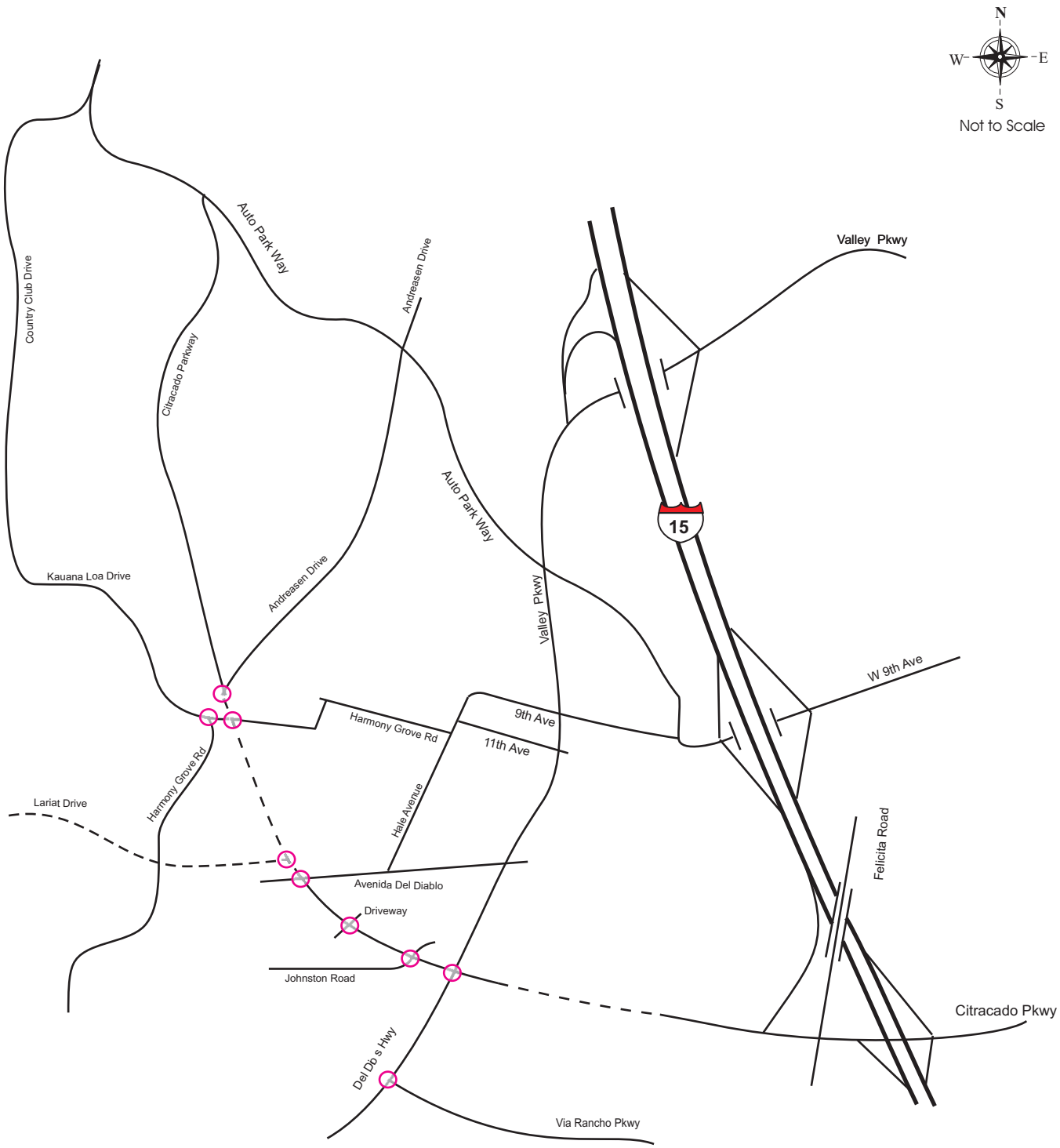
1.0 INTRODUCTION

This report documents a traffic analysis of the proposed extension of Citracado Parkway from Andreasen Drive to West Valley Parkway in the City of Escondido, California. Figure 1-1 shows the study area for the proposed improvements, along with key intersections that were included in the traffic analysis. For the purposes of this study, the "Project" will be defined as development of an extension of Citracado Parkway from Andreasen Drive to West Valley Parkway. The extension of Citracado Parkway from Andreasen Drive to West Valley Parkway is based upon the buildout of the City of Escondido General Plan Circulation Element.

The resulting analysis will address the following scenarios:

- Existing Conditions (2010)
- No Build Conditions (2014)
- Build Conditions (2014)
- No Build Conditions (2030)
- Build Conditions (2030)

Each of these scenarios is described in the chapters that follow. In addition, a chapter on recommendations has been included and appendices have been included that contain details on various aspects of the analysis.



Study Area

Figure 1 - 1

Legend :

- Existing Roadway
- Study Area Intersections
- Planned Roadway

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2.0 EXISTING CONDITIONS (2010)

This chapter provides a description of the methodology used for the study and an analysis of existing traffic conditions.

METHODOLOGY

Study Area

A study area was defined to include the intersections and street segments within the project limits as well as intersections and street segments where the project could potentially have an adverse impact on traffic operations.

The study area included the following existing and proposed intersections:

- Citracado Parkway/Andreasen Drive
- Citracado Parkway/Harmony Grove Road
- Citracado Parkway/Lariat Drive
- Citracado Parkway/Avenida Del Diablo
- Citracado Parkway/Driveway
- Citracado Parkway/Johnston Road
- Citracado Parkway/Valley Parkway
- Harmony Grove Road/Kauana Loa Drive
- Del Dios Highway/Via Rancho Parkway

The study area included the following existing and proposed street segments:

- Citracado Parkway, North of Andreasen Drive
- Citracado Parkway, Harmony Grove Road to Lariat Drive
- Citracado Parkway, Avenida Del Diablo to Driveway
- Citracado Parkway, Driveway to Johnston Road
- Citracado Parkway, Johnston Road to Valley Parkway
- Citracado Parkway, South of Valley Parkway
- Andreasen Drive, North of Citracado Parkway
- Kauana Loa Drive, North of Harmony Grove Road
- Harmony Grove Road, South of Lariat Drive
- Lariat Drive, West of Citracado Parkway
- Avenida Del Diablo, East of Citracado Parkway
- Valley Parkway, East of Citracado Parkway
- Valley Parkway, Citracado Parkway to Via Rancho Parkway
- Del Dios Highway, West of Via Rancho Parkway
- Via Rancho Parkway, South of Del Dios Highway

Traffic Analysis Scenarios

Traffic conditions were analyzed for existing conditions, future conditions on the expected opening day of the project (2014), and future conditions in 2030, the horizon year for the regional transportation model prepared by the San Diego Association of Governments (SANDAG). The future scenarios were analyzed with and without the proposed project. This led to the following scenarios:

- Existing (2010)
- 2014 No Build
- 2014 Build
- 2030 No Build
- 2030 Build

Intersection and Street Segment Capacity Analysis

Intersection capacity analysis was based on the Highway Capacity Manual (HCM) (Highway Capacity Manual, Transportation Research Board, 2000). The operating conditions of the study area intersections was described using HCM level of service designations, which range from level of service A through level of service F. Level of service A represents the best operating condition and LOS F denotes the worst operating condition.

2.3.1 Intersections

The study intersections were analyzed based on level of service and delay, expressed in terms of average control delay per vehicle, which is measured in seconds. The HCM level of service for the range of delay by seconds for un-signalized and signalized intersections is described in Table 1.

TABLE 1: UN-SIGNALIZED AND SIGNALIZED INTERSECTION LEVEL OF SERVICE (HCM 2000)

Level of Service	Un-Signalized Average Control Delay (seconds/vehicle)	Signalized Average Control Delay (seconds/vehicle)
A	0-10	0-10
B	>10-15	>10-20
C	>15-25	>20-35
D	>25-35	>35-55
E	>35-50	>55-80
F	>50	>80

Source: Highway Capacity Manual 2000.

Street segment capacity analysis was based on regional guidelines (SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region, March 2, 2000). Roadway segment capacity is also based on levels of service, similar to intersection capacity analysis.

Significance Criteria

City of Escondido engineering staff has provided the following significance criteria for traffic studies.

1. Traffic Study should include a SANDAG prepared Select Zone Assignment for the project to determine project's traffic distribution pattern.
2. Traffic Study should utilize SANDAG Traffic Generation Rate Guide (2002) to determine volume of the project's traffic.
3. Traffic Study should utilize the following scenarios for project impacts to the intersections and roadway segments;
    a. Existing Condition (based on new traffic counts)
    b. Existing Condition + Project Traffic
    c. Existing Condition + Cumulative Projects
    d. Existing Condition + Cumulative Projects + Project Traffic
    e. Year 2030
4. Highway Capacity Manual (year 2000) is utilized to determine level of service for Roadways and Intersections.
5. Significant Impact is created on a roadway segment or intersection in accordance with San Diego regional traffic impact study guidelines.
    Roadway Segments >2% v/c or Volume over Capacity
    Intersection > 2 seconds delay
6. Mitigation measures are required when a roadway segment or an intersection is operating at a level of service D or worse and project has a significant impact.
7. City's Quality of Life Standards under General Plan indicates that any project that adds 200 trips or more to a roadway segment or intersection that operates at a level of service E or F should mitigate the impact or prepare an EIR for the City Council to override the findings.

These guidelines were intended to be used for land development projects and adjustments were made, as necessary, to be consistent with use on a roadway extension project.

EXISTING CONDITIONS

Figure 2-1 shows existing lane geometry in the traffic analysis study area. Existing traffic conditions for 2010 are shown on Figures 2-2 through 2-4. The existing lane geometry in the study area was determined through a field review conducted by VRPA Technologies.

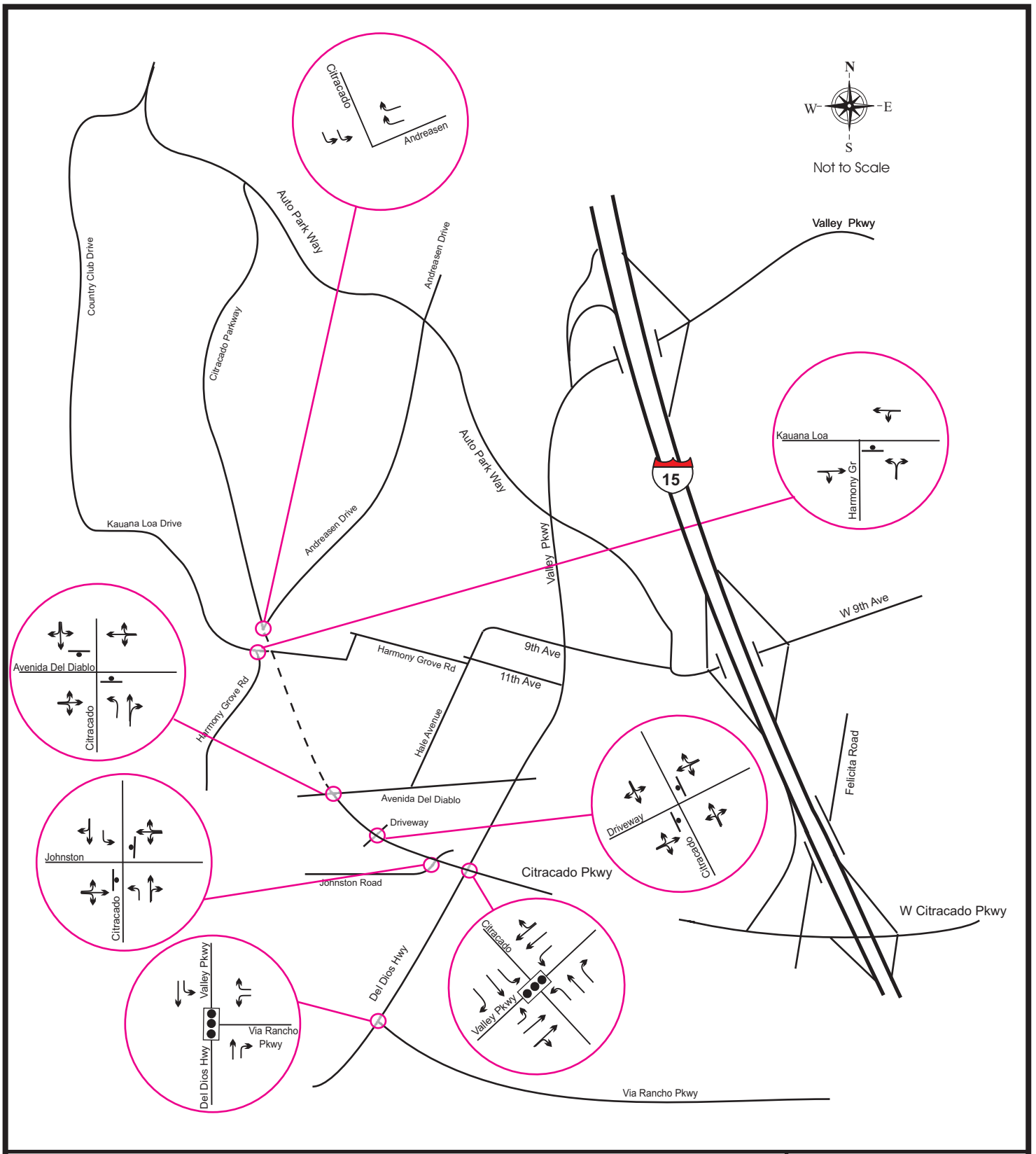
The 2010 traffic conditions are considered to be similar to the 2007 traffic conditions. The 2007 traffic conditions are based on the actual field counts of the study area intersections.

The 2007 traffic conditions were not expected to increase significantly and are considered to represent the existing 2010 traffic conditions. The 2007 traffic counts were determined as follows:

- Existing AM and PM peak hour intersection turning movements were collected by VRPA Technologies in March 2007. Counts were performed on March 20, 2007 and March 21, 2007 (Tuesday and Wednesday).

- Existing Average Daily Traffic for key roadway segments was based on 24-hour counts conducted by VRPA Technologies in March 2007. ADT on additional roadway segments was estimated based on PM peak hour turning movements. The PM peak hour was assumed to be 12.5% of ADT.

Capacity analysis for existing conditions is shown in Tables 2-1 and 2-2.



Existing Lane Geometry

Figure 2 - 1

Legend :

- Signal
- Proposed Roadway
- Stop Sign

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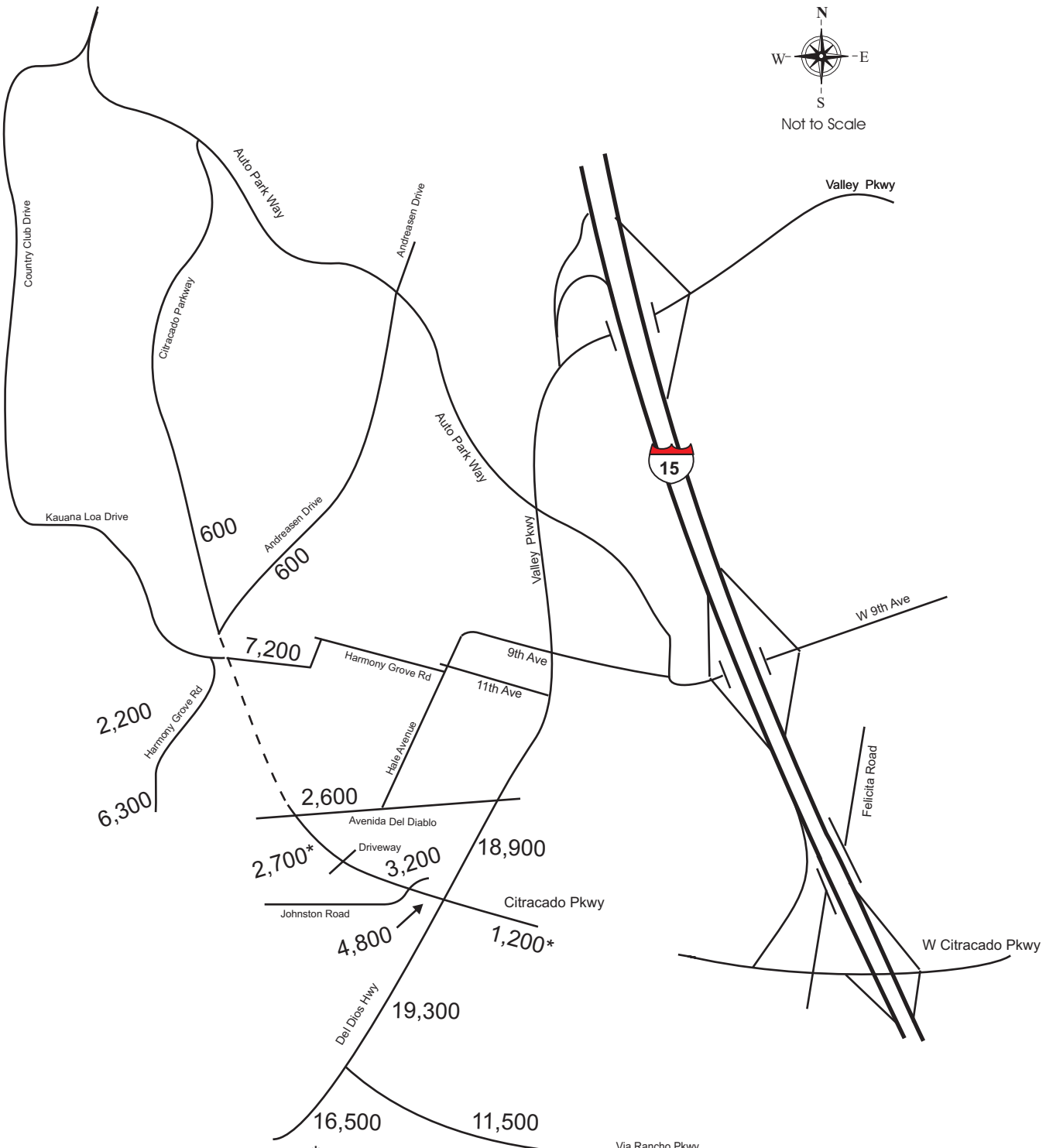

ADT for locations marked with an "*" were estimated based on peak hour turning movment counts.

Existing ADT (2010)

Figure 2 - 2

Legend :

- Proposed Roadway
- Existing Roadway

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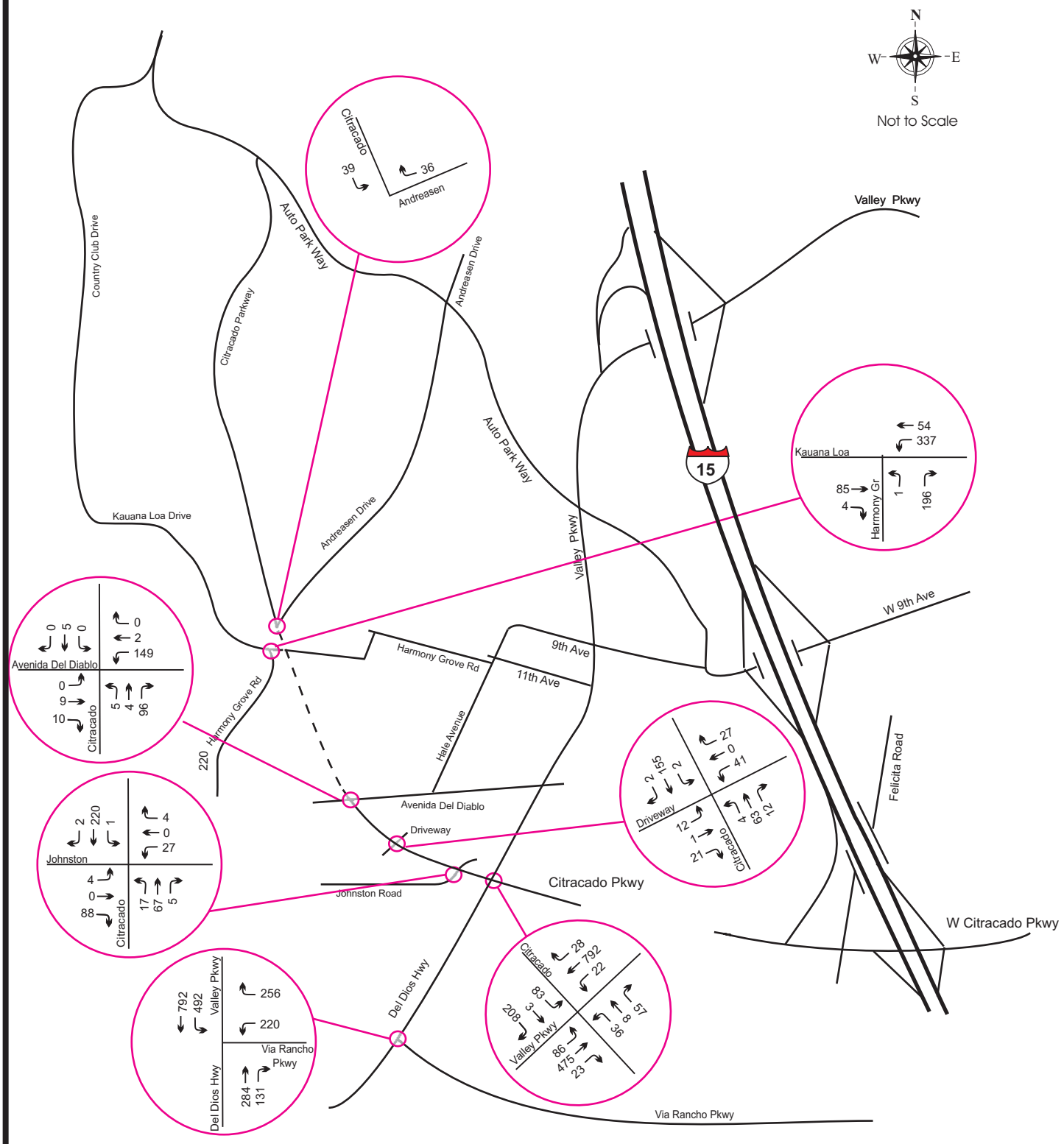

Existing AM Peak Hour Traffic (2010)

Figure 2 - 3

Legend :

XX Peak Hour Traffic

— — — Proposed Roadway

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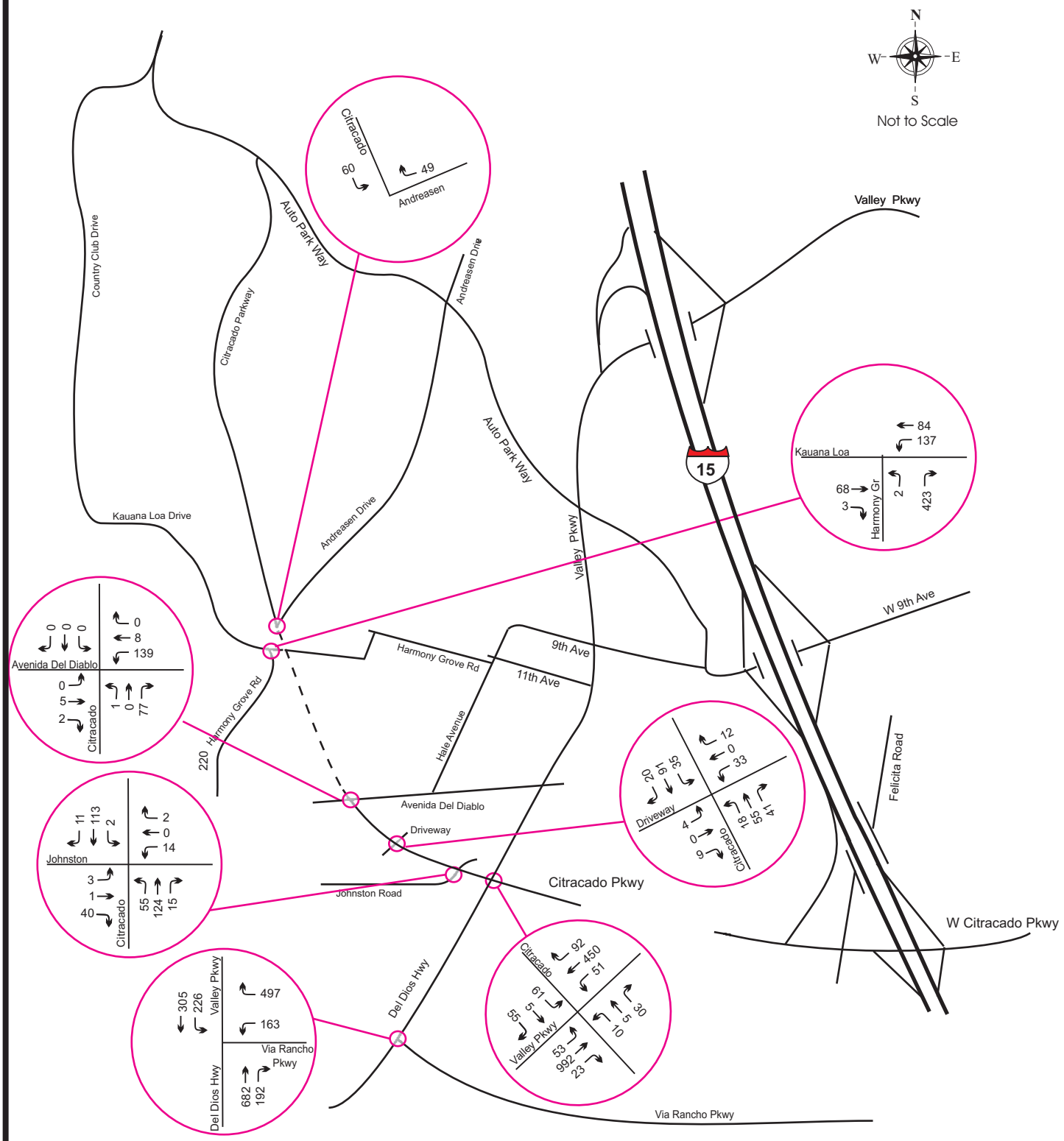

Existing PM Peak Hour Traffic (2010)

Figure 2 - 4

Legend :

XX Peak Hour Traffic

— — — Proposed Roadway

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TABLE 2 -1 INTERSECTION CAPACITY ANALYSIS

Intersection	Existing		2014 No Build		Year 2014 Build		Year 2030 No Build		Year 2030 Build	
	LOS AM/PM	Avg. Delay AM/PM (Sec)	LOS AM/PM	Avg. Delay AM/PM (Sec)	LOS AM/PM	Avg. Delay AM/PM (Sec)	LOS AM/PM	Avg. Delay AM/PM (Sec)	LOS AM/PM	Avg. Delay AM/PM (Sec)
Citracado Pkway & Andreasen Drive	#	#	#	#	D/D(1)	42.1/38.9	#	#	D/D (1)	38.2/42.9
Citracado Pkway & Harmony Grove Road	##	##	##	##	C/C (1)	34.7/33.3	##	##	D/D (1)	41.9/48.0
Citracado Parkway & Lariat Drive	##	##	##	##	D/D (1)	45.3/49.1	##	##	D/D (1)	38.5/52.5
Citracado Parkway & Avenida Del Diablo	B/B (2)	12.0/11.1	B/B (2)	11.6/10.5	C/C (2)	25.0/17.8	C/D (2)	18.3/34.1	C/* (2)	17.0/*
Citracado Parkway & Driveway (1)	B/B (2)	10.2/10.7	C/C (2)	19.1/21.6	D/D(1)	35.4/43.8	F/F (2)	>80.0/>80.0	C/D(1)	32.4/36.6
Citracado Parkway & Johnston Road	B/B (2)	12.5/12.1	D/D (2)	29.1/26.2	B/C(2)	13.6/17.8	F/F (2)	>80.0/>80.0	B/C (2)	14.1/15.4
Citracado Parkway & W Valley Parkway	C/C (1)	29.8/28.7	D/D(1)	42.3/49.3	F/F(1)	>80.0/>80.0 (3)	D/F (1)	53.4/>80.0	D/D (1)	45.4/53.2
Harmony Grove Road & Kauana Loa Drive	B/B (2)	10.1/12.0	B/B (2)	10.1/12.9	B/D (2)	13.7/>26.5	C/B (2)	15.9/14.8	A/B (2)	9.8/10.7
Del Dios Highway & Via Rancho Pkwy	C/E(1)	32.9/57.0	D/F(1)	35.1/>80.0	F/F(1)	>80.0/>80.0 (3)	F/F(1)	>80.0/>80.0	F/F(1)	>80.0/>80.0 (3)

EXISTING INTERSECTION OPERATES IN A FREE-FLOW CONDITION.

INTERSECTION DOES NOT EXIST IN THIS SCENARIO

* TRAFFIC SIGNAL NOT WARRANTED. LEVEL OF SERVICE D ASSUMED. SEE TEXT (CHAPTER 7)

(1) SIGNALIZED INTERSECTION

(2) UNSIGNALIZED INTERSECTION (STOP CONTROLLED)

(3) THE PROJECT IS CONSIDERED TO INCREASE AVERAGE DELAY BY MORE THAN 2 SECONDS AT THIS LOCATION.

Table 2-2
STREET SEGMENT CAPACITY ANALYSIS

STREET SEGMENT	CLASSIFICATION	Capacity at LOS E	EXISTING			2014 NO BUILD			2014 BUILD			2030 NO BUILD			2030 BUILD		
			VOLUME	LOS	V/C	VOLUME	LOS	V/C	VOLUME	LOS	V/C	VOLUME	LOS	V/C	VOLUME	LOS	V/C
Citracado Parkway																	
North of Andreasen Drive	4- Lane Major	40,000	600	A	0.02	6,000	A	0.15	29,900	C	0.75	8,600	A	0.22	19,500	B	0.49
Harmony Grove Rd to Avenida Del Diablo	4- Lane Major	40,000	##	##	##	##	##	##	19,400	B	0.49	##	##	##	18,600	B	0.47
Avenida Del Diablo to Private Driveway	4- Lane Major	40,000	2,700	A	0.07	11,500	A	0.29	27,700	C	0.69	19,700	B	0.49	28,700	C	0.72
Private Driveway to Johnston Road	4- Lane Major	40,000	3,200	A	0.08	12,000	A	0.30	27,400	C	0.69	18,000	B	0.45	25,700	C	0.64
Johnston Road to Valley Parkway	4- Lane Major	40,000	4,800	A	0.12	5,200	A	0.13	27,200	C	0.68	17,700	B	0.44	25,800	C	0.65
South of Valley Parkway	4- Lane Major	40,000	1,200	A	0.03	2,000	A	0.05	3,800	A	0.10	14,100	A	0.35	19,100	B	0.48
Andreasen Drive																	
East of Citracado Parkway	2-Lane Collector #	15,000	600	A	0.04	6,000	B	0.40	2,900	A	0.19	8,600	C	0.57	7,800	C	0.52
Kauana Loa Drive																	
West of Harmony Grove Road	2-Lane Collector	15,000	2,200	A	0.15	2,300	A	0.15	5,600	B	0.37	2,500	A	0.17	2,600	A	0.17
Harmony Grove Road																	
South of Lariat Drive	2-Lane Collector	15,000	6,300	B	0.42	6,800	B	0.45	10,300	D	0.69	7,900	C	0.53	9,500	C	0.63

LOS = Level of Service
V/C = Volume to Capacity Ratio
4-Lane Collector between Citracado parkway and Enterprise Street
= Roadway segment does not exist in this scenario

Table 2-2 (Continued)
STREET SEGMENT CAPACITY ANALYSIS

STREET SEGMENT	CLASSIFICATION	Capacity at LOS E	EXISTING			2014 NO BUILD			2014 BUILD			2030 NO BUILD			2030 BUILD		
			VOLUME	LOS	V/C	VOLUME	LOS	V/C	VOLUME	LOS	V/C	VOLUME	LOS	V/C	VOLUME	LOS	V/C
Lariat Drive																	
West of Citracado Parkway	2-Lane Collector	15,000	##	##	##	8,600	C	0.57	8,900	C	0.59	18,200	F	1.21	11,200	D	0.75
Avenida Del Diablo																	
East of Citracado Parkway	2-Lane Collector	15,000	2,600	A	0.17	2,800	A	0.19	2,600	A	0.17	4,400	A	0.29	5,900	B	0.39
Valley Parkway																	
East of Citracado Parkway	4- Lane Major/6-Lane Major (1)	40,000/ 50,000	18,900	B	0.47	25,100	C	0.63	23,000	C	0.58	24,600	B	0.49	24,200	B	0.48
Citracado Parkway to Via Rancho Parkway	2-Lane Collector/4-Lane Major (2)	15,000/ 40,000	19,300	F	1.29	21,000	F	1.40	23,200	F	1.55	33,300	D	0.83	34,800	D	0.87
Del Dios Highway																	
West of Via Rancho Parkway	2-Lane Collector	15,000	16,500	F	1.10	18,100	F	1.21	22,900	F	1.53	34,000	F	2.27	34,300	F	2.29
Via Rancho Parkway																	
South of Del Dios Highway	2-Lane Collector/4-Lane Major (2)	15,000/ 40,000	11,500	D	0.77	12,600	D	0.84	14,400	E	0.96	16,000	B	0.40	~~40,000~~	B	0.41

LOS = Level of Service
V/C = Volume to Capacity Ratio
= Roadway segment does not exist in this scenario
(1) Assumed to be a 4-Lane Major through 2014 and widened to a 6-Lane Major by 2030
(2) Assumed to be a 2-Lane Collector through 2014 and widened to a 4-Lane Major by 2030

16,200

Table corrected in February 2012 following identification of typographical error.

3.0 NO BUILD CONDITIONS (2014)

Analysis of 2014 No Build conditions was conducted in order to determine the impacts on the adjacent street system if Citracado Parkway extension is not built. The 2014 No Build lane geometry was assumed to be the same for those intersections that already exist in the study area, with the exception that it was assumed that Lariat Drive would be extended to Citracado Parkway and that Citracado Parkway/Avenida Del Diablo intersection would be improved in connection with the development of Harmony Grove Village Project.

Traffic conditions for the year 2014 were determined using the following process:

- A growth factor of 2% per year was used to increase the existing traffic conditions (2010) to determine the 2014 No Build traffic conditions.

- Based on information available from City of Escondido, trips generated from proposed Palomar Medical Center West development in the City of Escondido were factored in the 2014 No Build traffic conditions. The Palomar Medical Center West development proposes the construction of a new hospital facility on Planning Areas 4 and 5 of the adopted Escondido Research and Technology Center (ERTC) Specific Plan Site. The Palomar Medical Center West development is located southwest of the Vineyard Drive/ Citracado Parkway intersection. Table 3-1 shows the trip generation calculation for the proposed Palomar Medical Center West Development. Figure 3-1 to Figure 3-4 shows the trip generation information of the proposed Palomar Medical Center West development.

- Based on information available from City of Escondido, trips generated from proposed Escondido Research and Technology Center (ERTC) Specific Plan Site in the City of Escondido are factored in the 2014 No Build traffic conditions. ERTC is a research center comprising of 158 acres located along the future extension of Citracado Parkway in the City of Escondido. The trip generation for the ERTC was based on the trip generation information available from the City of Escondido. Table 3-1 shows the trip generation calculation for the proposed ERTC development. Figure 3-5 to Figure 3-8 shows the trip generation information of the proposed ERTC development.

- Based on information available from City of Escondido, trips generated from proposed Citracado High are factored in the 2014 No Build traffic conditions. Citracado High School is located south of West Valley Parkway and north of Citracado Parkway. The proposed Citracado High School is expected to serve 800 students in grades 9 to 12. The trip generation was based on the trip generation table available from SANDAG. Appendix D shows the SANDAG trip generation table for reference. Table 3-1 shows the trip generation calculation for the proposed Citracado High School. Figure 3-9 to Figure 3-12 shows the trip generation information of the proposed Citracado High School.

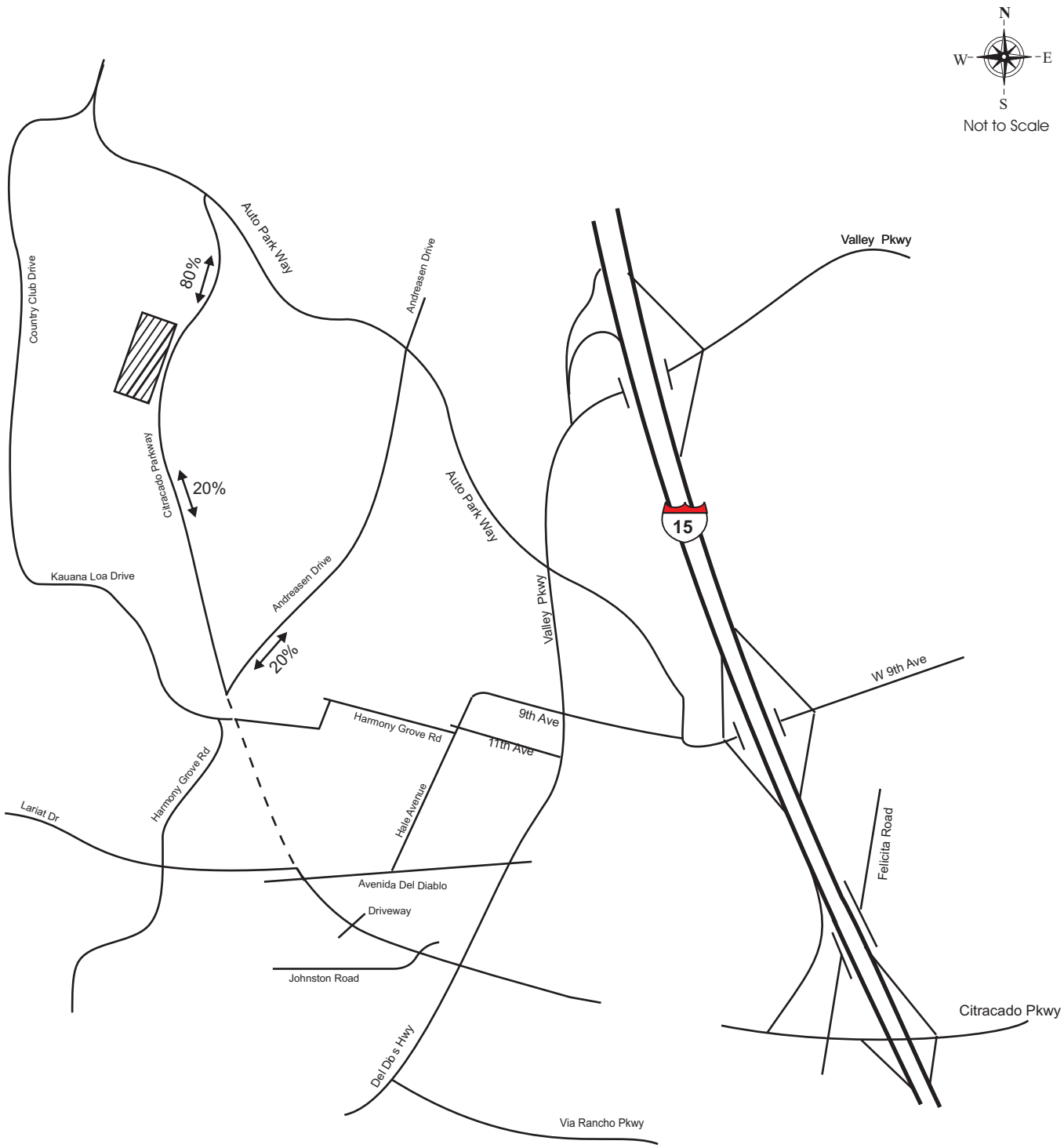
- Traffic generated by the Harmony Grove Village project was added to the street network based on the information contained in the Harmony Grove Project Traffic Impact Report provided by the City of Escondido. This traffic impact report assumes that if Citracado Parkway is not built, the Harmony Grove Village Project would provide a connection to the existing Citracado Parkway by building Lariat Drive and an extension to the Citracado Parkway/Avenida Del Diablo intersection. Table 3-1 shows the trip generation information for the proposed Harmony Grove Village Project. Figure 3-13 to Figure 3-16 shows the trip generation information of the proposed Harmony Grove Village.

The results of the 2014 No Build Conditions are documented in the pages that follow. Figure 3-17 shows the lane geometry for 2014 No Build conditions. Figure 3-18 shows the ADT for the 2014 No Build Conditions. Figure 3-19 and Figure 3-20 shows the AM and PM peak hour traffic for the 2014 No Build Conditions. Capacity analysis for this scenario was shown previously in Tables 2-1 and 2-2. Capacity calculations are included in the Appendix A.

TABLE 3-1 : 2014 CUMULATIVE PROJECT TRIP GENERATION

Land Use	Size	Units	Daily Trip Rate	Daily Trips	% AM Peak	%PM Peak	% AM Inbound	% PM Inbound	AM Peak Hour Trips		PM Peak Hour Trips	
									IN	OUT	IN	OUT
Palomar Hospital Campus Hospital Medical Office	453 160	beds 1000 Square Feet	20 / bed 50 / 1000 s.f	9060 8000	8% 6%	10% 11%	70% 80%	40% 30%	507 384	217 96	362 264	544 616
									891	313	626	1160
				17060					**TOTAL AM = 1204**		**TOTAL PM = 1786**	
Escondio Research and Technology Center**	158	Acres		9863	-	-	-	-	1154	128	256	1026
									TOTAL AM = 1282		**TOTAL PM = 1282**	
Citracado High School	800	Students	1.3 / student	1040	20%	10%	70%	40%	146	62	42	62
Harmony Grove Village**				9863	-	-	-	-	281	449	583	332
									TOTAL AM = 730		**TOTAL PM = 915**	

** Trip Generation is based on the information available from ERTC traffic study
** Trip Generation is based on the information available from Harmony Grove Village Study



2014 Cumulative Project Trip Distribution (No Build)
Palomar Hospital Campus

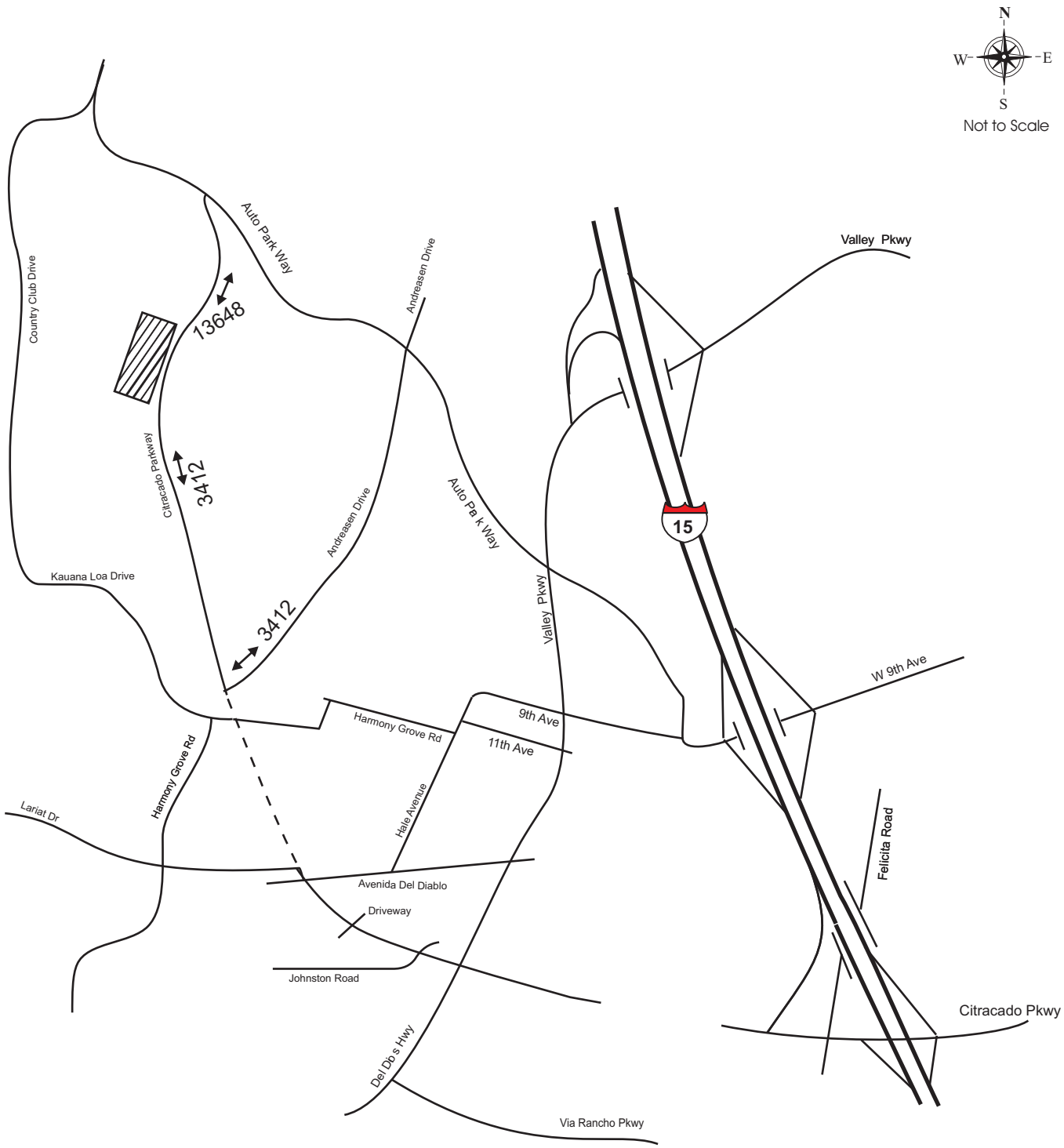
Figure 3 - 1

Legend :

Palomar Hospital Campus — — — Proposed Roadway

Signal — Stop Sign

VRPA Technologies Inc.



2014 Cumulative Project Trip ADT (No Build)
Palomar Hospital Campus

Figure 3 - 2

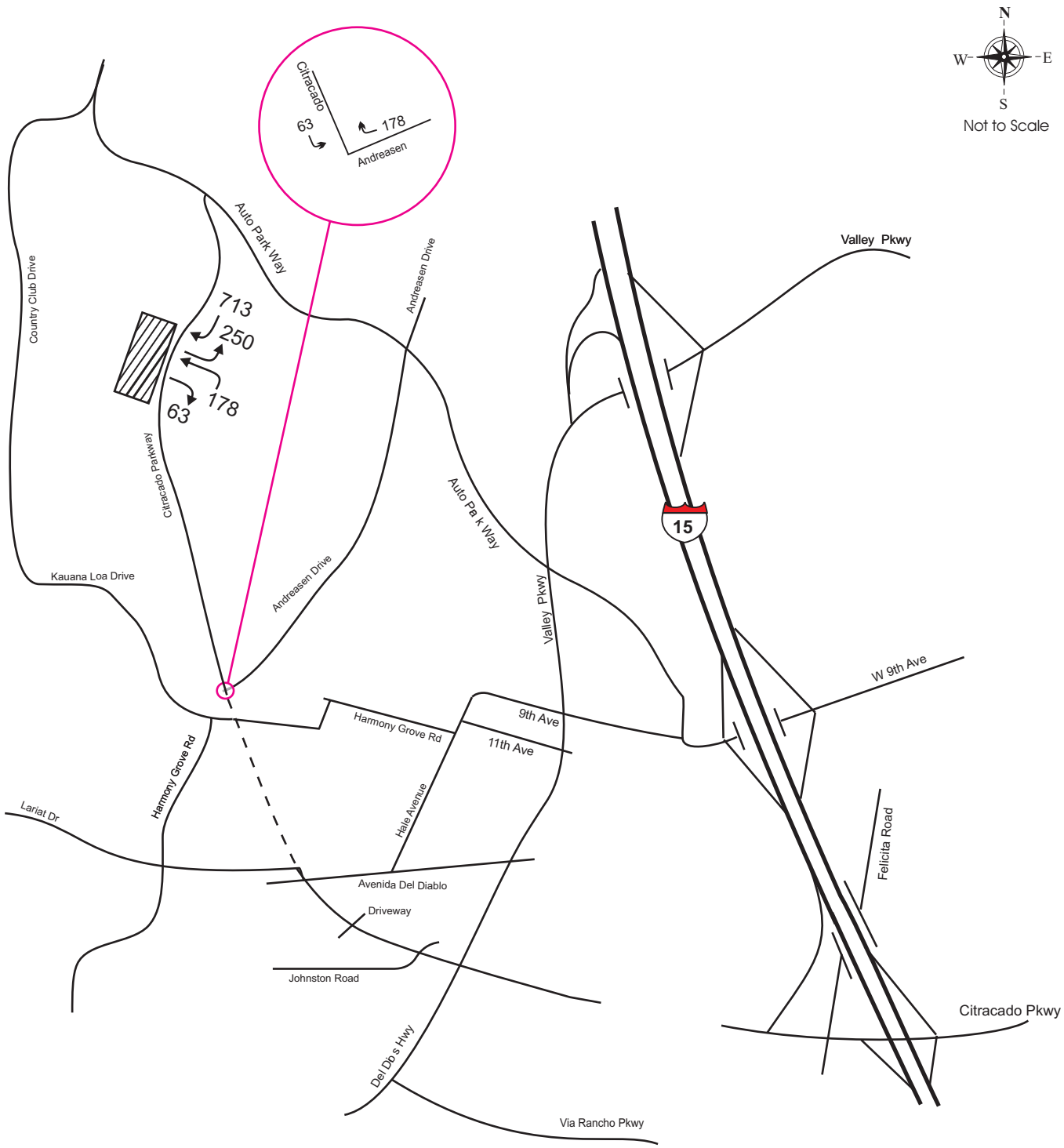
Legend :

Palomar Hospital Campus

Proposed Roadway

Existing Roadway

VRPA Technologies Inc.



2014 Cumulative Project AM Trips (No Build)
Palomar Hospital Campus

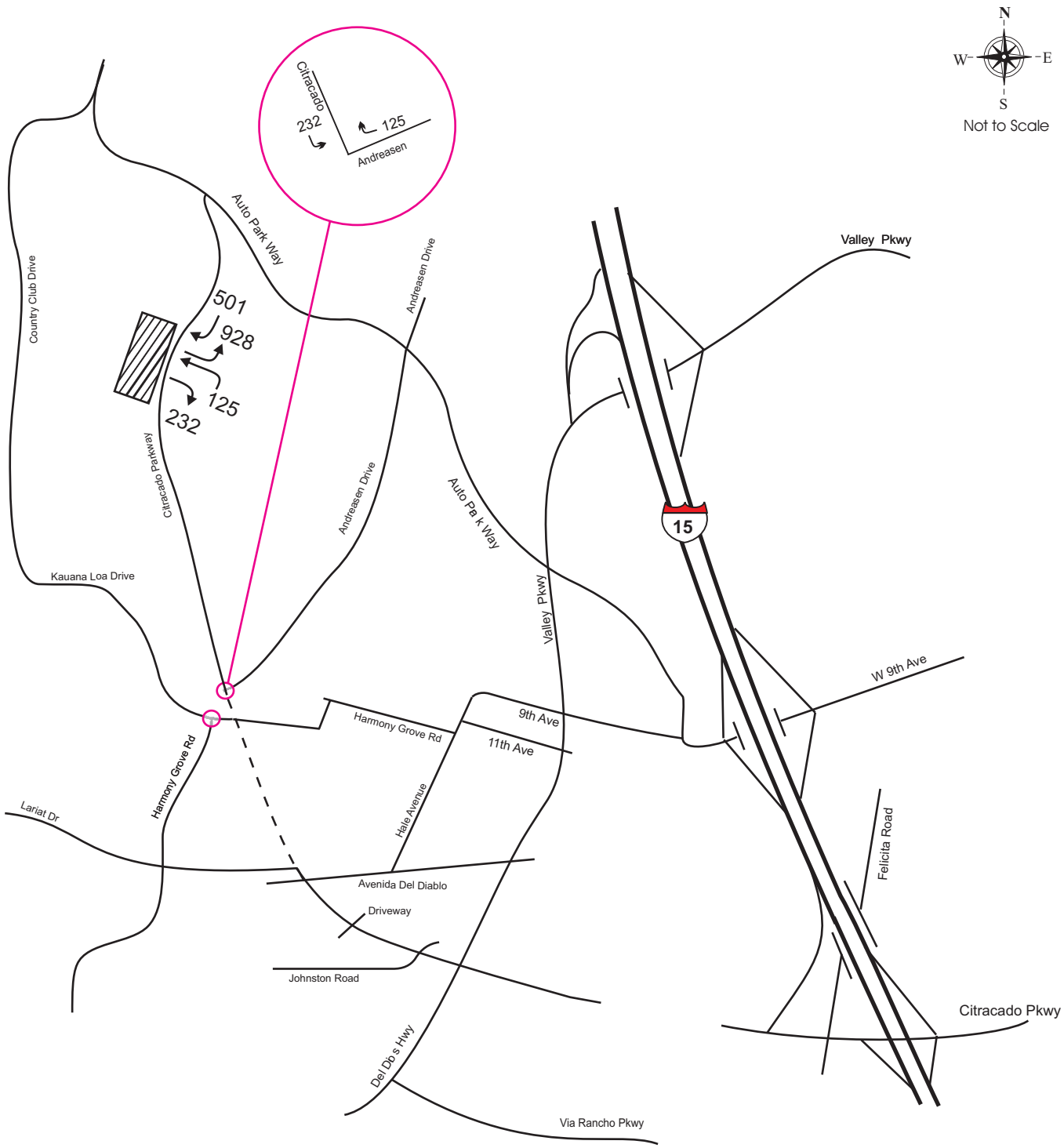
Figure 3 - 3

Legend :

Palomar Hospital Campus — — — Proposed Roadway

← XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project PM Trips (No Build)
Palomar Hospital Campus

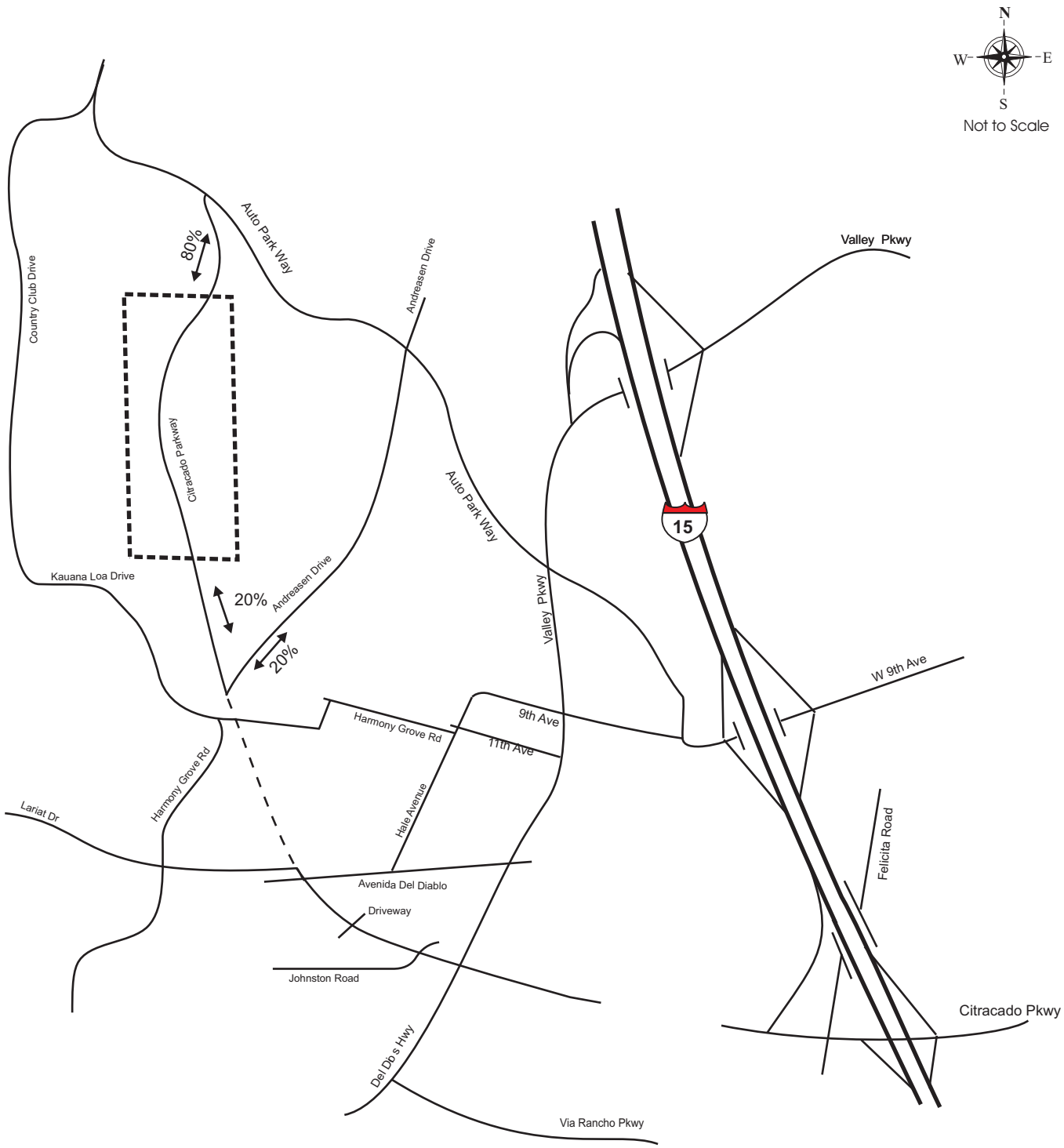
Figure 3 - 4

Legend :

Palomar Hospital Campus — — — Proposed Roadway

← XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project Trip Distribution (No Build)
Escondido Research & Technology Center

Figure 3 - 5

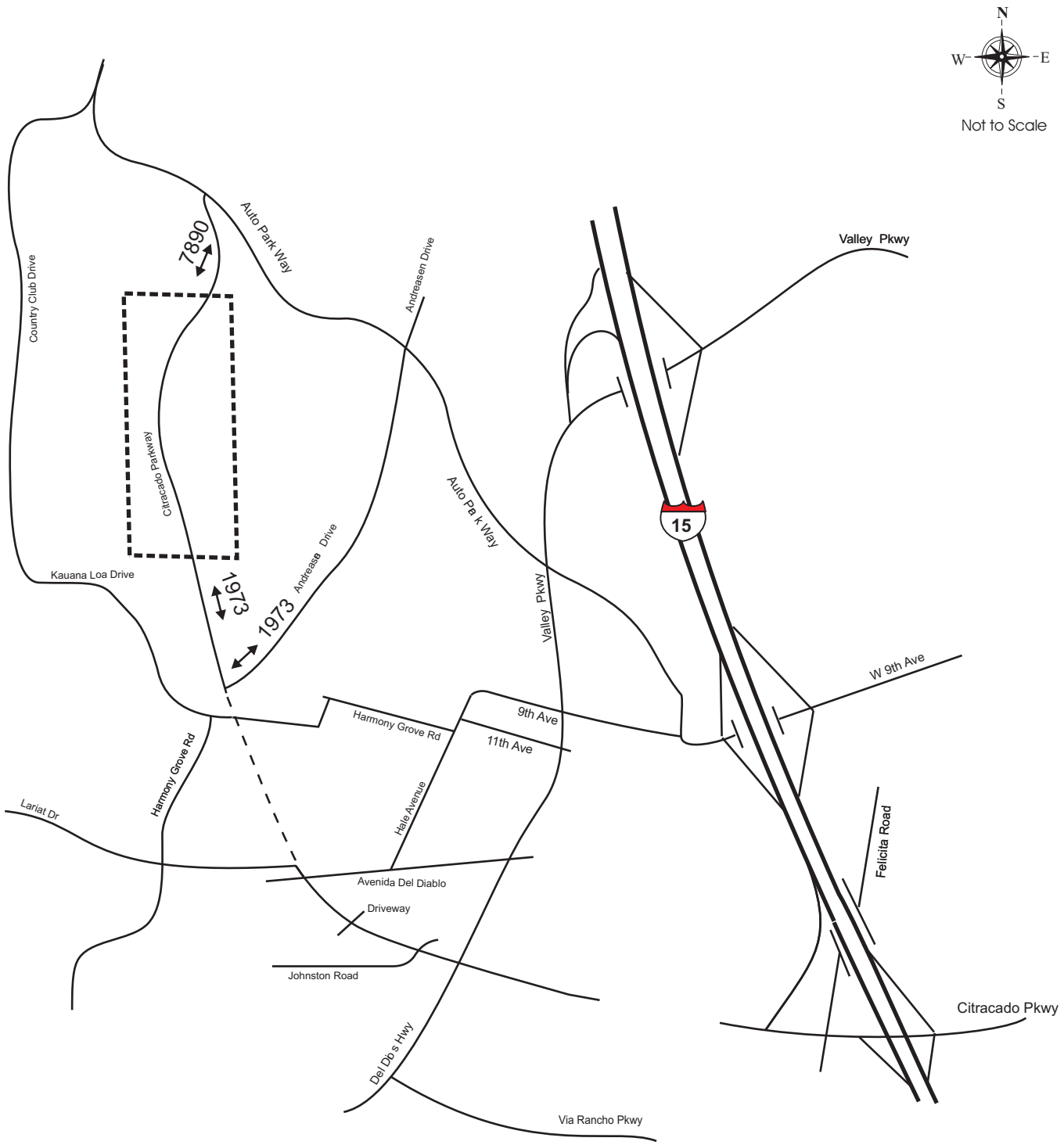
Legend :

ERTC

Proposed Roadway

Existing Roadway

VRPA Technologies Inc.



