Partial Recirculated Draft Supplemental Environmental Impact Report
NorthLake Specific Plan
Los Angeles County, California

SCH No. 2015031080

Prepared for

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April 2025

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ACRONYM LIST

ADT	Average daily traffic
AG	Attorney General
BMPs	Best Management Practices
BTAR	Biological Technical Assessment Report
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAA	Creek Avoidance Alternative
CAPCOA	California Air Pollution Control Officers Association
CBB	Crotch's Bumblebee
CBR	Considered but Rejected
CCR's	codes, covenants, and restrictions
CDFW	California Department of Fish and Wildlife
CE	Conservation Easement
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNRL	California Natural Resources Agency
CO	carbon monoxide
County	County of Los Angeles
CRPR	California Rare Plant Rank
CWA	Clean Water Act
dBA	decibel
DCS	Disaster Communications Service
DSEIR	Draft Supplemental EIR
EIR	Environmental Impact Report
FESA	Federal Endangered Species Act
FSEIR	Final Supplemental EIR
ft	feet
GHG	greenhouse gas
HMMP	Habitat Mitigation and Monitoring Plan
HOA	homeowner's association
LACDRP	Los Angeles County Department of Regional Planning
LACoFD	Los Angeles Country Fire Department
LACPW	Los Angeles County Public Works
LASD	Los Angeles County Sheriff's Department
LID	Low Impact Development
LOS	Level of service
MBTA	Migratory Bird Treaty Act
mcy	million cubic yards
MMRP	Mitigation Monitoring and Reporting Program
MMs	Mitigation Measures
NCCP/HCP	Natural Community Conservation Plan/Habitat Conservation Plan
NEPA	National Environmental Policy Act
NOA	Notice of Availability
NOP	Notice of Preparation
NLSP	NorthLake Specific Plan
NPPA	Native Plant Protection Act
PCAA	Partial Creek Avoidance Alternative

PDF	Project Design Feature
PM10	respirable particulate matter with a diameter of 10 microns or less
PM2.5	fine particulate matter with a diameter of 2.5 microns or less
PNA	Parks Needs Assessment
PNA+	Parks Needs Assessment Plus
PRC	Public Resources Code
RHNA	Regional Housing Needs Assessment
RPDSEIR	Recirculated Portions of the Draft Supplemental EIR
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SEIR	Supplemental Environmental Impact Report
sf	Square feet
SP	Stock Pond
SWRCB	State Water Resources Control Board
TIA	Traffic Impact Analysis
USEPA	U.S. Environmental Protection Agency
USFW	U.S. Fish and Wildlife Service
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compounds
VPHPL	vehicles per hour per lane
WST	Western Spadefoot Toad

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SECTION 1.0 INTRODUCTION

1.1 PURPOSE

The County of Los Angeles (County), as lead agency, prepared this document, titled Recirculated Portions of the Draft Supplemental EIR (RPDSEIR), to analyze the potential environmental impacts of the *NorthLake Specific Plan* (NLSP or Project) under the California Environmental Quality Act (CEQA). The County prepared this RPDSEIR in accordance with the Los Angeles Superior Court ruling on the Center For Biological Diversity and Endangered Habitats League v. County Of Los Angeles, et al, and Real Parties in Interest, Northlake Associates, et al, Case No. 19STCPO1610 ruling (Court Ruling), dated January 11, 2021, which granted in part and denied in part the Center For Biological Diversity and Endangered Habitats League's Petition for Writ of Mandate. A copy of the Court Ruling is provided in Appendix A.

The Court Ruling held that the Supplemental Environmental Impact Report (SEIR) (SCH No. 2015031080) for the Project, certified by the County on September 25, 2018, and consisting of the Draft Supplemental EIR (DSEIR), the Final Supplemental EIR (FSEIR) and associated errata, failed to comply with CEQA because it contained: (1) inadequate alternatives analysis (for failing to fully analyze a creek avoidance alternative); (2) inadequate Western Spadefoot Toad (WST) baseline assessment and, therefore, inadequate mitigation (to recreate baseline conditions; mitigation inadequate in detail and commitment); and (3) improper deferred mitigation as to rare plants (measure lacked sufficient detail). The Court denied the Petition for Writ of Mandate regarding: (1) impacts to mountain lions/wildlife crossings, (2) aesthetics, (3) air quality/public health, (4) wildfire impacts, and (5) recirculation.

This document does not revise the SEIR in any respect other than as directed by the Court, as the Court Ruling upheld all other aspects of the SEIR. As the RPDSEIR is limited to a few portions of the SEIR, pursuant to CEQA Guidelines Section 15088.5, subdivision (c), the DSEIR and FSEIR are not being recirculated for public review and comment.

The discussions which follow adhere to the general document structure and sequence presented in the SEIR and are based on a simple format in which each individual portion of the SEIR deemed inadequate by the Court Ruling is presented, with appropriate responsive discussion and/or analysis. If this RPDSEIR is approved by the County, it will become the final volume of the SEIR. The analysis in this document relies on all relevant information in the SEIR, its appendices and errata, as well as the new or additional sources of information identified herein.

This document has been made available for public review and comment in accordance with the procedures contained in the Notice of Availability. Written comments may be submitted to Mr. Jodie Sackett, Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012. As CEQA Guidelines Section 15088.5, subdivision (f)(2) permits, the County requests reviewers to limit the scope of their comments to that material which is addressed within the text of the revised portions and the appendices included in this RPDSEIR. The County also requests that reviewers not make new comments on matters not included in this RPDSEIR. Responses to all comments received during the review period regarding the environmental analysis in this RPDSEIR will be provided in a separate document – a Revised Portions of the Final Supplemental EIR (Revised PFSEIR). Pursuant to CEQA Guidelines Section 15088.5, subdivision (f)(2)(ii), written responses will be prepared only to comments received regarding this RPDSEIR. The Revised PFSEIR will provide the basis for County decision-makers to consider the environmental implications of the Project as well as possible ways to mitigate any significant environmental impacts. Prior to making a decision on the Project, the County must certify that the Revised PFSEIR has been completed in compliance with CEQA, was presented

to the County's decision-making body, that the decision-making body reviewed and considered the information contained in the Revised PFSEIR prior to approving the Project, and that the Revised PFSEIR reflects the lead agency's independent judgment and analysis.