2014 Cumulative Project Trip ADT (No Build)
Escondido Research & Technology Center

Figure 3 - 6

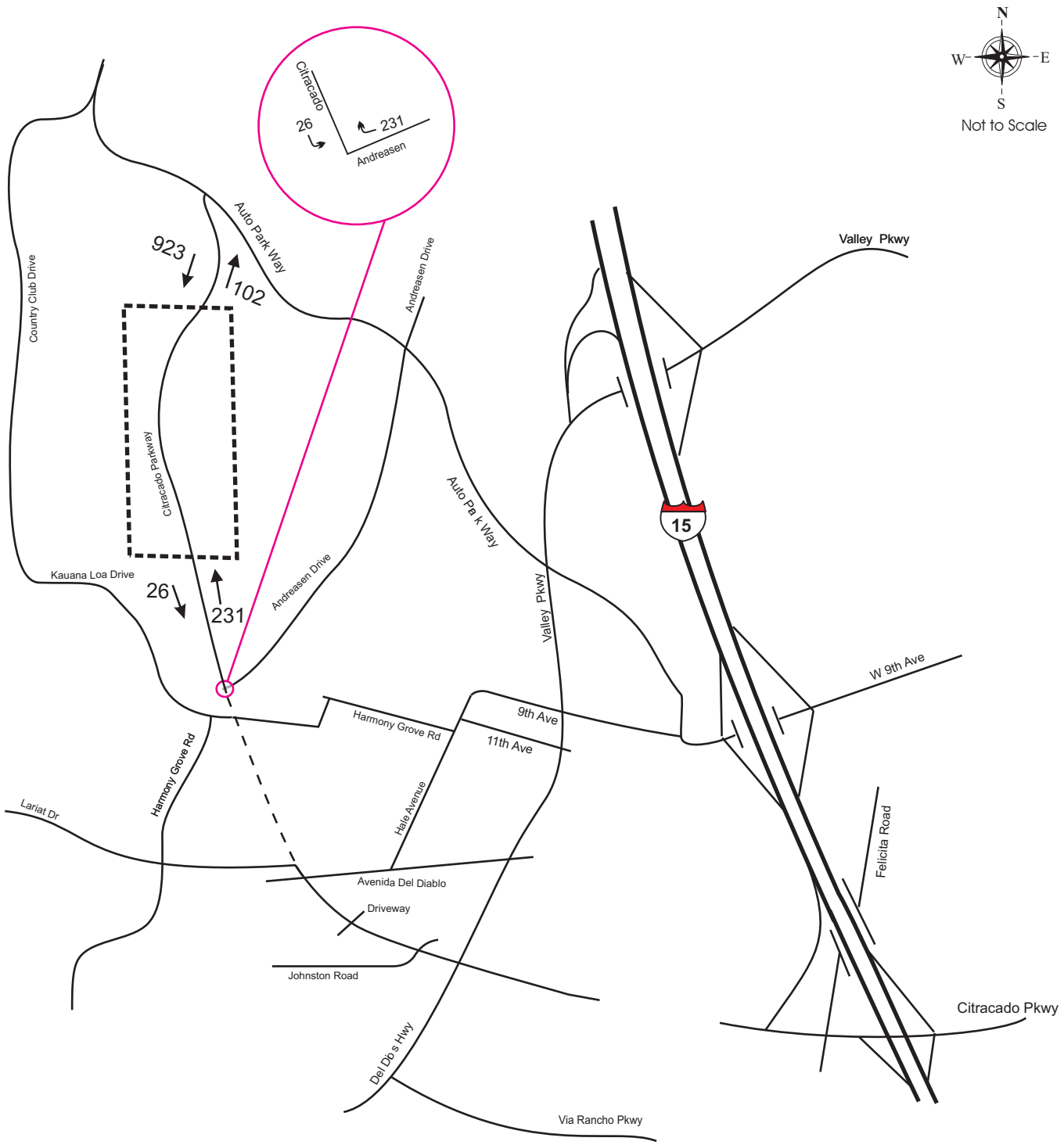
Legend :

ERTC

Proposed Roadway

Existing Roadway

VRPA Technologies Inc.



2014 Cumulative Project AM Trips (No Build)
Escondido Research & Technology Center

Figure 3 - 7

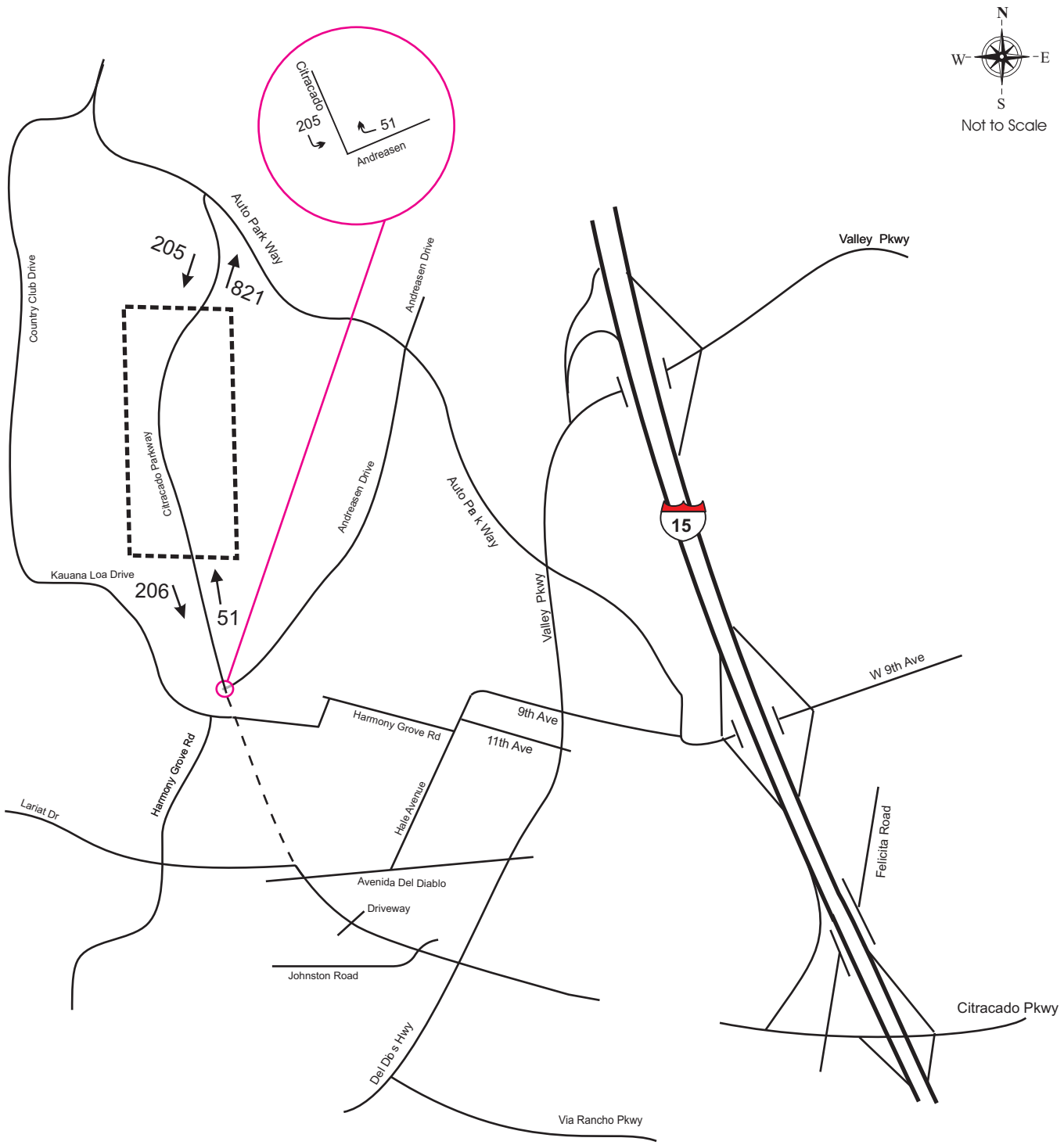
Legend :

ERTC

Proposed Roadway

XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project PM Trips (No Build)
Escondido Research & Technology Center

Figure 3 - 8

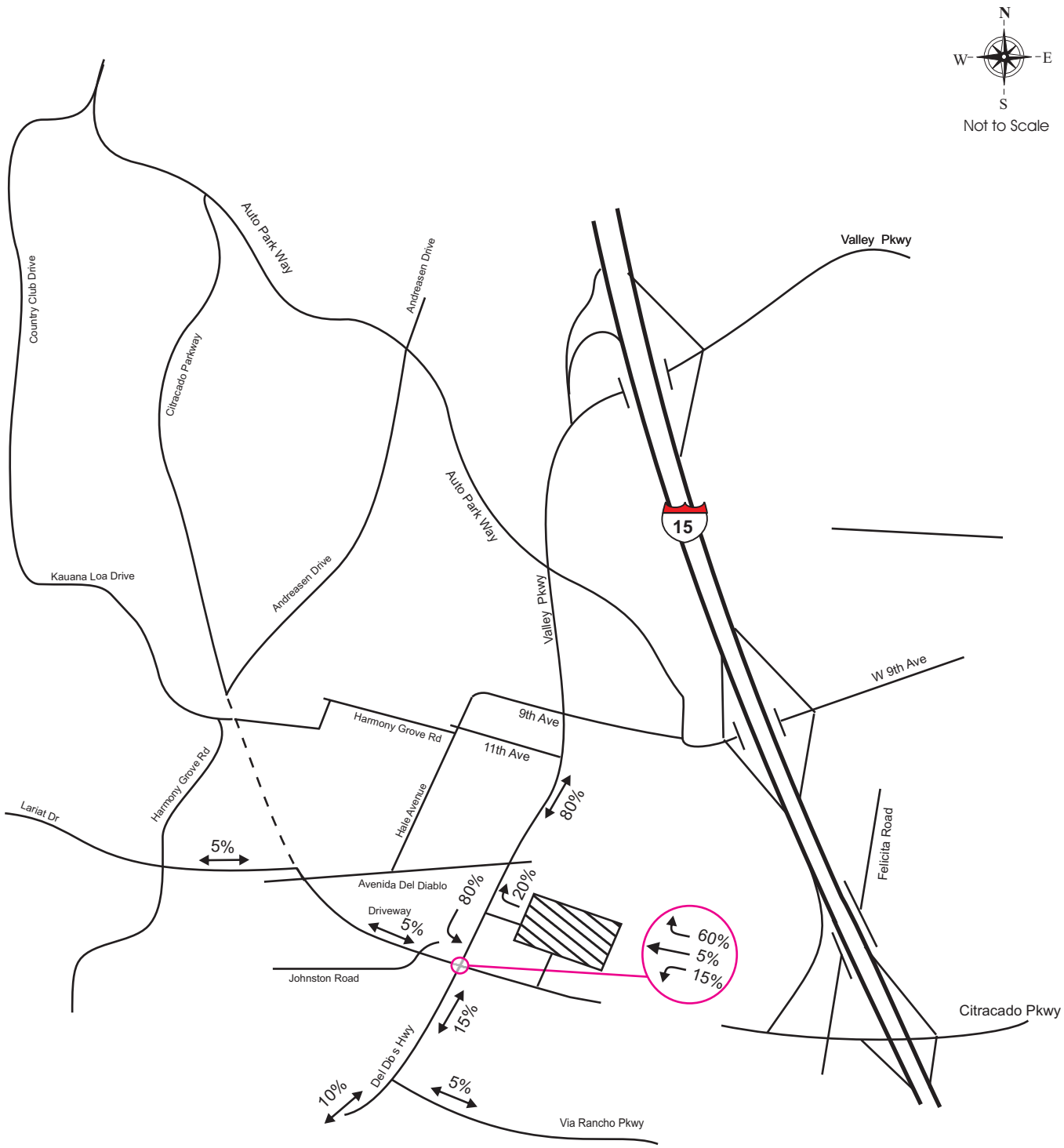
Legend :

ERTC

Proposed Roadway

XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project Trip Distribution (No Build)
Citracado High School

Figure 3 - 9

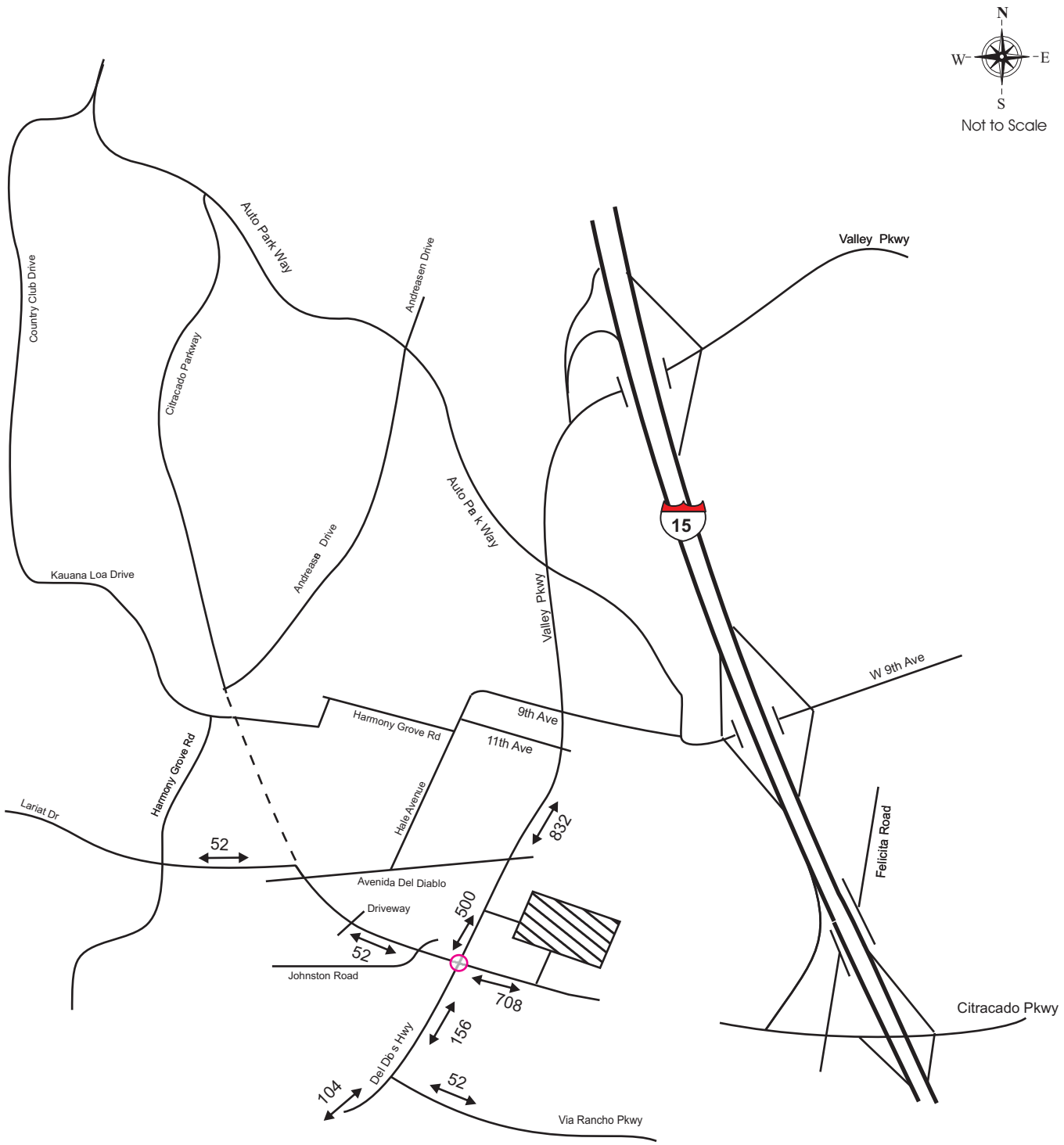
Legend :

Citracado High School

Proposed Roadway

Existing Roadway

VRPA Technologies Inc.



2014 Cumulative Project Trip ADT (No Build)
Citracado High School

Figure 3 - 10

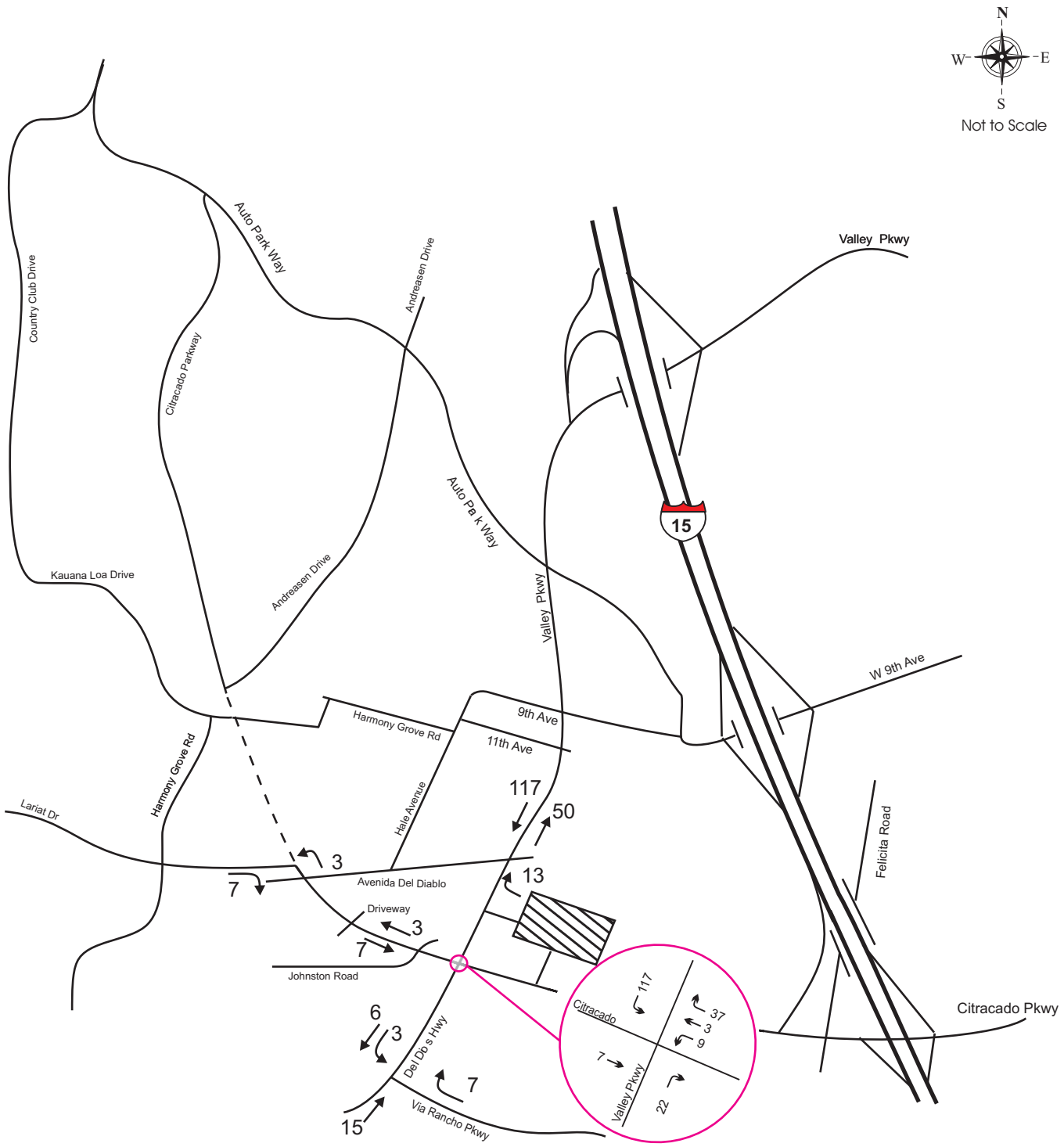
Legend :

Citracado High School

Proposed Roadway

Existing Roadway

VRPA Technologies Inc.



2014 Cumulative Project AM Trips (No Build)
Citracado High School

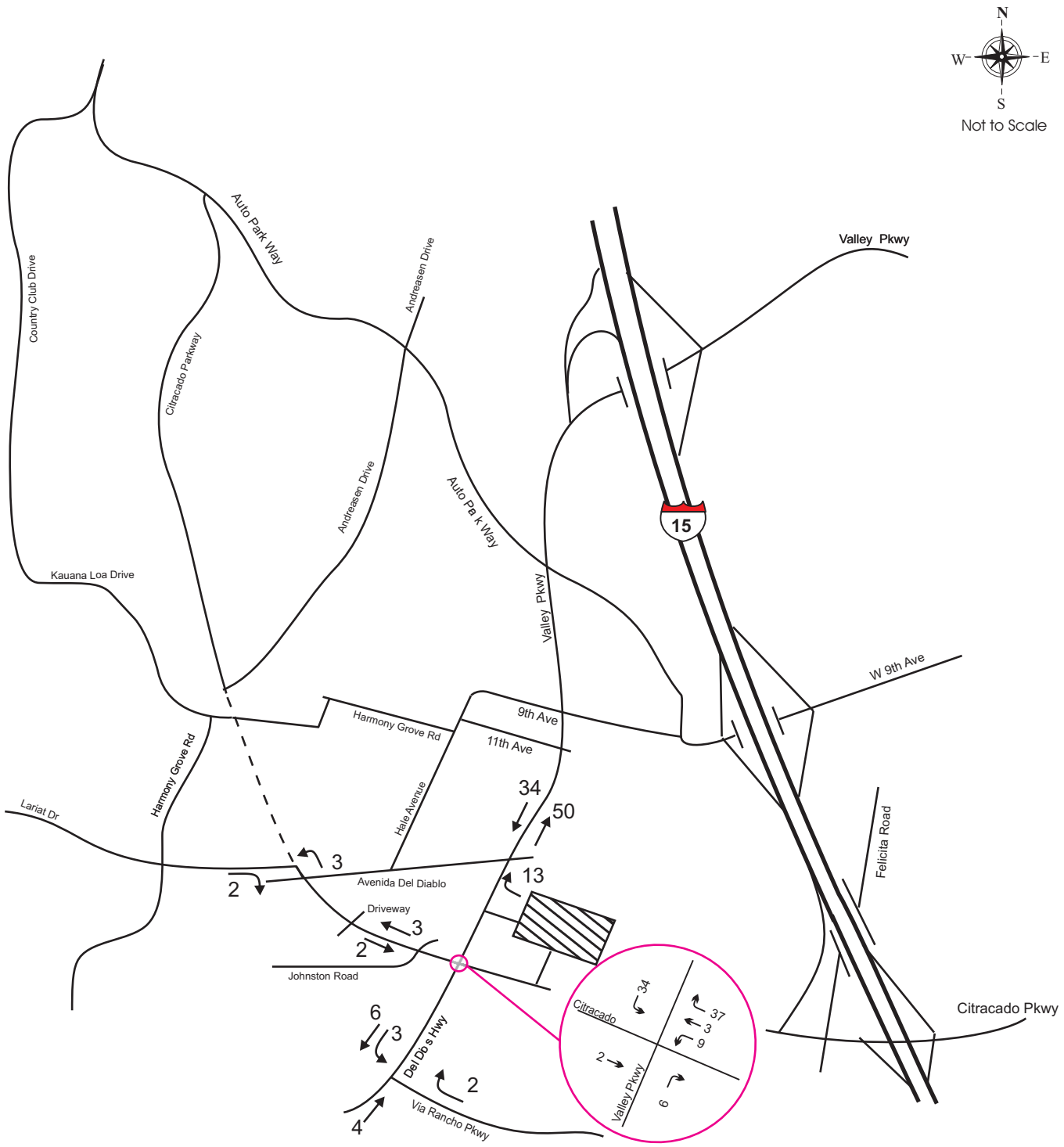
Figure 3 - 11

Legend :

Citracado High School — — — Proposed Roadway

← XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project PM Trips (No Build)
Citracado High School

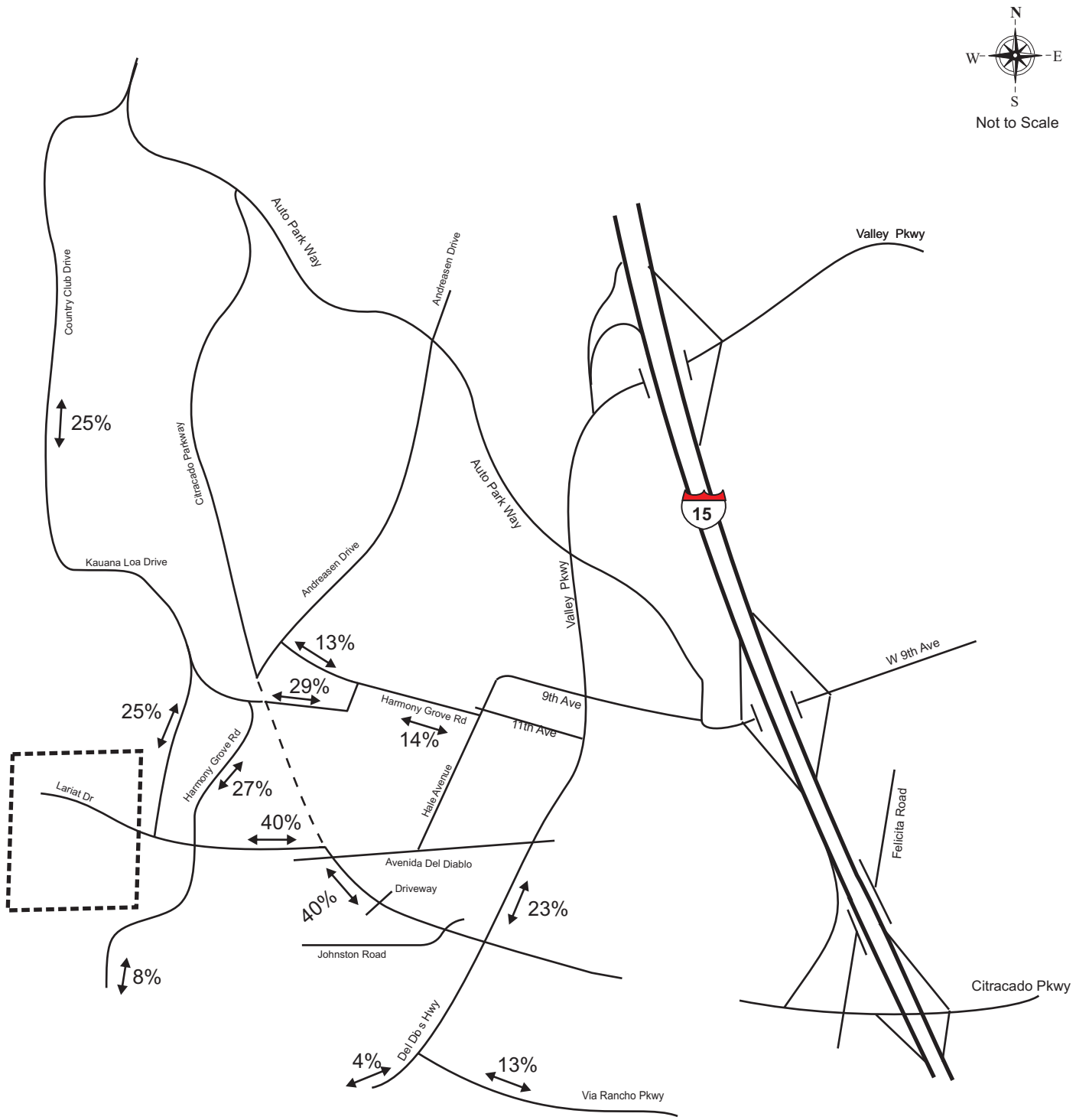
Figure 3 - 12

Legend :

Citracado High School — — — Proposed Roadway

← XX Peak Hour Traffic

VRPA Technologies Inc.



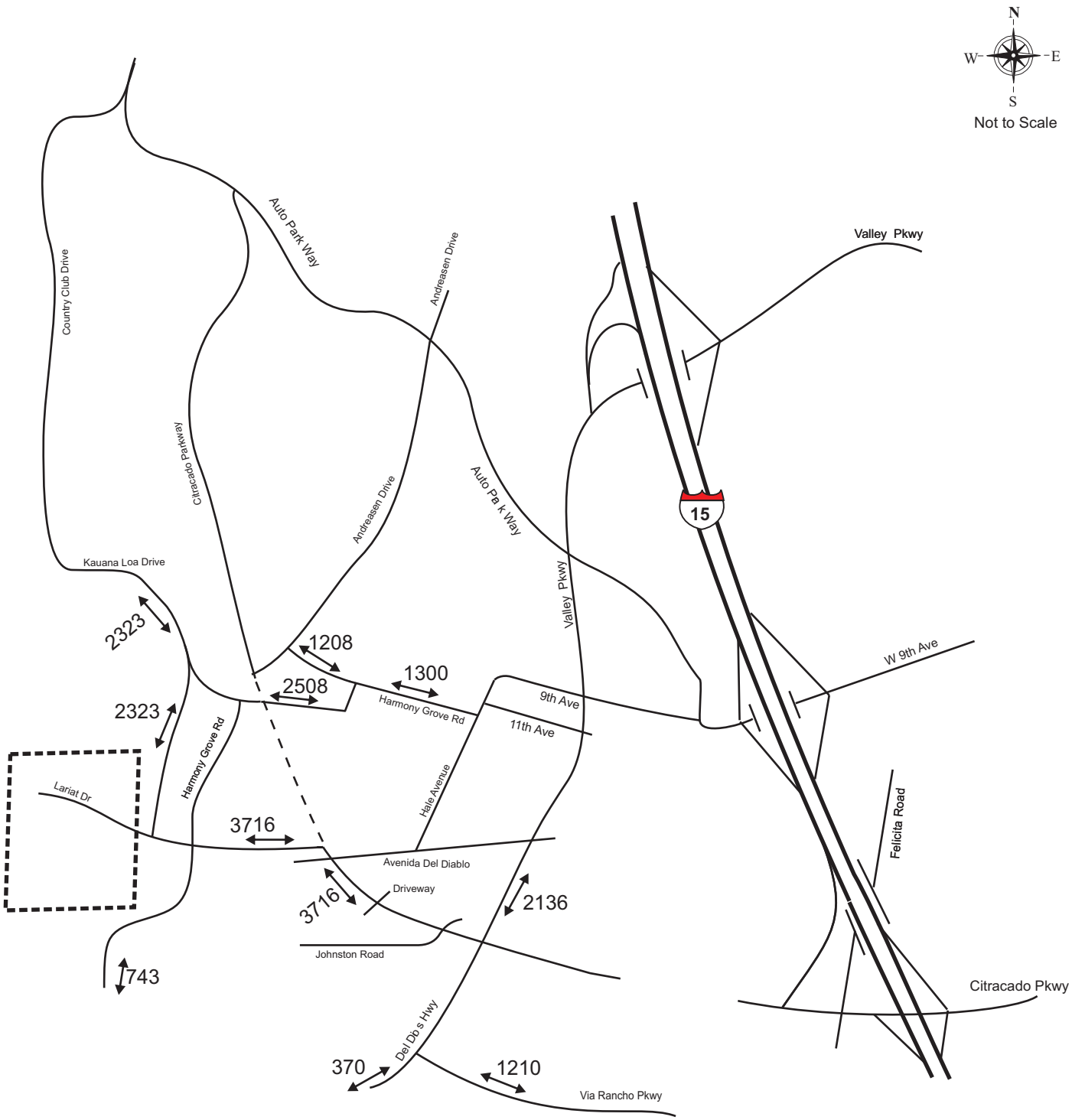
2014 Cumulative Project Trip Distribution (No Build)
Harmony Grove Village

Figure 3 - 13

Legend :

Harmony Grove Village — — — Proposed Roadway

VRPA Technologies, Inc.



2014 Cumulative Project Trip ADT (No Build)
Harmony Grove Village

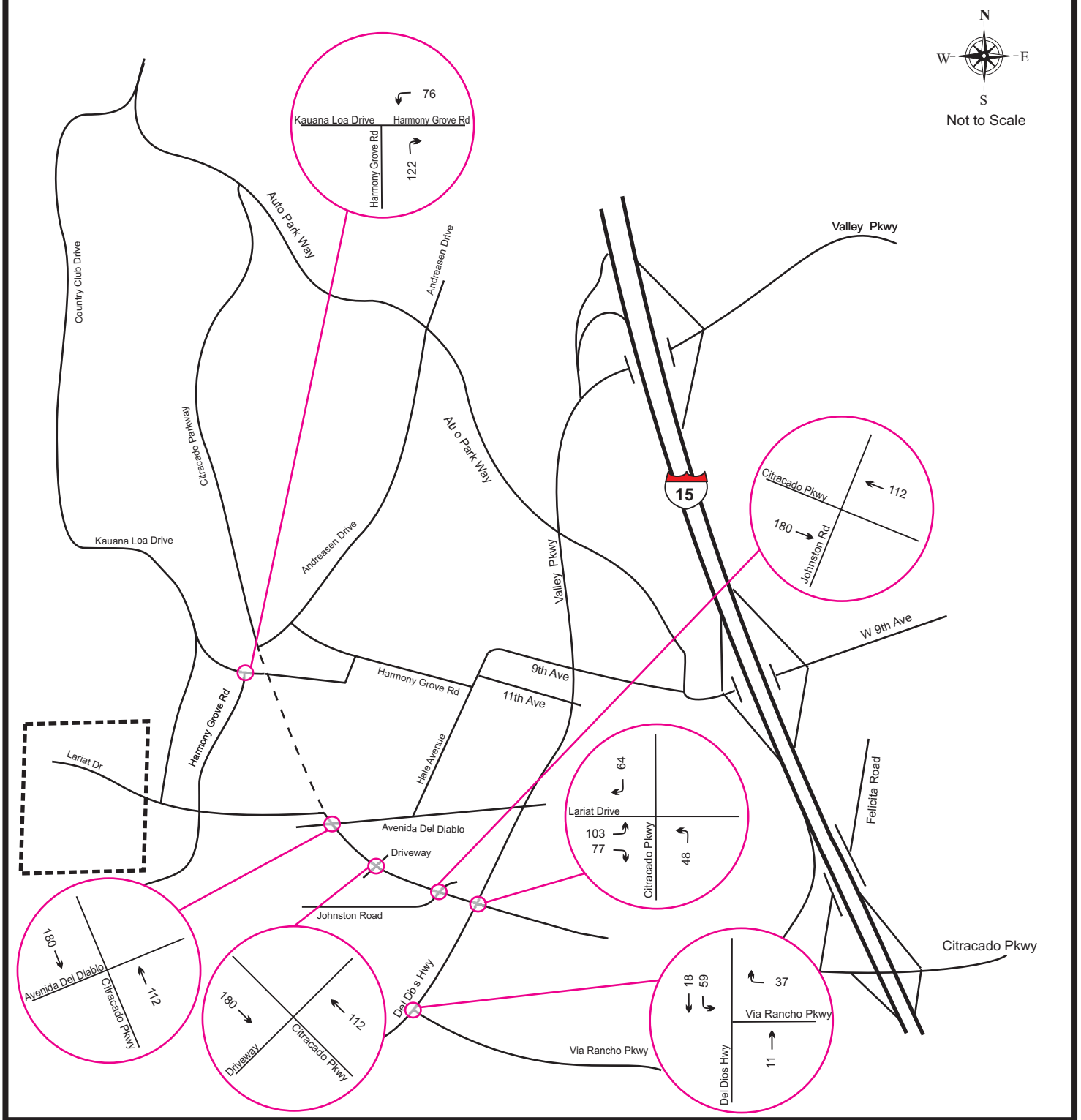
Figure 3 - 14

Legend :

Harmony Grove Village — — — Proposed Roadway

Existing Roadway

VRPA Technologies, Inc.



2014 Cumulative Project AM Trips (No Build)
Harmony Grove Village

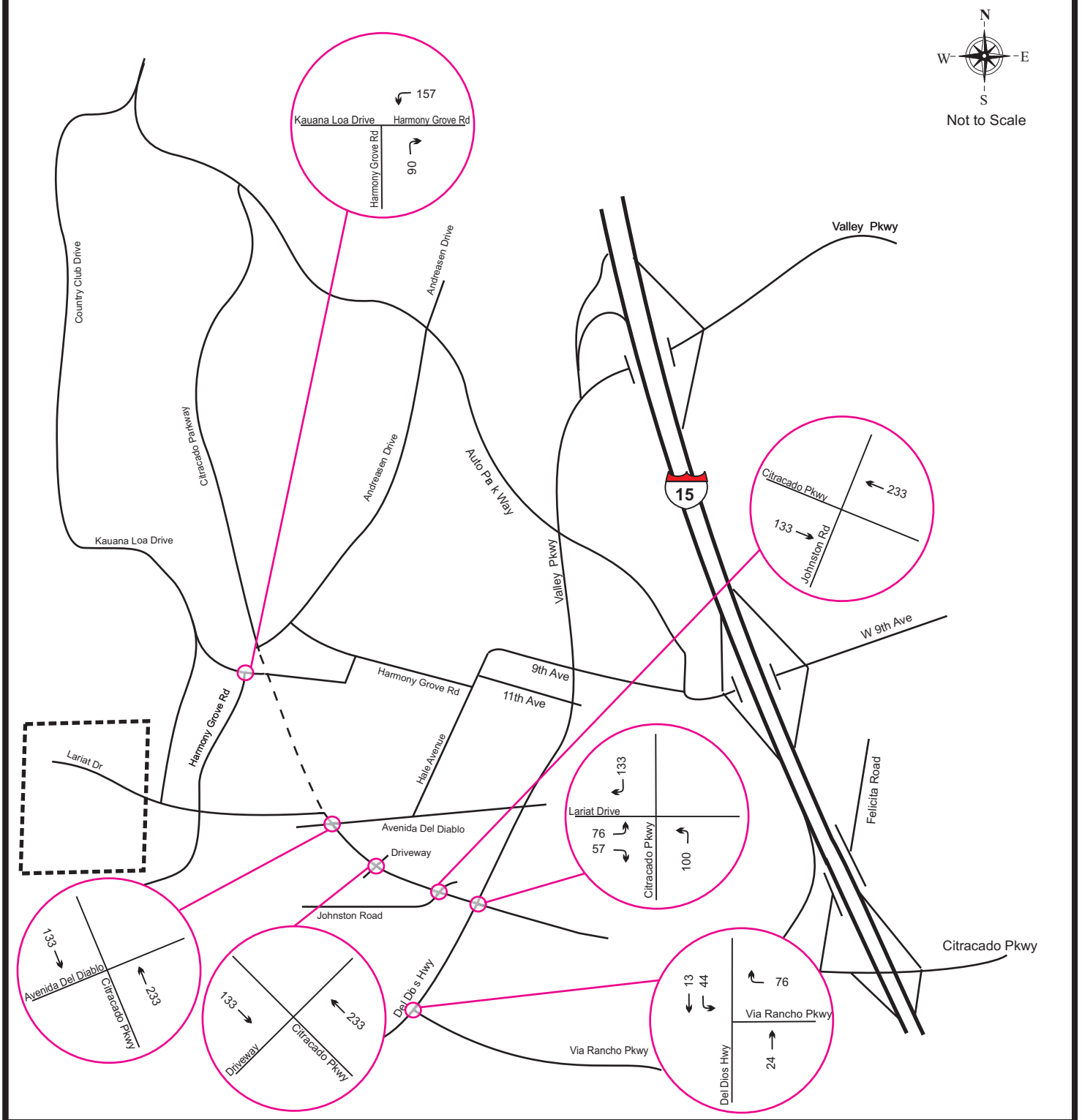
Figure 3 - 15

Legend :

Harmony Grove Village — — — Proposed Roadway

← XX Peak Hour Traffic

VRPA Technologies, Inc.



2014 Cumulative Project PM Trips (No Build)
Harmony Grove Village

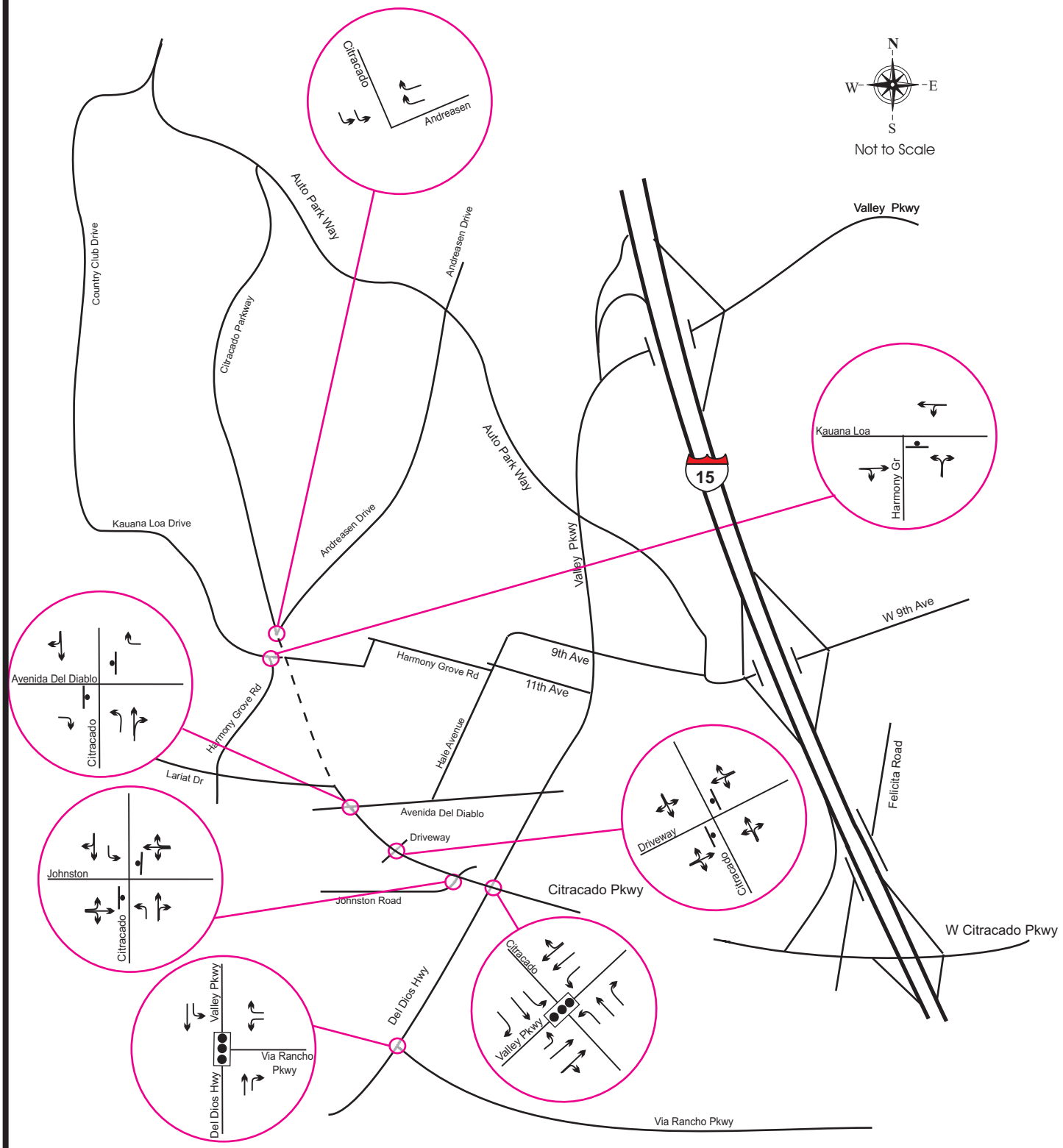
Figure 3 - 16

Legend :

Harmony Grove Village — — — Proposed Roadway

← XX Peak Hour Traffic

VRPA Technologies, Inc.



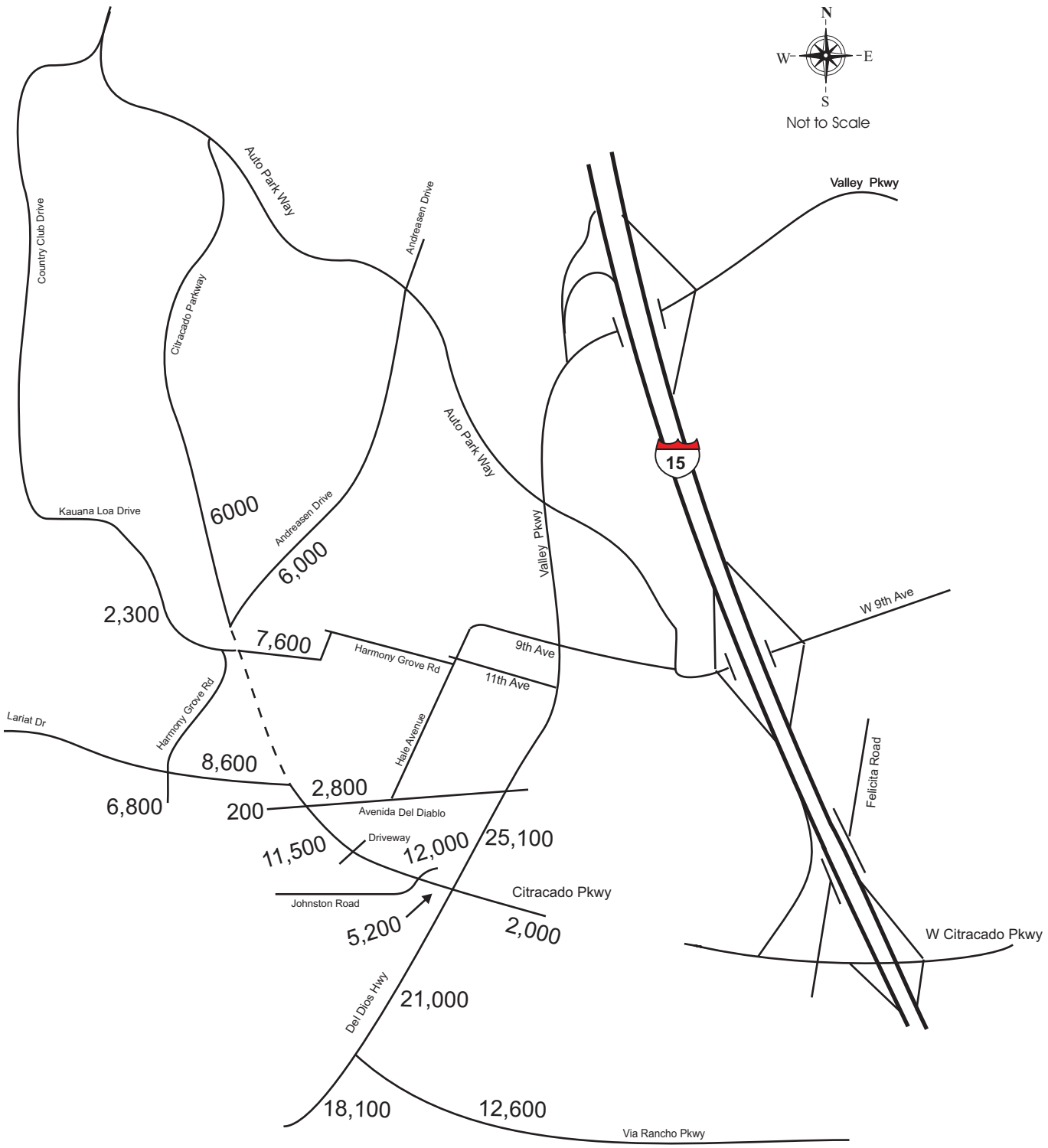
2014 No Build Lane Geometry

Figure 3 - 17

Legend :

- Signal
- Proposed Roadway
- Stop Sign

VRPA Technologies Inc.



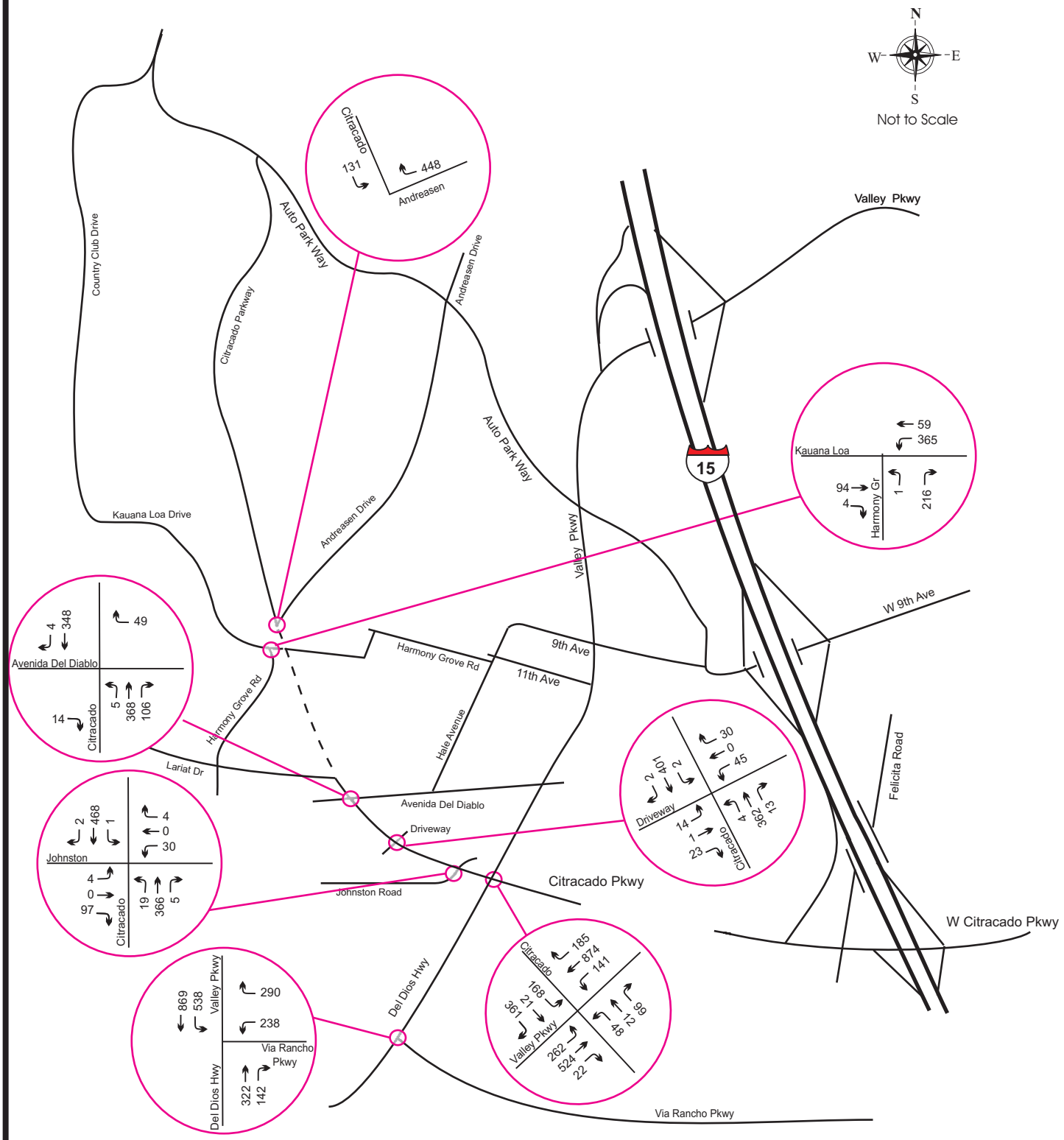
2014 No Build ADT

Figure 3 - 18

Legend :

- Proposed Roadway
- Existing Roadway

VRPA Technologies Inc.



2014 No Build AM Peak Hour Traffic

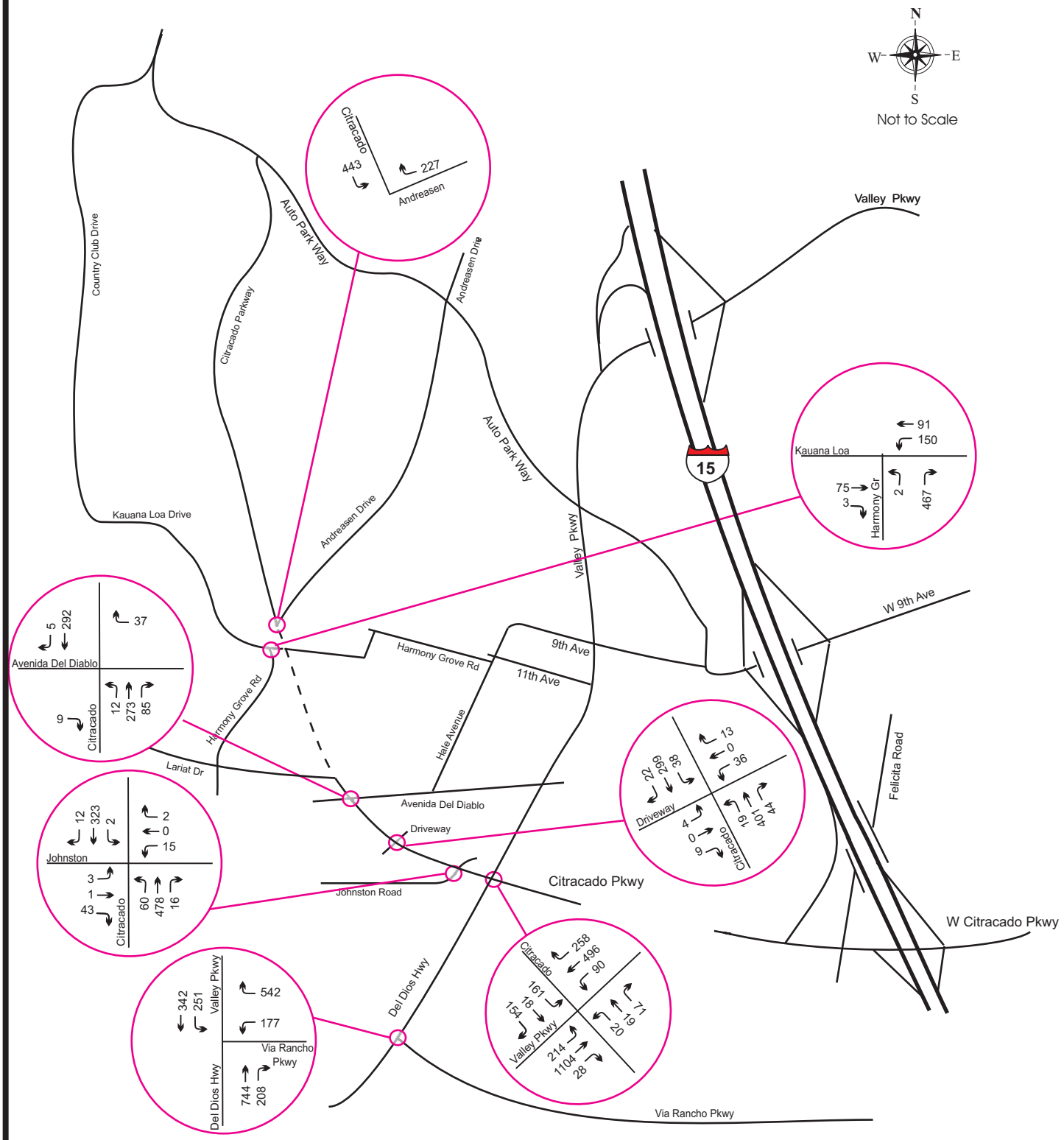
Figure 3 - 19

Legend :

XX Peak Hour Traffic

— — — Proposed Roadway

VRPA Technologies Inc.