1.2 PROJECT SUMMARY

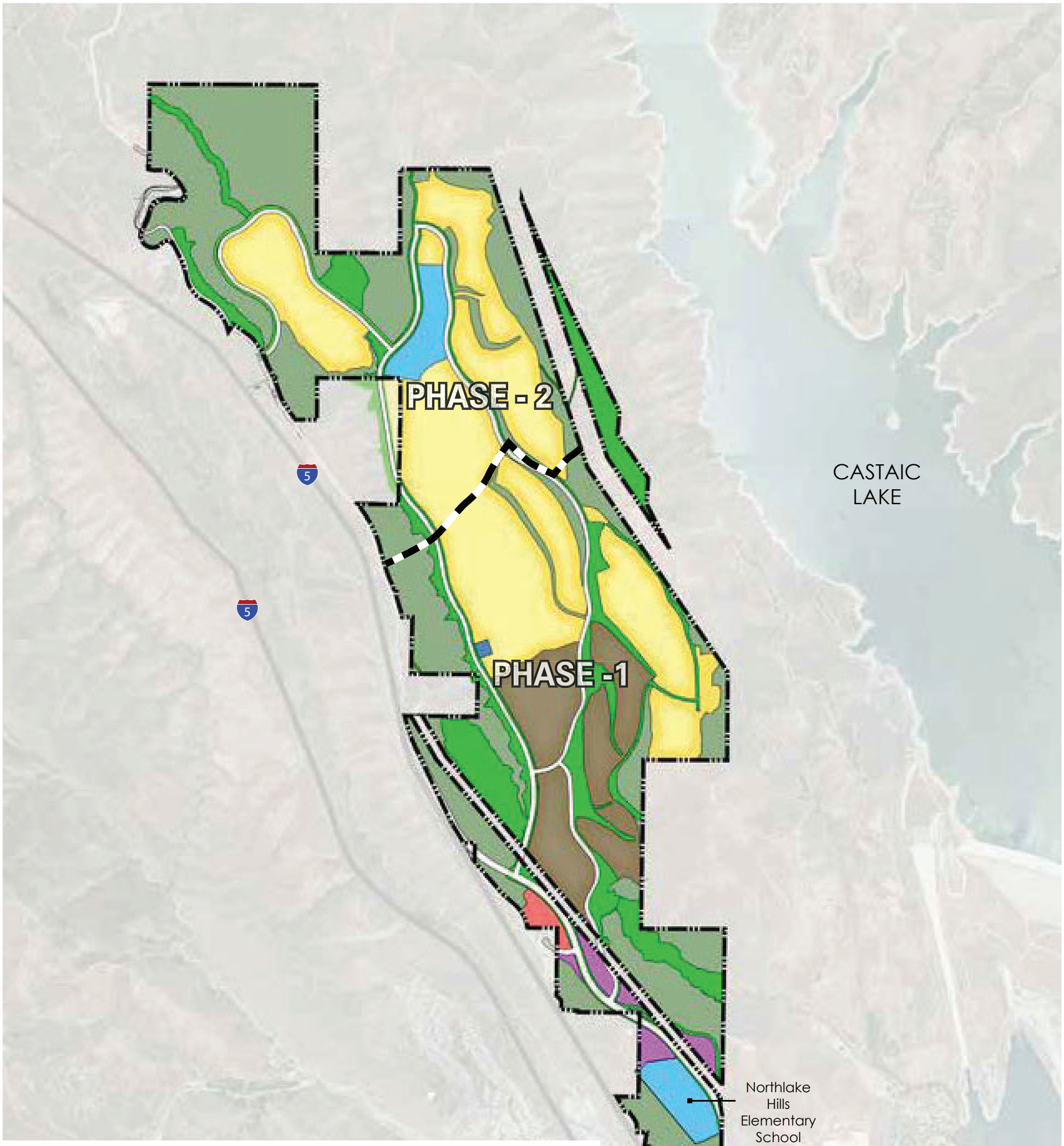
The previously approved Project consists of development of Phase 1, Phase 2, and associated off-site external map improvements in both Phase 1 and Phase 2 totaling 65.13 acres, including remedial grading, drainage features, and road and utility alignments. Phase 1 comprises (1) development of a 720-acre portion of the Project Site with a total of 2,295 dwelling units, including 288 single-family units on approximately 41.3 acres, 1,341 multi-family units on approximately 107 acres, 345 senior multi-family units on approximately 49 acres, 315 affordable units and 6 market-rate live/work units (included within 20 acres of commercial use). Phase 1 also includes, and lots are also provided for commercial development (22 acres), open space and parks (412 acres), roadways (86 acres), school pad (21 acres) and a fire station pad (1 acre), as shown on Figure 1, Previously Approved Land Use Plan.

The remainder of the Project Site, referred to as the Phase 2 area, would be developed with 855 single family homes, 386 acres of parks, trails, and open space, 23 acres of school uses, and 36 acres of associated roadway and infrastructure improvements. Phase 2 is included in Vesting Tentative Tract Map (VTTM) No. 073336 and the Conditional Use Permit (CUP) request is for 21 large lot parcels (40 acres or more) for future lease and finance purposes.