2014 No Build PM Peak Hour Traffic

Figure 3 - 20

Legend :

XX Peak Hour Traffic

— — — Proposed Roadway

VRPA Technologies Inc.

4.0 BUILD CONDITIONS (2014)

Analysis of 2014 Build Conditions was conducted in order to determine the impacts of the proposed Citracado Parkway extension on study area intersections. The 2014 Build Conditions lane geometry for intersections along Citracado Parkway and for the intersection of Harmon Grove Road/Kuana Loa Drive was based on the project design plans. For other intersections, the lane geometry was assumed to be the same as for 2014 No Build Conditions.

Traffic conditions for the Year 2014 were determined using the following process:

- Year 2014 Average Daily Traffic was determined through linear interpolation of existing traffic and 2030 traffic forecasts. (See Chapter 5 for additional discussion of 2030 traffic forecasts.)

- Peak hour turning movements were calculated through a post-processing methodology based on existing turning movements, existing ADT values, and future ADT values. The methodology for this post-processing analysis is based on NCHRP Report #255.

- Based on information available from City of Escondido, trips generated from proposed Palomar Medical Center West development in the City of Escondido are factored in the 2014 Build traffic conditions. The Palomar Medical Center West development proposes the construction of a new hospital facility on Planning Areas 4 and 5 of the adopted Escondido Research and Technology Center (ERTC) Specific Plan Site. The Palomar Medical Center West development is located southwest of the Vineyard Drive/ Citracado Parkway intersection. Table 3-1 shows the trip generation calculation for the proposed Palomar Medical Center West Development. Figure 4-1 to Figure 4-4 shows the trip generation information of the proposed Palomar Medical Center West development.

- Based on information available from City of Escondido, trips generated from proposed Escondido Research and Technology Center (ERTC) Specific Plan Site in the City of Escondido are factored in the 2014 Build traffic conditions. ERTC is a research center comprising of 158 acres located along the future extension of Citracado Parkway in the City of Escondido. The trip generation for the ERTC was based on the trip generation information available from the City of Escondido. Table 3-1 shows the trip generation calculation for the proposed ERTC development. Figure 4-5 to Figure 4-8 shows the trip generation information of the proposed ERTC development.

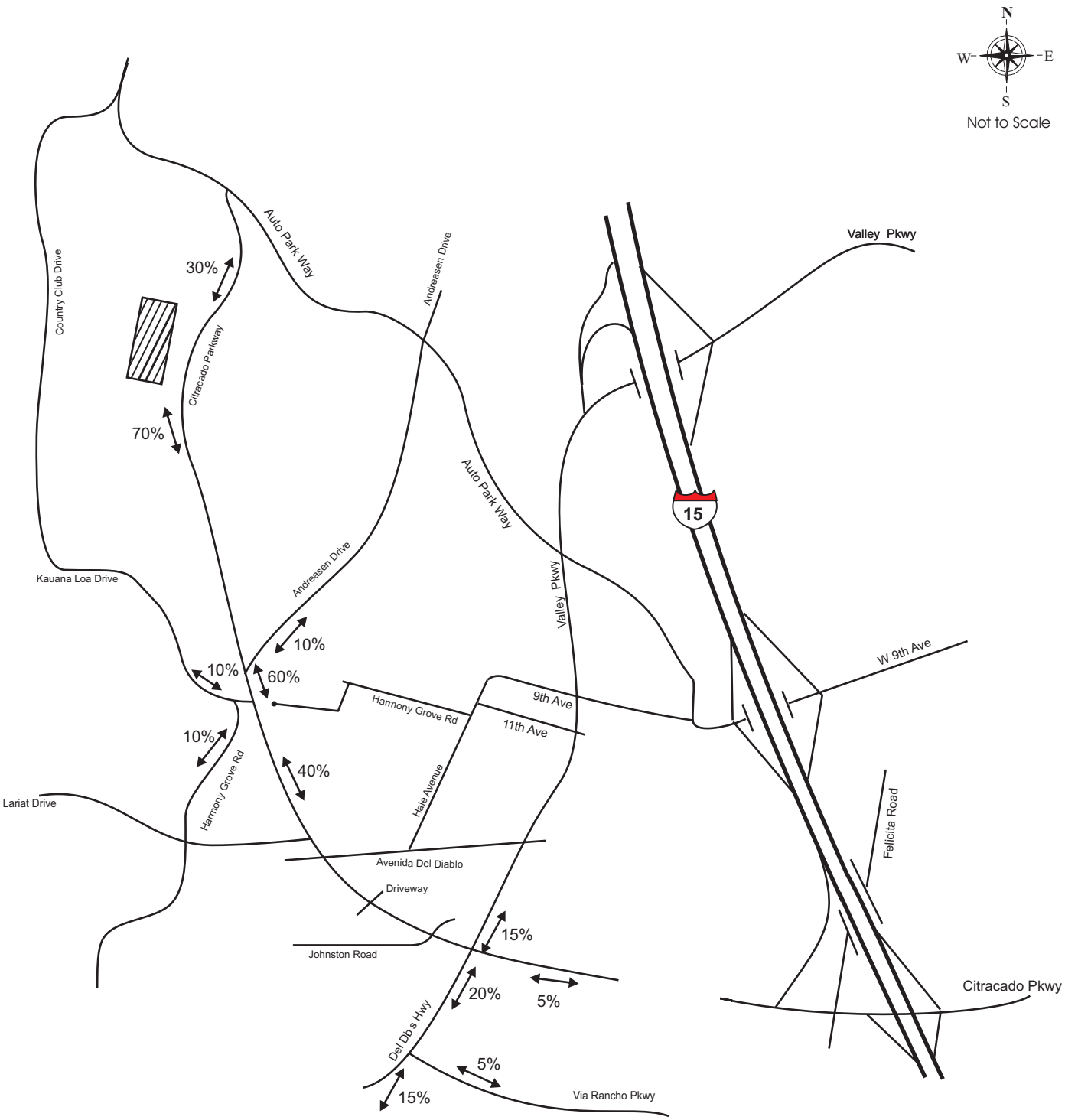
- Based on information available from City of Escondido, trips generated from proposed Citracado High are factored in the 2014 Build traffic conditions. Citracado High School is located south of West Valley Parkway and north of Citracado Parkway. The proposed Citracado High School is expected to serve 800 students in grades 9 to 12. The trip generation was based on the trip generation table available from SANDAG. Appendix D shows the SANDAG trip generation table for reference. Table 3-1 shows the trip generation calculation for the proposed Citracado High School. Figure 4-9 to Figure 4-12 shows the trip generation information of the proposed Citracado High School.

- Traffic generated by the Harmony Grove Village project was added to the street network based on the information contained in the project's traffic impact analysis. Table 3-1 shows the trip generation information for the proposed Harmony Grove Village Project. Figure 4-13 to Figure 4-16 shows the trip generation information of the proposed Harmony Grove Village.

The results of the 2014 Build Conditions are documented in the pages that follow. Figure 4-17 shows the lane geometry assuming that the Citracado Parkway extension is built. Figure 4-18, Figure 4-19 and Figure 4-20 show the ADT, AM and PM peak hour traffic for the 2014 Build Conditions. Capacity analysis for this scenario was shown previously in Tables 2-1 and 2-2. Capacity calculations are included in the Appendix A.

The proposed project will enhance the circulation system of the City of Escondido and adjacent areas by proving a shorter means of travel for north-south trips in the area west of I-15. These shorter trips will result in a reduction in vehicles miles travelled, with associated air quality and greenhouse gas reduction benefits. Traffic congestion and delay will be reduced on parallel routes such as I-15, SR-78, Auto Park Way, and portions of Harmony Grove Road.

It should be noted that the opening day scenario and all future scenarios assume the construction of the Harmony Grove Village Project in San Diego County and the extension of the new roadway, Lariat Drive to connect Harmony Grove Road and Citracado Parkway to the north of Avenida Del Diablo. At the intersection of Citracado Parkway / Avenida Del Diablo, southbound left turn lanes are proposed to be prohibited in order to discourage traffic generated by the Harmony Grove Village Project from using Avenida Del Diablo as a through street.



2014 Cumulative Project Trip Distribution (Build) Palomar Hospital Campus

Figure 4 - 1

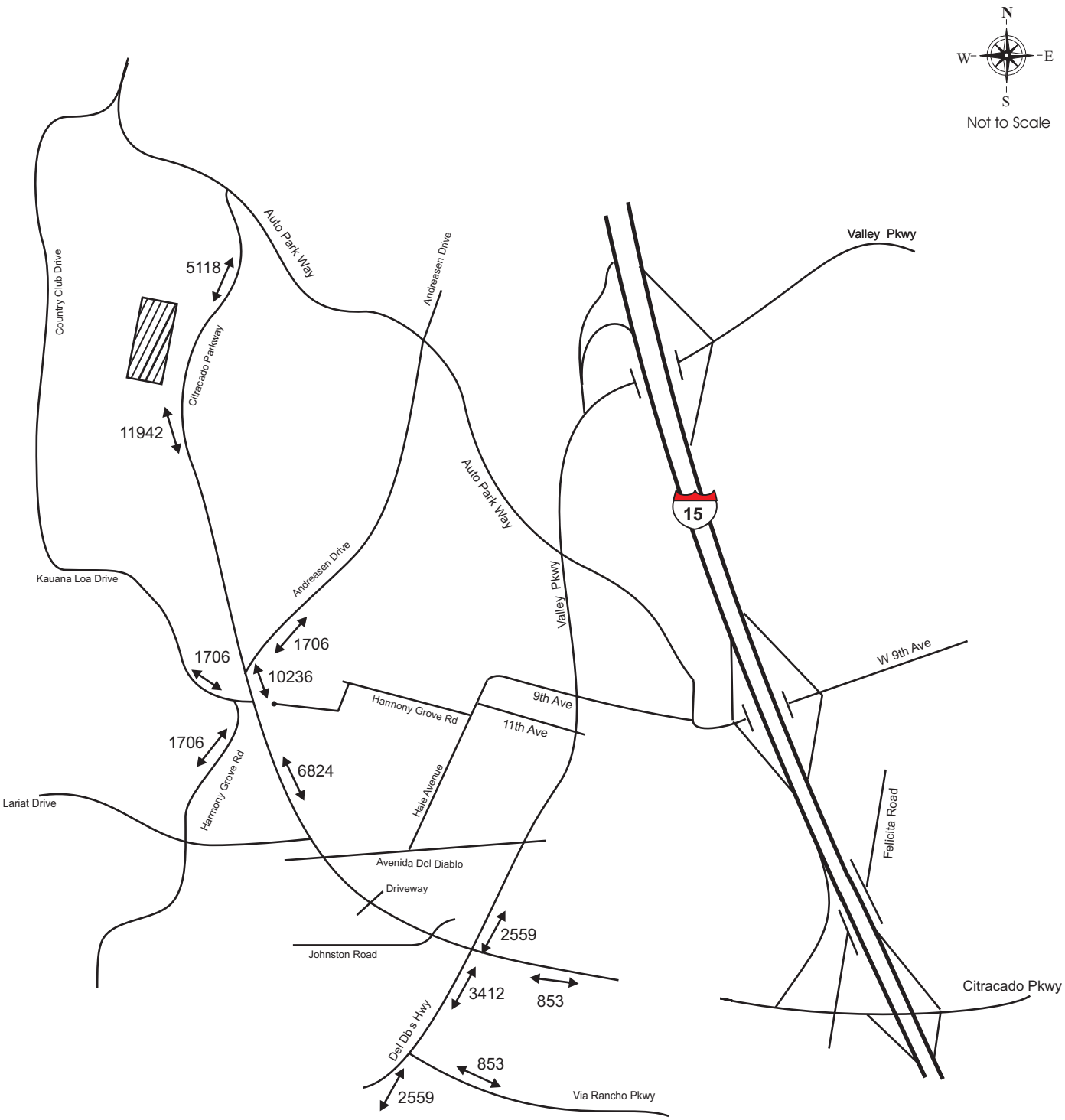
Legend :

Palomar Hospital Campus

Signal

Stop Sign

VRPA Technologies Inc.



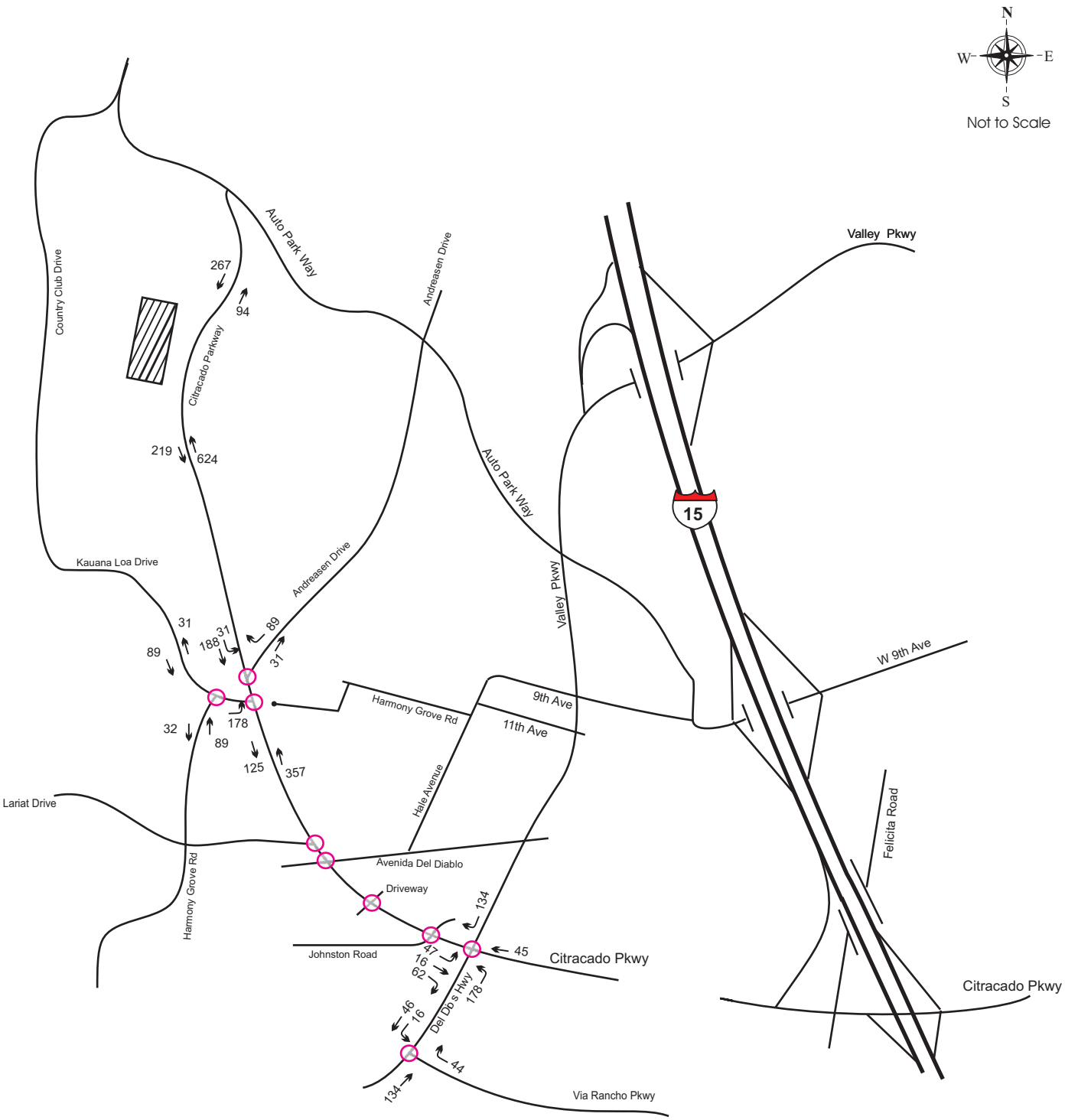
2014 Cumulative Project ADT (Build)
Palomar Hospital Campus

Figure 4 - 2

Legend :

Palomar Hospital Campus

VRPA Technologies Inc.



2014 Cumulative Project AM Trips (Build)
Palomar Hospital Campus

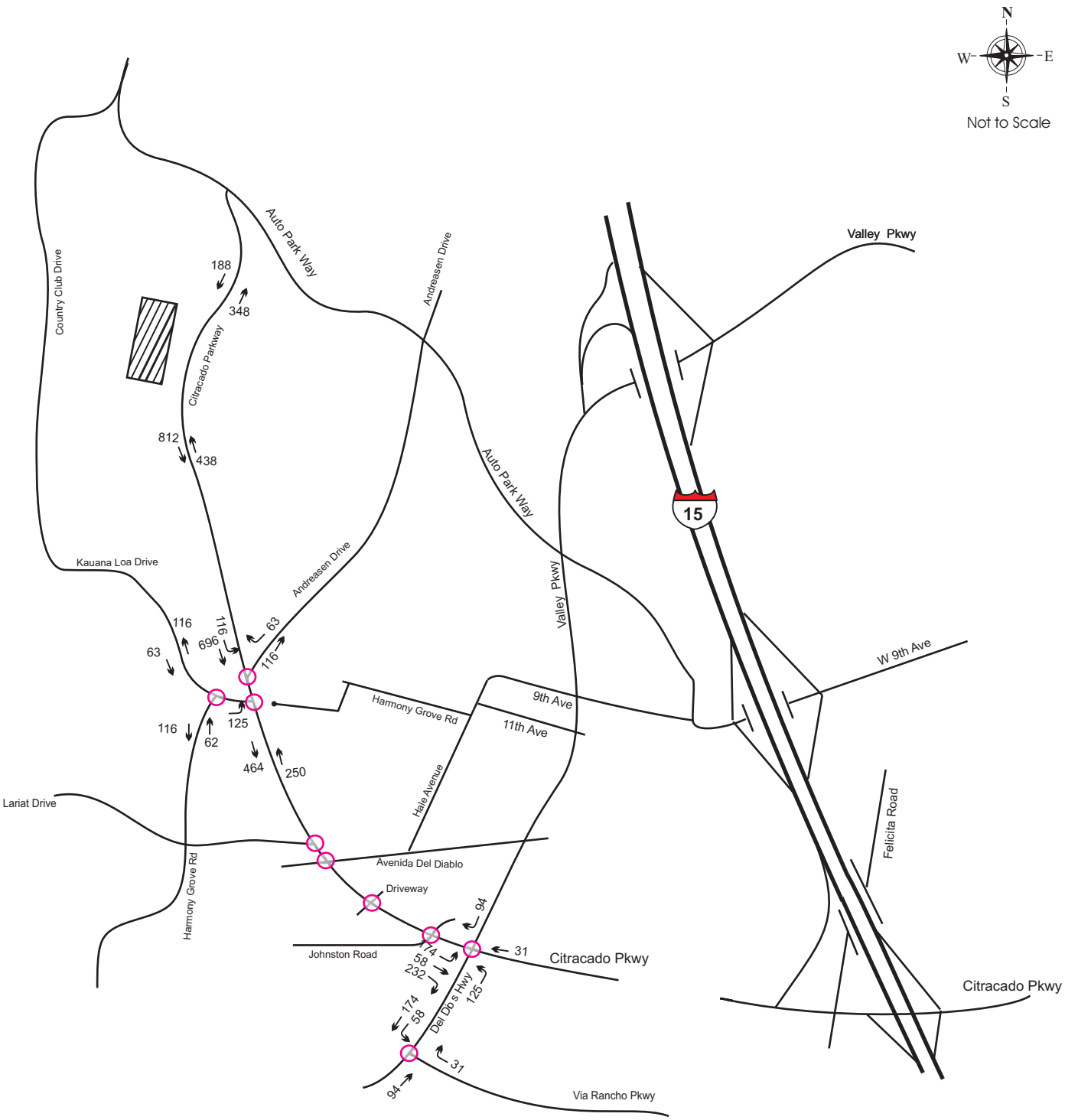
Figure 4 - 3

Legend :

Palomar Hospital Campus

← XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project PM Trips (Build)
Palomar Hospital Campus

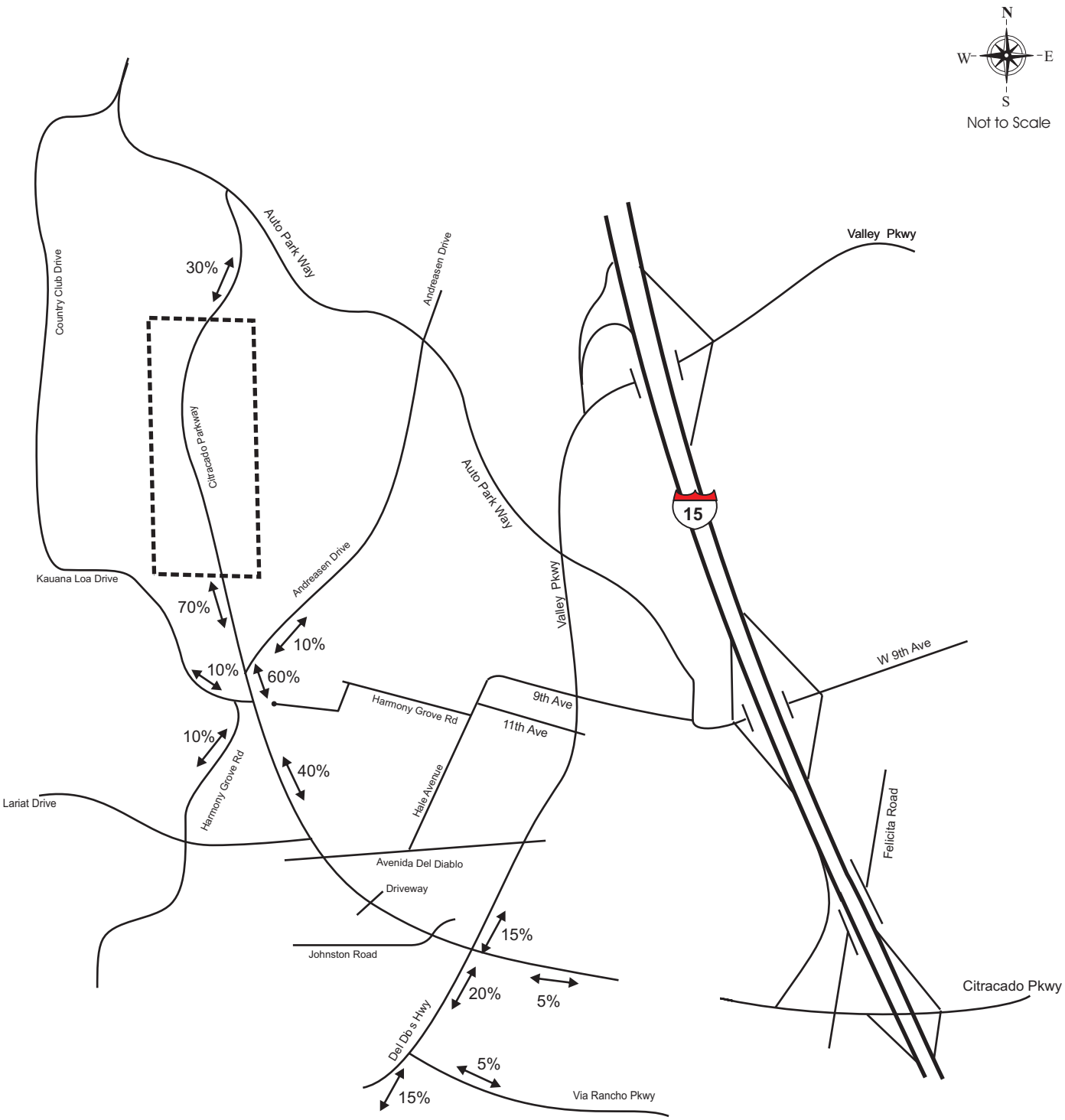
Figure 4 - 4

Legend :

Palomar Hospital Campus

← XX Peak Hour Traffic

VRPA Technologies Inc.



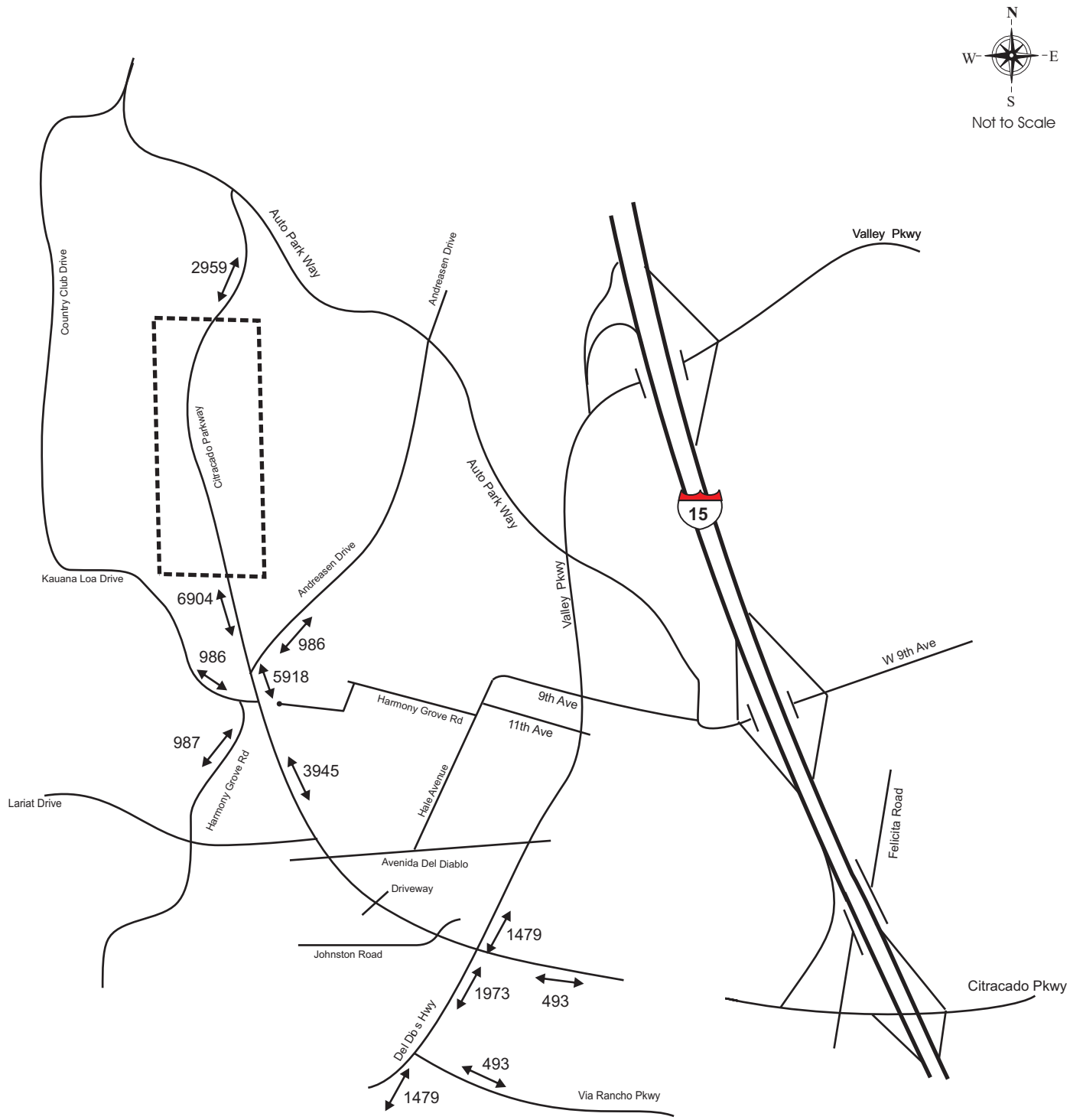
2014 Cumulative Project Trip Distribution (Build)
Escondido Research and Technology Center

Figure 4 - 5

Legend :

ERTC

VRPA Technologies Inc.



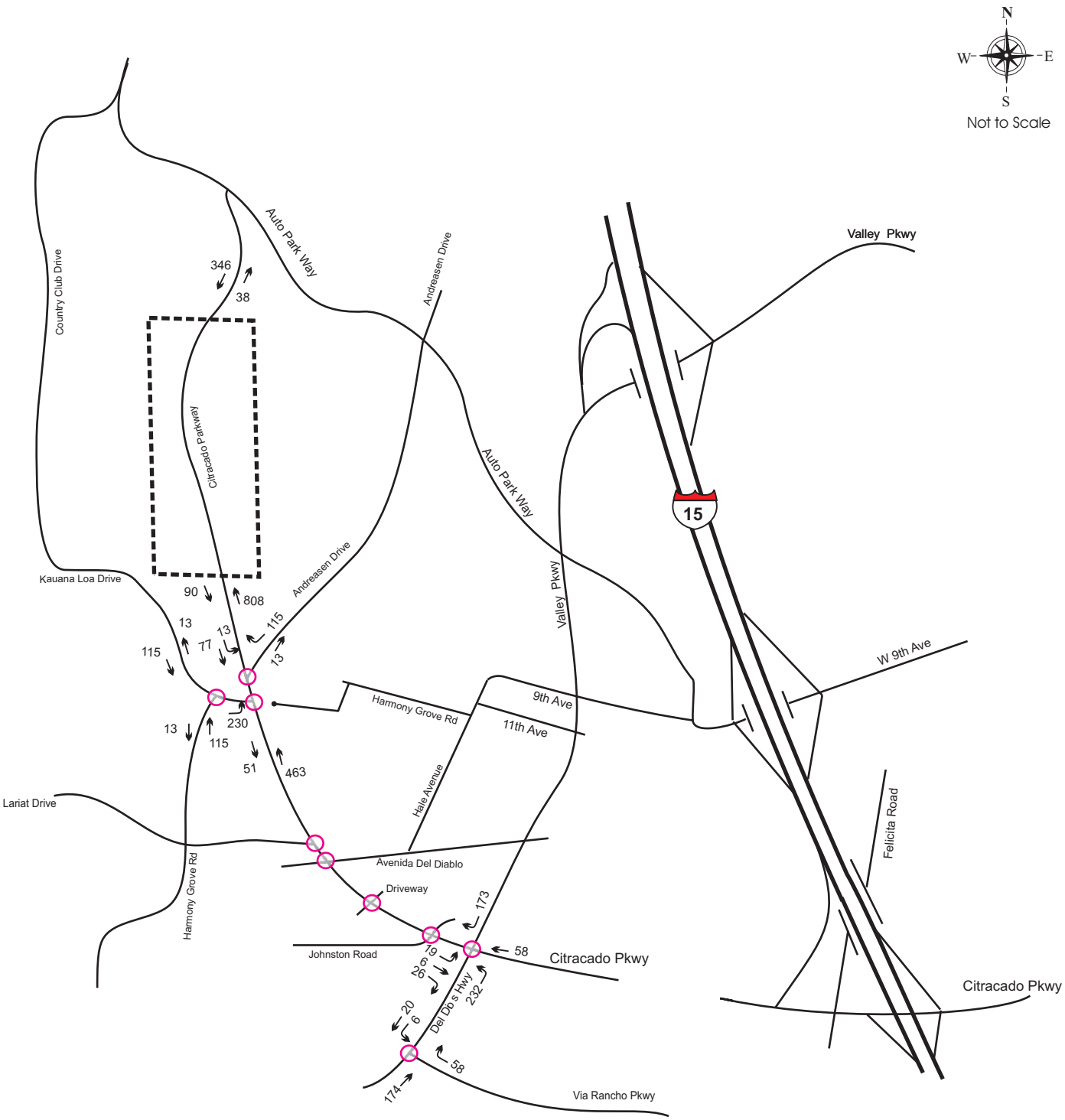
2014 Cumulative Project ADT (Build)
Escondido Research and Technology Center

Figure 4 - 6

Legend :

ERTC

VRPA Technologies Inc.



2014 Cumulative Project AM Trips (Build)
Escondido Research and Technology Center

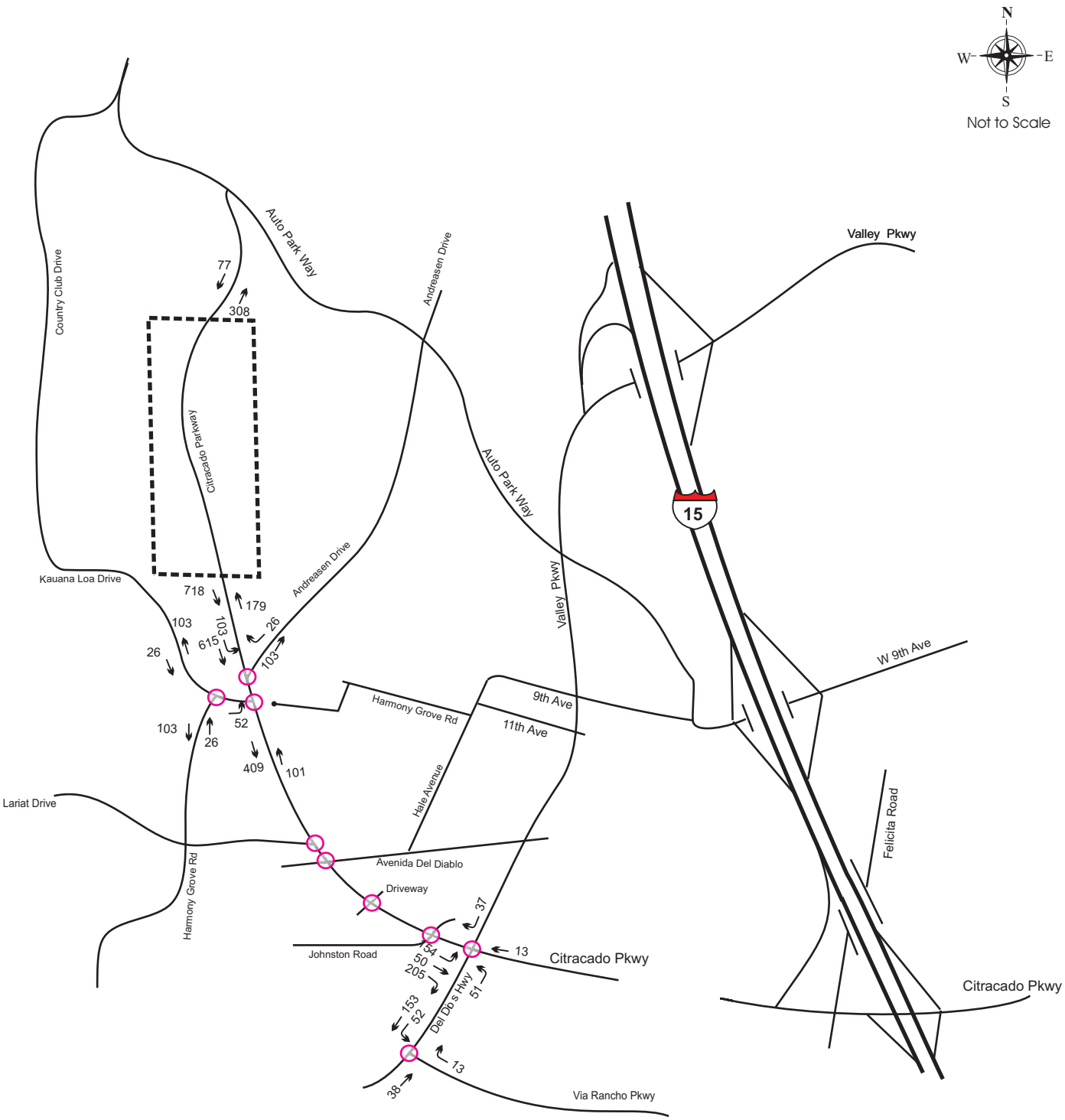
Figure 4 - 7

Legend :

ERTC

← XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project PM Trips (Build)
Escondido Research and Technology Center

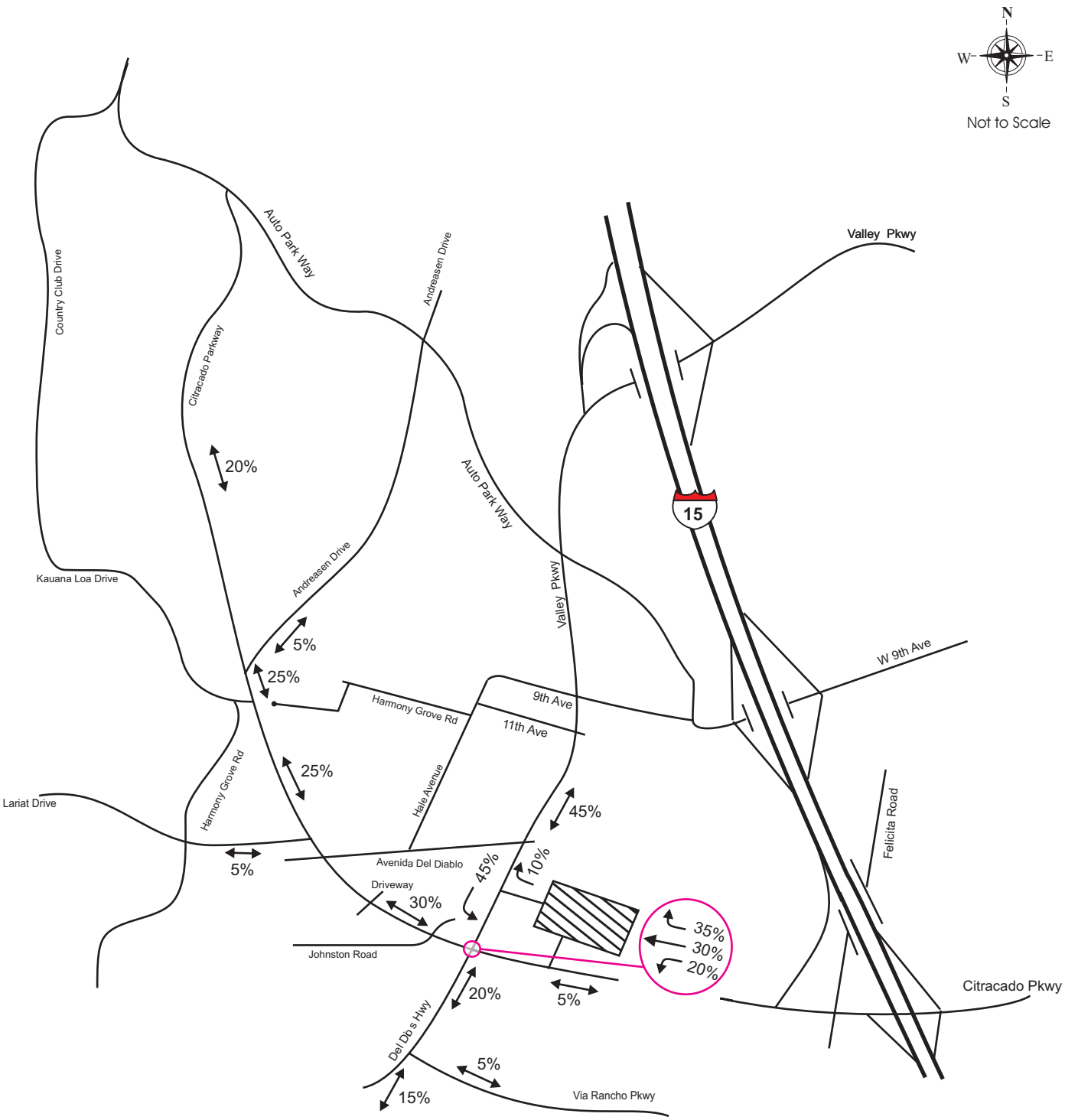
Figure 4 - 8

Legend :

ERTC

← XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project Trip Distribution (Build)
Citracado High School

Figure 4 - 9

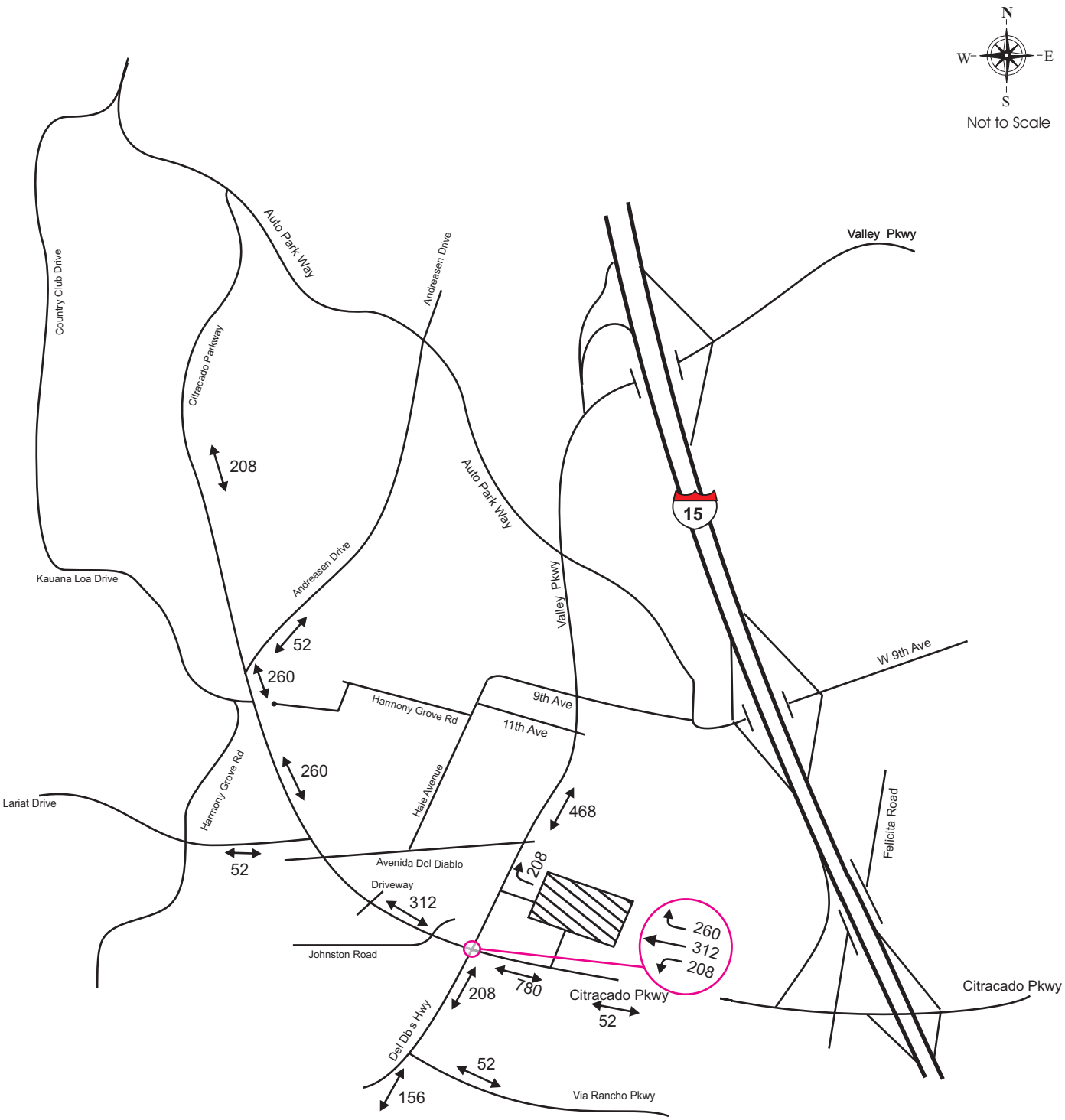
Legend :

Citracado High School

Signal

Stop Sign

VRPA Technologies Inc.



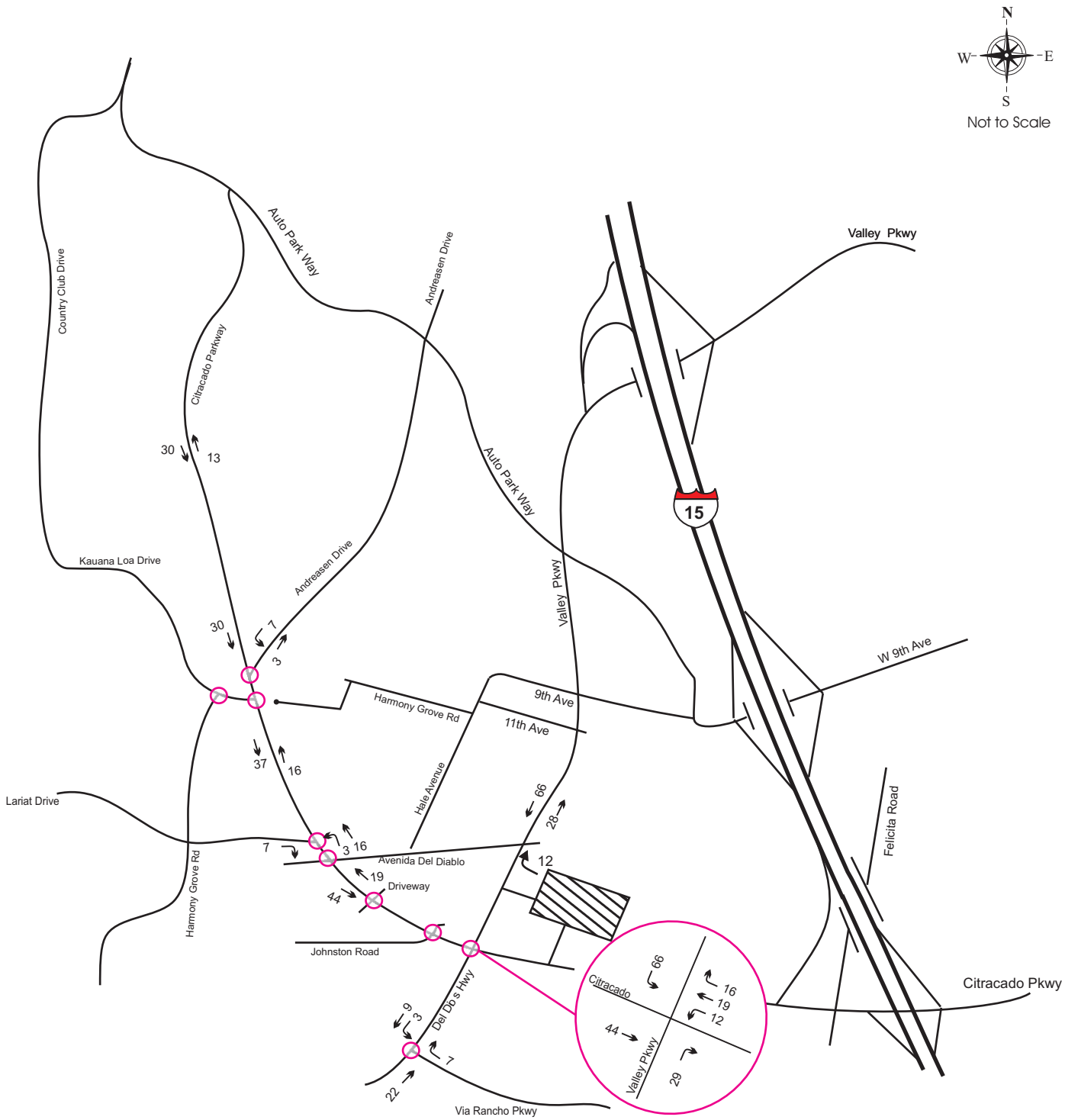
2014 Cumulative Project ADT (Build)
Citracado High School

Figure 4 - 10

Legend :

Citracado High School

VRPA Technologies Inc.



2014 Cumulative Project AM Trips (Build)
Citracado High School

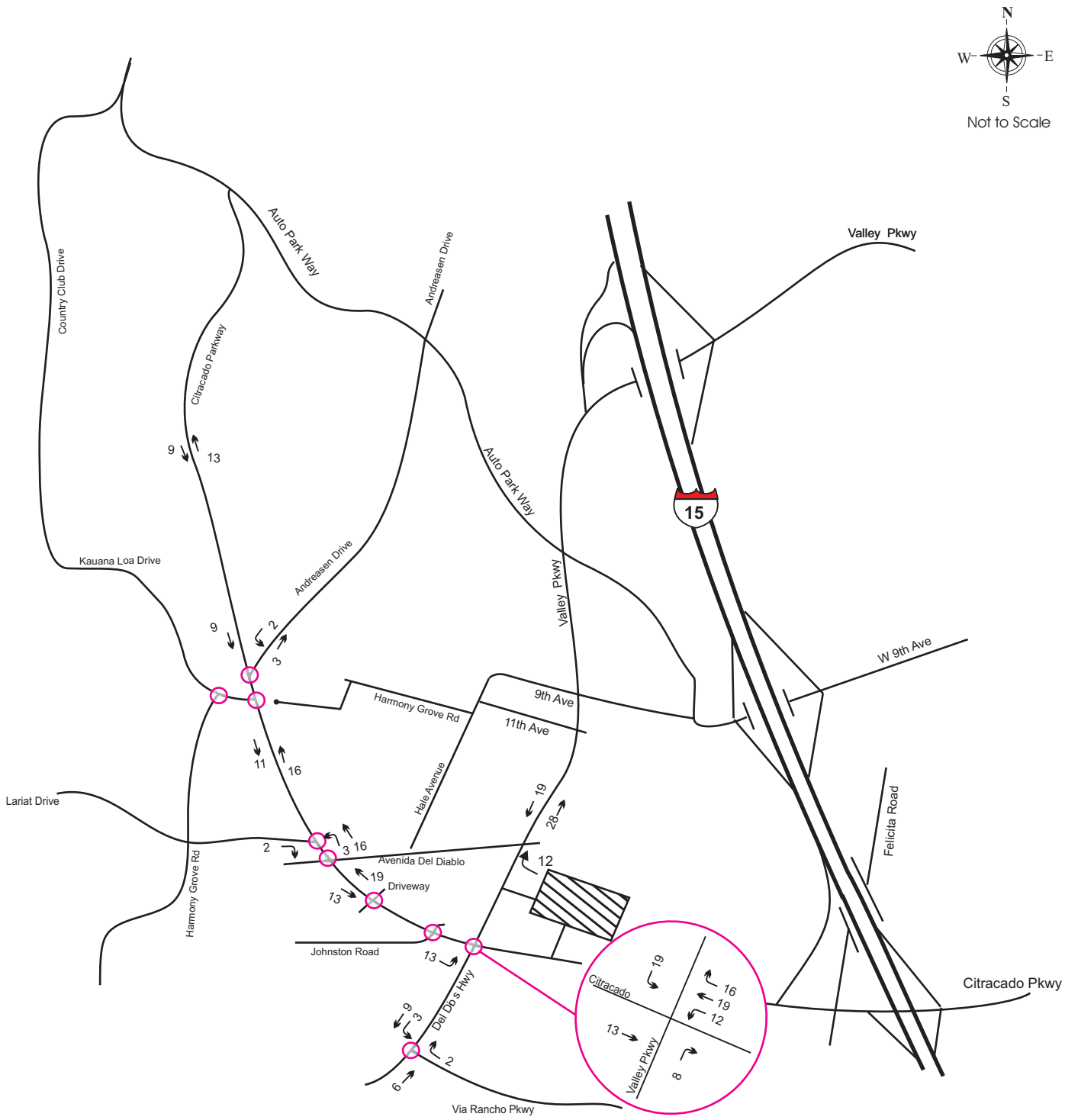
Figure 4 - 11

Legend :

CitracadoHigh School

← XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Cumulative Project PM Trips (Build)
Citracado High School

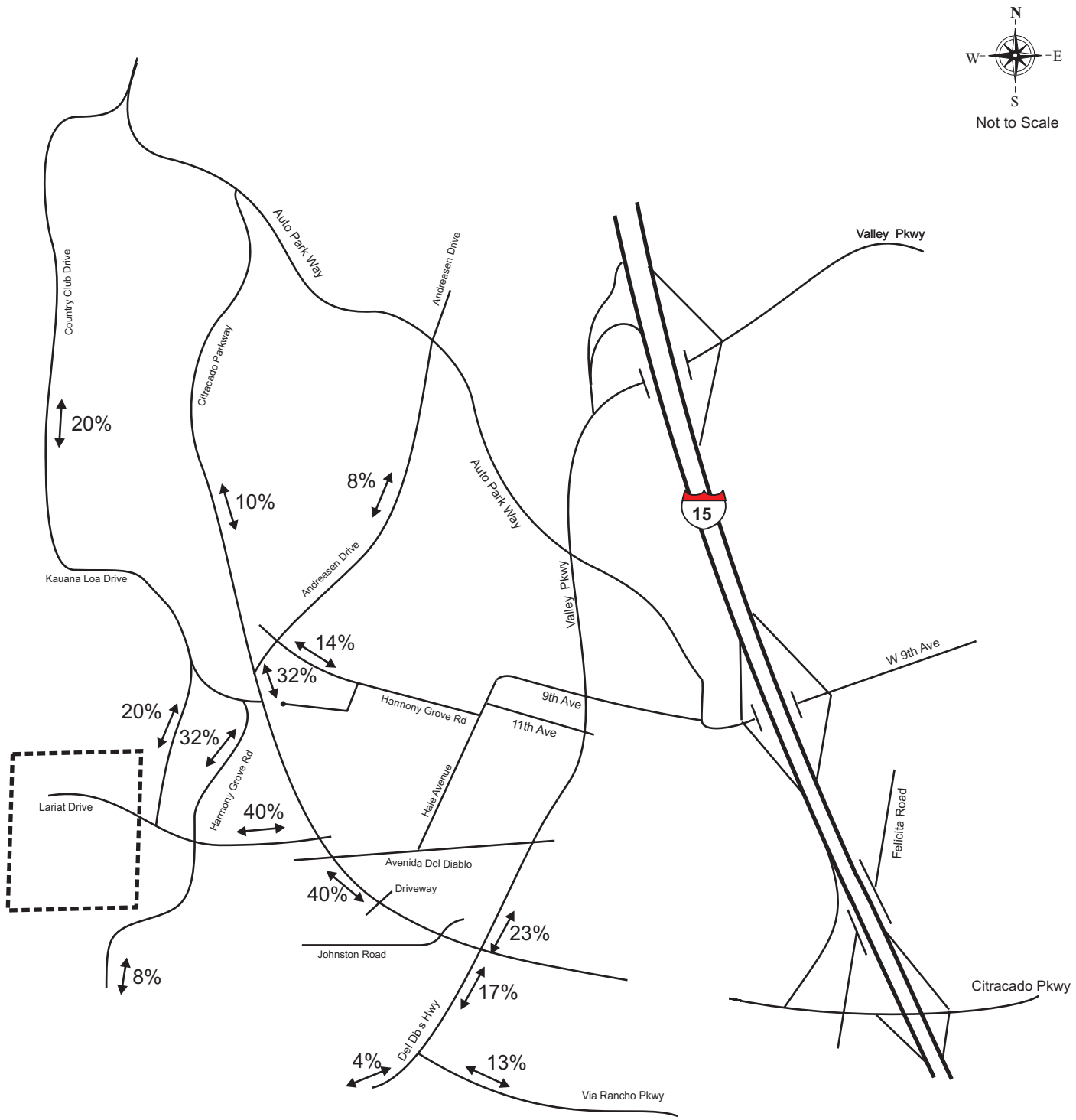
Figure 4 - 12

Legend :

CitracadoHigh School

← XX Peak Hour Traffic

VRPA Technologies Inc.