The Project improvements would consist of the construction of Ridge Route Road at the Project's main entrance to the south and a secondary access route to the northwest, construction of NorthLake Parkway adjacent to and west of the Phase 2 portion of the Project Site, a 4.64-acre connection of Grasshopper Creek Park, a debris basin, 2.39 acres in trail connections, a 5.1-acre pad for a water tank, 29.79 acres of manufactured slopes, and 11.98 acres of natural open space. In addition, extensions of the existing electrical distribution circuitry would occur along the existing Ridge Route Road to reach the Project, and substation upgrades would occur on Southern California Edison property. Grading for the proposed Project would involve approximately 33 million cubic yards of earthwork. Grading would occur over an approximate 1,330-acre rough grade footprint that accommodates the VTTM 073336 lots, plus the remaining 610 acres associated with future development of Phase 2.

In addition to the above improvements, an existing crude oil pipeline easement containing two oil pipelines that traverse the entire north-south length of the Project Site would be relocated to an alignment along the eastern boundary of the proposed development area and within the identified grading footprint.

At the February 21, 2018, public hearing, the Regional Planning Commission requested that the Applicant include an affordable housing component in the Project. Based on this request, the Applicant made minor revisions to the Project analyzed in the SEIR to include an affordable component. Specifically, the Applicant eliminated 108,283 square feet (sf) of industrial uses and 13,197 sf of commercial land uses and redesignated the industrial areas and remaining 31,200 sf of commercial land uses (excluding Highway Commercial) as Mixed-Use Neighborhood Commercial. The residential total at full buildout remains 3,150 units, same as the previously approved Project. However, 323 units would be reallocated from the Phase 2 area of the Project to the Phase 1 area (for a total of 2,295 Phase 1 units). This includes 6 market-rate live-work units, which would combine residential living space with commercial space. In addition, a total of 315 units would be deed restricted as affordable, as defined by the County, and developed in both phases. Of the 315 affordable units, 95 would be designated as senior-living affordable units. The senior-living affordable units would be available for occupants aged 55 and over and who meet



LAND USE SUMMARY

		Land Use Category	AC	DU	SQ.FT.
LAND USE		Single Family	267.4	2,065	
		Multi-family	74.5	1,085	
		Community Commercial	6.7		44,397
		Highway Commercial	2.5		32,175
		Industrial	13.7		108,283
		School [1]	43.5		
		Fire Station	1.4		
		Street R.O.W.	120.5		
OPEN SPACE		Recreation/Park [2]	167.0		
		Natural Open Space/Slope [3]	632.5		
	TOTAL		**1,329.7**	**3,150**	**184,855**

Source: PlaceWorks 2017

Previously Approved Land Use Plan

Exhibit 1

NorthLake Specific Plan, Recirculated Portions of the Supplemental Draft EIR

N W E S

Map not to scale

PSOMAS

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the minimum criteria to qualify for affordable housing. The remainder of the affordable housing units would not have any age restrictions. The market-rate live-work units and deed restricted affordable units are considered multi-family units under some impact methodologies below.

1.3 EIR CERTIFICATION AND PROJECT APPROVALS

In compliance with CEQA and the State CEQA Guidelines, the County conducted an Initial Study of the proposed Project and determined that an SEIR would be the appropriate environmental document to analyze the Project's potential impacts to the environment, as there have been additions and changes to the NLSP project, but they would not require major revisions to the 1992 NLSP EIR. The Initial Study identified a preliminary range of potential impact issues to be analyzed. A Notice of Preparation (NOP) and the Initial Study were distributed to responsible and interested agencies and key interest groups to solicit comments and to inform the public of the proposed Project. The NOP/Initial Study was distributed on March 24, 2015, for a 30-day review period, as required by CEQA. In addition, the County held a scoping meeting for the DSEIR on April 8, 2015. The purpose of the meeting was to solicit input from interested agencies, individuals, and organizations regarding the Project, alternatives, mitigation measures (MMs), and significant effects to be analyzed in the DSEIR.

Potentially significant environmental impacts addressed in the DSEIR included: Air Quality, Biological Resources, Cultural Resources, Energy, Hazards and Hazardous Materials, Geology and Soils, Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use and Planning, Noise, Transportation/Traffic, and Utilities and Service Systems. The DSEIR analyzed both individual components and cumulative effects of the Project together with related projects on these topics and identified a variety of mitigation measures to reduce the potential adverse effects of the Project.