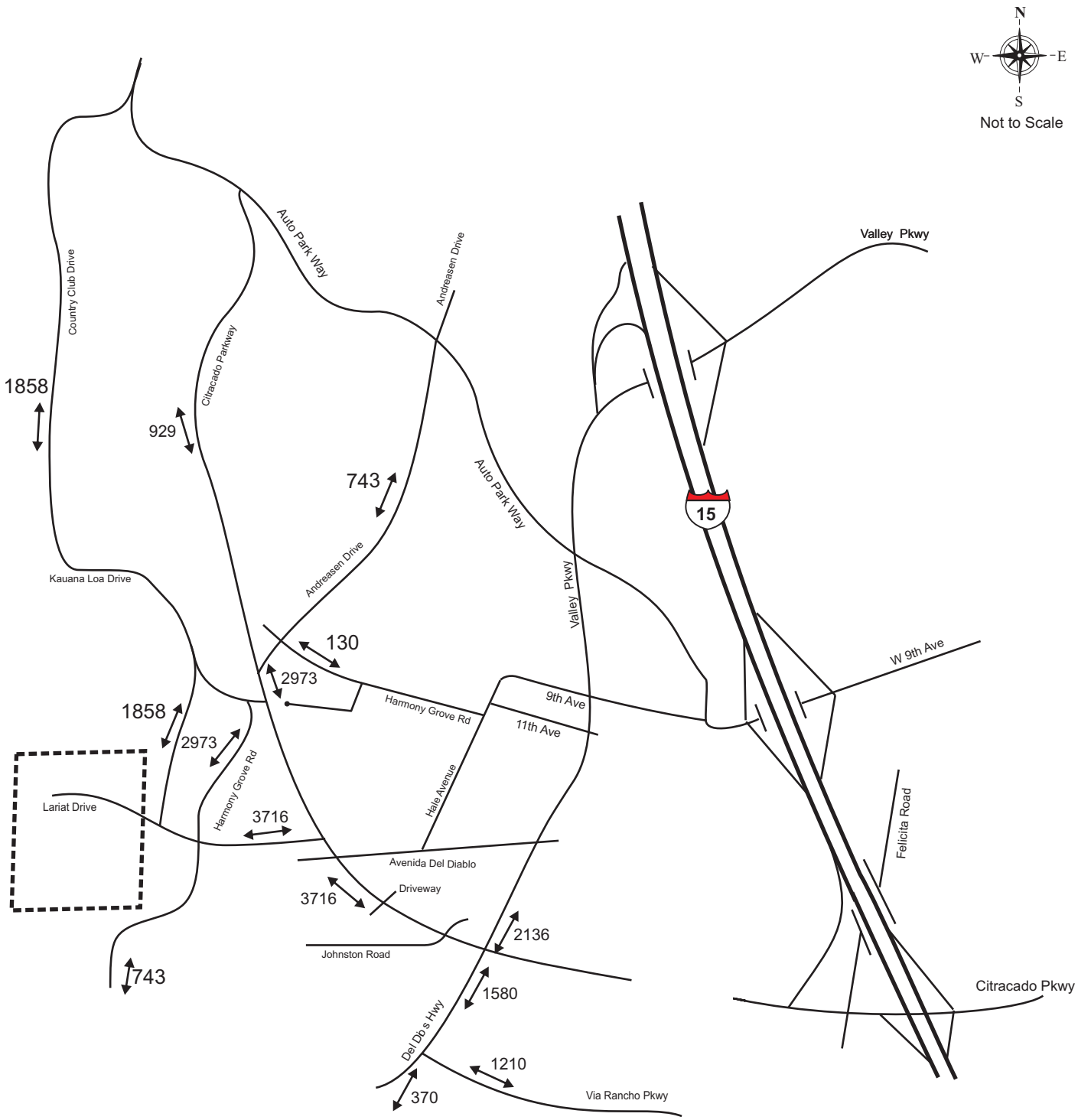
2014 Cumulative Project Trip Distribution (Build)
Harmony Grove Village

Figure 4 - 13

Legend :

Harmony Grove Village

VRPA Technologies, Inc.



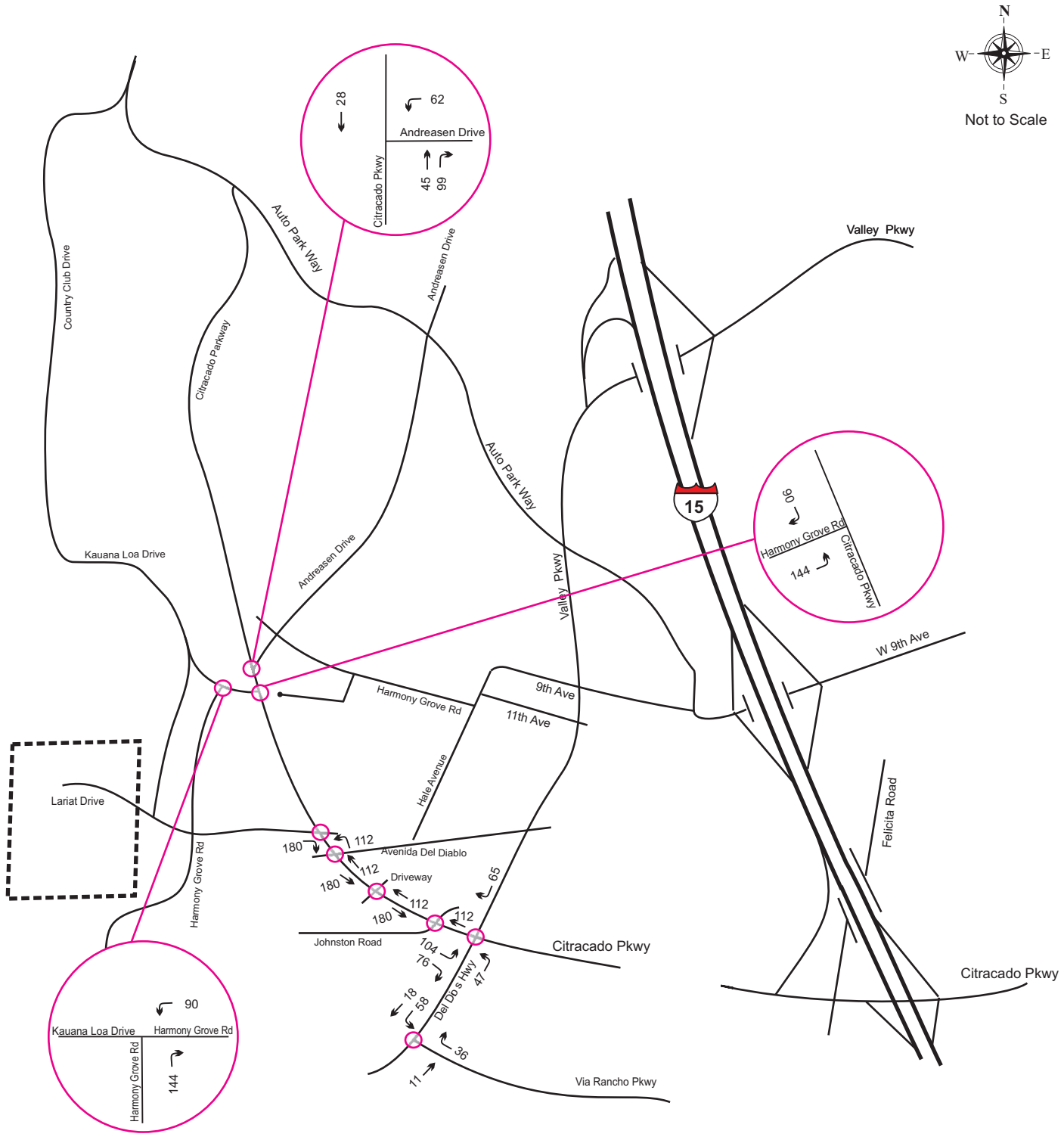
2014 Cumulative Project ADT (Build)
Harmony Grove Village

Figure 4 - 14

Legend :

Harmony Grove Village

VRPA Technologies, Inc.



2014 Cumulative Project AM Trips (Build)
Harmony Grove Village

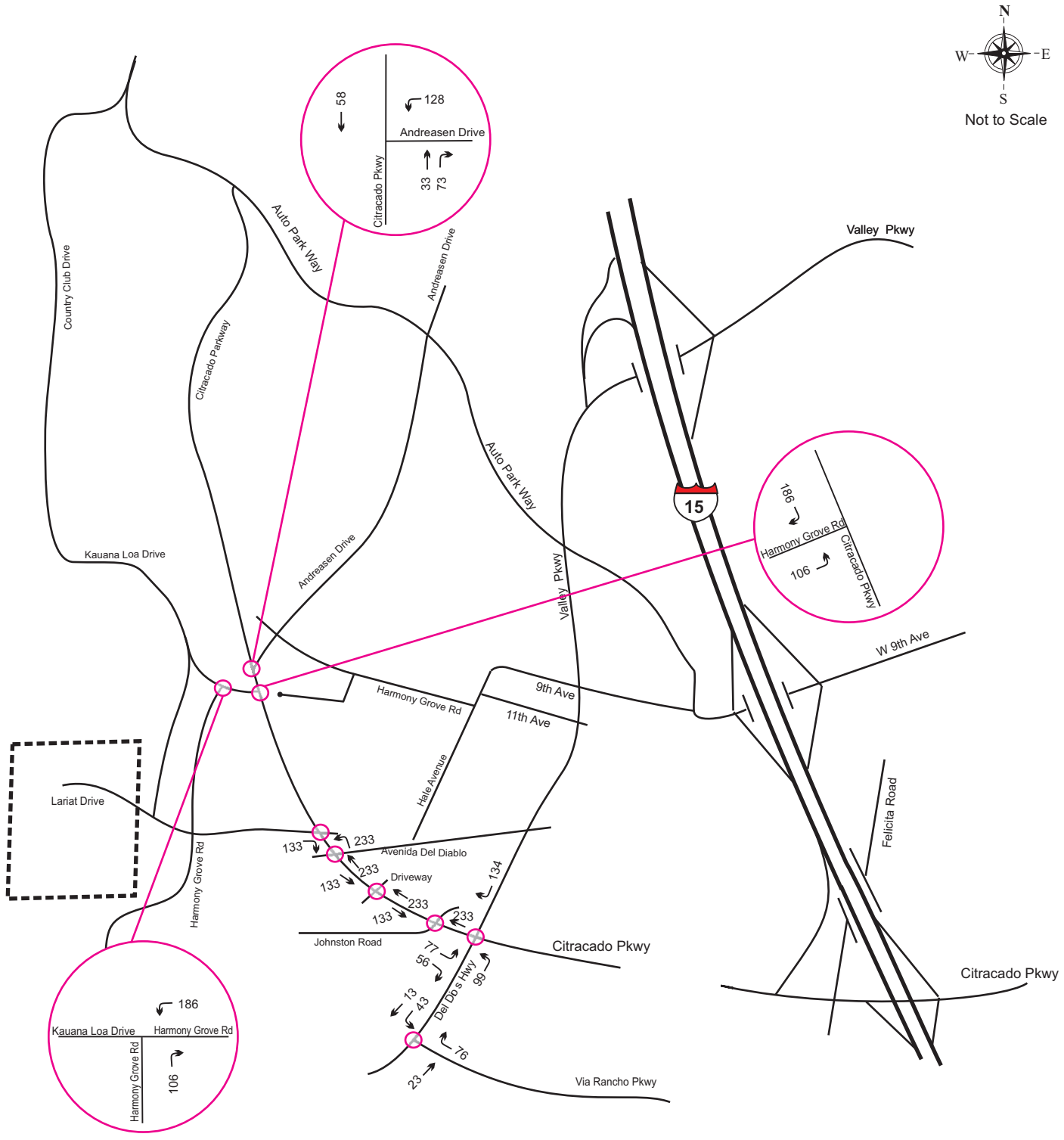
Figure 4 - 15

Legend :

Harmony Grove Village

← XX Peak Hour Traffic

VRPA Technologies, Inc.



2014 Cumulative Project PM Trips (Build)
Harmony Grove Village

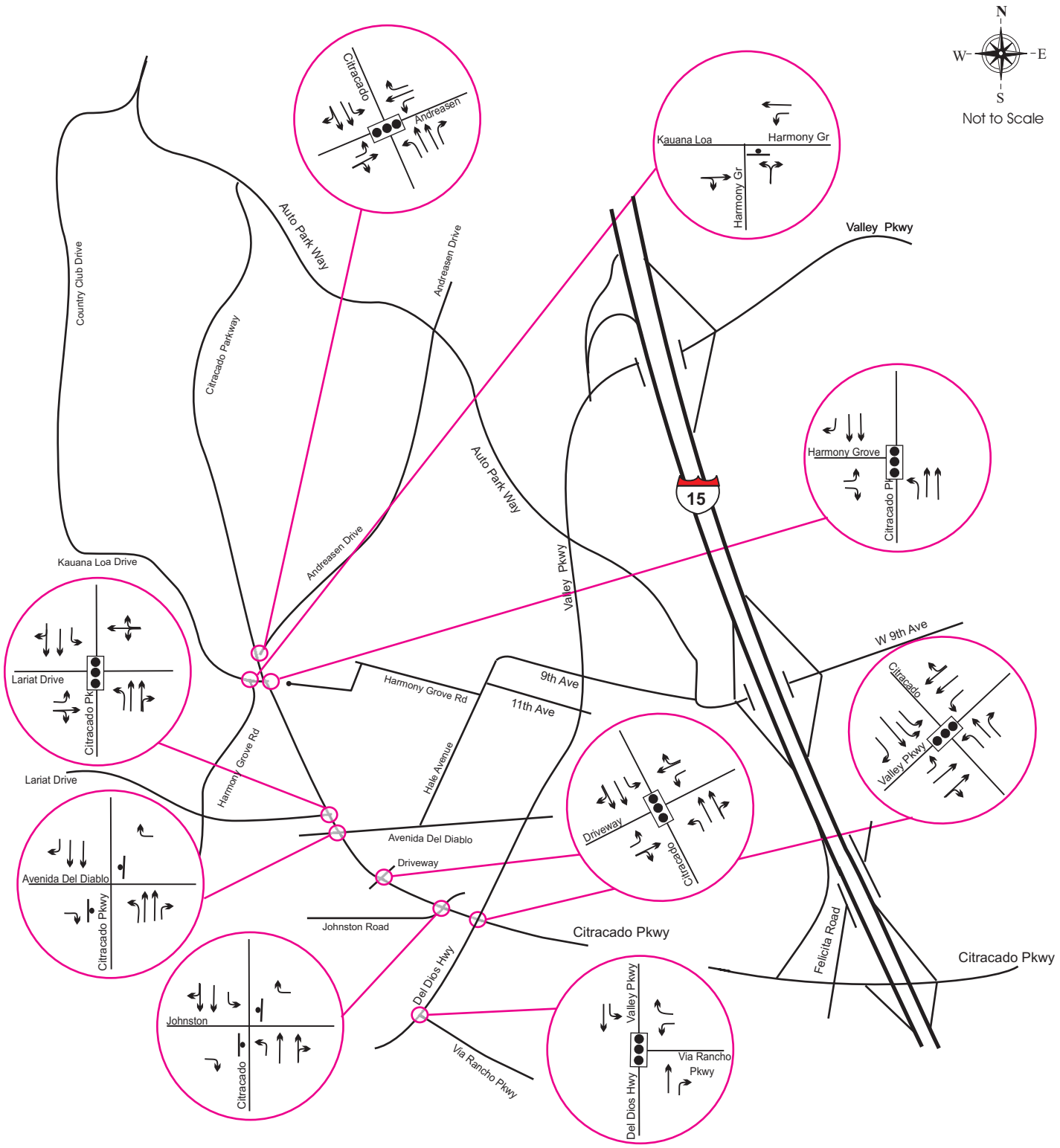
Figure 4 - 16

Legend :

Harmony Grove Village

← XX Peak Hour Traffic

VRPA Technologies, Inc.



2014 Build Lane Geometry

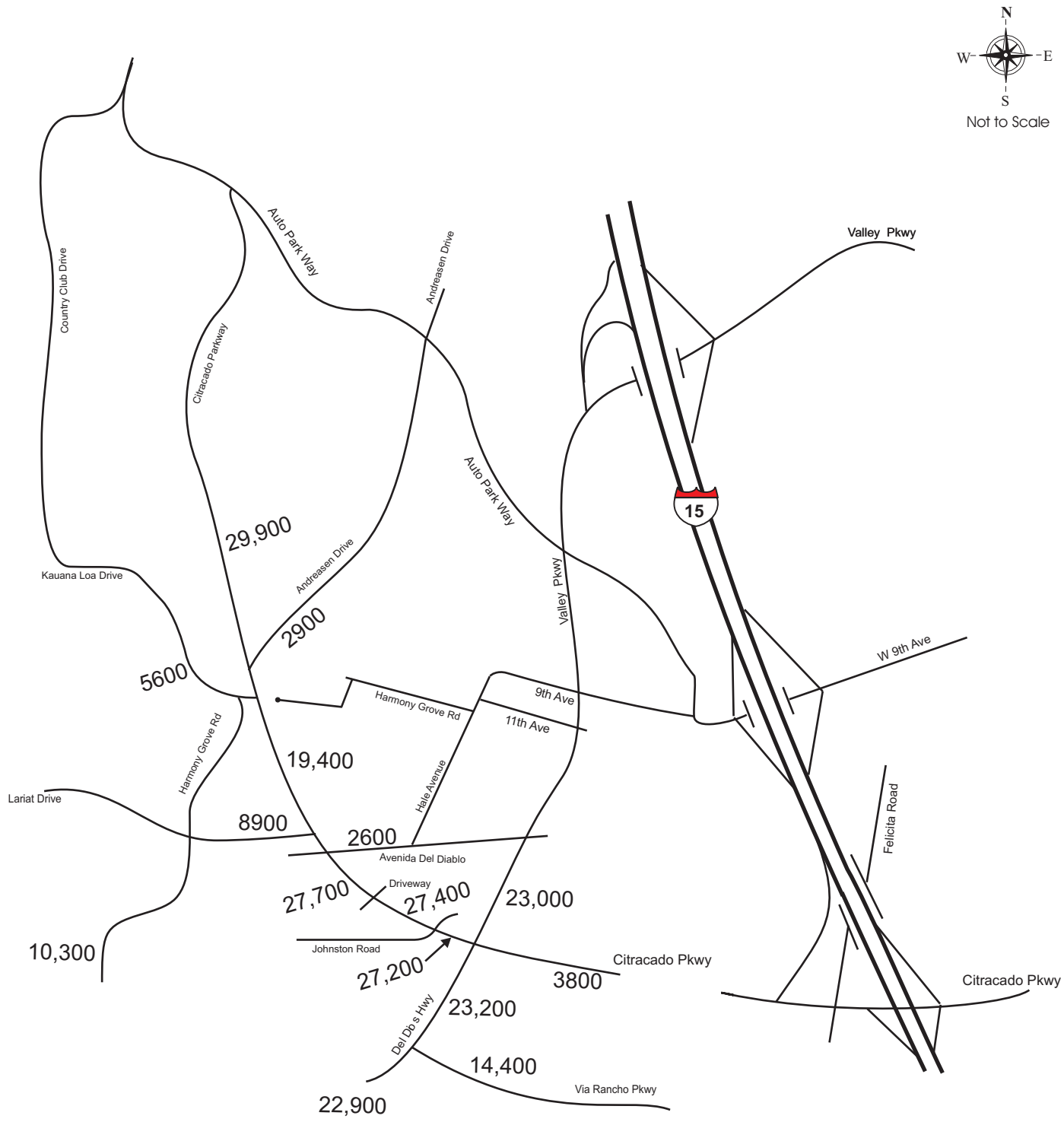
Figure 4 - 17

Legend :

Signal

Stop Sign

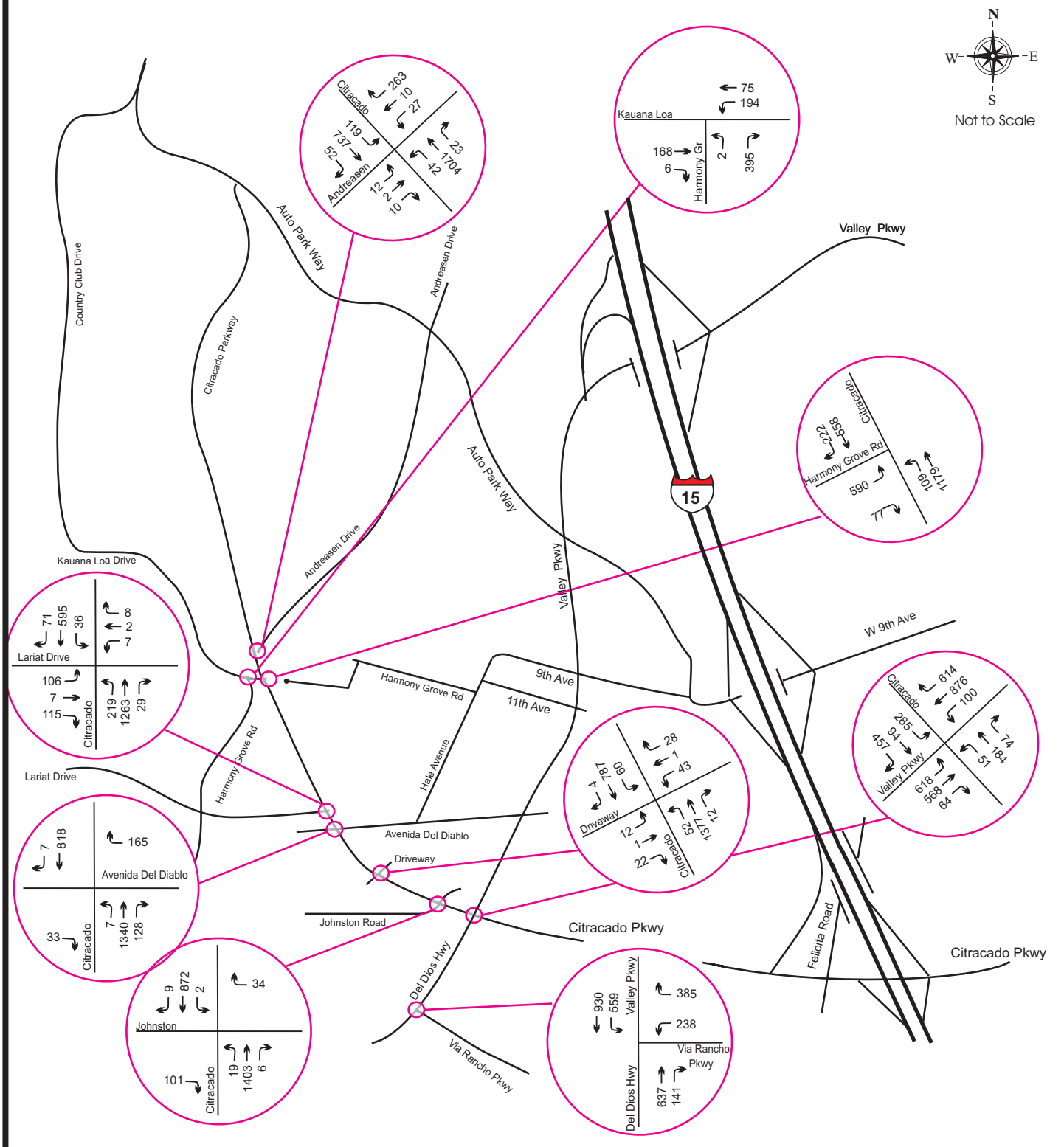
VRPA Technologies Inc.



2014 Build ADT

Figure 4 - 18

VRPA Technologies Inc.



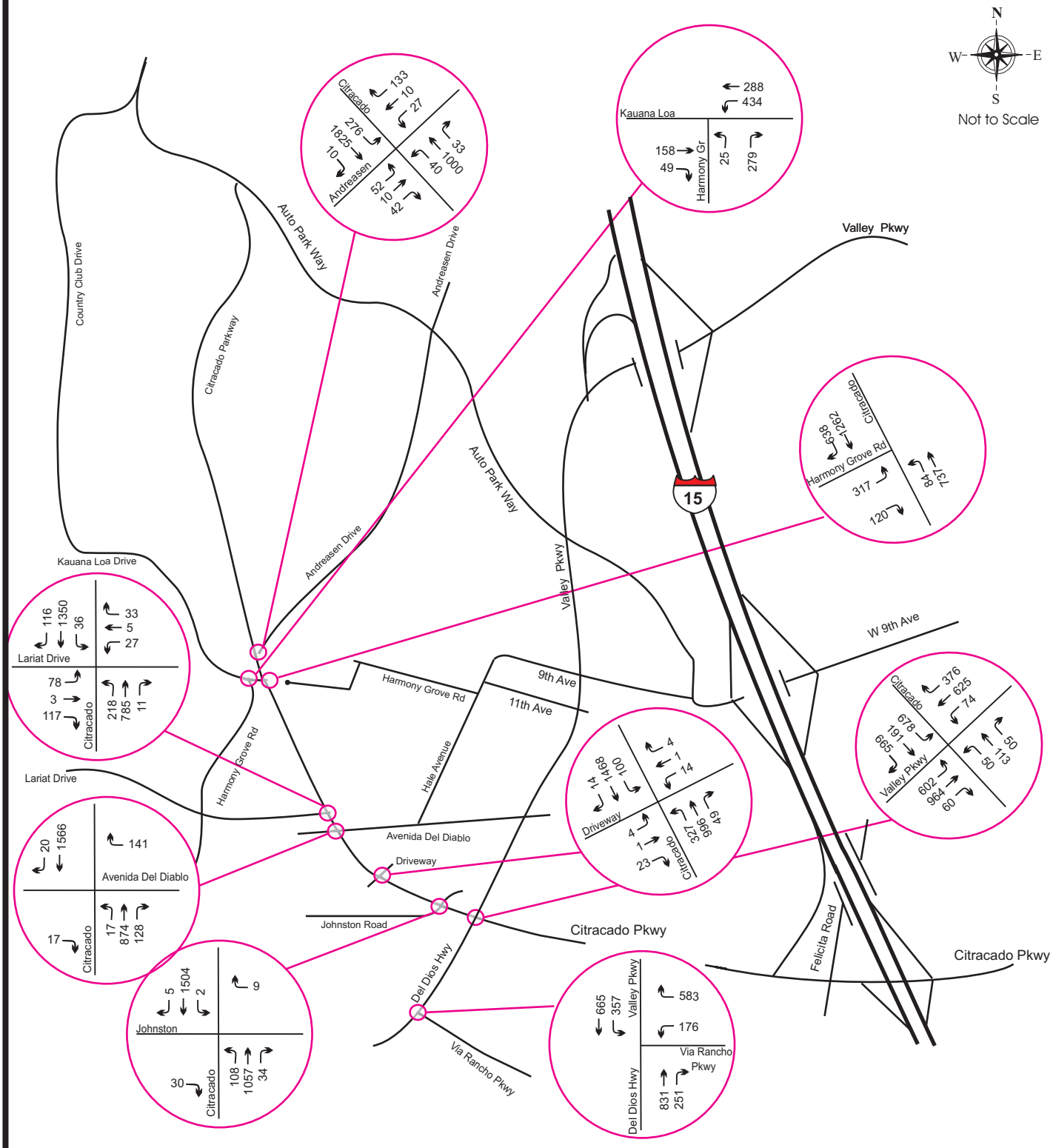
2014 Build AM Peak Hour Traffic

Figure 4 - 19

Legend :

XX Peak Hour Traffic

VRPA Technologies Inc.



2014 Build PM Peak Hour Traffic

Figure 4 - 20

Legend :

XX Peak Hour Traffic

VRPA Technologies Inc.

5.0 NO BUILD CONDITIONS (2030)

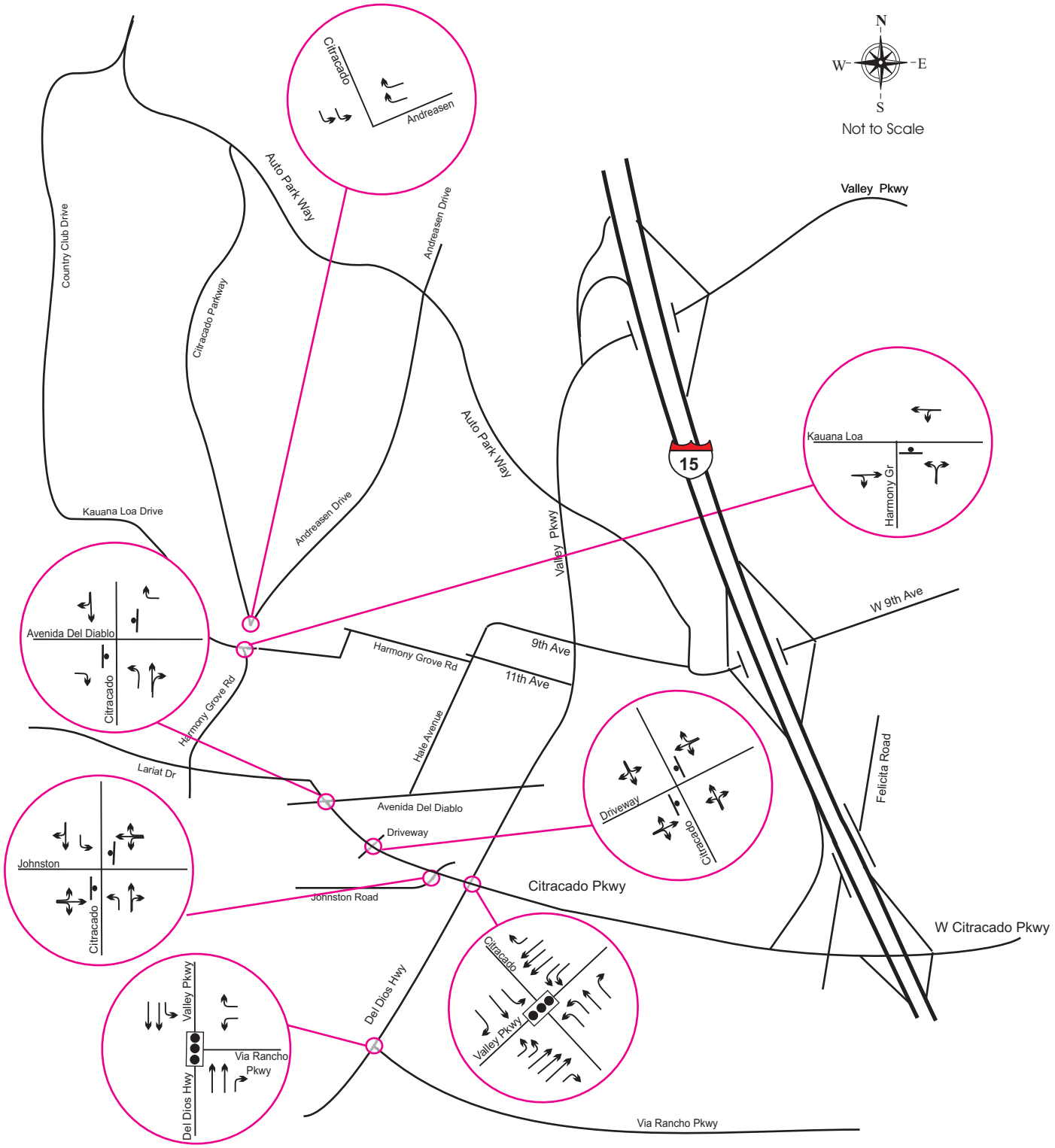
The purpose of the No Build scenario was to determine how the study area intersections would operate in the future if the proposed Citracado Parkway roadway extension were not built. Lane geometry for 2030 No Build Conditions was assumed to be the same as for 2014 No Build Conditions, except that it was assumed that Citracado Parkway would be extended from West Valley Parkway to I-15 and that one lane in each direction of travel would be added to West Valley Parkway/Del Dios Highway from Citracado Parkway to Via Rancho Parkway.

Future traffic conditions for the Year 2030 were determined using the following process:

- Future ADT was based on Year 2030 traffic forecasts from the traffic forecasting model prepared by SANDAG. The model run obtained for No Build conditions does not consider the proposed connection of Citracado Parkway from Andreasen Drive to West Valley Parkway. The model run obtained already includes the proposed Harmony Grove Village Project, Palomar Medical Center West Development, ERTC development and the Citracado High School.

- Peak hour turning movements were calculated through a post-processing methodology based on existing turning movements, existing ADT values, and future ADT values. The methodology for this post-processing analysis is based on NCHRP Report #255.

The results of the Year 2030 No Build analysis are documented in the pages that follow. Figure 5-1 shows the assumed lane geometry for this scenario. Future traffic forecasts are shown in Figures 5-2 through 5-4. Capacity analysis for this scenario was shown previously in Tables 2-1 and 2-2. Capacity calculations are included in the Appendix A.



2030 No Build Lane Geometry

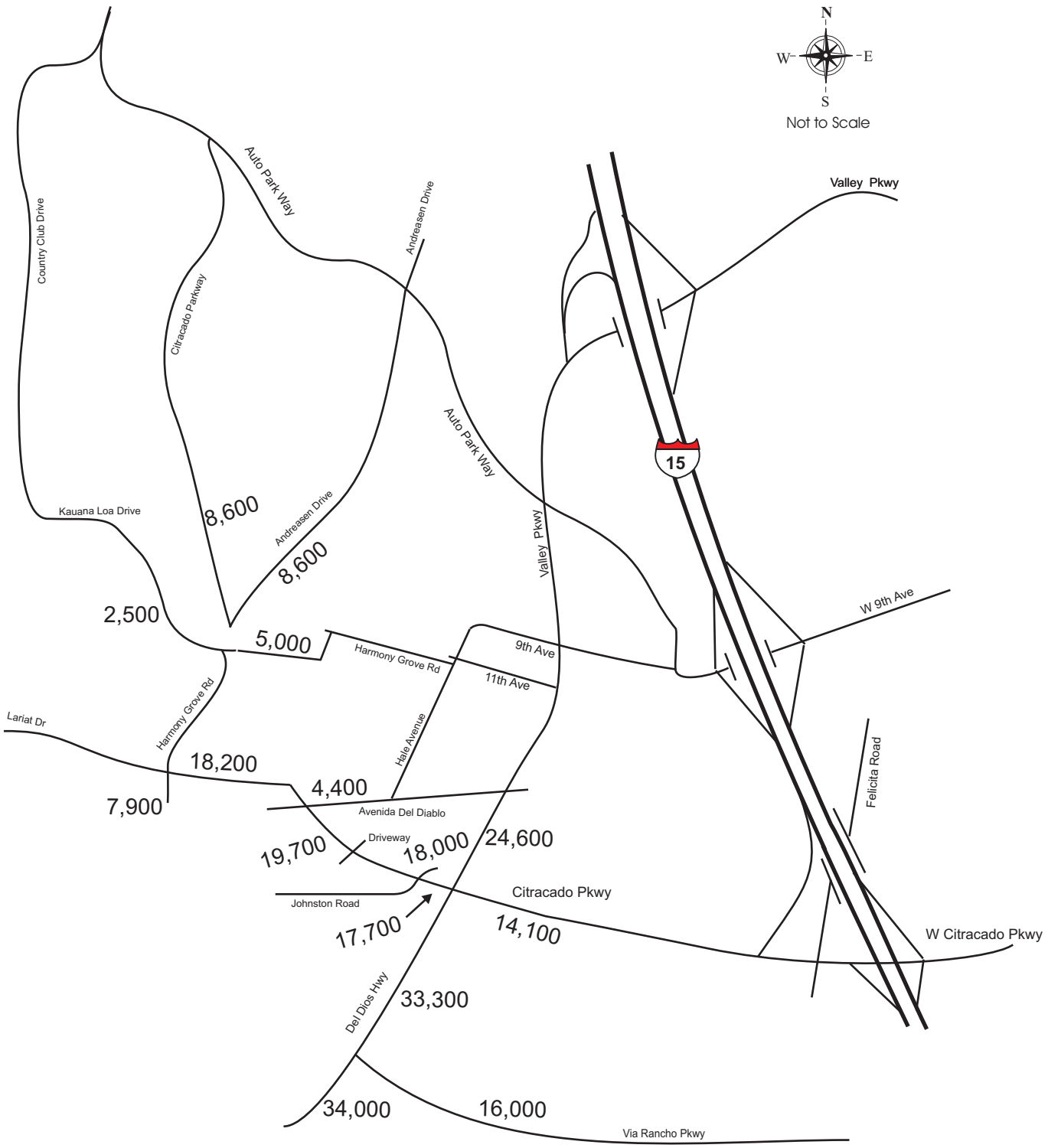
Figure 5 - 1

Legend :

Signal

Stop Sign

VRPA Technologies Inc.



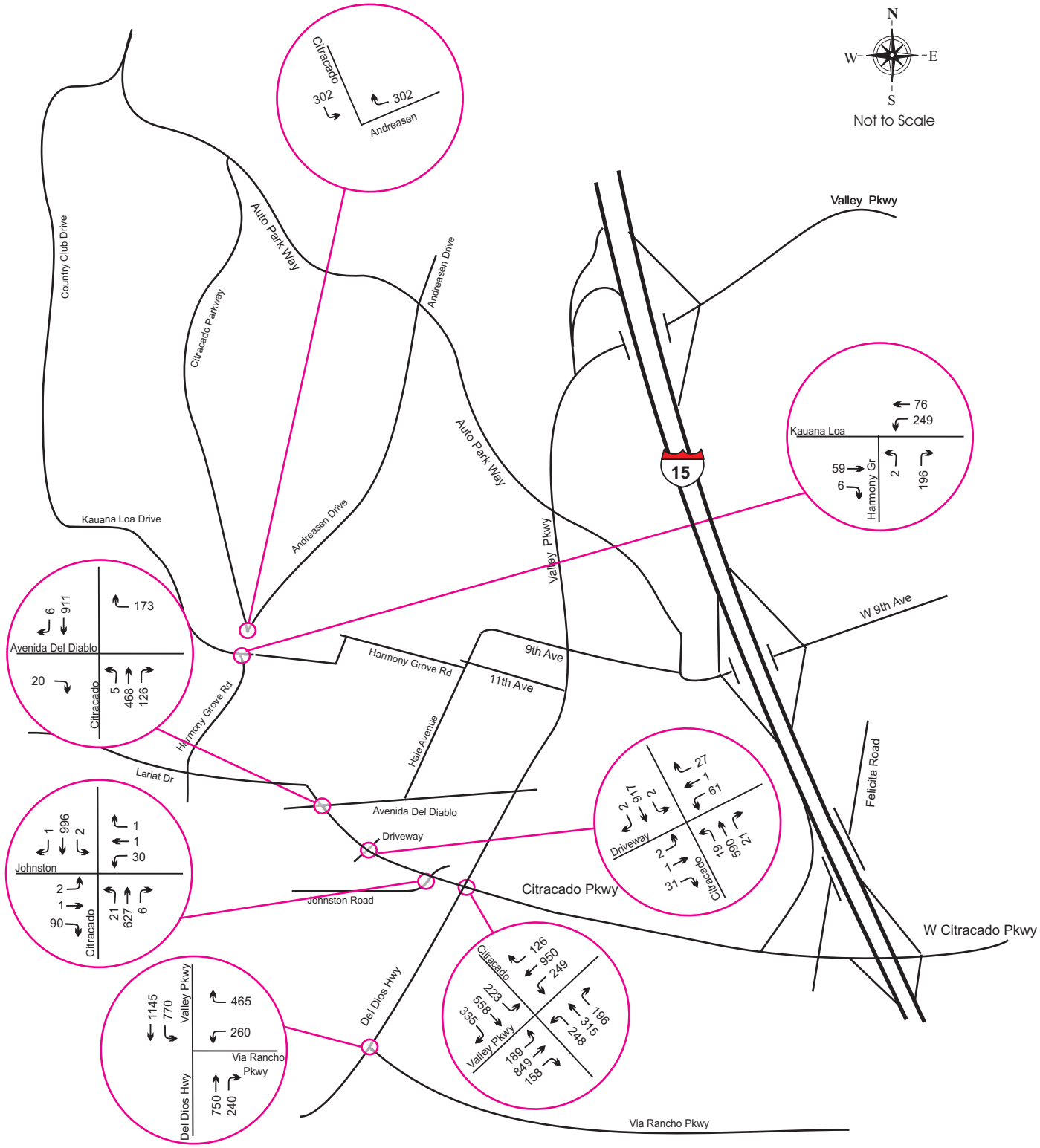
2030 No Build ADT

Figure 5 - 2

Legend :

Existing Roadway

VRPA Technologies Inc.



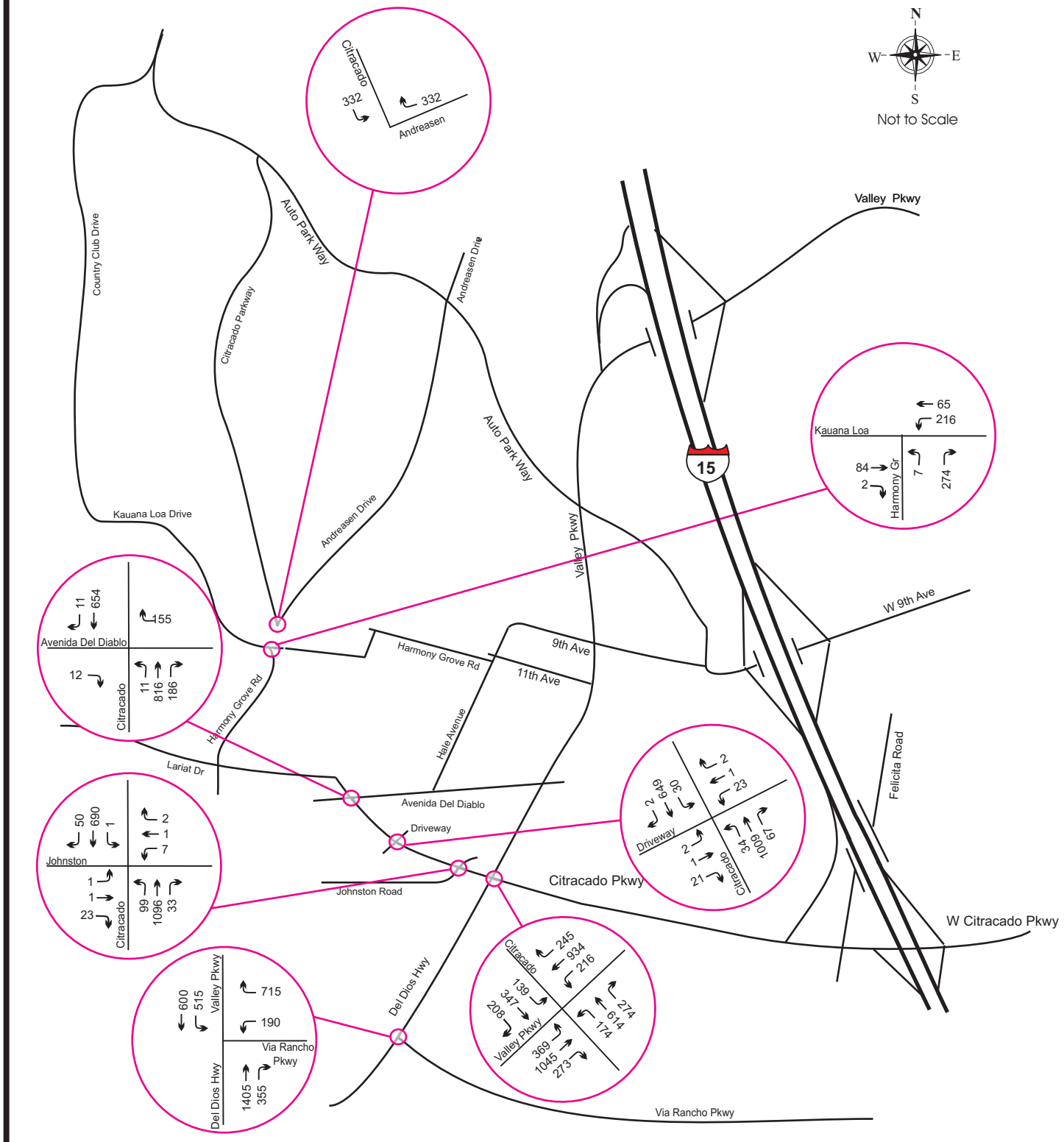
2030 No Build AM Peak Hour Traffic

Figure 5 - 3

Legend :

XX Peak Hour Traffic

VRPA Technologies Inc.



2030 No Build PM Peak Hour Traffic

Figure 5 - 4

Legend :

XX Peak Hour Traffic

VRPA Technologies Inc.

6.0 BUILD CONDITIONS (2030)

The purpose of the Year 2030 Build scenario is to determine how the study area intersections would operate in the future 2030 conditions if the proposed Citracado Parkway extension is built. The 2030 Build scenario assumes that the eastern leg of Harmony Grove Road ends as cul-de-sac and the intersection at Citracado Parkway and Harmony Grove Road is assumed to be a three-legged intersection.

Future traffic conditions for the Year 2030 were determined using the following process:

- Future ADT was based on Year 2030 traffic forecasts from the traffic forecasting model prepared by SANDAG. A separate model run based on the proposed alternative was obtained for 2030 Build Conditions.

- Peak hour turning movements were calculated through a post-processing methodology based on existing turning movements, existing ADT values, and future ADT values.

- Based on information available from City of Escondido, trips generated from a proposed 17.48 acre business lot development located to the south of the Citracado Parkway and Harmony Grove Road were also factored in the 2030 Build traffic conditions. The trip generation was based on the trip generation table available from SANDAG (Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, San Diego Association of Governments, April 2002). Table 6-1 shows the trip generation calculation for the proposed business lot development.

The results of the 2030 Build Conditions are documented in the pages that follow. Figure 6-1 shows the trip distribution percentage for the proposed business lot development. Figure 6-2, Figure 6-3 and Figure 6-4 show the ADT, AM and PM peak hour trips generated from the proposed business lot development. The expected 2030 intersection lane geometry is shown in Figure 6-5. Figure 6-6 shows the ADT for the 2030 Build Conditions. Figure 6-7 and Figure 6-8 shows the AM and PM peak hour traffic for the 2030 Build Conditions. Capacity analysis for this scenario was shown previously in Tables 2-1 and 2-2. Capacity calculations are included in the Appendix A.

The results of capacity analysis for the various alternatives were shown previously in Chapter 2. The impacts of the business lot development on the intersection of Citracado Parkway and Harmony Grove Road would be analyzed in a separate traffic impact study prepared for the City of Escondido.

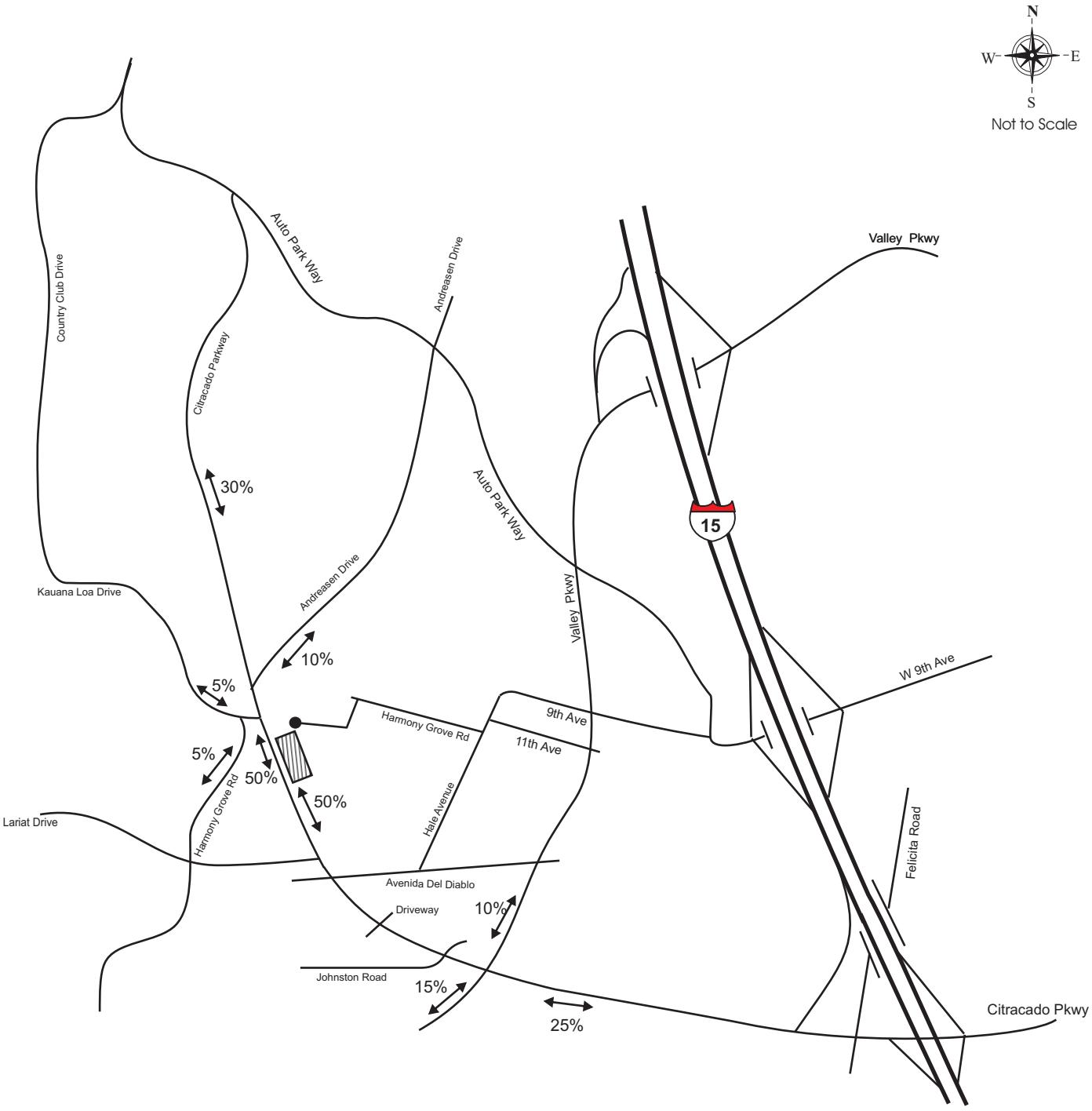
In addition to the analysis described above, a signal warrant analysis was conducted for the intersection of Citracado Parkway and Avenida Del Diablo. The warrants analysis does not show the need for traffic signals at the intersection of Citracado Parkway and Avenida Del Diablo. The signal warrant analysis is provided in Appendix B.

The proposed project will enhance the circulation system of the City of Escondido and adjacent areas by proving a shorter means of travel for north-south trips in the area west of I-15. These shorter trips will result in a reduction in vehicles miles travelled, with associated air quality and greenhouse gas reduction benefits. Traffic congestion and delay will be reduced on parallel routes such as I-15, SR-78, Auto Park Way, and portions of Harmony Grove Road.

It should be noted that some of the traffic forecasts for 2030 Build conditions are lower than the traffic forecasts for 2014 Build conditions. While traffic forecasts typically increase over time, it is sometimes reasonable to expect a decrease in traffic forecasts over time, particularly when changes to the roadway network are expected. In the case of the Citracado Parkway traffic analysis, the area near the project study area is considered to be mostly built out with the incorporation of the cumulative development projects that are documented in Chapter 4. Therefore, general traffic increases due to land development between 2014 and 2030 would be expected to be relatively small. The roadway network assumed in the 2014 Build analysis is essentially the same roadway network as exists today with the addition of the project roadway and a few roadways related to the development of the cumulative projects. In contrast, the roadway network assumed for 2030 Build conditions assumes completion of local and regional transportation improvements that are planned to be completed between now and 2030. Since traffic increases due to land development are expected to be relatively small and since improvements are expected to be added to the transportation system, it is reasonable to expect a decrease in traffic on certain study area roadways between 2014 and 2030.

TABLE 6-1 : 2030 CUMULATIVE PROJECT TRIP GENERATION

Land Use	Size	Units	Daily Trip Rate	Daily Trips	% AM Peak	%PM Peak	% AM Inbound	% PM Inbound	AM Peak Hour Trips		PM Peak Hour Trips	
									IN	OUT	IN	OUT
Proposed												
Business Park	17.46	acres	200	3492	12%	12%	80%	20%	335	84	84	335
									TOTAL AM = 419		TOTAL PM = 419	



2030 Cumulative Project Trip Distribution(Build) Business Park

Figure 6 - 1

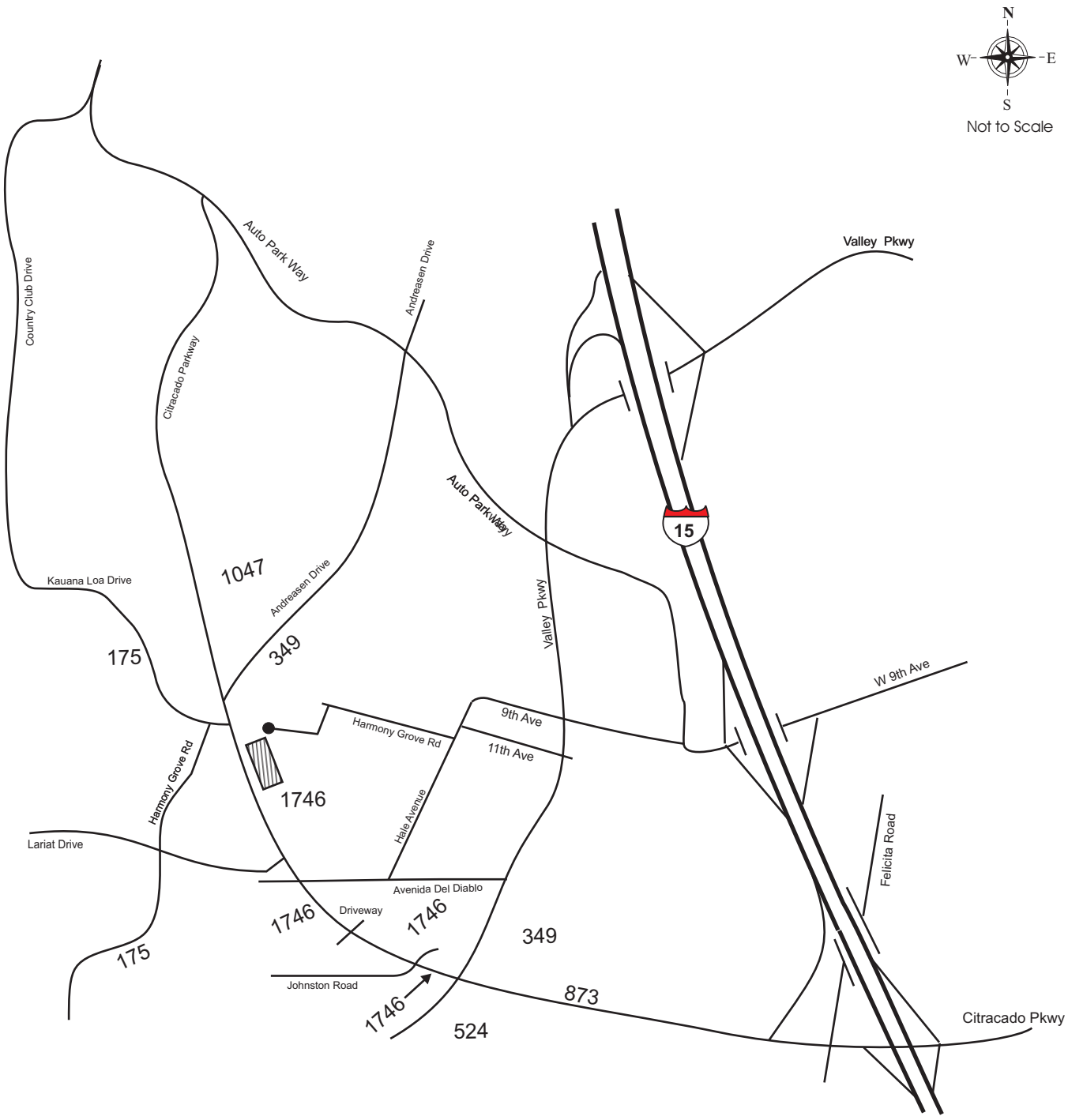
Legend :

Business Park

Signal

Stop Sign

VRPA Technologies Inc.



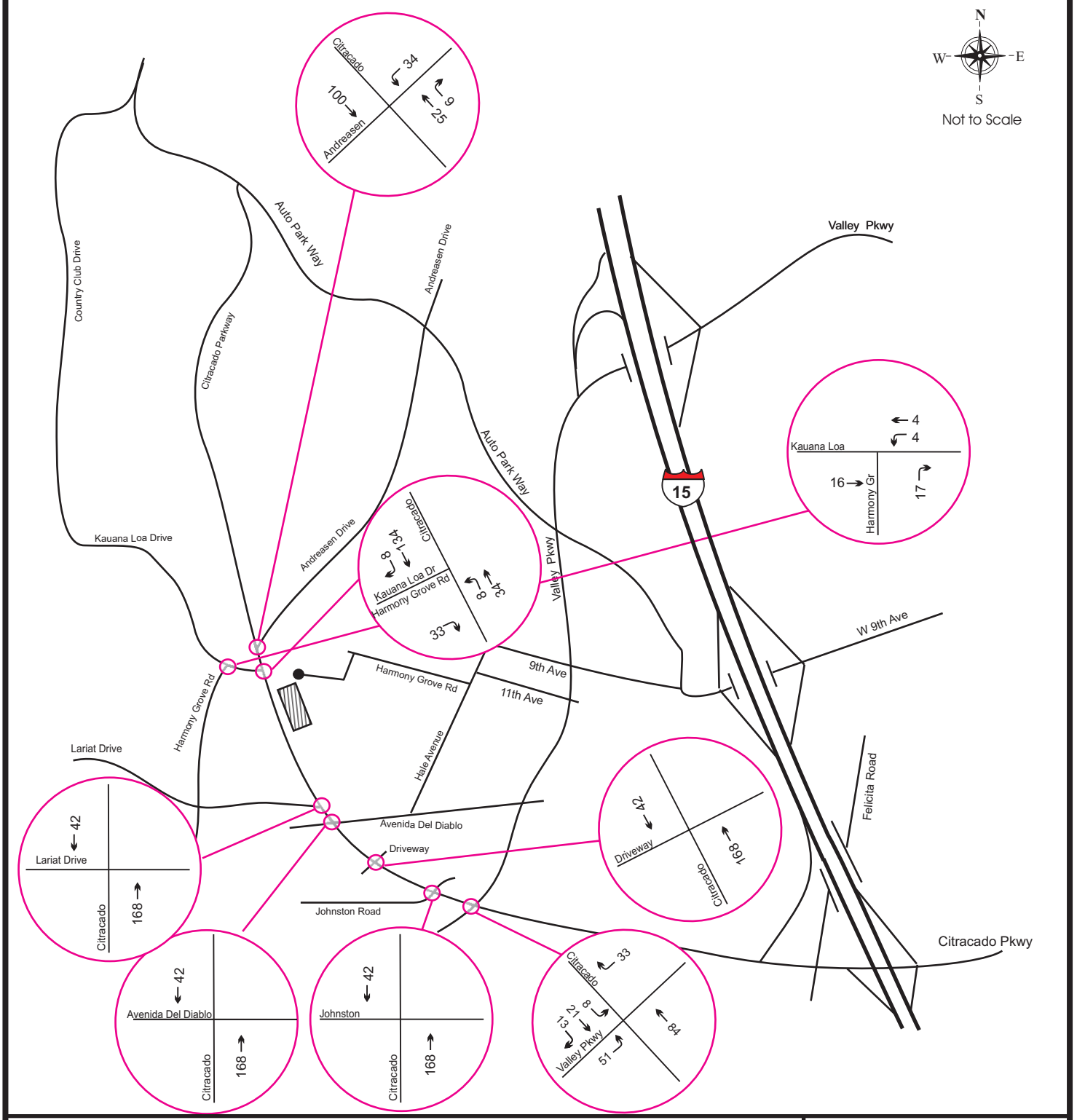
2030 Cumulative Project ADT (Build)
Business Park

Figure 6 - 2

Legend :

Business Park

VRPA Technologies Inc.



2030 Cumulative Project AM Trips (Build)
Business Park

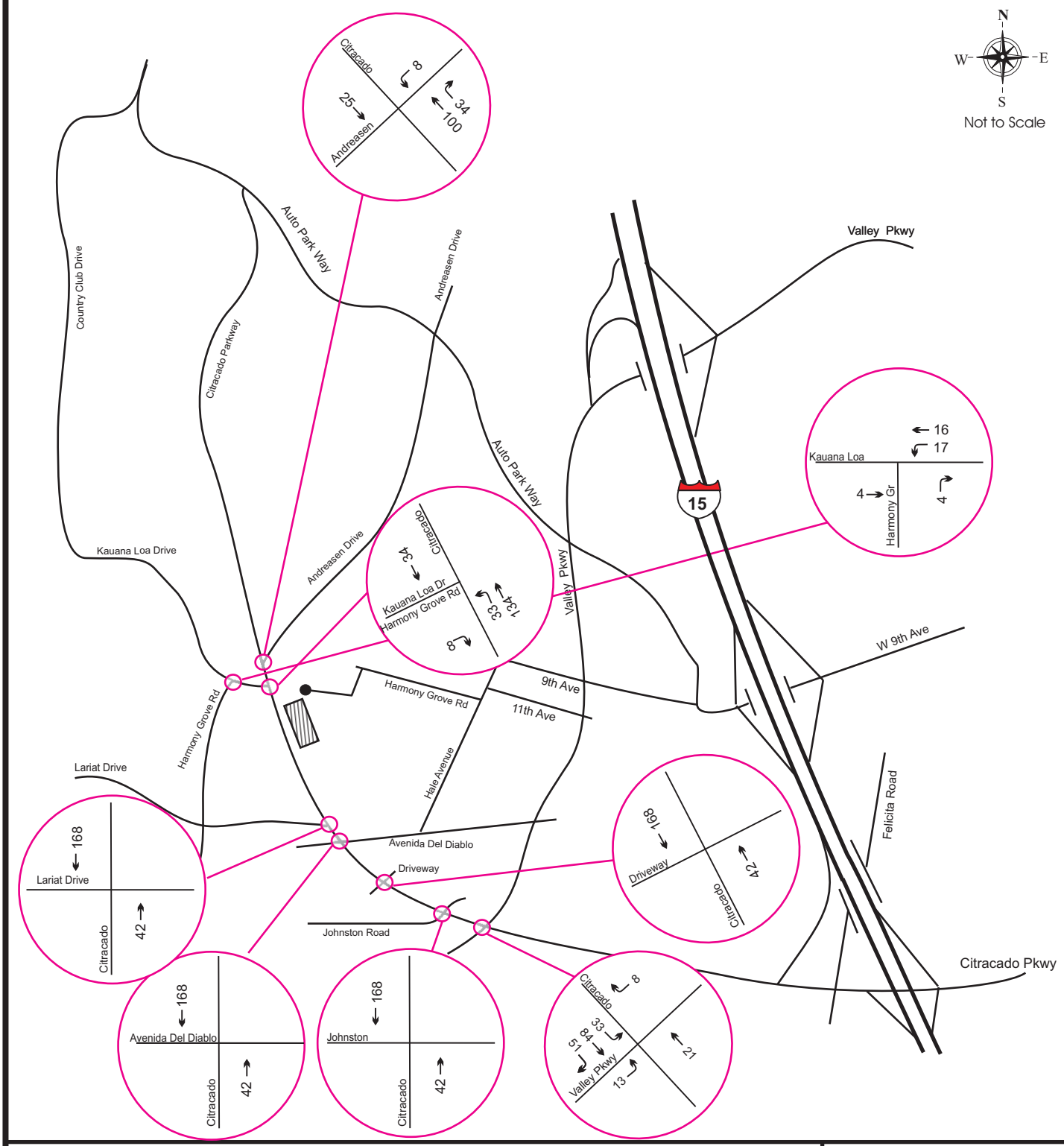
Figure 6 - 3

Legend :

Business Park

← XX Peak Hour Traffic

VRPA Technologies Inc.



2030 Cumulative Project PM Trips (Build)
Business Park

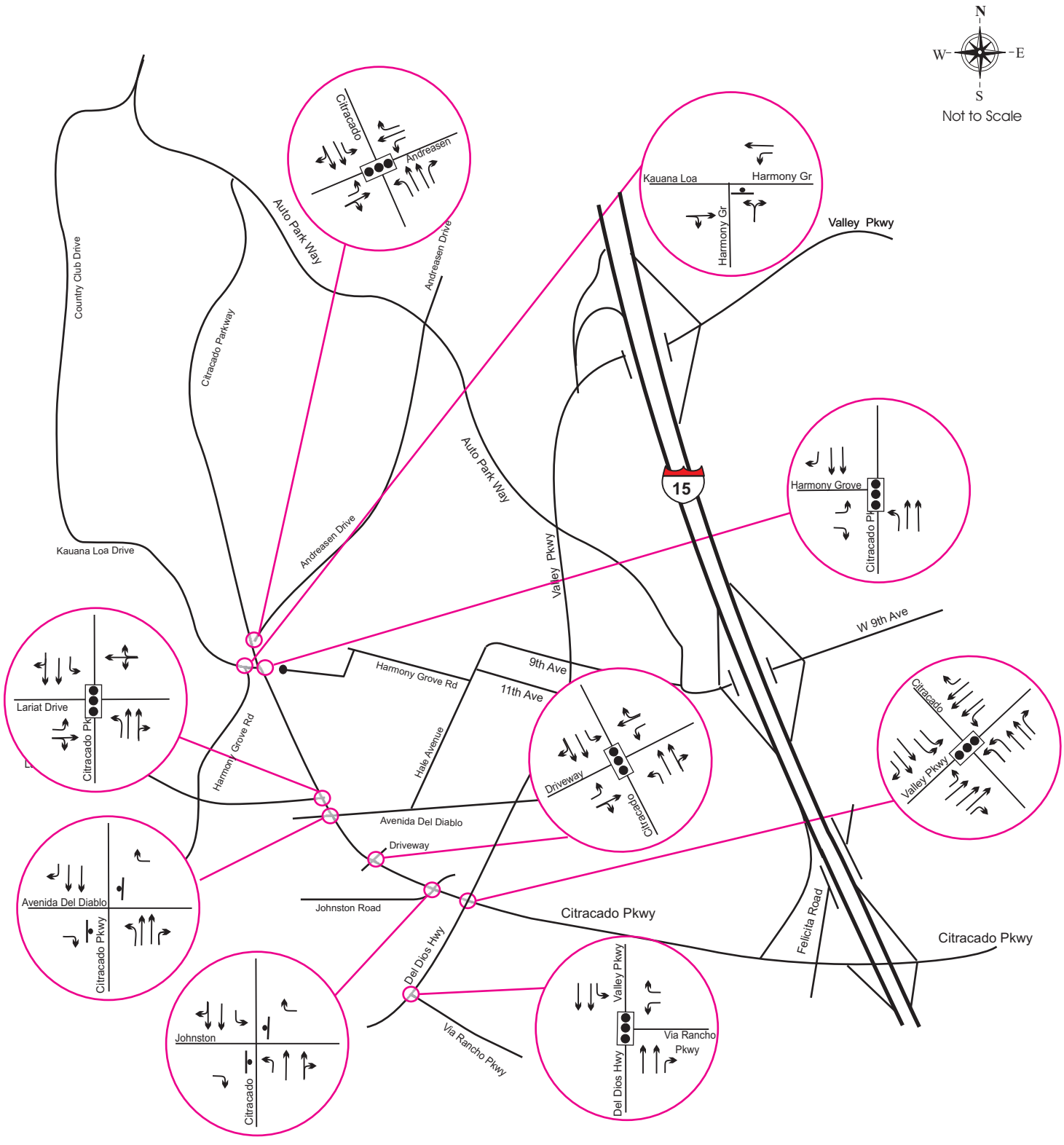
Figure 6 - 4

Legend :

Business Park

← XX Peak Hour Traffic

VRPA Technologies Inc.



2030 Build Lane Geometry

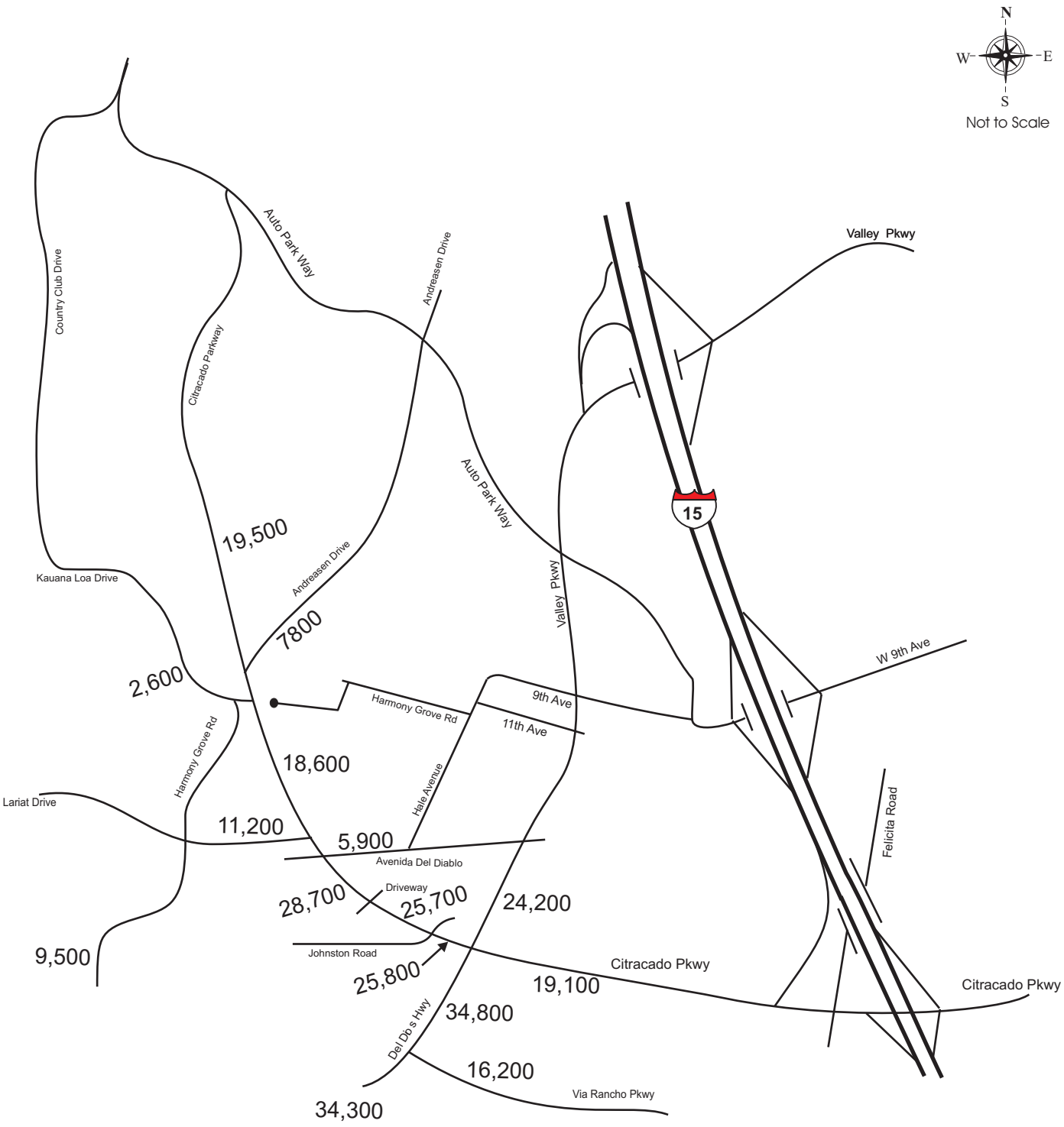
Figure 6 - 5

Legend :

Signal

Stop Sign

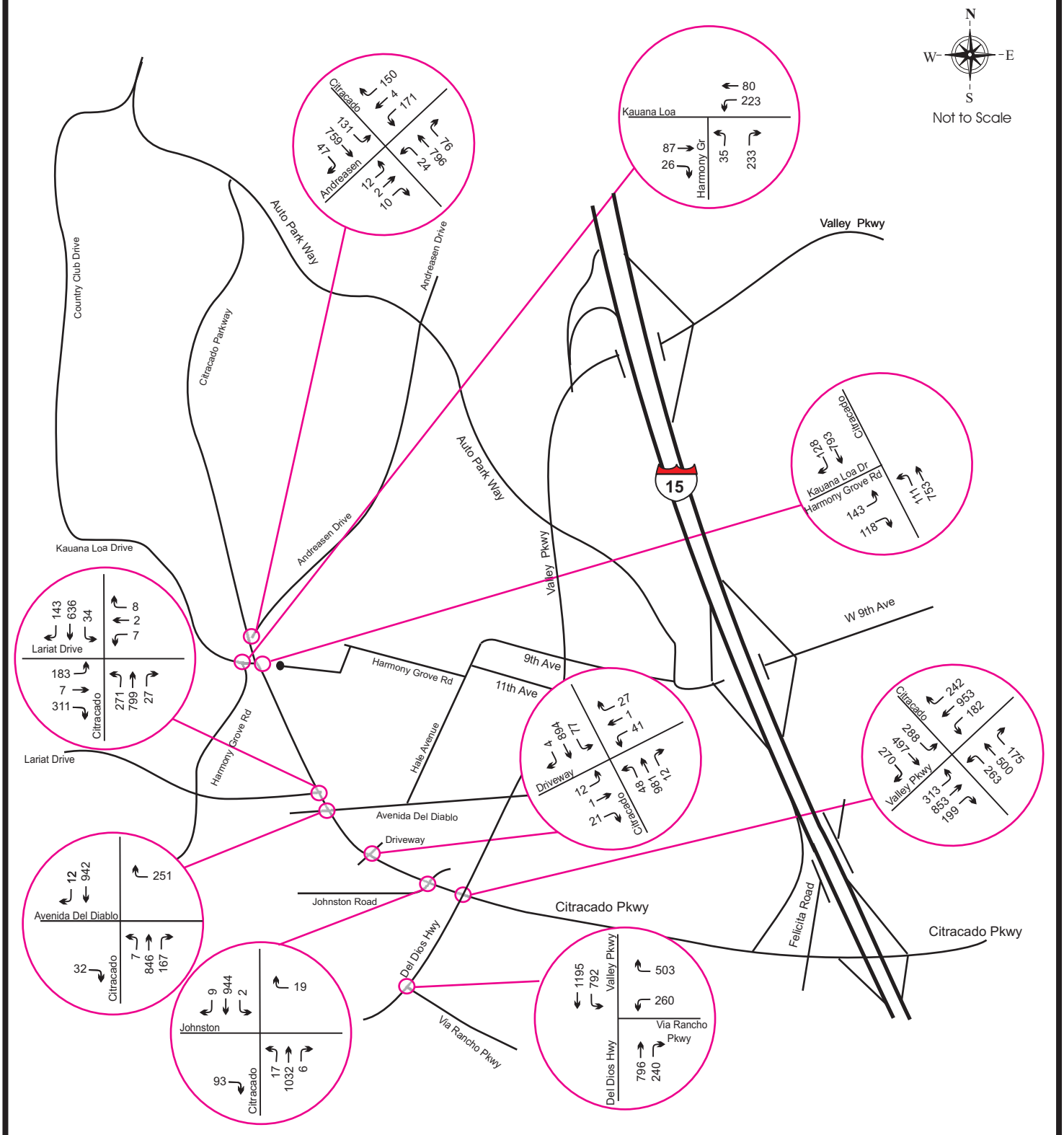
VRPA Technologies Inc.



2030 Build ADT

Figure 6 - 6

VRPA Technologies Inc.



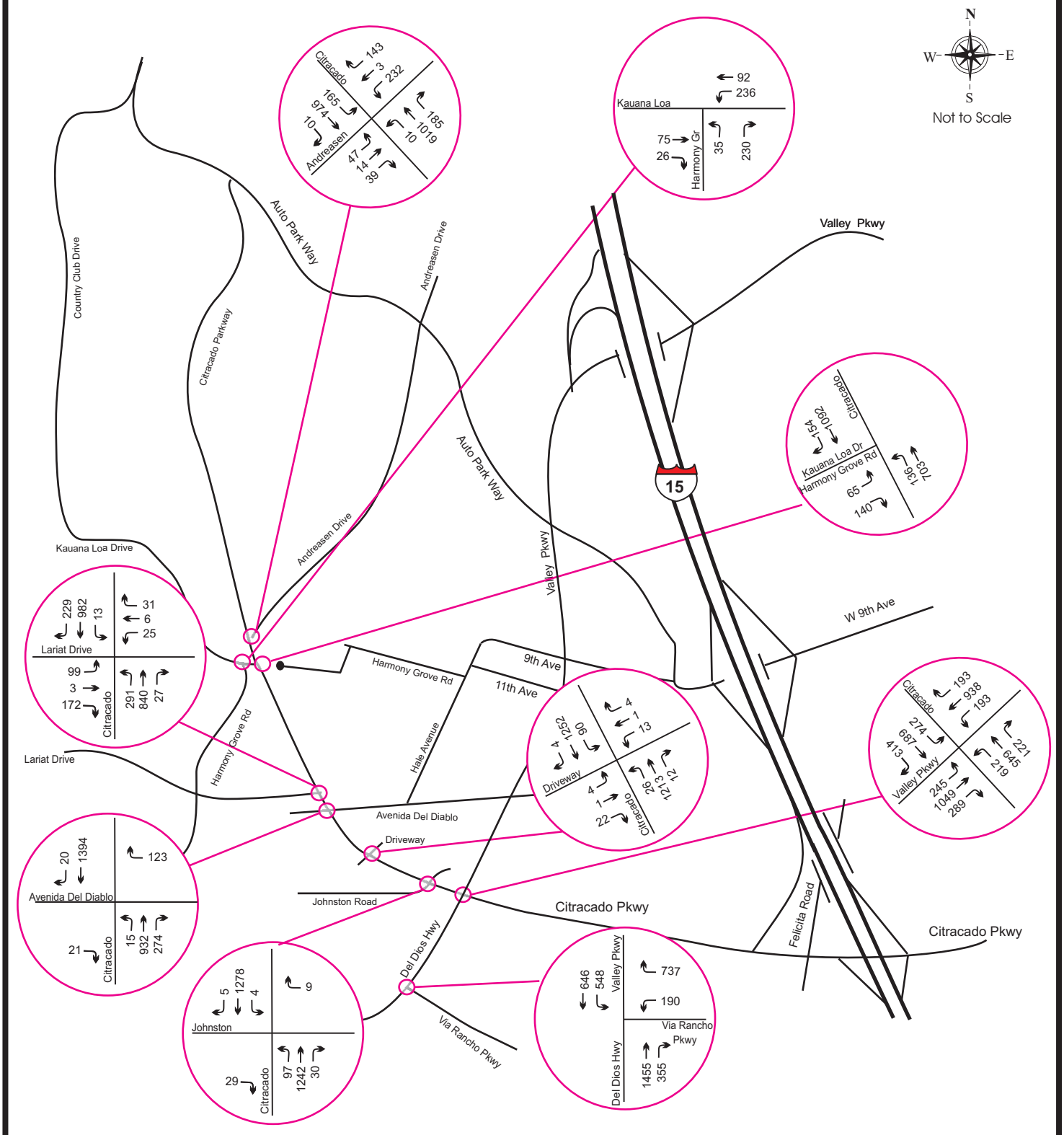
2030 Build AM Peak Hour Traffic

Figure 6 - 7

Legend :

XX Peak Hour Traffic

VRPA Technologies Inc.



2030 Build PM Peak Hour Traffic

Figure 6 - 8

Legend :

XX Peak Hour Traffic

VRPA Technologies Inc.

7.0 RECOMMENDATIONS

Following are recommendations based on the analysis contained in the previous six chapters:

- There is one case where unsignalized intersection capacity analysis indicates level of service E or F conditions, but a traffic signal is not warranted. In this case, the signal warrant analysis is considered to override the intersection capacity analysis and no traffic impacts are expected to occur. This situation occurs for the intersection of Citracado Parkway/Avenida Del Diablo for 2030 Build conditions. Signal warrant analysis is included in Appendix B.

- The project is expected to add traffic to the intersection of Del Dios Highway/Via Rancho Parkway, an intersection that is already operating at level of service E conditions in the PM peak hour. No feasible mitigation measures are foreseen at this intersection and it is recommended that this intersection remain unmitigated.

- A level of service F condition applies to the segment of Del Dios Highway/Valley Parkway from Via Rancho Parkway to Citracado Parkway (2014 only), the segment of Del Dios Highway west of Via Rancho Parkway (2014 and 2030), and the segment of Via Rancho Parkway from Del Dios Highway to I-15 (2014 only). No feasible mitigation measures are foreseen along these roadway segments and it is recommended that these roadway segments remain unmitigated.

- For opening year 2014 conditions, the intersection of Citracado Parkway/Valley Parkway is expected to operate at level of service F in the AM and PM peak hours. It is recommended that this intersection be left unmitigated until Citracado Parkway can be extended to the east to connect to I-15 and/or lane geometry improvements can be made at the intersection.

APPENDIX A

INTERSECTION CAPACITY ANALYSIS

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Avenida del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: ~~2009~~ 2010
Project ID: Existing
East/West Street: Avenida del Diablo
North/South Street: Citracado
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	9	10	149	2	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	10	11	165	2	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	4	96	0	5	0
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	4	106	0	5	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/		No	/
Lanes	1	1	0	0	1	0
Configuration	L		TR		LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR	L		TR		LTR	
v (vph)	0	165	5		110		5	
C(m) (vph)	1634	1608	556		1029		516	
v/c	0.00	0.10	0.01		0.11		0.01	
95% queue length	0.00	0.34	0.03		0.36		0.03	
Control Delay	7.2	7.5	11.5		8.9		12.0	
LOS	A	A	B		A		B	
Approach Delay			9.0				12.0	
Approach LOS			A				B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SD County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Avenida del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: ~~2009~~ 2010
Project ID: Existing
East/West Street: Avenida del Diablo
North/South Street: Citracado
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	5	2	139	8	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	5	2	154	8	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	1	0	77	0	0	0
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	1	0	85	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			No /
Lanes	1	1	0	0	1	0
Configuration	L		TR		LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR	L		TR		LTR	
v (vph)	0	154	1		85		0	
C(m) (vph)	1625	1627	589		1083			
v/c	0.00	0.09	0.00		0.08			
95% queue length	0.00	0.31	0.01		0.26			
Control Delay	7.2	7.4	11.1		8.6			
LOS	A	A	B		A			
Approach Delay			8.6					
Approach LOS			A					

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SDCounty
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Driveway
Jurisdiction:
Units: U. S. Customary
Analysis Year: ~~2009~~ 2010
Project ID: Existing
East/West Street: Driveway
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	4	63	12	2	155	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	4	70	13	2	172	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	41	0	27	12	1	21
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	45	0	30	13	1	23
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	4	2		75			37	
C(m) (vph)	1415	1527		764			777	
v/c	0.00	0.00		0.10			0.05	
95% queue length	0.01	0.00		0.33			0.15	
Control Delay	7.6	7.4		10.2			9.9	
LOS	A	A		B			A	
Approach Delay				10.2			9.9	
Approach LOS				B			A	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SDCounty
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Driveway
Jurisdiction:
Units: U. S. Customary
Analysis Year: ~~2009~~ 2010
Project ID: Existing
East/West Street: Driveway
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	35	91	20	18	55	41
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	38	101	22	20	61	45
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	33	0	12	4	0	9
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	36	0	13	4	0	10
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	38	20		49			14	
C(m) (vph)	1498	1477		678			836	
v/c	0.03	0.01		0.07			0.02	
95% queue length	0.08	0.04		0.23			0.05	
Control Delay	7.5	7.5		10.7			9.4	
LOS	A	A		B			A	
Approach Delay				10.7			9.4	
Approach LOS				B			A	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Johnson
Jurisdiction:
Units: U. S. Customary
Analysis Year: ~~2009~~ 2010
Project ID: Existing
East/West Street: Johnson
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	17	67	5	1	220	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	18	74	5	1	244	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	27	0	4	4	0	88
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	30	0	4	4	0	97
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	18	1		34			101	
C(m) (vph)	1332	1532		515			788	
v/c	0.01	0.00		0.07			0.13	
95% queue length	0.04	0.00		0.21			0.44	
Control Delay	7.7	7.4		12.5			10.2	
LOS	A	A		B			B	
Approach Delay				12.5			10.2	
Approach LOS				B			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SD County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Johnson
Jurisdiction:
Units: U. S. Customary
Analysis Year: ~~2009~~ 2010
Project ID: Existing
East/West Street: Johnson
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	55	124	15	2	113	11
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	61	137	16	2	125	12
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	14	0	2	3	1	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	15	0	2	3	1	44
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		Yes	/0		Yes	/0
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	61	2		17			48	
C(m) (vph)	1459	1440		527			871	
v/c	0.04	0.00		0.03			0.06	
95% queue length	0.13	0.00		0.10			0.17	
Control Delay	7.6	7.5		12.1			9.4	
LOS	A	A		B			A	
Approach Delay				12.1			9.4	
Approach LOS				B			A	

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: Existing Peak Hour Traffic
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : ~~2009~~ 2010

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	1	1	1	1	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	86	475	23	22	792	28	82	3	208	36	8	57
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			6			7			52			14

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	15.0	50.0				15.0	20.0	
Yellow	4.0	4.0				4.0	4.0	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	221	1770	0.42	0.13	49.8	D		
TR	1470	3529	0.36	0.42	21.2	C	25.5	C
Westbound								
L	221	1770	0.11	0.13	46.8	D		
TR	1472	3533	0.60	0.42	24.6	C	25.1	C
Northbound								
L	221	1770	0.40	0.13	49.6	D		
T	311	1863	0.01	0.17	41.7	D	51.1	D
R	264	1583	0.64	0.17	52.1	D		
Southbound								
L	198	1583	0.20	0.13	47.6	D		
T	311	1863	0.03	0.17	41.9	D	45.0	D
R	236	1417	0.20	0.17	43.5	D		

Intersection Delay = 29.8 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: Existing Peak Hour Traffic
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : ~~2005~~ 2010

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	1	1	1	1	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	53	992	20	51	450	92	10	5	30	61	5	55
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			6			7			0			14

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
WB Left	A				SB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	15.0	50.0				15.0	20.0		
Yellow	4.0	4.0				4.0	4.0		
All Red	1.0	1.0				1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	221	1770	0.26	0.13	48.1	D		
TR	1475	3539	0.74	0.42	28.0	C	29.0	C
Westbound								
L	221	1770	0.25	0.13	48.0	D		
TR	1442	3462	0.40	0.42	21.7	C	24.0	C
Northbound								
L	221	1770	0.05	0.13	46.3	D		
T	311	1863	0.02	0.17	41.8	D	43.5	D
R	264	1583	0.13	0.17	42.8	D		
Southbound								
L	198	1583	0.33	0.13	48.9	D		
T	311	1863	0.02	0.17	41.8	D	46.5	D
R	236	1417	0.19	0.17	43.4	D		

Intersection Delay = 28.7 (sec/veh) Intersection LOS = C

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: ~~2009~~ 2010
Project ID: Existing
East/West Street: Kauana Loa
North/South Street: Harmony
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		85	4	337	54	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		94	4	374	60	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	3		196			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	3		217			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		374		220				
C(m) (vph)		1508		926				
v/c		0.25		0.24				
95% queue length		0.99		0.93				
Control Delay		8.2		10.1				
LOS		A		B				
Approach Delay				10.1				
Approach LOS				B				

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SD County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: ~~2009~~ 2010
Project ID: Existing
East/West Street: Kauana Loa
North/South Street: Harmony
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		68	3	137	84	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		75	3	152	93	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2		423			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	2		470			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		152		472				
C(m) (vph)		1533		987				
v/c		0.10		0.48				
95% queue length		0.33		2.72				
Control Delay		7.6		12.0				
LOS		A		B				
Approach Delay				12.0				
Approach LOS				B				

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: Existing Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2010

N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	1	0	1	1	0
LGConfig					LR			TR		L	T	
Volume				220		256		284	131	492	792	
Lane Width					12.0			12.0		12.0	12.0	
RTOR Vol						64			52			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru					Thru	A	A	
Right		A			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		37.0				35.0	33.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	524	1700	0.85	0.31	53.0	D	53.0	D
Northbound								
TR	497	1808	0.79	0.28	49.7	D	49.7	D
Southbound								
L	582	1583	0.92	0.61	51.0	D		
T	1133	1863	0.76	0.61	12.6	B	27.3	C

Intersection Delay = 36.4 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: Existing Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2010

N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	1	0	1	1	0
LGConfig					LR			TR		L	T	
Volume				163		497		682	131	226	305	
Lane Width					12.0			12.0		12.0	12.0	
RTOR Vol						124			52			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru					Thru	A	A	
Right		A			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		37.0				35.0	33.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	512	1662	1.14	0.31	313.1	F	313.1	F
Northbound								
TR	505	1837	1.64	0.28	1200	F	1200	F
Southbound								
L	522	1583	0.47	0.61	22.3	C		
T	1133	1863	0.29	0.61	6.4	A	13.1	B

Intersection Delay = 595.1 (sec/veh) Intersection LOS = F

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Avenida del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 No Build
East/West Street: Avenida del Diablo
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	368	106		348	4
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	5	408	117		386	4
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1	0		1	0
Configuration	L		TR			TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			49			14
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			54			15
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L				R			R
v (vph)	5				54			15
C(m) (vph)	1180				601			665
v/c	0.00				0.09			0.02
95% queue length	0.01				0.30			0.07
Control Delay	8.1				11.6			10.5
LOS	A				B			B
Approach Delay				11.6			10.5	
Approach LOS				B			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Avenida del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 No Build
East/West Street: Avenida del Diablo
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	12	273	85		292	5
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	13	303	94		324	5
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0		1	0
Configuration	L	TR			TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			37			9
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			41			10
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L				R			R
v (vph)	13				41			10
C(m) (vph)	1242				698			720
v/c	0.01				0.06			0.01
95% queue length	0.03				0.19			0.04
Control Delay	7.9				10.5			10.1
LOS	A				B			B
Approach Delay				10.5			10.1	
Approach LOS				B			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SDCounty
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Driveway
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 No Build
East/West Street: Driveway
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	4	362	13	2	401	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	4	402	14	2	445	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	45	0	30	14	1	23
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	50	0	33	15	1	25
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	4	2		83			41	
C(m) (vph)	1124	1154		338			397	
v/c	0.00	0.00		0.25			0.10	
95% queue length	0.01	0.01		0.97			0.34	
Control Delay	8.2	8.1		19.1			15.1	
LOS	A	A		C			C	
Approach Delay				19.1			15.1	
Approach LOS				C			C	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SDCounty
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Driveway
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 No Build
East/West Street: Driveway
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	19	401	44	38	299	22
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	21	445	48	42	332	24
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	36	0	13	4	0	9
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	40	0	14	4	0	10
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	21	42		54			14	
C(m) (vph)	1214	1081		271			436	
v/c	0.02	0.04		0.20			0.03	
95% queue length	0.05	0.12		0.74			0.10	
Control Delay	8.0	8.5		21.6			13.5	
LOS	A	A		C			B	
Approach Delay				21.6			13.5	
Approach LOS				C			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Johnson
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 No Build
East/West Street: Johnson
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	19	366	5	1	468	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	21	406	5	1	520	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	4	4	0	97
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	4	4	0	107
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	21	1		37			111	
C(m) (vph)	1055	1159		186			531	
v/c	0.02	0.00		0.20			0.21	
95% queue length	0.06	0.00		0.74			0.79	
Control Delay	8.5	8.1		29.1			13.6	
LOS	A	A		D			B	
Approach Delay				29.1			13.6	
Approach LOS				D			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SD County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Johnson
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 No Build
East/West Street: Johnson
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	60	478	16	12	323	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	66	531	17	13	358	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	15	0	2	3	1	43
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	16	0	2	3	1	47
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	66	13		18			51	
C(m) (vph)	1210	1032		188			577	
v/c	0.05	0.01		0.10			0.09	
95% queue length	0.17	0.04		0.32			0.29	
Control Delay	8.1	8.5		26.2			11.8	
LOS	A	A		D			B	
Approach Delay				26.2			11.8	
Approach LOS				D			B	

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 No Build
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	1	1	1	1	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	262	546	25	24	883	24	39	9	62	175	14	361
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			6			6			15			90

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	A	A			NB	Left	A			
Thru		A				Thru			A	
Right		A				Right			A	
Peds						Peds				
WB Left	A				SB	Left	A	A		
Thru		A				Thru		A	A	
Right		A				Right			A	
Peds						Peds				
NB Right					EB	Right				
SB Right	A				WB	Right				
Green	23.0	37.0					10.0	8.0	17.0	
Yellow	4.0	4.0					4.0	4.0	4.0	
All Red	1.0	1.0					1.0	1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	401	1770	0.71	0.54	36.2	D		
TR	1088	3528	0.56	0.31	34.7	C	35.2	D
Westbound								
L	339	1770	0.08	0.19	39.9	D		
TR	1090	3536	0.90	0.31	50.5	D	50.3	D
Northbound								
L	148	1770	0.28	0.08	52.7	D		
T	264	1863	0.04	0.14	44.5	D	48.7	D
R	224	1583	0.23	0.14	46.2	D		
Southbound								
L	303	1583	0.63	0.19	48.7	D		
T	466	1863	0.03	0.25	34.1	C	37.8	D
R	531	1417	0.56	0.38	30.9	C		

Intersection Delay = 42.3 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2014 No Build
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	1	1	1	1	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	214	1110	22	56	505	261	11	16	34	163	16	154
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			5			65			8			38

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru		A			Thru			A	
Right		A			Right			A	
Peds					Peds				
WB Left	A				SB Left	A	A		
Thru		A			Thru		A	A	
Right		A			Right			A	
Peds					Peds				
NB Right					EB Right				
SB Right	A				WB Right				
Green	15.0	50.0				11.0	5.0	14.0	
Yellow	4.0	4.0				4.0	4.0	4.0	
All Red	1.0	1.0				1.0	1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	221	1770	1.05	0.13	235.0	F		
TR	1475	3539	0.83	0.42	31.7	C	64.2	E
Westbound								
L	221	1770	0.28	0.13	48.3	D		
TR	1416	3398	0.54	0.42	23.5	C	25.3	C
Northbound								
L	162	1770	0.07	0.09	50.0	D		
T	217	1863	0.08	0.12	47.4	D	48.3	D
R	185	1583	0.15	0.12	48.0	D		
Southbound								
L	277	1583	0.64	0.17	51.0	D		
T	373	1863	0.05	0.20	38.8	D	43.7	D
R	401	1417	0.31	0.28	34.3	C		

Intersection Delay = 49.3 (sec/veh) Intersection LOS = D

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 No Build
East/West Street: Kauana Loa
North/South Street: Harmony
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		94	4	365	59	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		104	4	405	65	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	1		216			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	1		240			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		405		241				
C(m) (vph)		1495		940				
v/c		0.27		0.26				
95% queue length		1.11		1.03				
Control Delay		8.3		10.1				
LOS		A		B				
Approach Delay				10.1				
Approach LOS				B				

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SD County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 No Build
East/West Street: Kauana Loa
North/South Street: Harmony
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		75	3	150	91	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		83	3	166	101	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2		467			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	2		518			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		166		520				
C(m) (vph)		1523		977				
v/c		0.11		0.53				
95% queue length		0.37		3.36				
Control Delay		7.7		12.9				
LOS		A		B				
Approach Delay				12.9				
Approach LOS				B				

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 No Build Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2014
N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	1	0	1	1	0
LGConfig					LR			TR		L	T	
Volume				290		238		322	142	538	869	
Lane Width					12.0			12.0		12.0	12.0	
RTOR Vol						59			35			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru					Thru	A	A	
Right		A			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		37.0				35.0	33.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	528	1714	0.97	0.31	90.3	F	90.3	F
Northbound								
TR	495	1800	0.94	0.28	81.4	F	81.4	F
Southbound								
L	554	1583	1.06	0.61	174.4	F		
T	1133	1863	0.83	0.61	16.2	B	76.7	E

Intersection Delay = 80.3 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2014 No Build Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2014
N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	1	0	1	1	0
LGConfig					LR			TR		L	T	
Volume				177		542		744	208	251	342	
Lane Width					12.0			12.0		12.0	12.0	
RTOR Vol						135			52			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	37.0					35.0	33.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	512	1662	1.24	0.31	487.1	F	487.1	F
Northbound								
TR	500	1819	1.96	0.28	1775	F	1775	F
Southbound								
L	522	1583	0.52	0.61	24.3	C		
T	1133	1863	0.33	0.61	6.5	A	14.1	B

Intersection Delay = 910.5 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 Build
E/W St: Andreasen

Inter.: Citracado & Andreasen
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	1	1	2	0
LGConfig	L	TR		L	T	R	L	T	R	L	TR	
Volume	12	2	10	27	10	263	42	1704	23	119	737	119
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			2			65			6			30

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left		A			NB	Left	A	A		
	Thru		A				Thru		A	A	
	Right		A				Right		A	A	
	Peds						Peds				
WB	Left	A				SB	Left	A			
	Thru	A					Thru			A	
	Right	A					Right			A	
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right	A			
Green		8.0	12.0					15.0	10.0	50.0	
Yellow		4.0	4.0					4.0	4.0	4.0	
All Red		1.0	1.0					1.0	1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	177	1770	0.07	0.10	49.1	D		
TR	163	1634	0.07	0.10	49.1	D	49.1	D
Westbound								
L	118	1770	0.25	0.07	54.3	D		
T	124	1863	0.09	0.07	52.9	D	54.3	D
R	303	1583	0.73	0.19	54.4	D		
Northbound								
L	443	1770	0.11	0.25	34.8	C		
T	1921	3547	0.99	0.54	48.1	D	47.4	D
R	857	1583	0.02	0.54	12.8	B		
Southbound								
L	221	1770	0.60	0.13	54.1	D		
TR	1454	3489	0.63	0.42	25.2	C	28.8	C

Intersection Delay = 42.1 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2014 Build
E/W St: Andreasen

Inter.: Citracado & Andreasen
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	1	1	2	0
LGConfig	L	TR		L	T	R	L	T	R	L	TR	
Volume	52	10	42	27	10	133	40	1000	33	276	1825	10
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			21			33			8			2

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left		A			NB Left	A			
Thru		A			Thru			A	
Right		A			Right			A	
Peds					Peds				
WB Left	A				SB Left	A	A		
Thru	A				Thru		A	A	
Right	A				Right		A	A	
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right	A			
Green	8.0	12.0				10.0	10.0	55.0	
Yellow	4.0	4.0				4.0	4.0	4.0	
All Red	1.0	1.0				1.0	1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	177	1770	0.33	0.10	51.3	D		
TR	167	1674	0.20	0.10	50.2	D	50.9	D
Westbound								
L	118	1770	0.25	0.07	54.3	D		
T	124	1863	0.09	0.07	52.9	D	49.7	D
R	237	1583	0.47	0.15	48.1	D		
Northbound								
L	148	1770	0.30	0.08	52.8	D		
T	1626	3547	0.68	0.46	22.4	C	23.4	C
R	726	1583	0.04	0.46	17.9	B		
Southbound								
L	369	1770	0.83	0.21	62.4	E		
TR	2067	3544	0.99	0.58	43.0	D	45.5	D

Intersection Delay = 38.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 Build
E/W St: Harmony Grove

Inter.: Citracado & Harmony Grove
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado Parkway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	2	0	0	2	1
LGConfig	L		R				L	T			T	R
Volume	590		77				109	1179			558	222
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
RTOR Vol			19									34

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru					Thru	A	A	
Right		A			Right			
Peds					Peds			
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		57.0				28.0	20.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	841	1770	0.78	0.47	31.2	C		
							30.0	C
R	752	1583	0.09	0.47	17.3	B		
Westbound								
Northbound								
L	295	1770	0.41	0.17	45.7	D		
T	1567	3547	0.84	0.44	29.4	C	30.8	C
Southbound								
T	828	3547	0.75	0.23	46.6	D	45.6	D
R	369	1583	0.57	0.23	42.7	D		

Intersection Delay = 34.7 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2014 Build
E/W St: Harmony Grove

Inter.: Citracado & Harmony Grove
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado Parkway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	2	0	0	2	1
LGConfig	L		R				L	T			T	R
Volume	317		120				84	1179			558	222
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
RTOR Vol			19									34

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left		A			NB	Left		A		
	Thru						Thru	A	A		
	Right		A				Right				
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	A			
	Right						Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green			57.0						28.0	20.0	
Yellow			4.0						4.0	4.0	
All Red			1.0						1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	841	1770	0.42	0.47	21.0	C		
							20.2	C
R	752	1583	0.15	0.47	17.9	B		
Westbound								
Northbound								
L	295	1770	0.32	0.17	44.6	D		
T	1567	3547	0.84	0.44	29.4	C	30.4	C
Southbound								
T	828	3547	0.75	0.23	46.6	D	45.6	D
R	369	1583	0.57	0.23	42.7	D		

Intersection Delay = 33.3 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 Build
E/W St: Lariat Drive

Inter.: Citracado & Lariat
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	1	2	0	1	2	0
LGConfig	L	TR			LTR		L	TR		L	TR	
Volume	106	7	115	7	2	8	219	1263	29	36	595	71
Lane Width	12.0	12.0			12.0		12.0	12.0		12.0	12.0	
RTOR Vol			29			2			7			18

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru	A				Thru		A		
Right	A				Right		A		
Peds					Peds				
WB Left		A			SB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	14.0	12.0				24.0	50.0		
Yellow	4.0	4.0				4.0	4.0		
All Red	1.0	1.0				1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	207	1770	0.57	0.12	53.9	D		
TR	187	1605	0.56	0.12	53.8	D	53.8	D
Westbound								
LTR	172	1719	0.10	0.10	49.3	D	49.3	D
Northbound								
L	354	1770	0.69	0.20	50.1	D		
TR	1474	3538	0.97	0.42	54.6	D	54.0	D
Southbound								
L	354	1770	0.11	0.20	39.4	D		
TR	1460	3503	0.49	0.42	22.8	C	23.7	C

Intersection Delay = 45.3 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2014 Build
E/W St: Lariat Drive

Inter.: Citracado & Lariat
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	1	2	0	1	2	0
LGConfig	L	TR			LTR		L	TR		L	TR	
Volume	78	3	117	27	5	33	218	785	11	36	1350	116
Lane Width	12.0	12.0			12.0		12.0	12.0		12.0	12.0	
RTOR Vol			29			2			7			18

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru	A					Thru			A	
	Right	A					Right			A	
	Peds						Peds				
WB	Left		A			SB	Left	A	A		
	Thru		A				Thru		A	A	
	Right		A				Right		A	A	
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		14.0	10.0					20.0	7.0	44.0	
Yellow		4.0	4.0					4.0	4.0	4.0	
All Red		1.0	1.0					1.0	1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	207	1770	0.42	0.12	50.6	D		
TR	186	1592	0.54	0.12	53.3	D	52.0	D
Westbound								
LTR	142	1704	0.49	0.08	55.3	E	55.3	E
Northbound								
L	295	1770	0.82	0.17	67.2	E		
TR	1299	3544	0.67	0.37	31.1	C	38.9	D
Southbound								
L	472	1770	0.08	0.27	33.1	C		
TR	1638	3511	0.98	0.47	56.0	E	55.5	E

Intersection Delay = 49.1 (sec/veh) Intersection LOS = D

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Avenida del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 Build
East/West Street: Avenida del Diablo
North/South Street: Citracado Parkway
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	1340	128		818	7
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	7	1488	142		908	7
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided /					
RT Channelized?			No			No
Lanes	1	2	1		2	1
Configuration	L	T	R		T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			165			33
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			183			36
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L				R			R
v (vph)	7				183			36
C(m) (vph)	754				362			559
v/c	0.01				0.51			0.06
95% queue length	0.03				2.97			0.21
Control Delay	9.8				25.0-			11.9
LOS	A				C			B
Approach Delay				25.0-			11.9	
Approach LOS				C			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Avenida del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 Build
East/West Street: Avenida del Diablo
North/South Street: Citracado Parkway
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	17	874	128		1566	20
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	18	971	142		1740	22
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?			No			No
Lanes	1	2	1		2	1
Configuration	L	T	R		T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			141			17
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			156			18
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L				R			R
v (vph)	18				156			18
C(m) (vph)	359				533			299
v/c	0.05				0.29			0.06
95% queue length	0.16				1.23			0.19
Control Delay	15.6				14.5			17.8
LOS	C				B			C
Approach Delay				14.5			17.8	
Approach LOS				B			C	

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 Build
E/W St: Driveway

Inter.: Citracado & Driveway
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	0	1	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	12	1	22	43	1	28	52	1377	12	60	787	4
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			6			7			3			1

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
WB Left	A				SB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	16.0	15.0				15.0	54.0		
Yellow	4.0	4.0				4.0	4.0		
All Red	1.0	1.0				1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	241	1805	0.05	0.13	45.5	D		
TR	204	1630	0.09	0.13	46.7	D	46.2	D
Westbound								
L	241	1805	0.20	0.13	46.7	D		
TR	203	1627	0.12	0.13	46.9	D	46.8	D
Northbound								
L	226	1805	0.26	0.13	48.1	D		
TR	1626	3614	0.95	0.45	42.1	D	42.3	D
Southbound								
L	226	1805	0.30	0.13	48.4	D		
TR	1627	3616	0.54	0.45	20.4	C	22.4	C

Intersection Delay = 35.4 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 Build
E/W St: Driveway

Inter.: Citracado & Driveway
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	0	1	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	4	1	23	14	1	4	327	996	49	100	1468	14
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			6			0			3			1

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A	A		
Thru		A			Thru		A	A	
Right		A			Right		A	A	
Peds					Peds				
WB Left	A				SB Left	A			
Thru		A			Thru			A	
Right		A			Right			A	
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	8.0	7.0				15.0	10.0	55.0	
Yellow	4.0	4.0				4.0	4.0	4.0	
All Red	1.0	1.0				1.0	1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	120	1805	0.03	0.07	52.5	D		
TR	95	1629	0.21	0.06	55.0-	D	54.6	D
Westbound								
L	120	1805	0.13	0.07	53.2	D		
TR	98	1672	0.05	0.06	53.6	D	53.3	D
Northbound								
L	451	1805	0.80	0.25	53.4	D		
TR	2096	3594	0.55	0.58	9.7	A	20.2	C
Southbound								
L	226	1805	0.49	0.13	50.6	D		
TR	1656	3613	0.99	0.46	65.0	E	64.1	E

Intersection Delay = 43.8 (sec/veh) Intersection LOS = D

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Johnston
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 Build
East/West Street: Johnston
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	19	1043	6	2	872	9
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	21	1158	6	2	968	10
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	2	0	1	2	0
Configuration	L	T	TR	L	T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			34			101
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			37			112
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L			R			R
v (vph)	21	2			37			112
C(m) (vph)	714	607			461			530
v/c	0.03	0.00			0.08			0.21
95% queue length	0.09	0.01			0.26			0.80
Control Delay	10.2	11.0			13.5			13.6
LOS	B	B			B			B
Approach Delay				13.5			13.6	
Approach LOS				B			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Johnston
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 Build
East/West Street: Johnston
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	108	1057	34	2	1504	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	120	1174	37	2	1671	5
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	1	2	0	1	2	0
Configuration	L	T	TR	L	T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			9			30
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			10			33
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L			R			R
v (vph)	120	2			10			33
C(m) (vph)	388	583			445			314
v/c	0.31	0.00			0.02			0.11
95% queue length	1.33	0.01			0.07			0.35
Control Delay	18.4	11.2			13.3			17.8
LOS	C	B			B			C
Approach Delay				13.3			17.8	
Approach LOS				B			C	

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 Build
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	1	1	1	1	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	618	597	35	37	888	663	39	165	58	329	50	457
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			9			166			14			114

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru	A	A			Thru		A		
Right	A	A			Right		A		
Peds					Peds				
WB Left			A		SB Left	A			
Thru		A	A		Thru		A		
Right		A	A		Right		A		
Peds					Peds				
NB Right			A		EB Right				
SB Right	A				WB Right				
Green	30.0	5.0	30.0			8.0	22.0		
Yellow	4.0	4.0	4.0			4.0	4.0		
All Red	1.0	1.0	1.0			1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	451	1805	1.52	0.25	998.4	F		
TR	1198	3595	0.58	0.33	32.3	C	513.6	F
Westbound								
L	451	1805	0.09	0.25	34.6	C		
TR	1141	3423	1.35	0.33	672.2	F	655.7	F
Northbound								
L	120	1805	0.36	0.07	55.4	E		
T	348	1900	0.53	0.18	45.8	D	42.2	D
R	700	1615	0.07	0.43	17.1	B		
Southbound								
L	120	1805	3.05	0.07	3768	F		
T	348	1900	0.16	0.18	41.5	D	1729	F
R	767	1615	0.50	0.47	17.9	B		

Intersection Delay = 778.8 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2014 Build
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : 2014

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	1	1	1	1	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	602	972	52	59	637	395	38	94	34	691	178	665
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			13			98			9			166

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru	A	A			Thru		A		
Right	A	A			Right		A		
Peds					Peds				
WB Left			A		SB Left	A			
Thru		A	A		Thru		A		
Right		A	A		Right		A		
Peds					Peds				
NB Right			A		EB Right				
SB Right	A				WB Right				
Green	30.0	5.0	30.0			8.0	22.0		
Yellow	4.0	4.0	4.0			4.0	4.0		
All Red	1.0	1.0	1.0			1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	451	1805	1.48	0.25	927.1	F		
TR	1199	3597	0.94	0.33	54.5	D	380.3	F
Westbound								
L	451	1805	0.15	0.25	35.2	D		
TR	1148	3445	0.90	0.33	48.4	D	47.6	D
Northbound								
L	120	1805	0.35	0.07	55.3	E		
T	348	1900	0.30	0.18	42.8	D	41.6	D
R	700	1615	0.04	0.43	16.8	B		
Southbound								
L	120	1805	6.40	0.07	9794	F		
T	348	1900	0.57	0.18	46.9	D	4963	F
R	767	1615	0.72	0.47	23.7	C		

Intersection Delay = 1805 (sec/veh) Intersection LOS = F

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 Build
East/West Street: Kauana Loa
North/South Street: Harmony Grove Road
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		168	5	194	75	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		186	5	215	83	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2		395			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	2		438			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		215	2		438			
C(m) (vph)		1395	345		859			
v/c		0.15	0.01		0.51			
95% queue length		0.55	0.02		3.08			
Control Delay		8.1	15.5		13.5			
LOS		A	C		B			
Approach Delay				13.5				
Approach LOS				B				

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2014
Project ID: 2014 Build
East/West Street: Kauana Loa
North/South Street: Harmony Grove Road
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		158	49	434	288	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		175	54	482	320	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	25		279			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	27		310			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		482	27		310			
C(m) (vph)		1351	89		844			
v/c		0.36	0.30		0.37			
95% queue length		1.66	1.26		1.73			
Control Delay		9.1	62.8		11.7			
LOS		A	F		B			
Approach Delay			15.8					
Approach LOS			C					

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2014 Build Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2014
N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	1	1	1	1	0
LGConfig				L		R		T	R	L	T	
Volume				238		385		637	141	559	930	
Lane Width				12.0		12.0		12.0	12.0	12.0	12.0	
RTOR Vol						59			35			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru					Thru	A		
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right	A		
Green	20.0					42.0	43.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
L	295	1770	0.88	0.17	79.9	E		
							42.7	D
R	884	1583	0.40	0.56	15.4	B		
Northbound								
T	668	1863	1.04	0.36	146.3	F	129.3	F
R	567	1583	0.20	0.36	26.8	C		
Southbound								
L	554	1583	1.10	0.35	245.5	F		
T	652	1863	1.55	0.35	1036	F	738.9	F

Intersection Delay = 436.6 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2014 Build Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2014
N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	1	1	1	1	0
LGConfig				L		R		T	R	L	T	
Volume				176		583		831	251	357	665	
Lane Width				12.0		12.0		12.0	12.0	12.0	12.0	
RTOR Vol						135			52			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru					Thru	A		
Right	A				Right			
Peds					Peds			
NB Right	A				EB Right			
SB Right					WB Right	A		
Green	15.0					32.0	58.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
L	221	1770	0.86	0.13	87.2	F		
							47.1	D
R	686	1583	0.71	0.43	31.3	C		
Northbound								
T	900	1863	1.00	0.48	87.7	F	72.4	E
R	1029	1583	0.21	0.65	8.6	A		
Southbound								
L	422	1583	0.92	0.27	77.1	E		
T	497	1863	1.45	0.27	873.9	F	595.7	F

Intersection Delay = 266.4 (sec/veh) Intersection LOS = F

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Avenida Del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: No Build
East/West Street: Avenida Del Diablo
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	468	126		911	4
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	5	520	140		1012	4
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1	0		1	0
Configuration	L		TR			TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			173			20
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			192			22
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L				R			R
v (vph)	5				192			22
C(m) (vph)	691				511			292
v/c	0.01				0.38			0.08
95% queue length	0.02				1.79			0.24
Control Delay	10.2				16.3			18.3
LOS	B				C			C
Approach Delay				16.3			18.3	
Approach LOS				C			C	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Avenida Del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: No Build
East/West Street: Avenida Del Diablo
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	11	816	186		654	11
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	12	906	206		726	12
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1	0		1	0
Configuration	L	TR			TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			155			12
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			172			13
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L				R			R
v (vph)	12				172			13
C(m) (vph)	877				294			424
v/c	0.01				0.59			0.03
95% queue length	0.04				3.97			0.09
Control Delay	9.2				34.1			13.8
LOS	A				D			B
Approach Delay				34.1			13.8	
Approach LOS				D			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SDCounty
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Driveway
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: No Build
East/West Street: Driveway
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	19	590	21	2	917	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	21	655	23	2	1018	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	61	1	7	2	1	31
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	67	1	7	2	1	34
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	21	2		75			37	
C(m) (vph)	688	923		63			233	
v/c	0.03	0.00		1.19			0.16	
95% queue length	0.09	0.01		14.02			0.56	
Control Delay	10.4	8.9		623.2			23.4	
LOS	B	A		F			C	
Approach Delay				623.2			23.4	
Approach LOS				F			C	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: SDCounty
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Driveway
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: No Build
East/West Street: Driveway
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	34	1009	67	8	649	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	37	1121	74	8	721	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	23	1	2	2	1	21
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	25	1	2	2	1	23
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	37	8		28			26	
C(m) (vph)	889	591		45			223	
v/c	0.04	0.01		0.62			0.12	
95% queue length	0.13	0.04		3.50			0.39	
Control Delay	9.2	11.2		198.0			23.3	
LOS	A	B		F			C	
Approach Delay				198.0			23.3	
Approach LOS				F			C	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Johnston
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: No Build
East/West Street: Johnston
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	21	627	6	2	996	1
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	23	696	6	2	1106	1
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	1	1	2	1	90
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1	1	2	1	100
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	23	2		35			103	
C(m) (vph)	638	905		32			235	
v/c	0.04	0.00		1.09			0.44	
95% queue length	0.11	0.01		8.03			2.26	
Control Delay	10.9	9.0		680.0			32.1	
LOS	B	A		F			D	
Approach Delay				680.0			32.1	
Approach LOS				F			D	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Johnston
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: No Build
East/West Street: Johnston
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	99	1096	33	1	690	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	110	1217	36	1	766	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7	1	2	1	1	23
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	7	1	2	1	1	25
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			Yes /0			Yes /0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	110	1		10			27	
C(m) (vph)	855	562		33			215	
v/c	0.13	0.00		0.30			0.13	
95% queue length	0.44	0.01		1.18			0.43	
Control Delay	9.8	11.4		159.9			24.1	
LOS	A	B		F			C	
Approach Delay				159.9			24.1	
Approach LOS				F			C	