In accordance with CEQA requirements, the DSEIR also analyzed potential alternatives to the Project, including (1) No Project/No Development Alternative, (2) No Project/Development Pursuant to the Approved NorthLake Specific Plan, (3) No Industrial Development Alternative, and (4) Phase 1 Development Alternative. Potential environmental impacts of each of these alternatives were discussed as required by CEQA and each alternative was compared to the Project.

The DSEIR for the Project was released for public review on May 2, 2017, and circulated for public review and comment for a 45-day period ending on June 15, 2017. In compliance with Section 15087 of the State CEQA Guidelines, the County provided public Notice of Availability (NOA) of the DSEIR at the same time it sent a Notice of Completion to the Office of Planning and Research. In addition, the County held a public hearing regarding the Project before a Hearing Examiner on May 24, 2017.

Following the close of the public comment period on the DSEIR on June 15, 2017, detailed responses to all public agency comments and comments received from members of the general public received regarding the Project and the analyses of the DSEIR were prepared and are contained in the FSEIR.

An Errata was released in February 2018, prior to the Regional Planning Commission hearing to make minor technical corrections in the FSEIR and to provide further information in response to public comments received prior to the Regional Planning Commission meeting. The Errata included only minor technical changes to the SEIR and additional information to support the SEIR's conclusions, and the Errata merely clarified or amplified or made insignificant modifications in the adequate SEIR.

Project entitlements included: (1) NorthLake Specific Plan (Project No. 2015-00408-(5), (2) Vesting Tentative Parcel Map No. 073335-(5), (3) Vesting Tentative Tract Map No. 073336-(5), and (4) Conditional Use Permit No. 2015-00019-(5) (to authorize the Northlake Specific Plan site plan review, affordable set-aside housing, affordable senior set-aside housing, mixed-use and live-work development, on-site and off-site grading exceeding 100,000 cubic yards of cut/fill material, walls and fences exceeding six feet in height, and the construction of two water tanks with associated grading and infrastructure).

At the February 21, 2018 public hearing, the Regional Planning Commission requested that the Applicant include an affordable housing component in the Project. Based on this request, the Applicant made minor revisions to the Project analyzed in the SEIR to include an affordable component. An Errata dated April 4, 2018 was prepared to determine whether these minor changes would change any of the conclusions of the SEIR. The Errata concluded that the revisions involved only minor changes to the distribution of land uses and an overall reduction in density and intensity or use, and the Errata merely clarified or amplified or made insignificant modifications in the adequate SEIR.

On April 18, 2018, the Regional Planning Commission adopted the required findings, certified the SEIR, and granted the requested Project approvals.

A Second Errata dated August 2018 was prepared to make minor technical corrections in the FSEIR and to provide further information in response to public comments at the Regional Planning Commission meeting. The Second Errata included only minor technical changes to the SEIR and additional information to support the SEIR's conclusions, and the Errata merely clarified or amplified or made insignificant modifications in the adequate SEIR.

On September 25, 2018, the County Board of Supervisors (Board) held a public hearing on the Project and the appeals and voted to reject the appeals, uphold the Regional Planning Commission approvals, and certify the SEIR. On April 2, 2019, the Board adopted the Project entitlements, CEQA findings and Mitigation Monitoring and Reporting Program (MMRP), and Project conditions.

1.4 CEQA LITIGATION AND PREPARATION OF THE RPDSEIR

On May 1, 2019, Center for Biological Diversity and Endangered Habitats League filed a Petition for Writ of Mandate (Petition) in the Los Angeles Superior Court challenging the County's approval of the Project under CEQA (*Center For Biological Diversity and Endangered Habitats League v. County Of Los Angeles, et al, and Real Parties in Interest, Northlake Associates, et al,* Case No. 19STCPO1610). On January 11, 2021, the Court issued the Court Ruling, finding that the County did not comply with CEQA in certain respects in approving the Project, and granting in part and denying in part the Petition. The Court Ruling ordered the County to set aside all of their Project approvals and revise the SEIR as directed in the Court Ruling.