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: No Build
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	1	1	1	1	1	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	189	849	158	249	950	126	248	315	196	223	558	335
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			39			31			49			83

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0	40.0				12.0	28.0	
Yellow	4.0	4.0				4.0	4.0	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	301	1805	0.70	0.17	54.3	D		
TR	1693	5080	0.63	0.33	33.2	C	36.7	D
Westbound								
L	301	1805	0.92	0.17	95.0	F		
TR	1702	5105	0.68	0.33	34.2	C	45.9	D
Northbound								
L	181	1805	1.52	0.10	1027	F		
T	443	1900	0.79	0.23	53.3	D	391.1	F
R	377	1615	0.43	0.23	40.0	D		
Southbound								
L	181	1805	1.37	0.10	755.3	F		
T	443	1900	1.40	0.23	779.1	F	596.3	F
R	377	1615	0.74	0.23	50.8	D		

Intersection Delay = 237.4 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: No Build
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	1	1	1	1	1	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	368	1045	273	216	934	245	174	614	274	139	346	208
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			68			61			68			52

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	A				NB	Left	A			
Thru		A				Thru		A		
Right		A				Right		A		
Peds						Peds				
WB Left	A				SB	Left	A			
Thru		A				Thru		A		
Right		A				Right		A		
Peds						Peds				
NB Right					EB	Right				
SB Right					WB	Right				
Green	30.0	30.0					12.0	28.0		
Yellow	4.0	4.0					4.0	4.0		
All Red	1.0	1.0					1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	443	1770	0.92	0.25	75.4	E		
TR	1237	4949	1.12	0.25	277.6	F	231.6	F
Westbound								
L	443	1770	0.54	0.25	40.3	D		
TR	1237	4949	1.00	0.25	97.4	F	88.2	F
Northbound								
L	177	1770	1.09	0.10	292.1	F		
T	435	1863	1.57	0.23	1078	F	726.3	F
R	369	1583	0.62	0.23	44.2	D		
Southbound								
L	177	1770	0.87	0.10	94.7	F		
T	435	1863	0.88	0.23	65.3	E	65.6	E
R	369	1583	0.47	0.23	40.5	D		

Intersection Delay = 273.9 (sec/veh) Intersection LOS = F

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: No Build
East/West Street: Kauana Loa
North/South Street: Harmony
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		59	6	249	76	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		65	6	276	84	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2		196			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	2		217			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT	L		R			
v (vph)		276	2		217			
C(m) (vph)		1542	333		1001			
v/c		0.18	0.01		0.22			
95% queue length		0.65	0.02		0.83			
Control Delay		7.8	15.9		9.6			
LOS		A	C		A			
Approach Delay				9.6				
Approach LOS				A				

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: No Build
East/West Street: Kauana Loa
North/South Street: Harmony
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		84	4	216	65	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		93	4	240	72	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	3		274			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	3		304			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage				/		/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT	L		R			
v (vph)		240	3		304			
C(m) (vph)		1509	369		967			
v/c		0.16	0.01		0.31			
95% queue length		0.57	0.02		1.37			
Control Delay		7.8	14.8		10.4			
LOS		A	B		B			
Approach Delay				10.5				
Approach LOS				B				

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2030 No Build Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2030
N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	2	0
LGConfig				L		R		T	R	L	T	
Volume				260		465		750	240	770	1145	
Lane Width				12.0		12.0		12.0	12.0	12.0	12.0	
RTOR Vol						116			60			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru					Thru	A		
Right		A			Right			
Peds					Peds			
NB Right		A			EB Right			
SB Right					WB Right	A		
Green		20.0				50.0	35.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
L	295	1770	0.96	0.17	118.9	F		
							57.3	E
R	989	1583	0.38	0.63	11.3	B		
Northbound								
T	1035	3547	0.79	0.29	43.0	D	38.0	D
R	792	1583	0.25	0.50	17.3	B		
Southbound								
L	729	1583	1.15	0.75	313.7	F		
T	1478	3547	0.84	0.42	32.4	C	145.5	F

Intersection Delay = 101.0 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2030 No Build Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2030
N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	2	0
LGConfig				L		R		T	R	L	T	
Volume				190		715		1405	355	515	600	
Lane Width				12.0		12.0		12.0	12.0	12.0	12.0	
RTOR Vol						357			89			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru					Thru	A	A	
Right		A			Right			
Peds					Peds			
NB Right		A			EB Right			
SB Right					WB Right	A		
Green		20.0				38.0	47.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
L	295	1770	0.70	0.17	54.8	D		
							31.0	C
R	831	1583	0.47	0.52	18.4	B		
Northbound								
T	1389	3547	1.10	0.39	225.1	F	191.2	F
R	950	1583	0.30	0.60	11.9	B		
Southbound								
L	561	1583	1.00	0.75	110.3	F		
T	2660	3547	0.25	0.75	1.1	A	51.6	D

Intersection Delay = 118.2 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: Build Alt 3
E/W St: Andreasen

Inter.: Citracado & Andreasen
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	1	1	2	0
LGConfig	L	TR		L	T	R	L	T	R	L	TR	
Volume	12	2	10	137	10	150	38	772	133	131	764	48
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			3			38			33			12

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru		A				Thru		A		
	Right		A				Right		A		
	Peds						Peds				
WB	Left	A				SB	Left	A			
	Thru		A				Thru		A		
	Right		A				Right		A		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0	20.0					20.0	40.0		
Yellow		4.0	4.0					4.0	4.0		
All Red		1.0	1.0					1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	295	1770	0.04	0.17	42.0	D		
TR	273	1639	0.04	0.17	42.0	D	42.0	D
Westbound								
L	295	1770	0.52	0.17	47.2	D		
T	311	1863	0.04	0.17	42.0	D	46.7	D
R	264	1583	0.47	0.17	46.5	D		
Northbound								
L	295	1770	0.14	0.17	42.9	D		
T	1182	3547	0.73	0.33	36.0	D	35.5	D
R	528	1583	0.21	0.33	28.9	C		
Southbound								
L	295	1770	0.49	0.17	46.7	D		
TR	1174	3523	0.76	0.33	37.1	D	38.5	D

Intersection Delay = 38.2 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: Build Alt 3
E/W St: Andreasen

Inter.: Citracado & Andreasen
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	1	1	2	0
LGConfig	L	TR		L	T	R	L	T	R	L	TR	
Volume	47	14	39	224	3	143	10	853	151	165	798	10
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			10			36			38			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru		A				Thru		A		
	Right		A				Right		A		
	Peds						Peds				
WB	Left	A				SB	Left	A			
	Thru		A				Thru		A		
	Right		A				Right		A		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0	12.0					28.0	40.0		
Yellow		4.0	4.0					4.0	4.0		
All Red		1.0	1.0					1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	295	1770	0.18	0.17	43.2	D		
TR	168	1676	0.29	0.10	51.0	D	46.9	D
Westbound								
L	295	1770	0.84	0.17	71.6	E		
T	186	1863	0.02	0.10	48.7	D	71.9	E
R	158	1583	0.75	0.10	73.0	E		
Northbound								
L	413	1770	0.03	0.23	35.5	D		
T	1182	3547	0.80	0.33	39.1	D	37.9	D
R	528	1583	0.24	0.33	29.2	C		
Southbound								
L	413	1770	0.44	0.23	40.1	D		
TR	1181	3542	0.76	0.33	37.1	D	37.6	D

Intersection Delay = 42.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: Build Alt 3
E/W St: Harmony Grove

Inter.: Citracado & Harmony Grove
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	2	0	0	2	1
LGConfig	L		R				L	T			T	R
Volume	160		99				153	783			734	177
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
RTOR Vol			25									44

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru					Thru		A	
Right		A			Right			
Peds					Peds			
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		35.0				35.0	35.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	516	1770	0.34	0.29	33.9	C		
R	462	1583	0.18	0.29	31.9	C	33.3	C
Westbound								
Northbound								
L	516	1770	0.33	0.29	33.7	C		
T	1035	3547	0.84	0.29	46.3	D	44.2	D
Southbound								
T	1035	3547	0.79	0.29	43.1	D	41.6	D
R	462	1583	0.32	0.29	33.6	C		

Intersection Delay = 41.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: Build Alt 3
E/W St: Harmony Grove

Inter.: Citracado & Harmony Grove
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	2	0	0	2	1
LGConfig	L		R				L	T			T	R
Volume	178		152				103	818			878	183
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
RTOR Vol			38									46

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru					Thru		A	
Right		A			Right			
Peds					Peds			
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		35.0				35.0	35.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	516	1770	0.37	0.29	34.2	C		
							33.8	C
R	462	1583	0.27	0.29	33.0	C		
Westbound								
Northbound								
L	516	1770	0.22	0.29	32.4	C		
T	1035	3547	0.86	0.29	47.9	D	46.1	D
Southbound								
T	1035	3547	0.92	0.29	57.0	E	53.8	D
R	462	1583	0.32	0.29	33.6	C		

Intersection Delay = 48.0 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: Build Alt 3
E/W St: Lariat

Inter.: Citracado & Lariat
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	1	2	0	1	2	0
LGConfig	L	TR		LTR			L	TR		L	TR	
Volume	183	7	311	7	2	8	271	799	27	34	636	143
Lane Width	12.0	12.0		12.0			12.0	12.0		12.0	12.0	
RTOR Vol			74			2			7			41

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	27.0					34.0	34.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 110.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	341	1390	0.60	0.25	39.5	D		
TR	391	1592	0.69	0.25	43.1	D	41.6	D
Westbound								
LTR	376	1533	0.05	0.25	31.7	C	31.7	C
Northbound								
L	547	1770	0.55	0.31	32.8	C		
TR	1092	3534	0.83	0.31	40.6	D	38.7	D
Southbound								
L	547	1770	0.07	0.31	26.9	C		
TR	1073	3473	0.76	0.31	37.0	D	36.6	D

Intersection Delay = 38.5 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: Build Alt 3
E/W St: Lariat

Inter.: Citracado & Lariat
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	1	2	0	1	2	0
LGConfig	L	TR		LTR			L	TR		L	TR	
Volume	99	3	172	25	6	31	291	840	27	13	982	229
Lane Width	12.0	12.0		12.0			12.0	12.0		12.0	12.0	
RTOR Vol			74			2			7			41

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0					46.0	39.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	230	1382	0.48	0.17	46.9	D		
TR	265	1591	0.42	0.17	45.9	D	46.4	D
Westbound								
LTR	226	1357	0.30	0.17	44.6	D	44.6	D
Northbound								
L	575	1770	0.56	0.32	34.7	C		
TR	1149	3534	0.83	0.32	41.7	D	40.0	D
Southbound								
L	678	1770	0.02	0.38	23.0	C		
TR	1327	3461	0.98	0.38	66.5	E	66.0	E

Intersection Delay = 52.5 (sec/veh) Intersection LOS = D

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Avenida del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: Build Alt 3
East/West Street: Avenida del Diablo
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	777	167		1104	12
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	7	863	185		1226	13
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?			No			No
Lanes	1	2	1		2	1
Configuration	L	T	R		T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			251			32
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			278			35
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L				R			R
v (vph)	7				278			35
C(m) (vph)	569				577			440
v/c	0.01				0.48			0.08
95% queue length	0.04				2.74			0.26
Control Delay	11.4				17.0			13.9
LOS	B				C			B
Approach Delay				17.0			13.9	
Approach LOS				C			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Avenida del Diablo
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: Build Alt 3
East/West Street: Avenida del Diablo
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	15	896	251		1210	20
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	16	995	278		1344	22
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?			No			No
Lanes	1	1	1		2	1
Configuration	L	T	R		T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			196			21
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			217			23
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L				R			R
v (vph)	16				217			23
C(m) (vph)	509				247			403
v/c	0.03				0.88			0.06
95% queue length	0.10				12.04			0.18
Control Delay	12.3				97.3			14.5
LOS	B				F			B
Approach Delay				97.3			14.5	
Approach LOS				F			B	

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: Build
E/W St: Driveway

Inter.: Citracado & Driveway
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	0	1	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	12	1	21	41	1	27	48	981	12	77	893	4
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			5			7			3			1

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
WB Left	A				SB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	18.0	23.0				12.0	47.0		
Yellow	4.0	4.0				4.0	4.0		
All Red	1.0	1.0				1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	271	1805	0.05	0.15	43.7	D		
TR	312	1630	0.06	0.19	39.7	D	41.4	D
Westbound								
L	271	1805	0.17	0.15	44.8	D		
TR	312	1627	0.07	0.19	39.9	D	43.1	D
Northbound								
L	181	1805	0.29	0.10	51.0	D		
TR	1415	3613	0.78	0.39	31.7	C	32.6	C
Southbound								
L	181	1805	0.48	0.10	53.0	D		
TR	1416	3616	0.70	0.39	29.3	C	31.2	C

Intersection Delay = 32.4 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: Build
E/W St: Driveway

Inter.: Citracado & Driveway
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	2	0	1	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	4	1	22	4	1	13	26	1213	12	90	1252	4
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			5			3			3			1

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru		A				Thru		A		
	Right		A				Right		A		
	Peds						Peds				
WB	Left	A				SB	Left	A			
	Thru		A				Thru		A		
	Right		A				Right		A		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		15.0	19.0					15.0	51.0		
Yellow		4.0	4.0					4.0	4.0		
All Red		1.0	1.0					1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	226	1805	0.02	0.13	46.1	D		
TR	258	1629	0.08	0.16	43.2	D	43.6	D
Westbound								
L	226	1805	0.02	0.13	46.1	D		
TR	260	1639	0.05	0.16	42.9	D	43.7	D
Northbound								
L	226	1805	0.13	0.13	46.9	D		
TR	1536	3614	0.88	0.43	34.6	C	34.9	C
Southbound								
L	226	1805	0.44	0.13	50.0	D		
TR	1537	3616	0.91	0.43	37.2	D	38.1	D

Intersection Delay = 36.6 (sec/veh) Intersection LOS = D

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Citracado & Johnston
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: Build
East/West Street: Johnston
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	17	1030	6	2	944	9
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	18	1144	6	2	1048	10
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	1	2	0	1	2	0
Configuration	L	T	TR	L	T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			9			93
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			10			103
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L			R			R
v (vph)	18	2			10			103
C(m) (vph)	666	615			466			499
v/c	0.03	0.00			0.02			0.21
95% queue length	0.08	0.01			0.07			0.78
Control Delay	10.6	10.9			12.9			14.1
LOS	B	B			B			B
Approach Delay				12.9			14.1	
Approach LOS				B			B	

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Citracado & Johnston
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: Build
East/West Street: Johnston
North/South Street: Citracado
Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	97	1242	30	4	1278	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	107	1380	33	4	1420	5
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	2	0	1	2	0
Configuration	L	T	TR	L	T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume			9			29
Peak Hour Factor, PHF			0.90			0.90
Hourly Flow Rate, HFR			10			32
Percent Heavy Vehicles			0			0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes			1			1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L			R			R
v (vph)	107	4			10			32
C(m) (vph)	484	489			383			379
v/c	0.22	0.01			0.03			0.08
95% queue length	0.85	0.02			0.08			0.28
Control Delay	14.5	12.4			14.7			15.4
LOS	B	B			B			C
Approach Delay				14.7			15.4	
Approach LOS				B			C	

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: Build
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	2	2	0	2	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	313	853	199	182	953	242	263	500	175	288	497	252
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			50			60			44			63

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0	40.0				12.0	28.0	
Yellow	4.0	4.0				4.0	4.0	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	301	1805	1.16	0.17	370.0	F		
TR	1687	5060	0.66	0.33	33.7	C	113.8	F
Westbound								
L	301	1805	0.67	0.17	52.8	D		
TR	1684	5051	0.75	0.33	36.0	D	38.3	D
Northbound								
L	351	3505	0.83	0.10	70.7	E		
TR	818	3505	0.86	0.23	54.1	D	59.0	E
Southbound								
L	351	3505	0.91	0.10	90.5	F		
TR	809	3468	0.94	0.23	71.4	E	77.1	E

Intersection Delay = 72.9 (sec/veh) Intersection LOS = E

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: Build
E/W St: Valley Parkway

Inter.: Citracado & Valley Parkway
Area Type: All other areas
Jurisd:
Year : 2030

N/S St: Citracado

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	2	2	0	2	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	235	1049	289	193	938	193	219	666	200	274	687	413
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			72			48			50			103

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	30.0	30.0				12.0	28.0	
Yellow	4.0	4.0				4.0	4.0	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	443	1770	0.59	0.25	41.5	D		
TR	1236	4944	1.14	0.25	304.4	F	263.2	F
Westbound								
L	443	1770	0.48	0.25	39.1	D		
TR	1243	4972	0.97	0.25	70.3	E	65.6	E
Northbound								
L	344	3437	0.71	0.10	58.4	E		
TR	805	3449	1.13	0.23	290.8	F	241.6	F
Southbound								
L	344	3437	0.88	0.10	79.4	E		
TR	789	3381	1.40	0.23	778.6	F	627.9	F

Intersection Delay = 300.4 (sec/veh) Intersection LOS = F

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: AM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: Build Alt 3
East/West Street: Kauana Loa
North/South Street: Harmony
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		69	6	239	91	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		76	6	265	101	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	2		190			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	2		211			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		265	2		211			
C(m) (vph)		1528	333		987			
v/c		0.17	0.01		0.21			
95% queue length		0.63	0.02		0.81			
Control Delay		7.9	15.9		9.6			
LOS		A	C		A			
Approach Delay				9.7				
Approach LOS				A				

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: VRPA Technologies
Agency/Co.: Riverside County
Date Performed: 5/13/07
Analysis Time Period: PM Peak Hour
Intersection: Harmony Road & Kauana Loa
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2030
Project ID: Build Alt 3
East/West Street: Kauana Loa
North/South Street: Harmony
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		84	2	208	78	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		93	2	231	86	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7		264			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	7		293			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		231	7		293			
C(m) (vph)		1512	374		968			
v/c		0.15	0.02		0.30			
95% queue length		0.54	0.06		1.30			
Control Delay		7.8	14.8		10.3			
LOS		A	B		B			
Approach Delay				10.4				
Approach LOS				B				

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: AM
Project ID: 2030 Build Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2030
N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	2	0
LGConfig				L		R		T	R	L	T	
Volume				260		465		750	240	770	1145	
Lane Width				12.0		12.0		12.0	12.0	12.0	12.0	
RTOR Vol						116			60			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru					Thru	A		
Right		A			Right			
Peds					Peds			
NB Right		A			EB Right			
SB Right					WB Right	A		
Green		20.0				50.0	35.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
L	295	1770	0.96	0.17	118.9	F		
							57.3	E
R	989	1583	0.38	0.63	11.3	B		
Northbound								
T	1035	3547	0.79	0.29	43.0	D	38.0	D
R	792	1583	0.25	0.50	17.3	B		
Southbound								
L	729	1583	1.15	0.75	313.7	F		
T	1478	3547	0.84	0.42	32.4	C	145.5	F

Intersection Delay = 101.0 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1f

Analyst: VRPA Technologies
Agency: SD County
Date: 5/13/07
Period: PM
Project ID: 2030 Build Peak Hour Traffic
E/W St: Via Rancho Parkway

Inter.: Del Dios & Via Rancho
Area Type: All other areas
Jurisd:
Year : 2030
N/S St: Del Dios Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	2	0
LGConfig				L		R		T	R	L	T	
Volume				190		715		1405	355	515	600	
Lane Width				12.0		12.0		12.0	12.0	12.0	12.0	
RTOR Vol						357			89			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right	A				EB Right			
SB Right					WB Right	A		
Green	20.0					38.0	47.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
L	295	1770	0.70	0.17	54.8	D		
							31.0	C
R	831	1583	0.47	0.52	18.4	B		
Northbound								
T	1389	3547	1.10	0.39	225.1	F	191.2	F
R	950	1583	0.30	0.60	11.9	B		
Southbound								
L	561	1583	1.00	0.75	110.3	F		
T	2660	3547	0.25	0.75	1.1	A	51.6	D

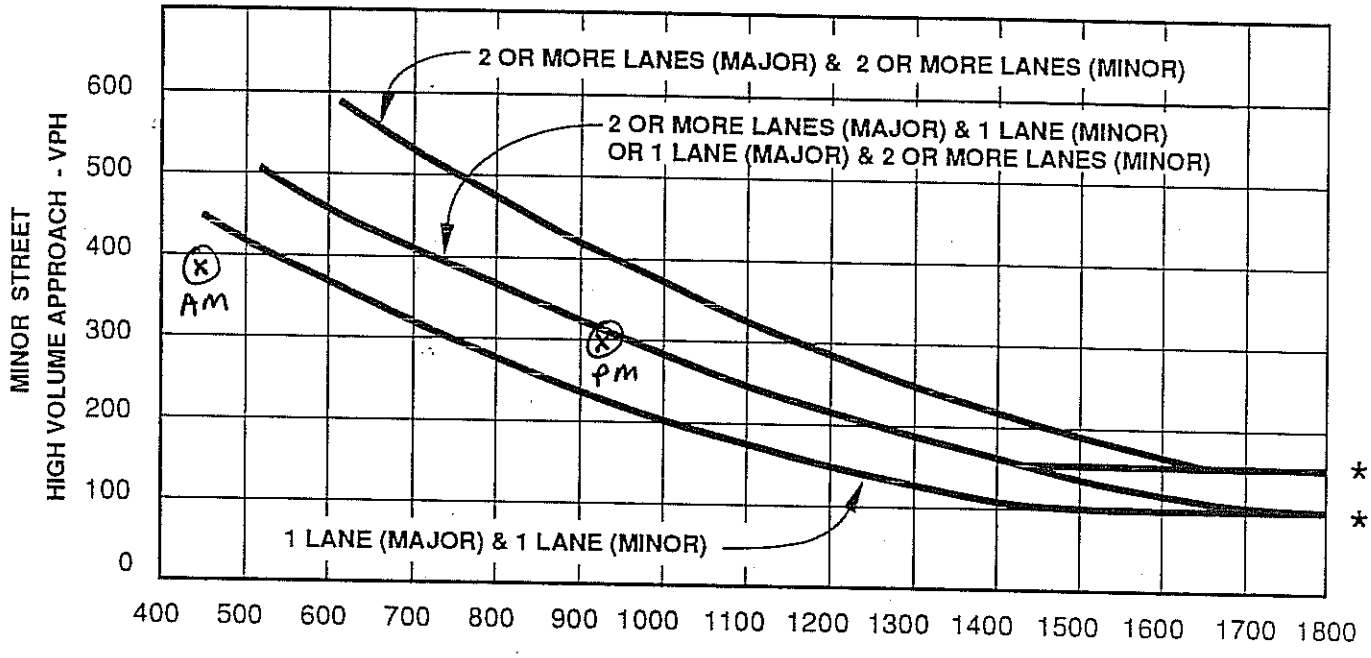
Intersection Delay = 118.2 (sec/veh) Intersection LOS = F

APPENDIX B

SIGNAL WARRANT ANALYSIS

PEAK HOUR VOLUME WARRANT
(Urban Areas)

Harmony Grove Rd / Kauana Loa Dr
2014 Build



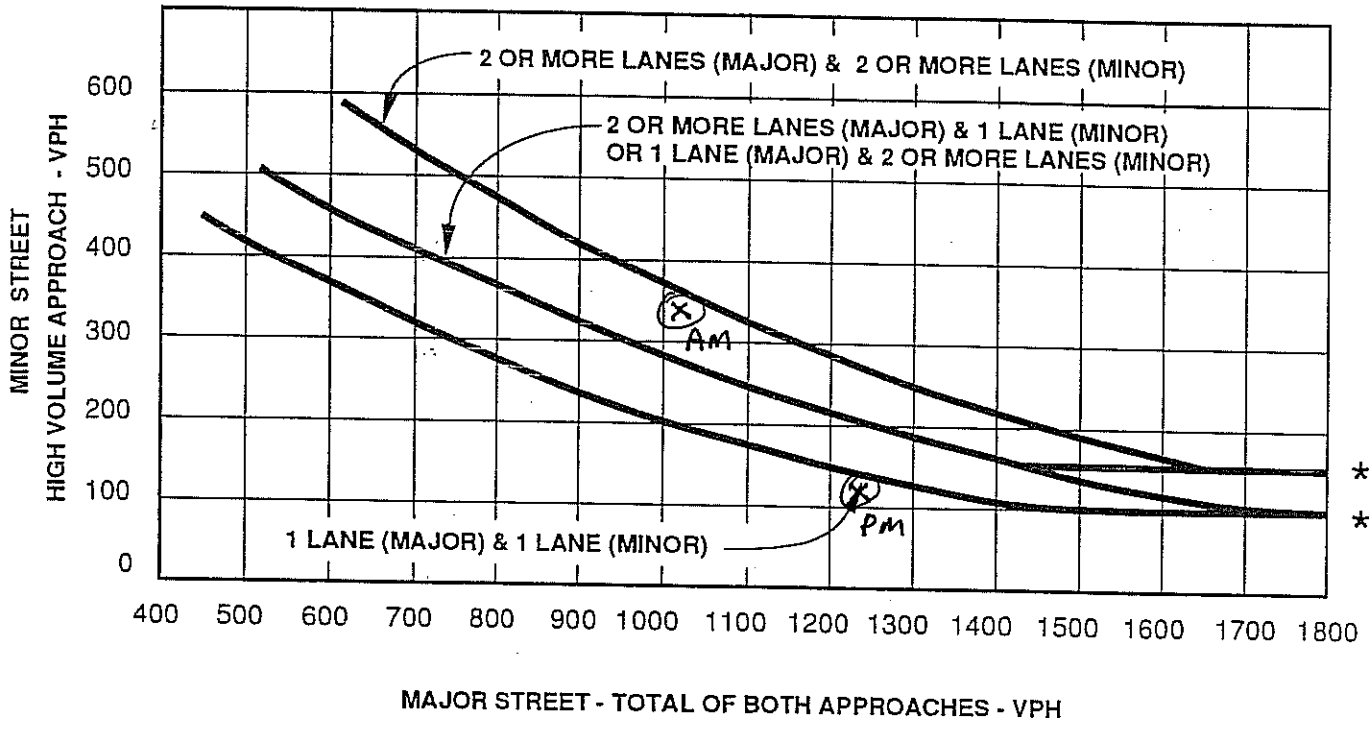
* NOTE:

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Urban Areas)

Citracado Parkway / Avenida Del Diablo

2030 Build



* NOTE:

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

APPENDIX C

PROJECT CONCEPTUAL DRAWING

(BOUND SEPARATELY)

APPENDIX I
HAZARDOUS MATERIALS TECHNICAL STUDY

HAZARDOUS MATERIALS TECHNICAL STUDY CITRACADO PARKWAY CONSTRUCTION PROJECT ESCONDIDO, CALIFORNIA

August 6, 2007

A Report Prepared for:

Mr. Kirk Bradbury
Boyle Engineering
7807 Convoy Court, Suite 200
San Diego, California 92111

HAZARDOUS MATERIALS TECHNICAL STUDY
CITRACADO PARKWAY CONSTRUCTION PROJECT
ESCONDIDO, CALIFORNIA

Kleinfelder Job No. 85819

Prepared by:

Paolo Dizon, REA
Environmental Staff Professional II

Reviewed by:

for
Kathleen A. McDonnell, PG
Environmental Group Manager

KLEINFELDER WEST, INC.
5015 Shoreham Place
San Diego, California 92122
(858) 320-2000

August 6, 2007

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KLEINFELDER
Bright People. Right Solutions.

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TABLES

APPENDICES

1.0 EXECUTIVE SUMMARY

Kleinfelder has completed this Hazardous Materials Technical Study (HMTS) for Boyle Engineering Corporation (Boyle) for the proposed extension of Citracado Parkway located in Escondido, California. The study area is shown on the attached Plate 1, Site Vicinity Map, and Plate 2, Site Map. The project was performed to evaluate environmental concerns associated with the present or past usage, storage or disposal of hazardous substances on the Site or adjacent to the Site. This HMTS was performed consistent with the scope of services outlined in our proposal entitled *Proposal to Conduct a Hazardous Materials Technical Study, Citracado Parkway Construction Project, Escondido, California*, dated November 20, 2006, and the Subconsultant Agreement between Kleinfelder and Boyle, dated April 1, 2007.

The Site is identified as the proposed Citracado Parkway construction area, which extends approximately one mile from West Valley Parkway to Andreasen Drive. The Site comprises the roadway and an area of approximately a 500 foot radius surrounding the roadway, used to ensure the capture of land use in the Site area. It is Kleinfelder's understanding that Boyle has been selected by the City of Escondido to provide the engineering and environmental analysis for the Citracado Parkway project, including an EIR for the Site.

The history of the site was reviewed to supplement regulatory agency database records. Aerial photographs and topographic maps were available for review during this assessment. An aerial photograph indicates the development of Citracado Parkway in 1974. Historical resources reveal the development of portions of the Citracado Parkway in 1974. The remainder of the Site was relatively vacant land with the exception of the northern and central portions which were formerly used for agricultural purposes (orchard and row crop). It is possible that agricultural chemicals (i.e. pesticides, herbicides, insecticides) have been used on the Site which have resulted in impact to the subsurface soils. Prior to Site redevelopment involving activities where significant soil disturbance is to occur, sampling of the soil for agricultural chemicals is recommended.

Federal, state and local regulatory agencies publish databases, which were reviewed to identify businesses, and properties that handle hazardous materials or hazardous waste, or are the known location of a release of hazardous substances to soil and/or

groundwater. The database research indicated there are no facilities within a 0.25-mile radius of the Site that are believed to represent an environmental concern for the Site.

Representatives from Kleinfelder, Paolo Dizon and Margaret Carroll, conducted a site reconnaissance on July 18, 2007 to assess and photograph present site conditions. The following notable observations were made during Kleinfelder's site reconnaissance:

- An approximately 200-gallon AST was observed out on the open within APN 2350510500. The tank was not labeled as to its contents although was approximately three-fourths filled with a liquid which emitted a petroleum odor. No staining or evidence of leakage was observed around the AST. However, the AST was not in secondary containment and not under cover. To prevent an accidental release at the Site, this AST should be relocated to an appropriate facility or disposed of in accordance with regulatory agency guidelines.
- A vertical metal pipe, approximately six inches in diameter and protruding approximately one-foot from the ground, was observed on the north side of the intersection of Citracado Parkway and Avenida Del Diablo. Within the metal pipe is another pipe which appears to consist of transite material, and extends an additional one-foot above the metal pipe. The purpose of these pipes is not known but may be related to former agriculture at the Site. Caution should be exercised during construction in the vicinity of these pipes. If the pipes are found to be associated with subsurface structures, or if staining or strange odors are observed around the vicinity of these pipes, additional investigation may be warranted. Also, prior to disturbance of the possible transite pipe, sampling of this material for asbestos should be conducted. If the material is found to contain asbestos, a State of California-licensed asbestos abatement contractor should be retained to perform abatement of this material.
- Based on review of a client-supplied aerial photograph depicting the proposed Citracado Parkway extension area, it appears that a wooden shed located approximately 300 feet south of Harmony Grove Road and within APN 2350401500 may be affected by the proposed development. According to Kasey Ray, a contractor for the owner of the parcel, the shed houses a water well that has not been used for a long time. This water well will have to be abandoned in accordance with regulatory agency guidelines prior to construction activities.

- Two pad-mounted transformers (ID# D1416773500 and D1416973499) were observed on the sidewalk near the southeast corner of Citracado Parkway and Avenida Del Diablo. These transformers are owned by San Diego Gas and Electric (SDG&E). According to SDG&E, none of their transformers contain polychlorinated biphenyls (PCBs). However, given the development date of this portion of Site, it is possible that the dielectric fluid utilized by these transformers contain PCBs. In the event of any leakage, SDG&E would be responsible for replacement of the transformers and remediation of any affected soils.

2.0 INTRODUCTION

2.1 PURPOSE

This HMTS was conducted in general accordance with and the Subconsultant Agreement between Kleinfelder and Boyle, dated April 1, 2007. Additionally, we have prepared this report consistent with the scope of services outlined in our proposal entitled *Proposal to Conduct a Hazardous Materials Technical Study, Citracado Parkway Construction Project, Escondido, California*, dated November 20, 2006.

Resumes of environmental professionals conducting this site assessment are on file at Kleinfelder's office and are available upon request.

2.2 DETAILED SCOPE-OF-SERVICES

The following sections describe Kleinfelder's work scope:

- Chapter 3, **Records Review**, is a compilation of Kleinfelder's review of published lists of Local, State and Federal regulatory agency investigations and/or enforcement actions within the Site area. The Site's location, physical setting, and geologic and hydrogeologic conditions are also discussed in this chapter. In addition, this chapter presents information obtained from historical resources to supplement regulatory agency database records.
- Chapter 4, **Visual Survey**, describes Kleinfelder's site observations during the site reconnaissance and observations of adjacent parcels. The site reconnaissance consisted of a drive-by "windshield" type survey, providing visual documentation of the types of properties located along the roadway and of other areas of potential environmental concern based on the environmental database review. The site reconnaissance does not include a visual survey of inaccessible areas or of the interiors of buildings/structures.
- Chapter 5, **Evaluation**, is a presentation of our findings and opinions regarding the information in Chapters 3 and 4, and presents our conclusions regarding the potential for hazardous waste involvement in the proposed project.
- Chapter 6, **References**, is a summary of the resources used to compile this report.

Pertinent documentation regarding the subject site is included in Appendices of this report.

2.3 ADDITIONAL SERVICES

Since the Site was unoccupied, interviews with Site occupants could not be performed. In addition, the scope of this HMTS does not include an assessment for asbestos-containing building materials, radon, lead-based paints, lead in drinking water, molds and mildews, wetlands, threatened or endangered species or other relevant environmental concerns.

2.4 SIGNIFICANT ASSUMPTIONS

The subject property is hereafter referred to as the "Site." The Site comprises the roadway and an area of approximately a 500 foot radius surrounding the roadway.

2.5 LIMITATIONS AND EXCEPTIONS

Environmental assessments are non-comprehensive by nature and are unlikely to identify all environmental problems or eliminate all risk. The attached report is a qualitative assessment. Kleinfelder offers a range of investigative and engineering services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help you understand and better manage your risks. Since such detailed services involve greater expense, we ask our clients to participate in identifying the level of service, which will provide them with an acceptable level of risk. Please contact the signatories of this report if you would like to discuss this issue of risk further.

No warranty, either express or implied is made. Environmental issues not specifically addressed in the report were beyond the scope of our work and not included in our evaluation.

Land use, site conditions (both on-site and off-site) and other factors will change over time (e.g. Environmental Data Resources Site Report). Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings and opinions can be considered valid only as of the date of the site visit.

This report may be used only by the client and only for the purposes stated within a reasonable time from its issuance. Land or facility use, on and off-site conditions,

regulations, or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party *and client agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.*

2.6 SPECIAL TERMS AND CONDITIONS

No special terms and conditions, in addition to those discussed in the previous Chapters, were agreed to by the User and Kleinfelder, Inc.

3.0 RECORDS REVIEW

3.1 STANDARD ENVIRONMENTAL RECORD SOURCES

Government agency database records are sources of information that may be helpful in evaluating activities that may have contributed to a release of hazardous substances or petroleum hydrocarbons to soil and/or groundwater. Kleinfelder contracted a government database search performed by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut. The entire EDR Site Report is included in Appendix A, and includes information concerning the databases summarized in Table 1.

Table 1
Records Reviewed and Search Distances

Federal	Distance	State or Local	Distance
NPL	1 mile	HIST CAL-SITES	1 mile
CERCLIS	0.5 mile	BEP	1 mile
NFRAP	Site & Adjoining	SWIS (SWF/LF)/WMUDS	0.5 mile
RCRA-TSD	0.5 mile	LUST	0.5 mile
RCRA-GEN LQG	Site & Adjoining	SWRCY	0.5 mile
RCRA-GEN SQG	Site & Adjoining	UST/ SWEEPS/ CA FID	Site & Adjoining
ERNS	Site	HIST UST	Site & Adjoining
RCRA-CORRACTS	1 mile	CORTESE	0.5 mile
FINDS	Site	CHMIRS	Site & Adjoining
FTTS	Site	NOTIFY 65	1 mile
US BROWNFIELDS	0.5 mile	Toxic Pits	1 mile
Tribal	**Distance**	VCP	0.5 mile
INDIAN UST	Site & Adjoining	HAZNET	Site
INDIAN LUST	0.5 mile	San Diego Co. HMMD	Site
EDR Proprietary	**Distance**	San Diego Co. SAM	Site
Historical Auto Stations	Site & Adjoining	CA SLIC	0.5 mile
Historical Cleaners	Site & Adjoining	EMI	Site
		SCH	Site & Adjoining
		CA WDS	Site
		AST	Site
		DRYCLEANERS	Site & Adjoining
		ENVIROSTOR	1 mile
		RESPONSE	1 mile
		OGW	Site

EDR utilizes a geographical information system to plot the locations of reported spills, leaks, incidents, etc. Kleinfelder reviews this information to help establish if the Site, or nearby properties, have been included in the noted databases and lists. The EDR report includes a map that shows the locations of the listed properties with respect to the Site, and a summary of pertinent information for these properties. For each listed

Site, the summaries include the name of the responsible party, the property address, and the databases and lists on which the listed property appears (see Executive Summary Pages 3 through 4 of the EDR report). Additional details regarding listed Sites may be found following the Executive Summary, on Pages 3 through 19 of the EDR report. Database dates are also included in the EDR report.

3.2 RESULTS OF DATABASE SEARCH

The following sections contain information on the results of EDR's record search. The EDR report listed facilities up to one-quarter mile from the Site. The Site is not listed in federal, state, local, tribal, or proprietary databases searched by EDR.

3.2.1 Federal Lists

NPL — National Priority List (NPL) facilities are Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) facilities that the US EPA has identified as having priority to address conditions believed to pose a threat to public health and/or the environment. No NPL or proposed NPL facilities are listed within the search distance.

CERCLIS — The CERCLIS List is a compilation of facilities reported to the US EPA that have been investigated or are under investigation for a release or potential release of hazardous materials. No CERCLIS facilities are listed within the search distance.

NFRAP — As of February 1995, CERCLIS facilities designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP facilities may be properties where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the facility to be placed on the NPL, or the contamination was not serious enough to require federal Superfund action or NPL consideration. No NFRAP facilities are listed within the search distance.

RCRA-TSD — The Resource Conservation and Recovery Information System (RCRIS) includes selective information on facilities which transport, store, treat, and/or dispose of hazardous waste (referred to as TSD

facilities) as defined by the Resource Conservation and Recovery Act (RCRA). No TSD facilities are listed within the search distance.

RCRA-GEN — RCRIS also includes the RCRA generator (GEN) List that includes facilities where hazardous wastes are generated on the premises as part of the companies' business practices. The database includes both large quantity generators (LQGs) and small quantity generators (SQGs). No RCRA-GEN facilities are listed within the search distance.

ERNS — The Emergency Response Notification System (ERNS) List is a compilation of reported spills of petroleum products or hazardous substances.

One property, designated as "2280 Avenida Del Diablo," is reported in the ERNS List. This property is listed to be within approximately 1/8-mile of the Site. The substance released is an ounce of red phosphorus. This facility appears upgradient of the Site. However, given the small quantity of substance released, in Kleinfelder's opinion, this release is not considered likely to represent an environmental concern for the Site.

CORRACTS — The RCRA Corrective Actions Report (CORRACTS) identifies hazardous waste handlers with RCRA corrective action activity. No CORRACTS facilities are listed within the search distance.

FINDS — Facility Index System/Facility Identification Initiative Program Summary Report (FINDS) contains both facility information and pointers to other sources that contain more detail. No FINDS facilities are listed within the search distance.

FTTS — The Federal Insecticide Fungicide Rodenticide Act (FIFRA) / Toxic Substances Control Act (TSCA) Tracking System (FTTS) tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA, and the Emergency Planning and Community Right-to-Know Act (EPCRA) for the previous 5-year period. No FTTS facilities are listed within the search distance.

US BROWNFIELDS The US Brownfields Database is the US EPA's listing of Brownfields properties addressed by Cooperative Agreement Recipients and Brownfields properties addressed by Targeted Brownfields Assessments. No US Brownfields facilities are listed within the search distance.

3.2.2 State and Local Lists

HIST Cal-Sites The California Environmental Protection Agency (Cal/EPA) maintained a database of potential or confirmed hazardous waste facilities identified as the HIST Cal-Sites list. The facilities were identified through the historical Abandoned Site Survey Program and federal, state, and county funded site evaluation programs. No Cal-Sites facilities are listed within the search distance.

BEP The Bond Expenditure Plan (BEP) was a site-specific expenditure plan developed by the California Department of Health Services as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. No BEP facilities are listed within the search distance.

SWIS/WMUDS The California Integrated Waste Management Board (CIWMB) maintains the Solid Waste Information System (SWIS) Database of information regarding active, inactive, and closed landfills, and transfer and composting stations. The database is published annually. SWIS is also known as Solid Waste Fills/Land Fills (SWF/LF). The Waste Management Unit Database (WMUDS) is used by the state for program tracking and inventory of waste management units. No SWIS or WMUDS facilities are listed within the search distance.

SWRCY The SWRCY Database is a listing of solid waste recycling facilities in California. No SWRCY facilities are listed within the search distance.

LUST The Leaking UST (LUST) List is the State of California's listing of LUST locations.

One facility, designated as "B & W Precast Construction Inc," is listed in the LUST database. This facility has an address of 2511 Harmony

Grove Road and is listed by EDR to be within approximately 1/8-mile of the Site. However, according to the City of Escondido Property Finder website, this facility is located between ¼- to ½-mile west of the Site. A release has resulted in impact to the soil. The case number is H08816-001. The case was closed on February 11, 1992. This facility appears downgradient of the Site and in Kleinfelder's opinion, this release is not considered likely to represent an environmental concern for the Site.

UST — The California UST Database is a listing of registered USTs within California maintained by the State Water Resources Control Board (SWRCB). No UST facilities are listed within the search distance.

SWEEPS — The Statewide Environmental Evaluation and Planning System (SWEEPS) Database was a UST listing maintained and updated by a company under contract to the SWRCB in the early 1980s, but it is no longer maintained or updated.

One facility, designated as "B & W Precast Construction Inc," is listed in the LUST database. This facility has an address of 2511 Harmony Grove Road and is listed by EDR to be within approximately 1/8-mile of the Site. However, according to the City of Escondido Property Finder website, this facility is located between ¼- to ½-mile west of the Site. The presence of a 2,000-gallon motor vehicle gasoline UST is reported. Based on the reported Comp Number (8816), this UST appears related to the LUST case for this facility, which received case closure on February 11, 1992. This facility appears downgradient of the Site and in Kleinfelder's opinion, the listing of this UST is not considered likely to represent an environmental concern for the Site.

CA FID — The Facility Inventory Database (CA FID) contains active and inactive UST locations. The source is the SWRCB. No CA FID facilities are listed within the search distance.

HIST UST — This database identifies historical registered USTs. The Site is not listed as a HIST UST facility. No HIST UST facilities are listed within the search distance.

CORTESE — This database identifies public drinking water wells with detectable levels of contamination, hazardous substance facilities selected for remedial action, facilities with known toxic material identified through the abandoned site assessment program, facilities with USTs having a reportable release, and solid waste disposal facilities from which there is known migration. The source is the Cal/EPA Office of Emergency Information. No CORTESE facilities are listed within the ASTM search distance.

CHMIRS — The California Hazardous Material Incident Report System (CHMIRS) contains information on reported hazardous material incidents (i.e., accidental releases or spills). The source is the California Office of Emergency Services.

One property, designated as "2511 Harmony Grove Road, One Mile East of County Cl," is listed as a CHMIRS property. This property is listed by EDR to be within approximately 1/8-mile of the Site. However, according to the City of Escondido Property Finder website, this property is located between ¼- to ½-mile west of the Site. A release of 1,300-gallons of red dye diesel into Escondido Creek was reported on June 21, 2202. The substance was released from a tank trailer. Escondido Creek is reported to not be a drinking water source and runs into the ocean. This facility appears downgradient of the Site and in Kleinfelder's opinion, this release is not considered likely to represent an environmental concern for the Site.

NOTIFY 65 — Notify 65 records contain facility notifications about releases that could impact drinking water and thereby expose the public to a potential health risk. The data come from the SWRCB's Proposition 65 database. No Notify 65 facilities are listed within the search distance.

TOXIC PITS — This database is a list of Toxic Pits cleanup facilities, and identifies facilities suspected of containing hazardous wastes where cleanup has not yet been completed. The data comes from the SWRCB. No Toxic Pits facilities are listed within the search distance.

VCP

The Voluntary Cleanup Program (VCP) database contains low threat level properties with either confirmed or unconfirmed releases, where project proponents have requested that DTSC oversee investigation and/or cleanup activities and have agreed to pay DTSC's related oversight costs. No VCP facilities are listed within the ASTM search distance.

HAZNET

This database is extracted from the copies of hazardous waste manifests received each year by DTSC. The following facilities are listed in the HAZNET database:

"Diesel Man," with an address of 2515 Harmony Grove Road, and which is listed to be within approximately 1/8-mile west of the Site. The material handled is listed as unspecified oil-containing waste. This facility appears downgradient of the Site.

"B&W Precast Const," with an address of 2511 Harmony Grove Road, is listed by EDR to be within approximately 1/8-mile west of the Site. However, according to the City of Escondido Property Finder website, this facility is located between 1/4- to 1/2-mile west of the Site. The materials handled are listed as polymeric resin waste and unspecified aqueous solution. This facility appears downgradient of the Site.

No violations were reported for either facility. In Kleinfelder's opinion, the listing of these facilities in the HAZNET database is not considered likely to represent an environmental concern for the Site.

HMMD

The San Diego County Hazardous Management Division Database (HMMD) is a street address listing of inspection dates, violations, USTs, environmental contamination cases, and/or hazardous waste generation, including quantity, method of storage, and treatment and disposal of waste. The following facilities are listed in the HMMD Database:

"Hidden Valley Moving & Storage," with an address of 2208 Harmony Grove Road, and which is listed to be within approximately 1/8-mile east of the Site. Propane is reportedly present at this facility. This facility appears upgradient of the Site. However, given that no reports

of incidents, violations, or releases associated with this listing were reported, in Kleinfelder's opinion, the listing of this facility in the HMMD database is not considered likely to represent an environmental concern for the Site.

"Diesel Man," with an address of 2515 Harmony Grove Road, and which is listed to be within approximately 1/8-mile west of the Site. Waste oil, mixed oil, organic liquids, and used oil filters are reportedly generated at this facility. No reports of incidents or releases associated with this listing were reported. This facility appears downgradient of the Site and in Kleinfelder's opinion, the listing of this facility in the HMMD database is not considered likely to represent an environmental concern for the Site.

"Art Objects Inc.," with an address of 2515 Harmony Grove Road, and which is listed to be within approximately 1/8-mile west of the Site. Argon is reportedly present at this facility. No reports of incidents or releases associated with this listing were reported. This facility appears downgradient of the Site and in Kleinfelder's opinion, the listing of this facility in the HMMD database is not considered likely to represent an environmental concern for the Site.

"B & W Precast Construction Inc," with an address of 2511 Harmony Grove Road, is listed by EDR to be within approximately 1/8-mile west of the Site. However, according to the City of Escondido Property Finder website, this facility is located between 1/4- to 1/2-mile west of the Site. Various compressed gases, acetone, cleaners, diesel, and lubricating oils are present at this facility. In addition, the presence of a regular unleaded UST was reported. Also, the unauthorized disposal of hazardous waste occurred on May 3, 2001. Hydrocarbon solvents, waste oil, mixed oil, organic liquids, and used oil filters are the waste streams associated with this facility. This facility appears downgradient of the Site and in Kleinfelder's opinion, the listing of this facility in the HMMD database is not considered to likely represent an environmental concern for the Site.

SAM

The San Diego County Site Assessment and Mitigation (SAM) database is a listing of underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review of the SAM Program.

One property, designated as "B & W Precast Construction Inc.," and with an address of 2511 Harmony Grove Road, is listed by EDR to be within approximately 1/8-mile west of the Site. However, according to the City of Escondido Property Finder website, this facility is located between 1/4- to 1/2-mile west of the Site. An underground tank release was reported on August 13, 1991, and the case (case number H09916-001) was closed on February 11, 1992. Only soil was reported to be impacted. This facility appears downgradient of the Site and in Kleinfelder's opinion, the listing of this facility in the SAM database is not considered to likely represent an environmental concern for the Site.

CA SLIC

The California Spills, Leaks, Investigations, and Cleanups (CA SLIC) List, maintained by the RWQCB, includes contaminated sites that impact groundwater or have the potential to impact groundwater. No CA SLIC facilities are listed within the search distance.

SCH

The SCH List contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. No SCH facilities are listed within the search distance.

EMI

The Emissions Inventory Data (EMI) Database is comprised of toxics and criteria pollutant emissions data collected by the California Air Resources Board and local air pollution agencies. No EMI facilities are listed within the search distance.

CA WDS

The California Waste Discharge System (CA WDS) List is a SWRCB listing of facilities that have been issued waste discharge requirements. No CA WDS facilities are listed within the search distance.

AST — The AST List is a SWRCB listing of facilities that are aboveground petroleum storage tank facilities. No AST facilities are listed within the search distance.

Dry Cleaners — This database contains information on the location of dry-cleaning facilities that have US EPA ID numbers. The source for this list is the DTSC. No Dry Cleaners facilities are listed within the search distance.

RESPONSE — The Response Database identifies confirmed release sites where the DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high priority and high potential risk. No RESPONSE facilities are listed within the search distance.

ENVIROSTOR — The DTSC's Site Mitigation and Brownfields Reuse Program (SMBRP) maintains the ENVIROSTOR Database, which identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes Federal Superfund (NPL), State Response (including Military Facilities and State Superfund), Voluntary Cleanup, and School sites. ENVIROSTOR provides similar information to the information that was formerly maintained available in the Cal-Sites Database, and provides additional site information including identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. No ENVIROSTOR facilities are listed within the search distance.

3.2.3 Tribal Lists

INDIAN UST — The Indian UST Database is a list of facilities on Native American land with USTs, and is maintained by US EPA Region 9. No Indian UST facilities were listed within the search distance.

INDIAN LUST The Indian LUST Database is a list of facilities on Native American land within Arizona, California, Nevada, and New Mexico with LUSTs, and is maintained by US EPA Region 9. No Indian LUST facilities were listed within the search distance.

3.2.4 Orphan List

Sites not plotted by EDR due to poor or inadequate address information are referred to as orphan sites. There are 36 unmapped listings in the EDR report. The orphan summary/unmapped sites report was reviewed to assess the potential for offsite properties that might pose a REC to the Site. Based on Kleinfelder's review, the orphan sites appear to be outside of the search distances, and in our opinion do not represent an environmental concern to the Site.

3.2.5 EDR Proprietary Historical Databases

The EDR Proprietary Historical Databases are lists of historical facilities that are obtained by EDR through review of the Site and surrounding addresses in historical business directories. Based on the EDR database report, no "EDR Manufactured Gas Plants" are listed in the Site vicinity.

3.3 PROPOSED PROJECT DESCRIPTION

The City of Escondido is proposing to improve Citracado Parkway, between West Valley Parkway and Avenida Del Diablo, by narrowing the existing median to provide two additional travel lanes. In addition, the extension of Citracado Parkway northerly from Avenida Del Diablo to Andreasen Drive, construction of a new road to Major Road standards, construction of a new bridge crossing of Escondido Creek, and a grade-separation structure at Harmony Grove Road, is proposed.

3.4 SITE SETTING

The information presented in Table 2 describes the physical location of the site. This information was obtained from review of various maps (such as topographic maps and tax assessor maps), aerial photographs, public records at city and/or county offices, and/or information provided by the Client.

Table 2
Site Setting

ADDRESSES	There are no addresses for the portion of Citracado Parkway which falls between West Valley Parkway and Avenida Del Diablo. Based on review of a client-supplied map depicting the route of the proposed extension of Citracado Parkway from Avenida Del Diablo to Andreasen Drive, the following street addresses are associated with the extension of this road: • 2207 Harmony Grove Road • 2358 Avenida Del Diablo
LOCATION	The Site is identified as the proposed Citracado Parkway construction area, which extends approximately one mile from West Valley Parkway to Andreasen Drive, in Escondido, California. The Site comprises the roadway and an area of approximately a 500 foot radius surrounding the roadway.
TOWNSHIP & RANGE	Portions of Section 19, 29, and 30, Township 12 South, Range 2 West, San Bernardino Meridian.
ASSESSOR'S PARCEL NUMBER	• 2325120400 • 2350401500 • 2350400500 • 2350405000 • 2350400400 • 2350403900 • 2350510500
ADJACENT LAND USE	Land use in the Site vicinity is generally residential, with the exception of a sewage disposal facility, a warehouse/distribution facility, and newly constructed commercial buildings to the east of the Site.

Table 3 presents information about the physical setting of the study area. This information was obtained from published maps.

Table 3
Physical Setting

UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC QUADRANGLE	Escondido, California Quadrangle, 7.5 Minute Series (Topographic), 1996	The Site is located at an approximate elevation of 620 to 700 feet AMSL and the topographic relief slopes multi-directionally towards Escondido Creek. Citracado Parkway, between Avenida Del Diablo and West Valley Parkway is evident. No wells or other features observed on site. Land use in the vicinity of the site was depicted as commercial and residential.
SOIL TYPE	United States Department of Agriculture (USDA) Web Soil Survey Data	The native soil types in the vicinity of the Site are: Fallbrook sandy loam, 5 to 9 percent and 9 to 15 percent slopes; Placentia sandy loam 2 to 9 percent slopes; Placentia sandy loam, thick surface, 2 to 9 percent slopes; Visalia sandy loam, 2 to 5 percent slopes; Vista coarse and loam, 9 to15 percent slopes, eroded; and Vista rocky coarse sandy loam, 5 to 15 percent slopes.
OIL AND GAS FIELDS	DOGGR Map W1-7, March 15, 2004	Oil and gas fields or wells were not depicted in the vicinity of the Site on the map.

Information about the regional geology is presented in Table 4. This information was obtained from published data and maps, interviews with public agencies, and/or from previous investigations conducted in the vicinity of the site.

Table 4
Regional Geology and Hydrogeology

REGIONAL GEOLOGY (Source: Geologic Map of the Escondido 7.5' Quadrangle, San Diego County, California: A Digital Database, Version 1.0, Tan & Kennedy, 1999)	The majority of the Site and vicinity consists of Green Valley tonalite, which is medium-grained gray tonalite with minor granodiorite, gabbro and other basic igneous rocks. Geology within Escondido Creek consists of younger alluvial flood plain deposits, with unconsolidated sediments consisting of silty sand with clay. The area within the immediate vicinity of Escondido Creek consists of older alluvial river deposits, where sediments are moderately consolidated and consist of silty sand with gravel and clay.
HYDRGEOLOGIC SETTING (Source: California Regional Water Quality Control Board, GeoTracker Website)	According to the CARWQCB GeoTracker website, depth to groundwater at 526 Venture Street, which is approximately one-mile northeast of the Site, is situated between approximately four feet to 8 feet bgs. Groundwater depth may be influenced by local pumping, rainfall, and irrigation patterns.
REGIONAL GROUNDWATER QUALITY PROBLEMS (Source: EDR, 2007a)	Regional groundwater quality problems and regional impairments to water quality were not identified during Kleinfelder's assessment.
FLOOD ZONE DESIGNATION (Source: SanGIS Website)	According to SanGIS, a portion of the Site along Escondido Creek is located within the 100-year and 500-year flood zones. The remainder of the site is located is not located within a 100-year or 500-year flood zone.

3.5 ADDITIONAL ENVIRONMENTAL RECORDS

The history of the site was reviewed to supplement regulatory agency database records previously discussed. Table 5 summarizes the availability of information requested for review during this assessment.

Table 5
Historical Sources

Source	Years reviewed	Availability
AERIAL PHOTOGRAPHS	1939, 1947, 1953, 1963, 1974, 1989, 1995, 2002	EDR, Inc.
HISTORICAL TOPOGRAPHIC MAP REPORT	1901, 1904, 1947, 1949, 1968, 1975, 1996	EDR, Inc.

3.5.1 Aerial Photographs

A review of historical aerial photography may indicate past activities at a site that may not be documented by other means, or observed during a site visit. The effectiveness of this technique depends on the scale and quality of the photographs and the available coverage. Aerial photographs were obtained from several historical photograph collections through EDR. A tabulation of the aerial photographs reviewed is presented in Table 6. Copies of the reviewed aerial photographs are included in Appendix C.

Table 6
Aerial Photographs

Date	Photo ID	Scale	Type	Source	Quality
1939	1976024.2	1 inch = 555 feet	Black and White Monoscopic	Fairchild	Good
1947	1976024.2	1 inch = 655 feet	Black and White Monoscopic	Jack Ammann	Good
1953	1976024.2	1 inch = 555 feet	Black and White Monoscopic	Park	Good
1963	1976024.2	1 inch = 555 feet	Black and White Monoscopic	Cartwright	Good
1974	1976024.2	1 inch = 600 feet	Black and White Monoscopic	AMI	Good
1989	1976024.2	1 inch = 666 feet	Black and White Monoscopic	USGS	Good
1995	1976024.2	1 inch = 666 feet	Black and White Monoscopic	USGS	Good
2002	1976024.2	1 inch = 666 feet	Black and White Monoscopic	USGS	Good

Note: Aerial photographs only provide information on indications of land use and no conclusions regarding the release of hazardous substances or petroleum products can be drawn from the review of photographs alone.

Site

In the 1939 aerial photograph, the Site primarily consists of vacant land, with the exception of the central (north side of Avenida Del Diablo) and northern (future intersection of Citracado Parkway and Andreasen Drive) portions of the Site, which are areas used for agricultural purposes (orchard and row crop). Escondido Creek is visible traversing the northern third of the Site. Citracado Parkway, between West Valley Parkway and Avenida Del Diablo has not been constructed at this time. There are no significant changes in the 1947, 1953, and 1963 aerial photographs.

In the 1974 aerial photograph, construction of Citracado Parkway, between West Valley Parkway and Avenida Del Diablo, has begun. The remainder of the Site consists of vacant land.

In the 1989 aerial photograph, Citracado Parkway, between West Valley Parkway and Avenida Del Diablo, appears to resemble its present-day configuration. The remainder of the Site consists of vacant land. There are no significant changes in the 1995 and 2002 aerial photographs.

Surrounding Properties

In the 1939, 1947, and 1953 aerial photographs, the surrounding properties primarily consist of vacant and agricultural land. In addition, sparse residential development is visible. The addition of the sewage disposal facility to the east of the Site is visible in the 1963 aerial photograph. Further residential development along Citracado Parkway, between West Valley Parkway and Avenida Del Diablo, is visible in the 1974, 1995, and 2002 aerial photographs.

3.5.2 Historical Topographic Maps

EDR provided Kleinfelder with historical topographic maps of the Site vicinity. The topographic maps reviewed for this assessment are listed below in Table 7. Copies of the maps are included in Appendix B.

Table 7
Historical Topographic Maps Reviewed

Year	Quadrangle	Series	Scale
1901	Escondido	15 minute	1:62,500
1904	Southern CA Sheet 2	60 minute	1:250,000
1947	Escondido	15 minute	1:50,000
1949	Escondido	7.5 minute	1:24,000
1968	Escondido	7.5 minute	1:24,000
1975 (photo-revised from 1968)	Escondido	7.5 minute	1:24,000
1996	Escondido	7.5 minute	1:24,000

Site

With the exception of roadways, the Site is not depicted as developed in the 1901, 1904, 1947, 1949, and 1968 topographic maps. Citracado Parkway, between West

Valley Parkway and Avenida Del Diablo, is evident in the 1975 and 1996 topographic maps. Escondido Creek is evident traversing the northern portion of the Site in the abovementioned topographic maps reviewed.

Surrounding Properties

Small structures in the vicinity of the Site are depicted in the 1901 and 1904 topographic maps. Agriculture is depicted to the east of the Site in 1947. No significant new development was noted in the 1949 topographic map. Numerous additional small structures, a sewage disposal facility, and power lines (along Kauana Loa Drive) are depicted in the 1968 and 1975 topographic maps. In the 1996 topographic map, the areas along Citracado Parkway, between West Valley Parkway and Avenida Del Diablo is depicted as a shaded region, suggesting dense development.

4.0 VISUAL SURVEY

4.1 METHODOLOGY AND LIMITING CONDITIONS

Representatives from Kleinfelder, Paolo Dizon and Margaret Carroll, conducted a site reconnaissance on July 18, 2007 to assess and photograph present site conditions. The approximate site boundaries of the study area are shown on Plate 1, "Site Vicinity Map," presented in Appendix B. Color photographs of the site are also presented in Appendix B. For the purposes of this HMTS, the study area was extended to an approximately 500-foot radius surrounding the roadway project. The site conditions discussed below are limited to readily apparent environmental conditions observed from the roadway. The site reconnaissance did not include a visual survey of inaccessible areas or of the interiors of buildings/structures.

The Site is currently developed with a public right-of-way between West Valley Parkway and Avenida Del Diablo. From the intersection of Citracado Parkway and Avenida Del Diablo, the Site consists of vacant land and trends in a northwesterly direction, traversing the Escondido Creek (which is listed in the National Wetlands Inventory) and Harmony Grove Road, and continues onto the recently constructed intersection of Citracado Parkway and Andreasen Drive. Land use in the Site vicinity is generally residential, with the exception of a sewage disposal facility, a warehouse/distribution facility, and newly constructed commercial buildings to the east of the Site.

An approximately 200-gallon aboveground storage tank (AST) was observed out in the open within APN 2350510500. The tank was not labeled as to its contents although was approximately three-fourths filled with a liquid which emitted a petroleum odor. No staining or evidence of leakage was observed around the AST. However, the AST was not in secondary containment and not under cover.

Two pad-mounted transformers (ID# D1416773500 and D1416973499) were observed on the sidewalk near the southeast corner of Citracado Parkway and Avenida Del Diablo. These transformers are owned by SDG&E. According to SDG&E, none of their transformers contain PCBs. However, given the development date of this portion of Site, it is possible that the dielectric fluid utilized by these transformers may have at one time contained PCBs. Three additional recently installed transformers, not suspected to have contained PCBs, were observed by the intersection of Citracado Parkway and Andreasen Drive.

A vertical metal pipe, approximately six inches in diameter and protruding approximately one-foot from the ground, was observed on the north side of the intersection of Citracado Parkway and Avenida Del Diablo. Within the metal pipe is another pipe which appears to consist of transite material, and extends an additional one-foot above the metal pipe. The purpose of these pipes is not known but may be related to former agriculture at the Site.

Based on review of a client-supplied aerial photograph depicting the proposed Citracado Parkway extension area, it appears that a wooden shed located approximately 300 feet south of Harmony Grove Road and within APN 2350401500 may be affected by the proposed development. According to Kasey Ray, a contractor for the owner of the parcel, the shed houses a water well that has not been used for a long time.

Kleinfelder did not observe discolored soil or water, stressed vegetation, USTs, pits, ponds, or lagoons during the site reconnaissance.

Site observations are further described in Table 8.

Table 8
Site Observations

General Observations	Remarks	Observed	Not Observed
Current Use	The Site is currently developed with a public right-of-way between West Valley Parkway and Avenida Del Diablo. From the intersection of Citracado Parkway and Avenida Del Diablo, the Site consists of vacant land and trends a northwesterly direction, traversing the Escondido Creek and Harmony Grove Road, and continues onto the recently construction intersection of Citracado Parkway and Andreasen Drive.	X	
Past Use	Based on review of historical aerial photographs (Section 3.5.1) the Site was primarily undeveloped, with the exception of agriculture (orchard and row crop) which was formerly located on the central (north side of Avenida Del Diablo) and northern (future intersection of Citracado Parkway and Andreasen Drive) portions of the Site.		X
Structures	Based on review of a client-supplied aerial photograph depicting the proposed Citracado Parkway extension area, it appears that a wooden shed located approximately 300 feet south of Harmony Grove Road and within APN 2350401500 may be affected by the proposed development. According to Kasey Ray, a contractor for the owner of the parcel, the shed houses a water well that has not been used for a long time. No other buildings were observed on-site.	X	
Terrain	Relatively hilly.	X	

Table 8 (Continued)
Site Observations

Interior and exterior observations or environmental conditions that may involve the use, storage, disposal or generation of hazardous substances or petroleum products.		Observed	Not Observed
Aboveground storage tank	An approximately 200-gallon AST was observed out on the open within APN 2350510500. The tank was not labeled as to its contents although was approximately three-fourths filled with a liquid which emitted a petroleum odor. No staining or evidence of leakage was observed around the AST. However, the AST was not in secondary containment and not under cover.	X	
Air emissions	A sewer-related vent was observed on the Citracado Parkway median, south of the intersection of Citracado Parkway and Avenida Del Diablo. No other structures with air emissions were noted, although cars were observed.	X	
Below grade vaults	Below grade utility-related vaults were observed along Citracado Parkway, between West Valley Parkway and Avenida Del Diablo.	X	
Burned or buried debris			X
Chemical storage or agricultural chemical mixing areas			X
Discolored soil or water			X
Drains and piping	Multiple storm drains were observed along Citracado Parkway, between West Valley Parkway and Avenida Del Diablo.	X	
Drums			X
Electrical equipment (PCBs)	Two pad-mounted transformers (ID# D1416773500 and D1416973499) were observed on the sidewalk near the southeast corner of Citracado Parkway and Avenida Del Diablo. These transformers are owned by SDG&E. According to SDG&E, none of their transformers contain PCBs. However, given the development date of this portion of Site, it is possible that the dielectric fluid utilized by these transformers contain PCBs. Three additional pad-mounted transformers (ID# D188729, D188730, and D18873 [missing last number]) were observed by the intersection of Citracado Parkway and Andreasen Drive. Given the age of these transformers, it is unlikely the dielectric fluid utilized by these transformers contain PCBs. Evidence of leakage or staining was not observed at the base of the transformers.	X	

Table 8 (Continued)
Site Observations

Interior and exterior observations or environmental conditions that may involve the use, storage, disposal or generation of hazardous substances or petroleum products.		Observed	Not Observed
Farm waste (e.g. feed lot spoils or manure stockpiles)			X
Fill dirt from an unknown source.			X
Hazardous chemical and petroleum products in connection with known use.			X
Hazardous Waste Storage			X
Heating and Cooling System			X
Industrial waste treatment equipment			X
Leachate or seeps			X
Loading and unloading areas			X
Odors			X
Pesticide storage areas/areas of prolonged use or misapplication			X
Pits, Ponds, or Lagoons			X
Pools of Liquid			X
Process waste water			X
Railroad spurs			X
Raw material storage or chemical storage areas			X
Sanitary System (Sewer)	Markings for sewer lines were observed at various locations throughout the Site Vicinity.		X
Septic system (Tank and leach fields)			X
Soil piles			X
Solid Waste			X
Stained pavement or concrete			X
Stains or corrosion			X
Storm basins/catch	A storm water drainage system was observed adjacent to the intersection of Citracado Parkway and Andreasen Drive.	X	
Storm drains	Storm drains were observed along Citracado Parkway, between West Valley Parkway and Avenida Del Diablo.	X	
Stressed vegetation			X
Sumps & clarifiers			X
Surface impoundments or holding ponds			X
Surface water	Escondido Creek traverses the northern portion of the Site.	X	
Underground storage tanks			X

Table 8 (Continued)
Site Observations

Interior and exterior observations or environmental conditions that may involve the use, storage, disposal or generation of hazardous substances or petroleum products.		Observed	Not Observed
Unidentified substance containers			X
Unknown features	A vertical metal pipe, approximately six inches in diameter and protruding approximately one-foot from the ground, was observed on the north side of the intersection of Citracado Parkway and Avenida Del Diablo. Within the metal pipe is another pipe which appears to consist of transite material, and extends an additional one-foot above the metal pipe. The purpose of these pipes is not known.	X	
Waste Water			X
Water supplies (potable and process)	Markings for municipal water lines were observed in the vicinity of the Site, south of Harmony Grove Road.	X	
Wells (irrigation, monitoring, or domestic) or cisterns	A water well housed within a wooden shed was observed on APN 2350401500.	X	
Wells (dry)			X
Wells (Oil and Gas)			X

5.0 EVALUATION

Kleinfelder performed this HMTS of the Site consistent with the scope of services outlined in our proposal entitled *Proposal to Conduct a Hazardous Materials Technical Study, Citracado Parkway Construction Project, Escondido, California*, dated November 20, 2006, and the Subconsultant Agreement between Kleinfelder and Boyle, dated April 1, 2007. The following sections describe Kleinfelder's findings and present our recommendations regarding potential hazardous waste involvement in the proposed project.

5.1 FINDINGS AND RECOMMENDATIONS

The Citracado Parkway Construction Project is located in Escondido, California. The Site extends approximately one mile from West Valley Parkway to Andreasen Drive, and comprises an area of approximately a 500 foot radius surrounding the roadway. The City of Escondido is proposing to improve Citracado Parkway, between West Valley Parkway and Avenida Del Diablo, by narrowing the existing median to provide two additional travel lanes. In addition, the extension of Citracado Parkway northerly from Avenida Del Diablo to Andreasen Drive, construction of a new road to Major Road standards, construction of a new bridge crossing of Escondido Creek, and a grade-separation structure at Harmony Grove Road, is proposed.

The history of the site was reviewed to supplement regulatory agency database records. Aerial photographs and topographic maps were available for review during this assessment. An aerial photograph indicates the development of Citracado Parkway in 1974. Historical resources reveal the development of portions of the Citracado Parkway in 1974. The remainder of the Site was relatively vacant land with the exception of the northern and central portions which were formerly used for agricultural purposes (orchard and row crop). It is possible that agricultural chemicals (i.e. pesticides, herbicides, insecticides) have been used on the Site which have resulted in impact to the subsurface soils. Prior to Site redevelopment involving activities where significant soil disturbance is to occur, sampling of the soil for agricultural chemicals is recommended.

Representatives from Kleinfelder, Paolo Dizon and Margaret Carroll, conducted a site reconnaissance on July 18, 2007 to assess and photograph present site conditions. The following notable observations were made during Kleinfelder's site reconnaissance:

- An approximately 200-gallon AST was observed out on the open within APN 2350510500. The tank was not labeled as to its contents although was approximately three-fourths filled with a liquid which emitted a petroleum odor. No staining or evidence of leakage was observed around the AST. However, the AST was not in secondary containment and not under cover. To prevent an accidental release at the Site, this AST should be relocated to an appropriate facility or disposed of in accordance with regulatory agency guidelines.
- A vertical metal pipe, approximately six inches in diameter and protruding approximately one-foot from the ground, was observed on the north side of the intersection of Citracado Parkway and Avenida Del Diablo. Within the metal pipe is another pipe which appears to consist of transite material, and extends an additional one-foot above the metal pipe. The purpose of these pipes is not known but may be related to former agriculture at the Site. Caution should be exercised during construction in the vicinity of these pipes. If the pipes are found to be associated with subsurface structures, or if staining or strange odors are observed around the vicinity of these pipes, additional investigation may be warranted. Also, prior to disturbance of the possible transite pipe, sampling of this material for asbestos should be conducted. If the material is found to contain asbestos, a State of California-licensed asbestos abatement contractor should be retained to perform abatement of this material.
- Based on review of a client-supplied aerial photograph depicting the proposed Citracado Parkway extension area, it appears that a wooden shed located approximately 300 feet south of Harmony Grove Road and within APN 2350401500 may be affected by the proposed development. According to Kasey Ray, a contractor for the owner of the parcel, the shed houses a water well that has not been used for a long time. This water well will have to be abandoned in accordance with regulatory agency guidelines prior to construction activities.
- Two pad-mounted transformers (ID# D1416773500 and D1416973499) were observed on the sidewalk near the southeast corner of Citracado Parkway and Avenida Del Diablo. These transformers are owned by SDG&E. According to SDG&E, none of their transformers contain PCBs. However, given the development date of this portion of Site, it is possible that the dielectric fluid utilized by these transformers contain PCBs. In the event of any leakage, SDG&E would be responsible for replacement of the transformers and remediation of any affected soils.

The findings of this assessment were evaluated with respect to Questions A, B, and D of Section 7, "Hazards and Hazardous Materials" within "Appendix G, Environmental Checklist Form" of the California Environmental Quality Act (CEQA) Guidelines:

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

Based on review of the EDR environmental database report, no facilities involved with routine transport, use, or disposal of hazardous materials is located within the Site or adjoining areas.

b) Would the project 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?

Based on review of the EDR environmental database report, although facilities with reported unauthorized releases of hazardous materials are listed within 0.25-mile of the Site, none of these facilities are located within the Site or adjacent properties. Given their distances and direction (gradient) from the Site, it is Kleinfelder's opinion that these facilities do not represent an environmental concern to the Site.

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

Based on review of the EDR environmental database report, no Cortese facilities are located within a 0.25-mile radius of the Site.

6.0 REFERENCES

CARWQCB GeoTracker, web site http://geotracker.swrcb.ca.gov/.

EDR, 2007a, The EDR DataMap® Corridor Study, Citracado Parkway Construction Project, Escondido, CA 92029, Inquiry Number: 01976024.1r, July 13.

EDR, 2007b, The EDR Aerial Photo Decade Package, Citracado Parkway, Escondido, CA 92029, Inquiry Number: 1976024.2, July 11.

EDR, 2007c, The EDR Historical Topographic Map Report, Citracado Parkway Construction Project, Escondido, CA 92029, Inquiry Number: 1976024.3, July 11.

SanGIS, web site http://www.sangis.org/.

Tan, Siang S. and Kennedy, Michael P., 1999, Geologic Map of the Escondido 7.5' Quadrangle, San Diego County, California: A Digital Database

USDA Web Soil Survey, web site http://websoilsurvey.nrcs.usda.gov/app/.

USGS, 1996, 7.5-Minute Topographic Quadrangle Map, Escondido, CA.

Additional sources may be referenced separately in the report text

APPENDIX A

Regulatory Agency Database Summary

EDR DataMap® −Corridor Study

Citracado Parkway Construction Proj.

EDR® Environmental Data Resources Inc

Escondido, CA

- Listed Sites
- Earthquake Epicenters (Richter 5 or greater)
- Search Boundary
- Roads
- Major Roads
- Waterways
- Railroads
- Contour Lines
- Pipelines
- Powerlines
- Fault Lines
- Water
- Superfund Sites
- Federal DOD Sites
- Indian Reservations BIA
- National Wetland Inventory

N

0 1/16 1/8

Scale in Miles

01976024.1r - 16 Jul 07

EDR DataMap®
Corridor Study

Citracado Parkway Construction Proj.
Escondido, CA 92029

July 13, 2007

Inquiry number 01976024.1r

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR).

TARGET PROPERTY INFORMATION

ADDRESS

ESCONDIDO, CA 92029
ESCONDIDO, CA 92029

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records within the requested search area for the following databases:

FEDERAL RECORDS

NPL	National Priority List
Proposed NPL	Proposed National Priority List Sites
Delisted NPL	National Priority List Deletions
NPL LIENS	Federal Superfund Liens
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP	CERCLIS No Further Remedial Action Planned
CORRACTS	Corrective Action Report
RCRA-TSDF	Resource Conservation and Recovery Act Information
RCRA-LQG	Resource Conservation and Recovery Act Information
RCRA-SQG	Resource Conservation and Recovery Act Information
HMIRS	Hazardous Materials Information Reporting System
US ENG CONTROLS	Engineering Controls Sites List
US INST CONTROL	Sites with Institutional Controls
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
US BROWNFIELDS	A Listing of Brownfields Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
ODI	Open Dump Inventory
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS	Section 7 Tracking Systems
LIENS 2	CERCLA Lien Information
RADINFO	Radiation Information Database
US CDL	Clandestine Drug Labs
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
ICIS	Integrated Compliance Information System
LUCIS	Land Use Control Information System
DOT OPS	Incident and Accident Data

EXECUTIVE SUMMARY

PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

HIST Cal-Sites Historical Calsites Database
CA BOND EXP. PLAN Bond Expenditure Plan
SCH School Property Evaluation Program
Toxic Pits Toxic Pits Cleanup Act Sites
SWF/LF Solid Waste Information System
CA WDS Waste Discharge System
WMUDS/SWAT Waste Management Unit Database
Cortese "Cortese" Hazardous Waste & Substances Sites List
SWRCY Recycler Database
CA FID UST Facility Inventory Database
SLIC Statewide SLIC Cases
UST Active UST Facilities
HIST UST Hazardous Substance Storage Container Database
AST Aboveground Petroleum Storage Tank Facilities
LIENS Environmental Liens Listing
Notify 65 Proposition 65 Records
DEED Deed Restriction Listing
VCP Voluntary Cleanup Program Properties
CLEANERS Cleaner Facilities
WIP Well Investigation Program Case List
CDL Clandestine Drug Labs
RESPONSE State Response Sites
EMI Emissions Inventory Data
ENVIROSTOR EnviroStor Database

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

FEDERAL RECORDS

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 12/31/2006 has revealed that there is 1 ERNS site within the searched area.

Site	Address	Map ID	Page
2280 AVENIDA DEL DIABLO	2280 AVENIDA DEL DIABLO	3	19

STATE AND LOCAL RECORDS

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 04/10/2007 has revealed that there is 1 LUST site within the searched area.

Site	Address	Map ID	Page
B & W PRECAST CONSTRUCTION INC Facility Status: Case Closed	***2511 HARMONY GROVE RD***	***2***	***10***

SWEEPS: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within the searched area.

Site	Address	Map ID	Page
B & W PRECAST CONSTRUCTION INC	***2511 HARMONY GROVE RD***	***2***	***10***

CHMIRS: The California Hazardous Material Incident Report System contains information on reported hazardous material incidents, i.e., accidental releases or spills. The source is the California Office of Emergency Services.

A review of the CHMIRS list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 CHMIRS site within the searched area.

Site	Address	Map ID	Page
Not reported	2511 HARMONY GROVE RD,	2	9

EXECUTIVE SUMMARY

Hazardous Materials Management Division Database: The Hazardous Materials Management Division Database comes from the H
Management Division.

A review of the San Diego Co. HMMD list, as provided by EDR, and dated 05/16/2005 has revealed that there are 4 San Diego Co. HMMD sites within the searched area.

Site	Address	Map ID	Page
HIDDEN VALLEY MOVING & STORAGE	2208 HARMONY GROVE RD	1	3
DIESEL MAN	***2515 HARMONY GROVE RD***	***2***	***4***
ART OBJECTS INC.	2515 HARMONY GROVE RD	2	7
B & W PRECAST CONSTRUCTION INC	***2511 HARMONY GROVE RD***	***2***	***10***

HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency

A review of the HAZNET list, as provided by EDR, and dated 12/31/2005 has revealed that there are 2 HAZNET sites within the searched area.

Site	Address	Map ID	Page
DIESEL MAN	***2515 HARMONY GROVE RD***	***2***	***4***
B&W PRECAST CONST. INC,	2511 HARMONY GROVE RD.	2	8

SAN DIEGO CO. SAM: The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

A review of the SAN DIEGO CO. SAM list, as provided by EDR, and dated 03/29/2007 has revealed that there is 1 SAN DIEGO CO. SAM site within the searched area.

Site	Address	Map ID	Page
B & W PRECAST CONSTRUCTION INC	***2511 HARMONY GROVE RD***	***2***	***10***

EXECUTIVE SUMMARY

Please refer to the end of the findings report for unmapped orphan sites due to poor or inadequate address information.

MAP FINDINGS SUMMARY

Database	Total Plotted
FEDERAL RECORDS	
NPL	0
Proposed NPL	0
Delisted NPL	0
NPL LIENS	0
CERCLIS	0
CERC-NFRAP	0
CORRACTS	0
RCRA TSD	0
RCRA Lg. Quan. Gen.	0
RCRA Sm. Quan. Gen.	0
ERNS	1
HMIRS	0
US ENG CONTROLS	0
US INST CONTROL	0
DOD	0
FUDS	0
US BROWNFIELDS	0
CONSENT	0
ROD	0
UMTRA	0
ODI	0
TRIS	0
TSCA	0
FTTS	0
SSTS	0
LIENS 2	0
RADINFO	0
CDL	0
HIST FTTS	0
ICIS	0
LUCIS	0
DOT OPS	0
PADS	0
MLTS	0
MINES	0
FINDS	0
RAATS	0
STATE AND LOCAL RECORDS	
Hist Cal-Sites	0
CA Bond Exp. Plan	0
SCH	0
Toxic Pits	0
State Landfill	0
CA WDS	0
WMUDS/SWAT	0
Cortese	0

MAP FINDINGS SUMMARY

Database	Total Plotted
SWRCY	0
LUST	1
CA FID UST	0
SLIC	0
UST	0
HIST UST	0
AST	0
LIENS	0
SWEEPS UST	1
CHMIRS	1
Notify 65	0
DEED	0
VCP	0
DRYCLEANERS	0
WIP	0
CDL	0
San Diego Co. HMMD	4
RESPONSE	0
HAZNET	2
EMI	0
SAN DIEGO CO. SAM	1
ENVIROSTOR	0
TRIBAL RECORDS	
INDIAN RESERV	0
INDIAN LUST	0
INDIAN UST	0
EDR PROPRIETARY RECORDS	
Manufactured Gas Plants	0

NOTES:

Sites may be listed in more than one database

1 HIDDEN VALLEY MOVING & STORAGE — **San Diego Co. HMMD** — **S104890830**
2208 HARMONY GROVE RD — **N/A**
ESCONDIDO, CA 92029

San Diego Co. HMMD:

Facility ID:	139442
Inactive Indicator:	Active
Business Code:	6HK18
SIC:	Not reported
Permit Expiration:	Not reported
Owner:	Not reported
2nd Name:	Not reported
Mailing Address:	2208 HARMONY GROVE
Mailing City,St,Zip:	ESCONDIDO, CA 92029
Map Code/Business Plan on File:	Not reported
Corporate Code:	Not reported
Fire Dept District:	Escondido
Census Tract Number:	203
EPA ID:	Not reported
Gas Station:	Not reported
Inspection Date:	11/08/04
Reinspection Date:	Not reported
Inspector Name:	SANDERSO
Violation Notice Issued:	Not reported
Facility Contact:	DAVID VANDERHEIDEN
Delinquent Flag:	Not Delinquent
Last Update:	05/10/05
Last Delinquent Letter:	Not reported
Delinquent Comment:	Not reported
Last Letter Type:	Not reported
Property Owner:	BERTI FAMILY TRUST 05-19-99
Property Address:	2208 HARMONY GROVE R
Property City,St,Zip:	92029
Tank Owner:	Not reported
Tank Address:	Not reported
Tank City,St,Zip:	Not reported
Business Plan Acceptance Date:	Not reported
Reinspection Date Y2K Compatible:	11/08/06
Facility Phone:	760-745-5552

HMMD DISCLOSURE INVENTORY:

Item Number:	PR98
Chemical Name:	PROPANE
Case Number:	MIXTURE
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	FIRE
2nd Hazard Category:	PRESSURE R

HMMD UNDERGROUND TANKS:

Tank Number:	Not reported
Tank ID Number:	Not reported
Waste or Product:	Not reported
Tank Contents:	Not reported

HIDDEN VALLEY MOVING & STORAGE (Continued) **S104890830**

HMMD VIOLATIONS:

Inspection Date:	11/29/00
Waste Code:	Not reported
Type of Violation:	6HX0108
Occurrences:	Not reported
Item Number:	9882
Violation Desc:	NO PERMIT OBTAINED FOR HAZMATS/HAZWASTE

Inspection Date:	11/21/02
Waste Code:	Not reported
Type of Violation:	6HV0401
Occurrences:	Not reported
Item Number:	4515
Violation Desc:	TRAINING RECORDS UNAVAILABLE

HMMD WASTE STREAMS:

Inspection Date:	Not reported
Waste Item #:	Not reported
Waste Code:	Not reported
Waste Name:	Not reported
Qnty at Inspection:	Not reported
Quantity String:	Not reported
Annual Qty:	Not reported
Annual Qty String:	Not reported
Measurement Unit:	Not reported
Treatment Method:	Not reported
Storage Method:	Not reported
Haz Waste Hauler:	Not reported
Waste Desc:	Not reported
Carcinogen:	No

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2 **DIESEL MAN** **HAZNET** **S106070504**
2515 HARMONY GROVE RD **San Diego Co. HMMD** **N/A**
ESCONDIDO, CA 92025

HAZNET:

Gepaid:	CAL000224305
Contact:	ARTHUR ARSENAULT-OWNER
Telephone:	7608017858
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	243 S ESCONDIDO BLVD STE 715
Mailing City,St,Zip:	ESCONDIDO, CA 920250000
Gen County:	San Diego
TSD EPA ID:	CAT080013352
TSD County:	Los Angeles
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Recycler
Tons:	0.22
Facility County:	Not reported

Gepaid:	CAL000224305
Contact:	ARTHUR ARSENAULT-OWNER
Telephone:	7608017858
Facility Addr2:	Not reported
Mailing Name:	Not reported

DIESEL MAN (Continued) **S106070504**

Mailing Address:	243 S ESCONDIDO BLVD STE 715
Mailing City,St,Zip:	ESCONDIDO, CA 920250000
Gen County:	San Diego
TSD EPA ID:	CAT080013352
TSD County:	Los Angeles
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Recycler
Tons:	0.22
Facility County:	Not reported

San Diego Co. HMMD:

Facility ID:	200368
Inactive Indicator:	Active
Business Code:	6HK26
SIC:	Not reported
Permit Expiration:	Not reported
Owner:	Not reported
2nd Name:	Not reported
Mailing Address:	243 S ESCONDIDO BLVR
Mailing City,St,Zip:	ESCONDIDO, CA 92025
Map Code/Business Plan on File:	Not reported
Corporate Code:	Not reported
Fire Dept District:	Escondido
Census Tract Number:	203
EPA ID:	Not reported
Gas Station:	Not reported
Inspection Date:	03/15/04
Reinspection Date:	Not reported
Inspector Name:	MBURKE
Violation Notice Issued:	Not reported
Facility Contact:	ART ARSENANT
Delinquent Flag:	Not Delinquent
Last Update:	05/10/05
Last Delinquent Letter:	Not reported
Delinquent Comment:	Not reported
Last Letter Type:	Not reported
Property Owner:	B&W PRECAST CONSTRUCTION INC
Property Address:	P O BOX 1839
Property City,St,Zip:	92079
Tank Owner:	Not reported
Tank Address:	Not reported
Tank City,St,Zip:	Not reported
Business Plan Acceptance Date:	Not reported
Reinspection Date Y2K Compatible:	09/15/05
Facility Phone:	760-801-7858

HMMD DISCLOSURE INVENTORY:

Item Number:	Not reported
Chemical Name:	Not reported
Case Number:	Not reported
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	Not reported

DIESEL MAN (Continued) **S106070504**

2nd Hazard Category: Not reported

HMMD UNDERGROUND TANKS:
Tank Number: Not reported
Tank ID Number: Not reported
Waste or Product: Not reported
Tank Contents: Not reported

HMMD VIOLATIONS:
Inspection Date: 03/15/04
Waste Code: Not reported
Type of Violation: 6HV0135
Occurrences: Not reported
Item Number: 9586
Violation Desc: MANIFESTS/RECEIPTS NO ONSITE

HMMD WASTE STREAMS:
Inspection Date: 03/15/04
Waste Item #: 221
Waste Code: 221
Waste Name: WASTE OIL & MIXED OI
Qnty at Inspection: 330
Quantity String: 330
Annual Qty: 220
Annual Qty String: 220
Measurement Unit: GAL
Treatment Method: 001 RECYCLE
Storage Method: METAL DRUM
Haz Waste Hauler: 0015 ASBURY ENVIRONMENTAL
Waste Desc: USED OIL
Carcinogen: No

Inspection Date: 03/15/04
Waste Item #: 342
Waste Code: 342
Waste Name: ORGANIC LIQUIDS W/ME
Qnty at Inspection: 55
Quantity String: 55
Annual Qty: Not reported
Annual Qty String: Not reported
Measurement Unit: GAL
Treatment Method: 001 RECYCLE
Storage Method: PLASTIC DRUM
Haz Waste Hauler: 0015 ASBURY ENVIRONMENTAL
Waste Desc: USED ANTIFREEZE
Carcinogen: No

Inspection Date: 03/15/04
Waste Item #: 888
Waste Code: 888
Waste Name: USED OIL FILTERS
Qnty at Inspection: 100
Quantity String: 100
Annual Qty: 100
Annual Qty String: 100
Measurement Unit: LBS

DIESEL MAN (Continued) **S106070504**

Treatment Method: 001 RECYCLE
Storage Method: METAL DRUM
Haz Waste Hauler: 0015 ASBURY ENVIRONMENTAL
Waste Desc: Not reported
Carcinogen: No

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2 **ART OBJECTS INC.** **San Diego Co. HMMD** **S106070545**
2515 HARMONY GROVE RD **N/A**
ESCONDIDO, CA 92029

San Diego Co. HMMD:

Facility ID:	200412
Inactive Indicator:	Active
Business Code:	6HK18
SIC:	Not reported
Permit Expiration:	Not reported
Owner:	Not reported
2nd Name:	Not reported
Mailing Address:	P O BOX 463034
Mailing City,St,Zip:	ESCONDIDO, CA 92046
Map Code/Business Plan on File:	Not reported
Corporate Code:	Not reported
Fire Dept District:	Escondido
Census Tract Number:	203
EPA ID:	Not reported
Gas Station:	Not reported
Inspection Date:	11/08/04
Reinspection Date:	Not reported
Inspector Name:	SANDERSO
Violation Notice Issued:	Not reported
Facility Contact:	DONOVAN ORAN
Delinquent Flag:	Not Delinquent
Last Update:	05/10/05
Last Delinquent Letter:	Not reported
Delinquent Comment:	Not reported
Last Letter Type:	Not reported
Property Owner:	B&W PRECAST CONSTRUCTION INC
Property Address:	P O BOX 1839
Property City,St,Zip:	92079
Tank Owner:	Not reported
Tank Address:	Not reported
Tank City,St,Zip:	Not reported
Business Plan Acceptance Date:	Not reported
Reinspection Date Y2K Compatible:	11/08/06
Facility Phone:	760-735-8887

HMMD DISCLOSURE INVENTORY:

Item Number:	AR79
Chemical Name:	ARGON ARGON
Case Number:	7440-37-1
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	PRESSURE RELEASE

ART OBJECTS INC. (Continued) **S106070545**

2nd Hazard Category: Not reported

HMMD UNDERGROUND TANKS:
Tank Number: Not reported
Tank ID Number: Not reported
Waste or Product: Not reported
Tank Contents: Not reported

HMMD VIOLATIONS:
Inspection Date: Not reported
Waste Code: Not reported
Type of Violation: Not reported
Occurrences: Not reported
Item Number: Not reported
Violation Desc: Not reported

HMMD WASTE STREAMS:
Inspection Date: Not reported
Waste Item #: Not reported
Waste Code: Not reported
Waste Name: Not reported
Qnty at Inspection: Not reported
Quantity String: Not reported
Annual Qty: Not reported
Annual Qty String: Not reported
Measurement Unit: Not reported
Treatment Method: Not reported
Storage Method: Not reported
Haz Waste Hauler: Not reported
Waste Desc: Not reported
Carcinogen: No

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2 **B&W PRECAST CONST. INC,** **HAZNET** **S103646487**
2511 HARMONY GROVE RD. **N/A**
ESCONDIDO, CA 92029

HAZNET:
Gepaid: CAL921344317
Contact: TOM LYNCH
Telephone: 7147885289
Facility Addr2: Not reported
Mailing Name: Not reported
Mailing Address: PO BOX 1839
Mailing City,St,Zip: SAN MARCOS, CA 920791839
Gen County: San Diego
TSD EPA ID: CAD000088252
TSD County: Los Angeles
Waste Category: Polymeric resin waste
Disposal Method: Transfer Station
Tons: .0208
Facility County: San Diego

Gepaid: CAL921344317
Contact: DAVID CHAVEZ
Telephone: 7607378590

B&W PRECAST CONST. INC, (Continued) **S103646487**

Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	PO BOX 1839
Mailing City,St,Zip:	SAN MARCOS, CA 920791839
Gen County:	San Diego
TSD EPA ID:	Not reported
TSD County:	Los Angeles
Waste Category:	Unspecified aqueous solution
Disposal Method:	Recycler
Tons:	9.17
Facility County:	Not reported

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2 **CHMIRS** **S106395419**

2511 HARMONY GROVE RD, ONE MILE EAST OF COUNTRY CL **N/A**
UNINCORPORATED COUNTY AREA, CA

CHMIRS:

OES Incident Number:	02-3413
OES notification:	6/21/200203:00:42 PM
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	Yes
Waterway:	Escondido Creek
Spill Site:	Not reported
Cleanup By:	Co Roads

(Continued) **S106395419**

Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	2002
Agency:	San Diego CHP
Incident Date:	6/21/200212:00:00 AM
Admin Agency:	San Diego County Health Services Department
Amount:	Not reported
Contained:	Yes
Site Type:	Road
E Date:	Not reported
Substance:	Red Dye Diesel
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	1300
Grams:	0
Pounds:	0
Liters:	0
Ounces:	0
Pints:	0
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Description:	Not reported
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	Substance was released from the tanker trailer . The lid on top of the tank sprang open releasing substance. Leak is currently stopped but not stable. Note: Escondido Creek is not a drinking source this creek runs into the ocean.

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2 **B & W PRECAST CONSTRUCTION INC** **LUST** **S104746655**
2511 HARMONY GROVE RD **San Diego Co. HMMD** **N/A**
ESCONDIDO, CA 92029 **SWEEPS UST**
SAN DIEGO CO. SAM

LUST:

Region:	STATE
Case Type:	Soil only
Cross Street:	Not reported
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	Not reported
How Stopped:	Not reported
Leak Cause:	Not reported
Leak Source:	Not reported
Global Id:	T0608188188
Stop Date:	Not reported
Confirm Leak:	Not reported
Workplan:	Not reported
Prelim Assess:	Not reported
Pollution Char:	Not reported

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Remed Plan: Not reported
Remed Action: Not reported
Monitoring: Not reported
Close Date: 1992-02-11 00:00:00
Discover Date: Not reported
Enforcement Dt: Not reported
Release Date: Not reported
Review Date: Not reported
Enter Date: Not reported
MTBE Date: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Max MTBE GW ppb: Not reported
Max MTBE Soil ppb: Not reported
County: 37
Org Name: Not reported
Reg Board: San Diego Region
Status: Case Closed
Chemical: Not reported
Contact Person: Not reported
Responsible Party: WILLIAM DEBERRY
RP Address: 711 FIFTEENTH AVENUE
Interim: Not reported
Oversight Prgm: LOCNL
MTBE Class: *
MTBE Conc: 0
MTBE Fuel: 0
MTBE Tested: Not Required to be Tested.
Staff: UNA
Staff Initials: FA
Lead Agency: Local Agency
Local Agency: 37000L
Hydr Basin #: Not reported
Beneficial: Not reported
Priority: 7
Cleanup Fund Id: Not reported
Work Suspended: Not reported
Local Case #: H08816-001
Case Number: Not reported
Qty Leaked: Not reported
Abate Method: Not reported
Operator: Not reported
Water System Name: Not reported
Well Name: Not reported
Distance To Lust: 0
Waste Discharge Global ID: Not reported
Waste Disch Assigned Name: Not reported
Summary: Not reported

San Diego Co. HMMD:
Facility ID: 108816
Inactive Indicator: Active
Business Code: 6HK70
SIC: Not reported
Permit Expiration: Not reported
Owner: Not reported
2nd Name: Not reported

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Mailing Address:	P O BOX 1839
Mailing City,St,Zip:	SAN MARCOS, CA 92079
Map Code/Business Plan on File:	Not reported
Corporate Code:	Not reported
Fire Dept District:	Elfin Forest/Harmony Grove
Census Tract Number:	203
EPA ID:	CAL921344317
Gas Station:	Not reported
Inspection Date:	03/05/04
Reinspection Date:	Not reported
Inspector Name:	WMORGAN1
Violation Notice Issued:	Not reported
Facility Contact:	CARMEN GUERRERO
Delinquent Flag:	Not Delinquent
Last Update:	05/10/05
Last Delinquent Letter:	Not reported
Delinquent Comment:	Not reported
Last Letter Type:	Not reported
Property Owner:	HANSON AGGREGATES PACIFIC SOUT
Property Address:	9229 HARRIS PLANT RD
Property City,St,Zip:	92163
Tank Owner:	CONTINENTAL MACHINES INC WES
Tank Address:	P O BOX D
Tank City,St,Zip:	Escondido, CA 92025
Business Plan Acceptance Date:	Not reported
Reinspection Date Y2K Compatible:	09/05/05
Facility Phone:	760-737-8590

HMMD DISCLOSURE INVENTORY:

Item Number:	AC97
Chemical Name:	ACETONE ACETONE
Case Number:	67-64-1
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	FIRE
2nd Hazard Category:	ACUTE

Item Number:	AC99
Chemical Name:	ACETYLENE GAS
Case Number:	74-86-2
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	FIRE
2nd Hazard Category:	Not reported

Item Number:	AR61
Chemical Name:	ARGON
Case Number:	7440-37-1
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	PRESSURE RELEASE
2nd Hazard Category:	Not reported

Item Number:	AR18
Chemical Name:	ARGON 75% CARBON DIOXIDE 25% ARGON 75% CARBON DIOXIDE 25%
Case Number:	Not reported
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	PRESSURE RELEASE
2nd Hazard Category:	ACUTE

Item Number:	CL26
Chemical Name:	CLEAN STRIP FORM RELEASE (MINERAL SPIRITS)
Case Number:	8052-41-3
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	FIRE
2nd Hazard Category:	ACUTE

Item Number:	DI60
Chemical Name:	DIESEL
Case Number:	68476-34-6
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	Not reported
2nd Hazard Category:	Not reported

Item Number:	HY19
Chemical Name:	HYDROCHLORIC ACID (25-35%) ZEP HIGH-FOAM CONCRETE REMOVER
Case Number:	MIXTURE
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	REACTIVE
2nd Hazard Category:	ACUTE

Item Number:	LU23
Chemical Name:	LUBRICATING OILS, MISC.

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Case Number:	8002-05-9
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	FIRE
2nd Hazard Category:	Not reported

Item Number:	OX24
Chemical Name:	OXYGEN, COMPRESSED GAS-WELDING
Case Number:	7782-44-7
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	PRESSURE RELEASE
2nd Hazard Category:	Not reported

Item Number:	PO22
Chemical Name:	PORTLAND CEMENT W/ CALCIUM SALTS
Case Number:	65997-15-1
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	ACUTE
2nd Hazard Category:	Not reported

Item Number:	PR58
Chemical Name:	PROPANE
Case Number:	68476-85-7
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	FIRE
2nd Hazard Category:	Not reported

HMMD UNDERGROUND TANKS:

Tank Number:	T001
Tank ID Number:	1
Waste or Product:	Not reported
Tank Contents:	REGULAR UNLEADED

HMMD VIOLATIONS:

Inspection Date:	02/03/99
Waste Code:	Not reported
Type of Violation:	6HV0135

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Occurrences: Not reported
Item Number: 1234
Violation Desc: MANIFESTS/RECEIPTS NO ONSITE

Inspection Date: 02/03/99
Waste Code: Not reported
Type of Violation: 6HV0202
Occurrences: Not reported
Item Number: 1235
Violation Desc: WASTE CONTAINER W/O LABELS

Inspection Date: 02/03/99
Waste Code: Not reported
Type of Violation: 6HV0201
Occurrences: Not reported
Item Number: 1236
Violation Desc: WASTE CONTAINER NOT CLOSED

Inspection Date: 02/03/99
Waste Code: Not reported
Type of Violation: 6HV0204
Occurrences: Not reported
Item Number: 1237
Violation Desc: WASTE CONTAINER:IMPROPER MGMT

Inspection Date: 02/03/99
Waste Code: Not reported
Type of Violation: 6HV0215
Occurrences: Not reported
Item Number: 1238
Violation Desc: OIL FILTERS IMPROPERLY MANAGED

Inspection Date: 02/03/99
Waste Code: Not reported
Type of Violation: 6HV1097
Occurrences: Not reported
Item Number: 1239
Violation Desc: HMBP: NO EMPLOYEE TRAINING PROGRAM

Inspection Date: 09/16/97
Waste Code: Not reported
Type of Violation: 6HX0108
Occurrences: Not reported
Item Number: 8779
Violation Desc: NO PERMIT OBTAINED FOR HAZMATS/HAZWASTE

Inspection Date: 09/16/97
Waste Code: Not reported
Type of Violation: 6HV0202
Occurrences: Not reported
Item Number: 8780
Violation Desc: WASTE CONTAINER W/O LABELS

Inspection Date: 09/16/97
Waste Code: Not reported
Type of Violation: 6HV0402
Occurrences: Not reported

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Item Number: 8781
Violation Desc: TRAINING PROGRAM NOT ADEQUATE

Inspection Date: 09/16/97
Waste Code: Not reported
Type of Violation: 6HV1002
Occurrences: Not reported
Item Number: 8782
Violation Desc: HMBP NOT ESTABISHED/IMPLEMENTED.

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV0135
Occurrences: Not reported
Item Number: 5182
Violation Desc: MANIFESTS/RECEIPTS NO ONSITE

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV0301
Occurrences: Not reported
Item Number: 5183
Violation Desc: HAZWASTE:UNAUTHORIZED DISPOSAL

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV0202
Occurrences: Not reported
Item Number: 5184
Violation Desc: WASTE CONTAINER W/O LABELS

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV0216
Occurrences: Not reported
Item Number: 5185
Violation Desc: HAZMATS WITHOUT PROPER LABELS

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV0201
Occurrences: Not reported
Item Number: 5186
Violation Desc: WASTE CONTAINER NOT CLOSED

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV0301
Occurrences: Not reported
Item Number: 5187
Violation Desc: HAZWASTE:UNAUTHORIZED DISPOSAL

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV0401
Occurrences: Not reported
Item Number: 5188

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Violation Desc: TRAINING RECORDS UNAVAILABLE

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV0215
Occurrences: Not reported
Item Number: 5189
Violation Desc: OIL FILTERS IMPROPERLY MANAGED

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV1003
Occurrences: Not reported
Item Number: 5190
Violation Desc: HMBP NOT AMENDED W/IN 30 DAYS

Inspection Date: 05/03/01
Waste Code: Not reported
Type of Violation: 6HV1096
Occurrences: Not reported
Item Number: 5191
Violation Desc: NO EMPLOYEE TRAINING RECORDS

Inspection Date: 07/25/02
Waste Code: Not reported
Type of Violation: 6HV0201
Occurrences: Not reported
Item Number: 0089
Violation Desc: WASTE CONTAINER NOT CLOSED

Inspection Date: 07/25/02
Waste Code: Not reported
Type of Violation: 6HV0202
Occurrences: Not reported
Item Number: 0090
Violation Desc: WASTE CONTAINER W/O LABELS

Inspection Date: 07/25/02
Waste Code: Not reported
Type of Violation: 6HV0401
Occurrences: Not reported
Item Number: 0091
Violation Desc: TRAINING RECORDS UNAVAILABLE

Inspection Date: 03/05/04
Waste Code: Not reported
Type of Violation: 6HV0201
Occurrences: Not reported
Item Number: 9364
Violation Desc: WASTE CONTAINER NOT CLOSED

Inspection Date: 03/05/04
Waste Code: Not reported
Type of Violation: 6HV0401
Occurrences: Not reported
Item Number: 9365
Violation Desc: TRAINING RECORDS UNAVAILABLE

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Inspection Date: 03/05/04
Waste Code: Not reported
Type of Violation: 6HV1012
Occurrences: Not reported
Item Number: 9366
Violation Desc: SPCC PLAN NOT PREPARED

HMMD WASTE STREAMS:

Inspection Date: 03/05/04
Waste Item #: 213
Waste Code: 213
Waste Name: HYDROCARBON SOLVENTS
Qnty at Inspection: 10
Quantity String: 10
Annual Qty: 10
Annual Qty String: 10
Measurement Unit: GAL
Treatment Method: 001 RECYCLE
Storage Method: PROCESSING EQUIPMENT
Haz Waste Hauler: 9998 UNKNOWN HAZ WST HAUL
Waste Desc: PARTS CLEANER
Carcinogen: No

Inspection Date: 03/05/04
Waste Item #: 221
Waste Code: 221
Waste Name: WASTE OIL & MIXED OI
Qnty at Inspection: 200
Quantity String: 200
Annual Qty: 150
Annual Qty String: 150
Measurement Unit: GAL
Treatment Method: 001 RECYCLE
Storage Method: ABVG TNK
Haz Waste Hauler: 0015 ASBURY ENVIR. SERVIC
Waste Desc: USED OIL/DOUBLE WALLED
Carcinogen: No

Inspection Date: 03/05/04
Waste Item #: 342
Waste Code: 342
Waste Name: ORGANIC LIQUIDS W/ME
Qnty at Inspection: 55
Quantity String: 55
Annual Qty: 50
Annual Qty String: 50
Measurement Unit: GAL
Treatment Method: 001 RECYCLE
Storage Method: METAL DRUM
Haz Waste Hauler: 0015 ASBURY ENVIR. SERVIC
Waste Desc: USED ANTIFREEZE
Carcinogen: No

Inspection Date: 03/05/04
Waste Item #: 888
Waste Code: 888
Waste Name: USED OIL FILTERS

B & W PRECAST CONSTRUCTION INC (Continued) **S104746655**

Qnty at Inspection:	600
Quantity String:	600
Annual Qty:	600
Annual Qty String:	600
Measurement Unit:	LBS
Treatment Method:	888 FILTERS/METAL RE
Storage Method:	METAL DRUM
Haz Waste Hauler:	0015 ASBURY ENVIR. SERVIC
Waste Desc:	USED OIL FILTERS (CRUSHED
Carcinogen:	No

SWEEPS UST:

Status:	Not reported
Comp Number:	8816
Number:	Not reported
Board Of Equalization:	Not reported
Ref Date:	Not reported
Act Date:	Not reported
Created Date:	Not reported
Tank Status:	Not reported
Owner Tank Id:	Not reported
Swrcb Tank Id:	37-000-008816-000001
Actv Date:	Not reported
Capacity:	2000
Tank Use:	M.V. FUEL
Stg:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	1

SAN DIEGO CO. SAM:

Case Number:	H08816-001
Agency:	DEH Site Assessment & Mitigation
Funding:	**Private - VAP**
FType:	Soils Only
FStatus:	Closed Case
Date:	2/11/1992
Begandt:	8/13/1991

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3 **2280 AVENIDA DEL DIABLO** **ERNS** **93327883**
2280 AVENIDA DEL DIABLO **N/A**
ESCONDIDO, CA 92029

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
ESCONDIDO	S106061690	CALTRANS	HWY 76	92029	San Diego Co. HMMD
ESCONDIDO	S106923904	CALTRANS	HIGHWAY 76 / I-5	92029	SWEEPS UST
ESCONDIDO	A100211028	HAWTHORNE RENT-IT SERVICE BR #3	530 ANDREASEN DR	92029	AST
ESCONDIDO	S105539557	ACCURATE AUTOMOTIVE	520 ANDREASEN DR	92029	San Diego Co. HMMD
ESCONDIDO	S106064301	AUTO TECHNIQUE	141 ANDREASEN DR	92029	San Diego Co. HMMD
ESCONDIDO	S106091688	LAI QUALITY AUTO COLLISION CENTER	825 N ANDREASEN UNIT C	92029	HAZNET
ESCONDIDO	S107140465	RACERS TOY STORE INC	421 S ANDREASEN STE B	92029	HAZNET
ESCONDIDO	S107146835	LAI QUALITY AUTO COLLISION CENTER	825 N ANDREASEN DR STE C	92029	HAZNET
ESCONDIDO	S108196550	A-1 AUTO BODY, INC.	825 N ANDREASEN DR STE #C	92029	HAZNET
ESCONDIDO	S108407062	GALLADE CHEMICALS INC	425 ANDREASEN DR	92029	SAN DIEGO CO. SAM
ESCONDIDO	S108407074	HAWTHORNE RENT-IT SERVICE	530 ANDREASEN DR	92029	SAN DIEGO CO. SAM
ESCONDIDO	S104747021	GALLADE CHEMICALS INC	425 ANDREASEN DR	92029	LUST, San Diego Co. HMMD, SWEEP UST
ESCONDIDO	S105539551	HAWTHORNE RENT-IT SERVICE	530 ANDREASEN DR	92029	LUST, San Diego Co. HMMD, SWEEP UST
ESCONDIDO	S106061237	PALOMAR CONTINUING CARE CTR	1817 AVE DEL DIABLO	92029	San Diego Co. HMMD
ESCONDIDO	S106088929	INTERGRATED ENGINEERING & MANUFACTURING	2121 CHABLIS CT STE 110	92029	HAZNET
ESCONDIDO	A100302293	PALOMAR ENERGY PROJECT	1000 SOUTH CITRACADO PARKWAY	92029	AST
ESCONDIDO	S106879612	KIEWIT INDUSTRIAL CO	1000 S CITRACADO PY	92029	San Diego Co. HMMD
ESCONDIDO	S107149298	PREMIER PATIO HEATING SPECIALISTS LLC	593 N CITRACADO PRKWY	92029	HAZNET
ESCONDIDO	S108216249	PALOMAR ENERGY PROJECT	1000 S CITRACADO PKWY	92029	HAZNET
ESCONDIDO	2005613213	CORNER OF EL NORTE PARKWAY	CORNER OF EL NORTE PARKWAY	92029	ERNS
ESCONDIDO	S103654273	EMPIRE DRY CLEANERS	3440 DEL LAGO BLVD STE M	92029	HAZNET, CLEANERS
ESCONDIDO	S106105389	RYAN PARK PROJECT	DIRECTLY E OF EAST VALLEY PKWY		CA WDS
ESCONDIDO	S105155610	DIXON DAM	DIXON DAM/LAKE DIXON SPILLWAY		SWF/LF
ESCONDIDO	1006932061	BENTON BURN DUMP	END OF STILL WATER GLEN		CERCLIS
ESCONDIDO	S107737679	MAYHEW (ESCONDIDO I) DUMP	GREENWOOD PL., NW1/4, SEC 28, T12S, R2W		SWF/LF
ESCONDIDO	S101311431	EAST ESCONDIDO DUMP	WEST HWY 78 / 4 MILES SE ESCON		WMUDS/SWAT
ESCONDIDO	99619638	NORTHBOUND I-15/SOUTH VIA RANCHO PARKWAY	NORTHBOUND I-15/SOUTH VIA RANCHO PARKWAY		ERNS
ESCONDIDO	S106105382	ALL SEASONS RV PARK	30012 OLD HWY 395		CA WDS
ESCONDIDO	1004677112	SHELL SERVICE STATION	3480 PLAZA DEL LAGO	92029	FINDS, RCRA-LQG
ESCONDIDO	1008152881	EQUILON ENTERPRISES	3480 PLAZA DEL LAGO SAP 120425	92029	FINDS, HAZNET
ESCONDIDO	S105726473	EQUILON ENTERPRISES	3480 PLAZA DEL LAGO SAP 120425	92029	HAZNET
ESCONDIDO	S107737683	SAN PASQUAL ACADEMY	SAN PASQUAL ROAD / HWY 78		SWF/LF
ESCONDIDO	S105155600	BENTON DUMP	STILWATER GLEN		SWF/LF
ESCONDIDO	S105725068	VONS #2156	2345 E VALLEY PRKWY	92029	HAZNET
ESCONDIDO	1009619708	1825 E VALLEY PKWY APT 52	1825 E VALLEY PKWY APT 52		US CDL
ESCONDIDO	1009619696	1575 W VALLEY WAY APT 63	1575 W VALLEY WAY APT 63		US CDL

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 63

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 63

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 53

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/27/2007
Date Data Arrived at EDR: 03/21/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/20/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 03/21/2007
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 28

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/14/2007
Date Data Arrived at EDR: 03/20/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 38

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: (415) 495-8895
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/24/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/05/2007
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 27

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/17/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/20/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 63

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 04/04/2007
Date Data Arrived at EDR: 04/04/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 51

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 08/23/2006
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 35

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/27/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 69

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 06/19/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 71

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 71

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 05/01/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 22

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 01/08/2007
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 3

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/29/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: No Update Planned

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/21/2007
Date Data Arrived at EDR: 04/03/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 06/22/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 36

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/30/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: Varies

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/17/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 43

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 06/08/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/05/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 30

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/06/2007
Date Data Arrived at EDR: 03/28/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 47

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 05/17/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 49

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Biennially

USGS WATER WELLS: National Water Information System (NWIS)

This database consists of well records in the United States. Available site descriptive information includes well location information (latitude and longitude, well depth, site use, water use, and aquifer).

Date of Government Version: 03/25/2005
Date Data Arrived at EDR: 03/25/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: USGS
Telephone: N/A
Last EDR Contact: 03/25/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

PWS: Public Water System Data

This Safe Drinking Water Information System (SDWIS) file contains public water systems name and address, population served and the primary source of water

Date of Government Version: 02/24/2000
Date Data Arrived at EDR: 04/27/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA
Telephone: N/A
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: N/A

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STATE AND LOCAL RECORDS

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 05/25/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: No Update Planned

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/30/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 04/30/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: No Update Planned

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/11/2007
Date Data Arrived at EDR: 06/13/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 16

Source: Integrated Waste Management Board
Telephone: 916-341-6320
Last EDR Contact: 06/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

CA WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 06/20/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 05/29/2001
Date Made Active in Reports: 07/26/2001
Number of Days to Update: 58

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/11/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 16

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 05/07/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 04/01/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 15

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 04/10/2007
Date Data Arrived at EDR: 04/11/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 16

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/10/2007
Date Data Arrived at EDR: 04/11/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 16

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/06/2006
Date Data Arrived at EDR: 04/06/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 35

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/13/2007
Date Data Arrived at EDR: 03/14/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 23

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 06/29/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: Annually

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 04/10/2007
Date Data Arrived at EDR: 04/11/2007
Date Made Active in Reports: 05/03/2007
Number of Days to Update: 22

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Semi-Annually

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 02/05/2007
Date Data Arrived at EDR: 02/06/2007
Date Made Active in Reports: 03/21/2007
Number of Days to Update: 43

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Varies

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/07/2007
Date Data Arrived at EDR: 05/08/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 17

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/22/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

Registered Aboveground Storage Tanks.

Date of Government Version: 05/01/2007
Date Data Arrived at EDR: 05/01/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 04/30/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/23/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 04/03/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 22

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/30/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 04/18/2005
Date Data Arrived at EDR: 04/18/2005
Date Made Active in Reports: 05/06/2005
Number of Days to Update: 18

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 24

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 04/27/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Varies

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 03/07/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Varies

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/30/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/20/2006
Date Made Active in Reports: 01/03/2007
Number of Days to Update: 44

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 23

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 04/17/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Varies

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/30/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: Quarterly

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Minnesota, Mississippi and North Carolina.

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 35
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/23/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 42
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/18/2007
Date Data Arrived at EDR: 06/18/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 17
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2007
Date Data Arrived at EDR: 06/07/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 28
Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28
Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/18/2007
Date Data Arrived at EDR: 06/18/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 17
Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 35

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 05/23/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 42

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/24/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 14

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/24/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 11

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 29

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 05/29/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: Semi-Annually

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 17

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 05/07/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 21

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 07/07/1999
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/31/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15
Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 05/15/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 21
Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 05/16/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31
Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 12/04/2006
Date Data Arrived at EDR: 01/09/2007
Date Made Active in Reports: 01/24/2007
Number of Days to Update: 15
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 05/14/2007
Date Data Arrived at EDR: 05/15/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 41
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 05/30/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/29/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 27
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 05/29/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 01/26/2007
Date Data Arrived at EDR: 02/20/2007
Date Made Active in Reports: 03/21/2007
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 04/30/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 17

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Semi-Annually

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Annually

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 10

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 10

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/20/2007
Date Made Active in Reports: 04/12/2007
Number of Days to Update: 23

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

PLACER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 04/04/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 22

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/21/2007
Date Data Arrived at EDR: 05/22/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 38

Source: Department of Public Health
Telephone: 951-358-5055
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 05/21/2007
Date Data Arrived at EDR: 05/22/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 34

Source: Health Services Agency
Telephone: 951-358-5055
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Contaminated Sites
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/23/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 37

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 05/01/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

ML - Regulatory Compliance Master List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 36

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 05/01/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/23/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2005
Date Data Arrived at EDR: 05/18/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 29

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 11/01/2006
Date Data Arrived at EDR: 01/03/2007
Date Made Active in Reports: 01/24/2007
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/29/2007
Date Data Arrived at EDR: 04/24/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 16

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 17

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/12/2007
Number of Days to Update: 30

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 04/06/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 14

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 04/30/2007
Date Data Arrived at EDR: 05/01/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 24

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 04/11/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Varies

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 06/11/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 17

Source: City of San Jose Fire Department
Telephone: 408-277-4659
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 24

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 04/18/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/23/2007
Date Data Arrived at EDR: 04/24/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 16

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/04/2007
Date Made Active in Reports: 05/24/2007
Number of Days to Update: 20

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 06/22/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 7

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2006
Date Data Arrived at EDR: 09/05/2006
Date Made Active in Reports: 10/05/2006
Number of Days to Update: 30

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/21/2007
Next Scheduled EDR Contact: 08/20/2007
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 06/05/2007
Date Data Arrived at EDR: 06/21/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 8

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/28/2007
Date Data Arrived at EDR: 04/24/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 13

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 04/30/2007
Date Data Arrived at EDR: 05/15/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 41

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 06/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 04/01/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 05/08/2007
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/26/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/05/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 06/01/2007
Next Scheduled EDR Contact: 08/27/2007
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 81

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 06/08/2007
Number of Days to Update: 42

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Annually

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

STREET AND ADDRESS INFORMATION

EDR Site Report™

2280 AVENIDA DEL DIABLO
2280 AVENIDA DEL DIABLO
ESCONDIDO, CA 92029

Inquiry Number:

July 16, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

The EDR-Site Report™ is a comprehensive presentation of government filings on a facility identified in a search of over 4 million government records from more than 600 federal, state and local environmental databases. The report is divided into three sections:

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **2280 AVENIDA DEL DIABLO** 2280 AVENIDA DEL DIABLO ESCONDIDO, CA 92029 EDR ID #93327883
WASTE MANAGEMENT Facility generates hazardous waste (RCRA)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRA/TSDF)	NO
Facility has received Notices of Violations (RCRA/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	NO
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	**YES - p4**
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility produces pesticides and has notified EPA under Section 7 of FIFRA (SSTS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	NO
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility has reported emergency releases to the soil

DATABASE: Emergency Response Notification System (ERNS)

2280 AVENIDA DEL DIABLO
2280 AVENIDA DEL DIABLO
ESCONDIDO, CA 92029
EDR ID #93327883

ERNS:

Site ID:	93327883
Site location:	2280 AVENIDA DEL DIABLO ESCONDIDO, CA 92029-
County:	SAN DIEGO
Report number:	Not reported
EPA region:	09
Spill date:	06/04/1993
Spill time:	23:31
Medium affected:	Land
Damage:	False
Damage $ amount:	0.00
Number of injured:	0
Number of fatalities:	0
Notes:	Not reported
Discharger:	UNKNOWN
Discharger address:	Not reported Not reported
Discharger county:	Not reported
C.G. Unit:	Not reported
EPA notified:	True
Initial report:	True
Updated report:	True
Spill cause:	Not reported
Spilled material:	RED PHOSPHORUS (1 OZ.)
Spill total qty:	0.00 OTH
In water:	0.00 UNK
DOT #:	UN1338
CAS:	772314
Quantity (lbs):	0.00
Description:	STORAGE LOCKERS DEA ALERTED TO DRUG MATERIAL
Action:	CLEANUP BY CONTRACTOR (APPROPRIATE TECHNOLOGIES)
Comments:	SUSPECTED PARTY WORKS ON FARM EQUIPMENT AND HAS BEEN OBSERVED DUMPING MISC OILS INTO THE GROUND

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

To maintain currency of the following federal, state and local databases, EDR contacts the appropriate government agency on a monthly or quarterly basis as required.

Elapsed ASTM days: Provides confirmation that this report meets or exceeds the 90-day updating requirement of the ASTM standard.

WASTE MANAGEMENT

RCRA: Resource Conservation and Recovery Act Information
Source: EPA
Telephone: 800-424-9346
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006 Date of Last EDR Contact: 07/16/2007
Database Release Frequency: Quarterly Date of Next Scheduled Update: 09/17/2007

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005 Date of Last EDR Contact: 06/12/2007
Database Release Frequency: Biennially Date of Next Scheduled Update: 09/10/2007

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995 Date of Last EDR Contact: 06/04/2007
Database Release Frequency: No Update Planned Date of Next Scheduled Update: 09/03/2007

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/14/2007 Date of Last EDR Contact: 06/04/2007
Database Release Frequency: Quarterly Date of Next Scheduled Update: 09/03/2007

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-566-0500
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/17/2006 Date of Last EDR Contact: 06/08/2007
Database Release Frequency: Annually Date of Next Scheduled Update: 08/06/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/05/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/02/2007
Date of Next Scheduled Update: 10/01/2007

CA AST: Aboveground Petroleum Storage Tank Facilities
Source: State Water Resources Control Board
Telephone: 916-341-5712
Registered Aboveground Storage Tanks.

Date of Government Version: 05/01/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 04/30/2007
Date of Next Scheduled Update: 07/30/2007

CA UST: Active UST Facilities
Source: SWRCB
Telephone: 866-480-1028
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 04/10/2007
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 07/11/2007
Date of Next Scheduled Update: 10/08/2007

CA LUST: Geotracker's Leaking Underground Fuel Tank Report
Source: State Water Resources Control Board
Telephone: Not reported
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 04/10/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/11/2007
Date of Next Scheduled Update: 10/08/2007

ERNS: Emergency Response Notification System
Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Database Release Frequency: Annually
Date of Last EDR Contact: 04/24/2007
Date of Next Scheduled Update: 07/23/2007

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/05/2007
Database Release Frequency: Annually
Date of Last EDR Contact: 04/17/2007
Date of Next Scheduled Update: 07/16/2007

WASTE DISPOSAL

NPL: National Priority List
Source: EPA
Telephone: Not reported
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/20/2007
Date Made Active at EDR: 07/05/2007
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 05/03/2007
Elapsed ASTM Days: 63
Date of Last EDR Contact: 05/03/2007

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: Not reported
A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/20/2007
Date Made Active at EDR: 07/05/2007
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 05/03/2007
Elapsed ASTM Days: 63
Date of Last EDR Contact: 05/03/2007

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: Not reported
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/20/2007
Date Made Active at EDR: 06/25/2007
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 05/03/2007
Elapsed ASTM Days: 53
Date of Last EDR Contact: 05/03/2007

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-412-9810
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/27/2007
Date Made Active at EDR: 04/27/2007
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/21/2007
Elapsed ASTM Days: 37
Date of Last EDR Contact: 06/20/2007

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Source: EPA
Telephone: 703-412-9810
Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 03/21/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/15/2007
Date of Next Scheduled Update: 09/17/2007

ROD: Records Of Decision
Source: EPA
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/27/2007
Database Release Frequency: Annually
Date of Last EDR Contact: 07/02/2007
Date of Next Scheduled Update: 10/01/2007

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 202-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Made Active at EDR: 03/30/1994
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 02/02/1994
Elapsed ASTM Days: 56
Date of Last EDR Contact: 05/21/2007

CA SWF/LF (SWIS): Solid Waste Information System
Source: Integrated Waste Management Board
Telephone: 916-341-6320
Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/11/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/13/2007
Date of Next Scheduled Update: 09/10/2007

MULTIMEDIA

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-566-0250
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2005
Database Release Frequency: Annually
Date of Last EDR Contact: 06/19/2007
Date of Next Scheduled Update: 09/17/2007

SSTS: Section 7 Tracking Systems
Source: EPA
Telephone: 202-564-4203
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Database Release Frequency: Annually
Date of Last EDR Contact: 07/16/2007
Date of Next Scheduled Update: 10/15/2007

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-5521
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Database Release Frequency: N/A
Date of Last EDR Contact: 07/16/2007
Date of Next Scheduled Update: 10/15/2007

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/13/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/15/2007
Date of Next Scheduled Update: 09/17/2007

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA
Telephone: 202-566-1667
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/13/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/15/2007
Date of Next Scheduled Update: 09/17/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

FINDS: Facility Index System/Facility Registry System
Source: EPA
Telephone: Not reported
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/12/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/02/2007
Date of Next Scheduled Update: 10/01/2007

RMP: Risk Management Plans
Source: Environmental Protection Agency
Telephone: 202-564-8600
When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2007
Database Release Frequency: Varies
Date of Last EDR Contact: 05/21/2007
Date of Next Scheduled Update: 08/20/2007

STORMWATER: Storm Water General Permits
Source: Environmental Protection Agency
Telephone: 202-564-0746
A listing of all facilities with Storm Water General Permits.

Date of Government Version: 06/02/2005
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/03/2007
Date of Next Scheduled Update: 10/01/2007

US ENG CONTROLS: Engineering Controls Sites List
Source: Environmental Protection Agency
Telephone: 703-603-8905
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 04/20/2007
Database Release Frequency: Varies
Date of Last EDR Contact: 07/02/2007
Date of Next Scheduled Update: 10/01/2007

US INST CONTROL: Sites with Institutional Controls
Source: Environmental Protection Agency
Telephone: 703-603-8905
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 04/20/2007
Database Release Frequency: Varies
Date of Last EDR Contact: 07/02/2007
Date of Next Scheduled Update: 10/01/2007

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
Source: EPA Region 1
Telephone: 617-918-1313
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Database Release Frequency: Varies
Date of Last EDR Contact: 05/21/2007
Date of Next Scheduled Update: 08/20/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

RADINFO: Radiation Information Database
Source: Environmental Protection Agency
Telephone: 202-343-9775
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 05/01/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/03/2007
Date of Next Scheduled Update: 07/30/2007

LUCIS: Land Use Control Information System
Source: Department of the Navy
Telephone: 843-820-7326
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Database Release Frequency: Varies
Date of Last EDR Contact: 06/11/2007
Date of Next Scheduled Update: 09/10/2007

CDL: Clandestine Drug Labs
Source: Drug Enforcement Administration
Telephone: 202-307-1000
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/29/2007
Date of Next Scheduled Update: 09/24/2007

CA HIST CAL-SITES: Historical Calsites Database
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 05/25/2007
Date of Next Scheduled Update: 08/27/2007

CA CA BOND EXP. PLAN: Bond Expenditure Plan
Source: Department of Health Services
Telephone: 916-255-2118
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 05/31/1994
Date of Next Scheduled Update: Not reported

CA SCH: School Property Evaluation Program
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/29/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/30/2007
Date of Next Scheduled Update: 08/27/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

CA TOXIC PITS: Toxic Pits Cleanup Act Sites
Source: State Water Resources Control Board
Telephone: 916-227-4364
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 04/30/2007
Date of Next Scheduled Update: 07/30/2007

CA WMUDS/SWAT: Waste Management Unit Database
Source: State Water Resources Control Board
Telephone: 916-227-4448
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/04/2007
Date of Next Scheduled Update: 09/03/2007

CA CA WDS: Waste Discharge System
Source: State Water Resources Control Board
Telephone: 916-341-5227
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/20/2007
Date of Next Scheduled Update: 09/17/2007

CA CORTESE: "Cortese" Hazardous Waste & Substances Sites List
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 04/23/2007
Date of Next Scheduled Update: 07/23/2007

CA SWRCY: Recycler Database
Source: Department of Conservation
Telephone: 916-323-3836
A listing of recycling facilities in California.

Date of Government Version: 04/09/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/11/2007
Date of Next Scheduled Update: 10/08/2007

CA CA FID UST: Facility Inventory Database
Source: California Environmental Protection Agency
Telephone: 916-341-5851
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 12/28/1998
Date of Next Scheduled Update: Not reported

CA SLIC: Statewide SLIC Cases
Source: State Water Resources Control Board
Telephone: 866-480-1028
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/10/2007
Database Release Frequency: Varies
Date of Last EDR Contact: 07/11/2007
Date of Next Scheduled Update: 10/08/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

CA Sacramento Co. CS: CS - Contaminated Sites
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/04/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/01/2007
Date of Next Scheduled Update: 07/30/2007

CA CS: Contaminated Sites
Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/24/2007
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 04/23/2007
Date of Next Scheduled Update: 07/23/2007

CA HIST LUST SANTA CLARA: Fuel Leak Site Activity Report
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 06/25/2007
Date of Next Scheduled Update: 09/24/2007

CA AOCONCERN: San Gabriel Valley Areas of Concern
Source: EPA Region 9
Telephone: 415-972-3178
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 07/16/2007
Date of Next Scheduled Update: 10/15/2007

CA HIST UST: Hazardous Substance Storage Container Database
Source: State Water Resources Control Board
Telephone: 916-341-5851
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 07/26/2001
Date of Next Scheduled Update: Not reported

CA LIENS: Environmental Liens Listing
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/07/2007
Database Release Frequency: Varies
Date of Last EDR Contact: 02/22/2007
Date of Next Scheduled Update: 08/06/2007

CA CONTRA COSTA CO. SITE LIST: Site List
Source: Contra Costa Health Services Department
Telephone: 925-646-2286
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/29/2007
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 05/29/2007
Date of Next Scheduled Update: 08/27/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

CA PLACER CO. MS: Master List of Facilities
Source: Placer County Health and Human Services
Telephone: 530-889-7312
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 04/04/2007
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 06/18/2007
Date of Next Scheduled Update: 09/17/2007

CA SAN JOSE HAZMAT: Hazardous Material Facilities
Source: City of San Jose Fire Department
Telephone: 408-277-4659
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 06/11/2007
Database Release Frequency: Annually
Date of Last EDR Contact: 06/04/2007
Date of Next Scheduled Update: 09/03/2007

CA Fresno Co. CUPA: CUPA Resources List
Source: Dept. of Community Health
Telephone: 559-445-3271
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/09/2007
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 05/07/2007
Date of Next Scheduled Update: 08/06/2007

CA SWEEPS UST: SWEEPS UST Listing
Source: State Water Resources Control Board
Telephone: Not reported
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 06/03/2005
Date of Next Scheduled Update: Not reported

CA CHMIRS: California Hazardous Material Incident Report System
Source: Office of Emergency Services
Telephone: 916-845-8400
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2005
Database Release Frequency: Varies
Date of Last EDR Contact: 05/21/2007
Date of Next Scheduled Update: 08/20/2007

CA NOTIFY 65: Proposition 65 Records
Source: State Water Resources Control Board
Telephone: 916-445-3846
Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 07/16/2007
Date of Next Scheduled Update: 10/15/2007

CA LA Co. Site Mitigation: Site Mitigation List
Source: Community Health Services
Telephone: 323-890-7806
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 12/04/2006
Database Release Frequency: Annually
Date of Last EDR Contact: 05/14/2007
Date of Next Scheduled Update: 08/13/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

CA Orange Co. Industrial Site: List of Industrial Site Cleanups
Source: Health Care Agency
Telephone: 714-834-3446
Petroleum and non-petroleum spills.

Date of Government Version: 06/01/2007
Database Release Frequency: Annually
Date of Last EDR Contact: 06/06/2007
Date of Next Scheduled Update: 09/03/2007

CA DEED: Deed Restriction Listing
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 04/03/2007
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 07/03/2007
Date of Next Scheduled Update: 10/01/2007

CA VCP: Voluntary Cleanup Program Properties
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/29/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/30/2007
Date of Next Scheduled Update: 08/27/2007

CA DRYCLEANERS: Cleaner Facilities
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 04/18/2005
Database Release Frequency: Annually
Date of Last EDR Contact: 06/25/2007
Date of Next Scheduled Update: 10/01/2007

CA LOS ANGELES CO. HMS: HMS: Street Number List
Source: Department of Public Works
Telephone: 626-458-3517
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/31/2007
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 05/14/2007
Date of Next Scheduled Update: 08/13/2007

CA VENTURA CO. BWT: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/30/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/12/2007
Date of Next Scheduled Update: 09/10/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

CA WIP: Well Investigation Program Case List
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 03/01/2007
Database Release Frequency: Varies
Date of Last EDR Contact: 04/27/2007
Date of Next Scheduled Update: 07/23/2007

CA CDL: Clandestine Drug Labs
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2006
Database Release Frequency: Varies
Date of Last EDR Contact: 04/23/2007
Date of Next Scheduled Update: 07/23/2007

CA Sacramento Co. ML: ML - Regulatory Compliance Master List
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/01/2007
Date of Next Scheduled Update: 07/30/2007

CA SAN DIEGO CO. HMMD: Hazardous Materials Management Division Database
Source: Hazardous Materials Management Division
Telephone: 619-338-2268
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2005
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/05/2007
Date of Next Scheduled Update: 10/01/2007

CA San Bern. Co. Permit: Hazardous Material Permits
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/23/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 06/04/2007
Date of Next Scheduled Update: 09/03/2007

CA San Mateo Co. BI: Business Inventory
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 04/30/2007
Database Release Frequency: Annually
Date of Last EDR Contact: 07/09/2007
Date of Next Scheduled Update: 10/08/2007

CA RESPONSE: State Response Sites
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/29/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/30/2007
Date of Next Scheduled Update: 08/27/2007

SECTION 3: DATABASES SEARCHED AND UPDATE DATES

...Continued...

CA HAZNET: Facility and Manifest Data
Source: California Environmental Protection Agency
Telephone: 916-255-1136
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2005
Database Release Frequency: Annually
Date of Last EDR Contact: 05/11/2007
Date of Next Scheduled Update: 08/06/2007

CA EMI: Emissions Inventory Data
Source: California Air Resources Board
Telephone: 916-322-2990
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2005
Database Release Frequency: Varies
Date of Last EDR Contact: 04/17/2007
Date of Next Scheduled Update: 07/16/2007

CA ENVIROSTOR: EnviroStor Database
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/29/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/30/2007
Date of Next Scheduled Update: 08/27/2007

CA SAN DIEGO CO. SAM: Environmental Case Listing
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/29/2007
Database Release Frequency: Varies
Date of Last EDR Contact: 07/03/2007
Date of Next Scheduled Update: 10/01/2007

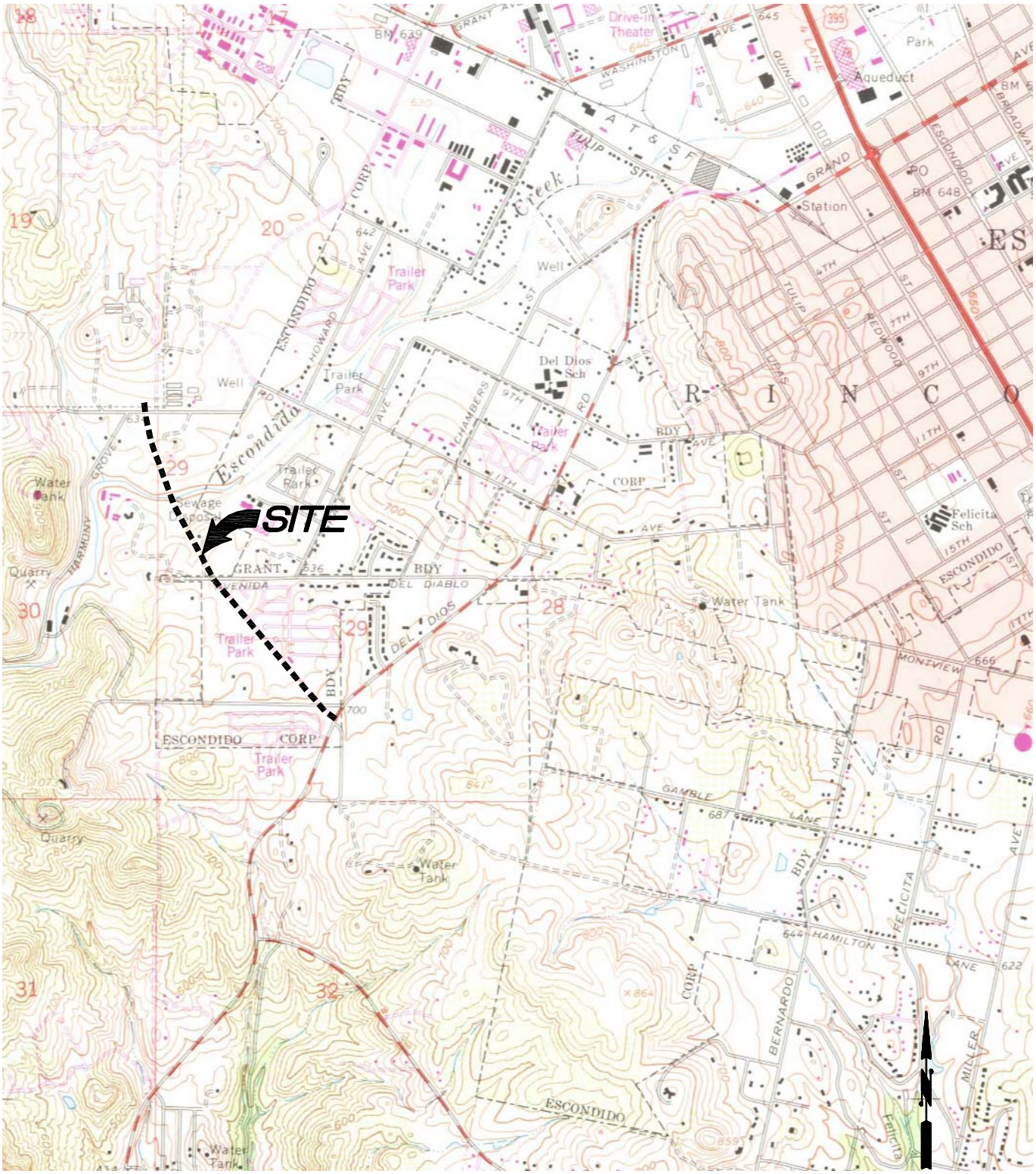
POTENTIAL SUPERFUND LIABILITY

PRP: Potentially Responsible Parties
Source: EPA
Telephone: 202-564-6064
A listing of verified Potentially Responsible Parties

Date of Government Version: 03/07/2007
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/02/2007
Date of Next Scheduled Update: 10/01/2007

APPENDIX B

Plates



SOURCE: U.S.G.S. 7.5' topographic series, Escondido, California quadrangle dated 1968, photorevised 1975.

ATTACHED IMAGES: Images: 85819p1.jpg
ATTACHED XREFS:
DB-L:\2007\CADD
CAD FILE: L:\2007\CADD\85819\ LAYOUT: Layout1

KLEINFELDER
620 West 16th Street, Unit F
Long Beach, CA 90813
PH. (562) 432-1696 FAX. (562) 432-1796
www.kleinfelder.com

SITE VICINITY MAP

CITRACADO PARKWAY CONSTRUCTION PROJECT
ESCONDIDO, CALIFORNIA

DRAWN BY:	D. FAHRNEY
REVISED BY:	D. FAHRNEY
CHECKED BY:	P. DIZON
PLATE	1

DRAWN: 07/27/07	APPROVED BY:_____	PROJECT NO. 85819	FILE NAME: 85819p1.dwg

EXPLANATION

6 → LOCATION AND DIRECTION IN WHICH PHOTOGRAPH WAS TAKEN

KLEINFELDER

620 West 16th Street, Unit F
Long Beach, CA 90813
PH. (562) 432-1696 FAX. (562) 432-1796
www.kleinfelder.com

SITE MAP

CITRACADO PARKWAY CONSTRUCTION PROJECT
ESCONDIDO, CALIFORNIA

DRAWN BY:	D. FAHRNEY
REVISED BY:	D. FAHRNEY
CHECKED BY:	P. DIZON
PLATE	2

DRAWN: 07/27/07 | APPROVED BY:_____ | PROJECT NO. 85819 | FILE NAME: 85819p2.dwg

ATTACHED IMAGES: Images: Citracado Aerial - Figure.tif
ATTACHED XREFS:
DB-L:\2007\CADD
CAD FILE: L:\2007\CADD\85819\ LAYOUT: Layout1

1 – VIEW OF THE SITE FROM CITRACADO PARKWAY AND ANDREASEN DRIVE, FACING SOUTHEAST. A WELL HOUSE IS VISIBLE IN THE DISTANCE.

2 – VIEW OF CITRACADO PARKWAY EXTENSION AREA, NORTH OF ESCONDIDO CREEK, FACING SOUTHEAST.

ATTACHED IMAGES: Images: Photo 1.JPG Images: Photo 2.JPG
ATTACHED XREFS:
DB-L:\2007\CADD CAD FILE: L:\2007\CADD\85819\ LAYOUT: Layout1

KLEINFELDER
620 West 16th Street, Unit F
Long Beach, CA 90813
PH. (562) 432-1696 FAX. (562) 432-1796
www.kleinfelder.com

SITE PHOTOGRAPHS

CITRACADO PARKWAY CONSTRUCTION PROJECT
ESCONDIDO, CALIFORNIA

DRAWN BY:	D. FAHRNEY
REVISED BY:	D. FAHRNEY
CHECKED BY:	P. DIZON
PLATE	3

DRAWN: 06/06/07 APPROVED BY:_____ PROJECT NO. 83075 FILE NAME: 85819p3.dwg

3 – VIEW OF CITRACADO PARKWAY EXTENSION AREA, SOUTH OF ESCONDIDO CREEK, FACING NORHTWEST. AN APPROXIMATELY 200–GALLON AST IS VISIBLE TO THE LEFT.

4 – VIEW OF CITRACADO PARKWAY FROM JOHNSON ROAD, FACING NORTHWEST.

ATTACHED IMAGES: Images: Photo 3.JPG Images: Photo 4.JPG
ATTACHED XREFS:
DB-L:\2007\CADD
CAD FILE: L:\2007\CADD\85819\ LAYOUT: Layout1

KLEINFELDER
620 West 16th Street, Unit F
Long Beach, CA 90813
PH. (562) 432-1696 FAX. (562) 432-1796
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SITE PHOTOGRAPHS

CITRACADO PARKWAY CONSTRUCTION PROJECT
ESCONDIDO, CALIFORNIA

DRAWN BY:	D. FAHRNEY
REVISED BY:	D. FAHRNEY
CHECKED BY:	P. DIZON
PLATE	4

DRAWN: 06/06/07	APPROVED BY:_____	PROJECT NO. 83075	FILE NAME: 85819p4.dwg

5 – VIEW OF ELECTRICAL TRANSFORMERS AND UNDERGROUND UTILITY VAULT BY THE SOUTHEAST CORNER OF CITRACADO PARKWAY AND AVENIDA DEL DIABLO, FACING SOUTHEAST.

6 – NORTH–FACING VIEW OF METAL AND POSSIBLE TRANSITE PIPING. THE PURPOSE OF THE FEATURE IS NOT KNOWN.

ATTACHED IMAGES: Images: Photo 5.JPG Images: Photo 6.JPG
ATTACHED XREFS:
DB-L:\2007\CADD
CAD FILE: L:\2007\CADD\85819\ LAYOUT: Layout1

KLEINFELDER
620 West 16th Street, Unit F
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PH. (562) 432-1696 FAX. (562) 432-1796
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SITE PHOTOGRAPHS

CITRACADO PARKWAY CONSTRUCTION PROJECT
ESCONDIDO, CALIFORNIA

DRAWN BY:	D. FAHRNEY
REVISED BY:	D. FAHRNEY
CHECKED BY:	P. DIZON
PLATE	5

DRAWN: 06/06/07	APPROVED BY:_____	PROJECT NO. 83075	FILE NAME: 85819p5.dwg

APPENDIX C

Aerial Photographs

The EDR Aerial Photo Decade Package

CITRACADO PARKWAY
CITRACADO PARKWAY
ESCONDIDO, CA 92029

Inquiry Number: 1976024.2

July 11, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography July 11, 2007

Target Property:

CITRACADO PARKWAY CONSTRUCTION PROJECT
ESCONDIDO, CA 92029

Year	***Scale***	***Details***	***Source***
1939	Aerial Photograph. Scale: 1"=555'	Flight Year: 1939	Fairchild
1947	Aerial Photograph. Scale: 1"=655'	Flight Year: 1947	Jack Ammann
1953	Aerial Photograph. Scale: 1"=555'	Flight Year: 1953	Park
1963	Aerial Photograph. Scale: 1"=555'	Flight Year: 1963	Cartwright
1974	Aerial Photograph. Scale: 1"=600'	Flight Year: 1974	AMI
1989	Aerial Photograph. Scale: 1"=666'	Flight Year: 1989	USGS
1995	Aerial Photograph. Scale: 1"=666'	Flight Year: 1995	USGS
2002	Aerial Photograph. Scale: 1"=666'	Flight Year: 2002	USGS


INQUIRY #: 1976024.2
YEAR: 1939
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N
EDR Environmental Data Resources Inc


INQUIRY #: 1976024.2
YEAR: 1947
= 655'
N
EDR Environmental Data Resources Inc


INQUIRY #: 1976024.2
YEAR: 1953
= 555'
N
EDR Environmental Data Resources Inc


INQUIRY #: 1976024.2
YEAR: 1963
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N


INQUIRY #: 1976024.2
YEAR: 1974
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N


INQUIRY #: 1976024.2
YEAR: 1989
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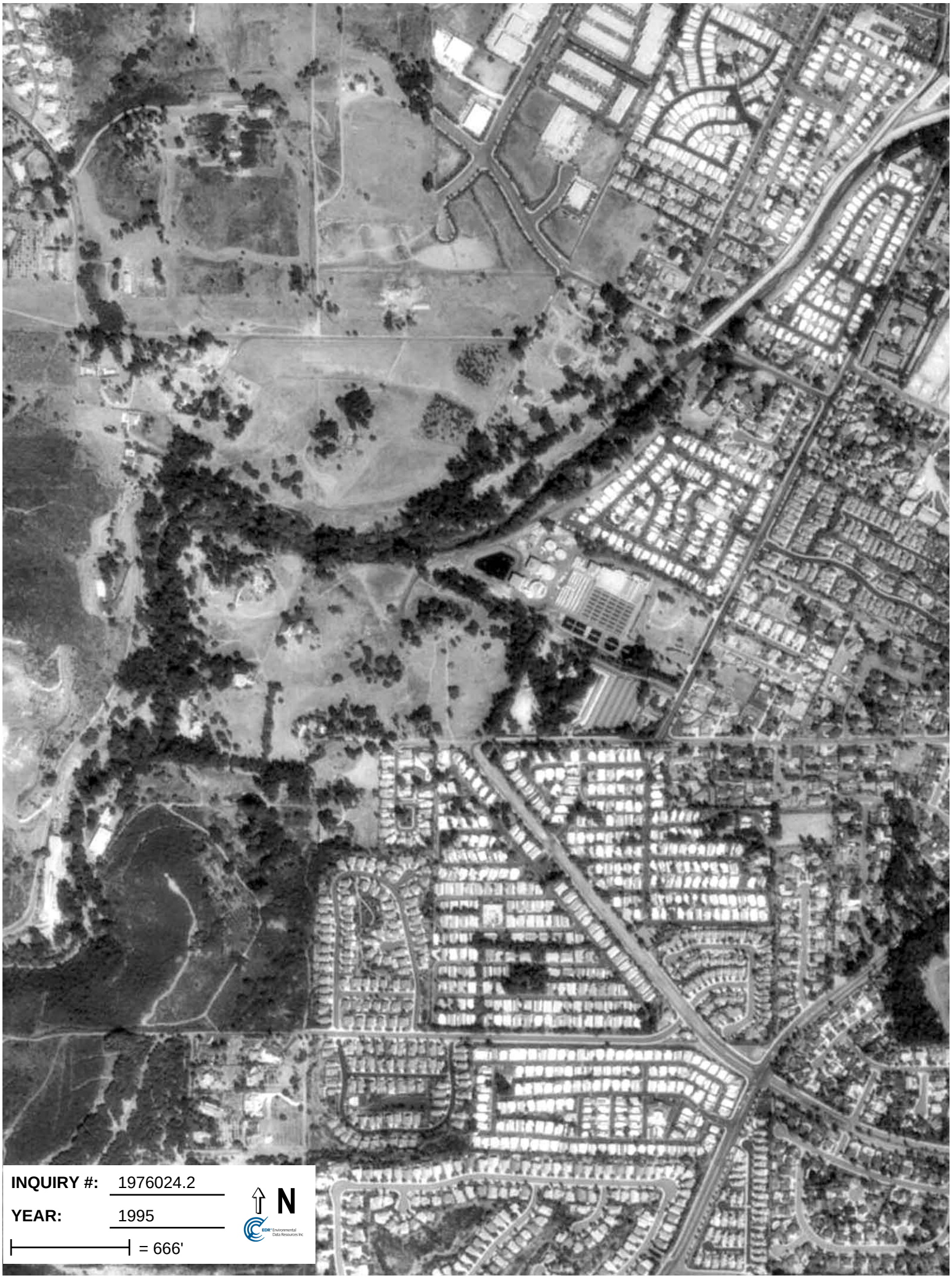
N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= 666'
N

APPENDIX D

Topographic Maps

EDR Historical Topographic Map Report

CITRACADO PARKWAY CONSTRUCTION PROJECT

CITRACADO PARKWAY CONSTRUCTION PROJECT

ESCONDIDO, CA 92029

Inquiry Number: 1976024.3

July 11, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

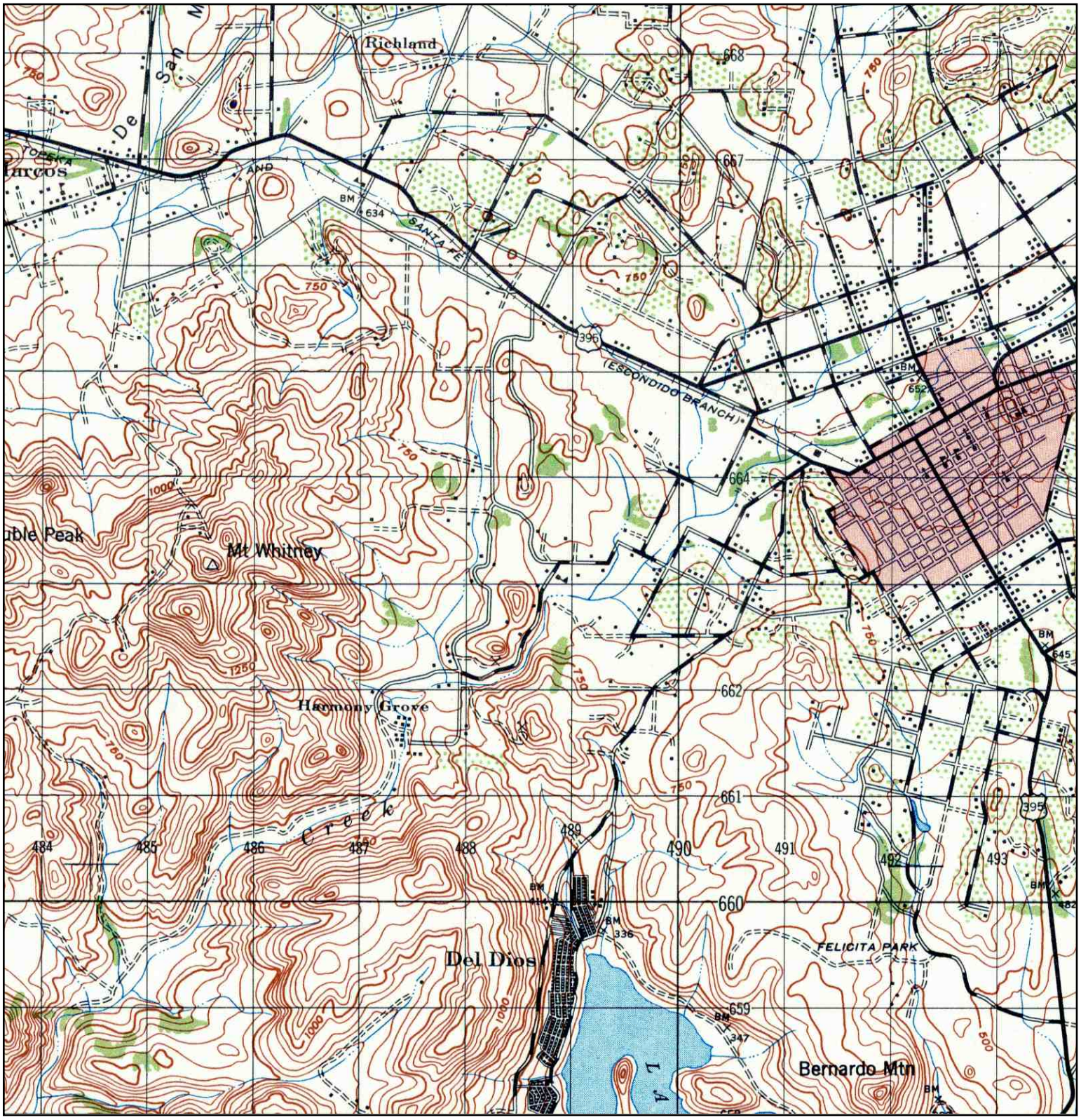
Historical Topographic Map

N	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1901 SERIES: 15 SCALE: 1:62500	SITE NAME: CITRACADO PARKWAY CONSTRUCTION PROJECT ADDRESS: CITRACADO PARKWAY CONSTRUCTION PROJECT ESCONDIDO, CA 92029 LAT/LONG: /	CLIENT: Kleinfelder, Inc. CONTACT: PAOLO DIZON INQUIRY#: 1976024.3 RESEARCH DATE: 07/11/2007

Historical Topographic Map

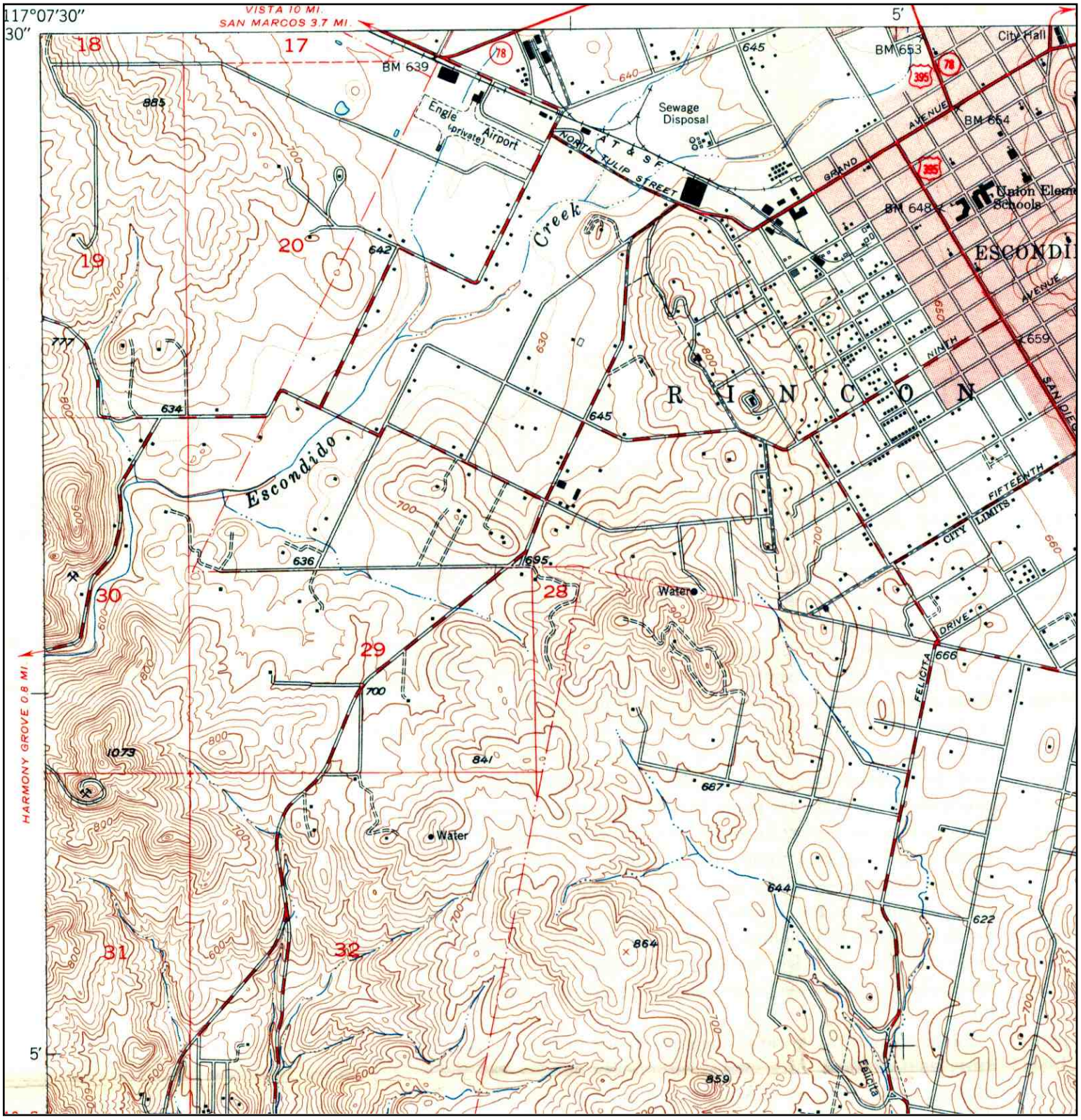
N	TARGET QUAD NAME: SOUTHERN CA SHEET 2 MAP YEAR: 1904 SERIES: 60 SCALE: 1:250000	SITE NAME: CITRACADO PARKWAY CONSTRUCTION PROJECT ADDRESS: CITRACADO PARKWAY CONSTRUCTION PROJECT ESCONDIDO, CA 92029 LAT/LONG: /	CLIENT: Kleinfelder, Inc. CONTACT: PAOLO DIZON INQUIRY#: 1976024.3 RESEARCH DATE: 07/11/2007

Historical Topographic Map



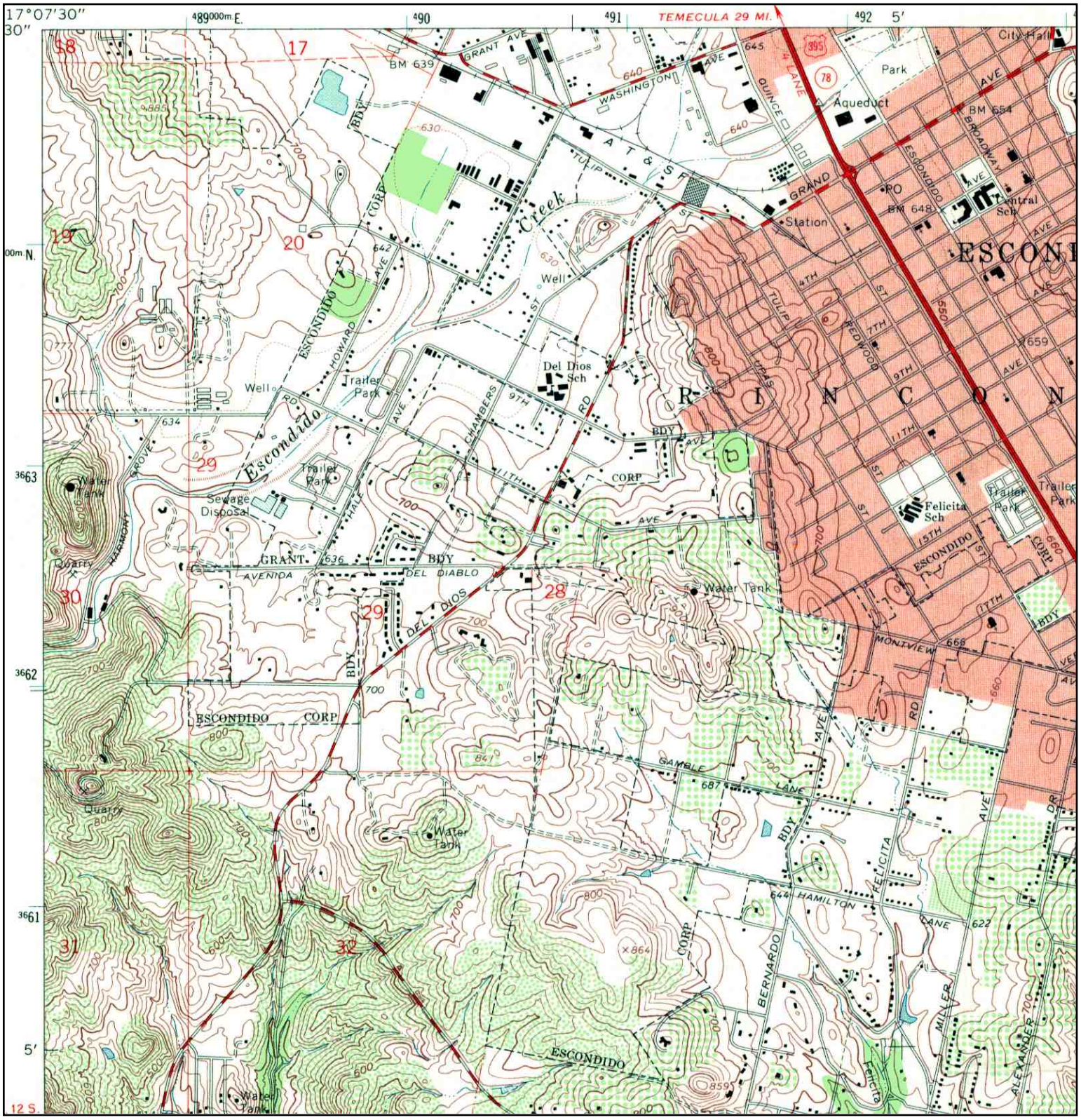
N	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1947 SERIES: 15 SCALE: 1:50000	SITE NAME: CITRACADO PARKWAY CONSTRUCTION PROJECT ADDRESS: CITRACADO PARKWAY CONSTRUCTION PROJECT ESCONDIDO, CA 92029 LAT/LONG: /	CLIENT: Kleinfelder, Inc. CONTACT: PAOLO DIZON INQUIRY#: 1976024.3 RESEARCH DATE: 07/11/2007

Historical Topographic Map



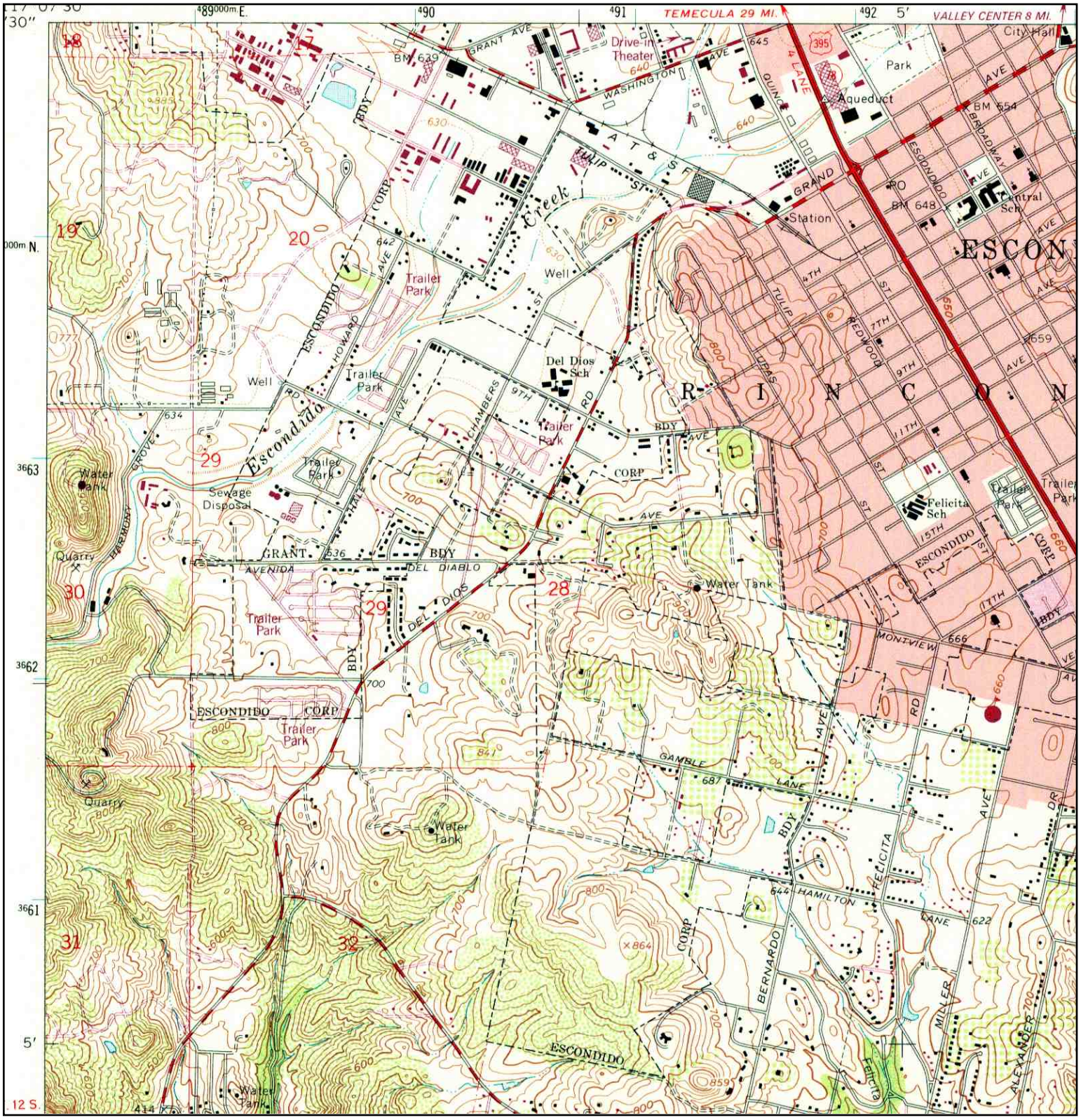
N	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1949 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CITRACADO PARKWAY CONSTRUCTION PROJECT ADDRESS: CITRACADO PARKWAY CONSTRUCTION PROJECT ESCONDIDO, CA 92029 LAT/LONG: /	CLIENT: Kleinfelder, Inc. CONTACT: PAOLO DIZON INQUIRY#: 1976024.3 RESEARCH DATE: 07/11/2007

Historical Topographic Map



N	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CITRACADO PARKWAY CONSTRUCTION PROJECT ADDRESS: CITRACADO PARKWAY CONSTRUCTION PROJECT ESCONDIDO, CA 92029 LAT/LONG: /	CLIENT: Kleinfelder, Inc. CONTACT: PAOLO DIZON INQUIRY#: 1976024.3 RESEARCH DATE: 07/11/2007

Historical Topographic Map



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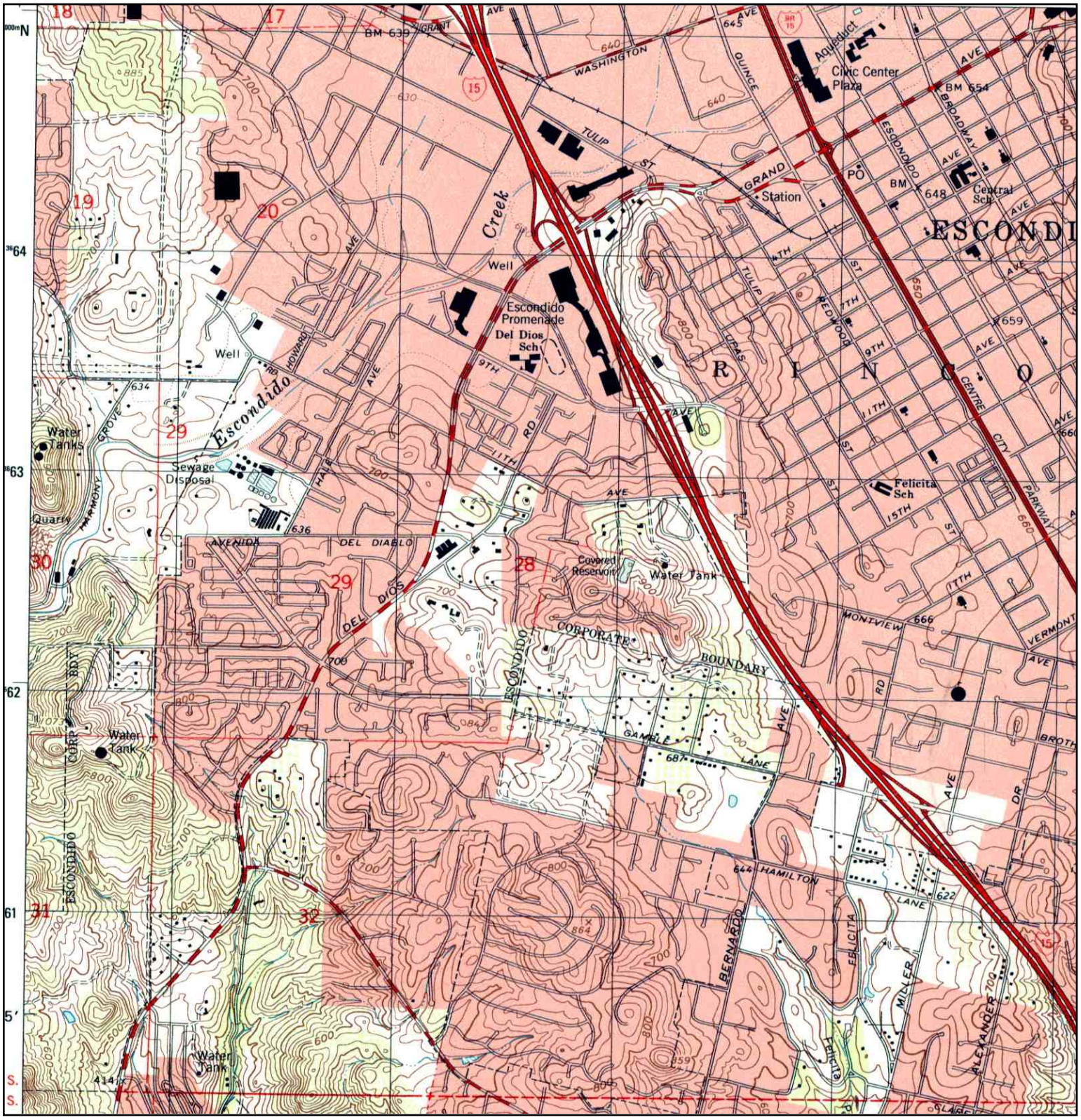
	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1975 PHOTOREVISED FROM:1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CITRACADO PARKWAY CONSTRUCTION PROJECT ADDRESS: CITRACADO PARKWAY CONSTRUCTION PROJECT ESCONDIDO, CA 92029 LAT/LONG: /	CLIENT: Kleinfelder, Inc. CONTACT: PAOLO DIZON INQUIRY#: 1976024.3 RESEARCH DATE: 07/11/2007

Historical Topographic Map



N	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1996 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CITRACADO PARKWAY CONSTRUCTION PROJECT ADDRESS: CITRACADO PARKWAY CONSTRUCTION PROJECT ESCONDIDO, CA 92029 LAT/LONG: /	CLIENT: Kleinfelder, Inc. CONTACT: PAOLO DIZON INQUIRY#: 1976024.3 RESEARCH DATE: 07/11/2007