On February 1, 2021, the Court issued a Writ of Mandate and Judgment. The Writ of Mandate obligated the County to set aside its certification of the SEIR, its adoption of the Findings of Fact, Statement of Overriding Considerations, and MMRP, its approval of the Northlake Specific Plan Project (Project No. 2015-00408-(5)), the Vesting Tentative Parcel Map No. 073335-(5), Conditional Use Permit No. 2015-00019-(5), and Vesting Tentative Tract Map No. 073336-(5), and any other associated approvals (Project Approvals).

On May 18, 2021, the Board set aside all Project Approvals, including certification of the SEIR. Upon consideration of the revisions to the SEIR required by the Court Ruling and set forth in this RPDSEIR, the County may reconsider the Project for approval.

Pursuant to CEQA Guidelines Section 15088.5, subdivision (g), Section 2.0 of this RPDSEIR contains the following revised and updated portions and/or sections to be recirculated for public comment:

(1) Revised biological impact analysis only as to the Western Spadefoot Toad (WST) and special-status plants, as well as impact assessment for Crotch's Bumblebee (CBB) (presented in Section 2.1),

(2) Updated Traffic Analysis as to Vehicle Miles Travelled (VMT) pursuant to Senate Bill (SB) 743 and CEQA Guidelines Section 15064.3 (presented in Section 2.2),

(3) Updated Wildfire Analysis pursuant to Appendix G of the CEQA Guidelines (presented in Section 2.3), and

(4) Revised alternatives analysis only as to the addition of a Creek Avoidance Alternative and a Partial Creek Avoidance Alternative (presented in Section 2.4).

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SECTION 2.0 REVISIONS TO SEIR IN RESPONSE TO THE COURT RULING

2.1 REVISED BIOLOGICAL IMPACT ANALYSIS

2.1.1 INTRODUCTION

This section[1] has been revised in accordance with the Court Ruling, specifically to address (1) the WST baseline assessment and mitigation and (2) special-status plant mitigation. In addition, an assessment of impacts to the Crotch's Bumblebee is included. This section has not been revised to address any other impact to biology, including the mountain lions/wildlife crossing issues for which the Court Ruling upheld the County's SEIR analysis and impact determinations.

Specifically, the Court Ruling stated the following regarding WST:

> ***ISSUE THREE: THE BASELINE AND MITIGATION MEASURES PROVIDED IN THE SEIR TO PROTECT THE WESTERN SPADEFOOT TOADS ARE NOT SUFFICIENT UNDER CEQA:***
>
> *A project has a significant effect on the environment if it will eliminate a species of special concern from the Project site. Guidelines 15065. Section15065(a) provides:*
>
> > *A lead agency shall find that a project may have a significant effect on the environment ... where there is substantial evidence ... that any of the following conditions may occur (1) The project ... threaten[s] to eliminate a plant or animal community ....*
>
> *In that event, section 15065(b)(2) requires the project proponent to:*
>
> > *implement mitigation requirements relating to such species and habitat pursuant to an approved habitat conservation plan or natural community conservation plan.*
>
> *The Western spadefoot toad ("WST") is a California species of special concern. AR 3665 (CDFW letter); see AR 3644 defining "species of special concern." A self-sustaining WST population exists at the Project site in and adjacent to Grasshopper Canyon. AR 3689. The WST habitat in Grasshopper Creek and nearby seasonal wet areas will be eliminated by the Project. Grasshopper Canyon itself will be filled in and levelled for building sites. The DSEIR acknowledges the Project will destroy the WST habitat along Grasshopper Canyon.*
>
> > *Since this Grasshopper Canyon population is one of few known populations in the region and Project impacts would result in the loss of these populations (or a substantial portion thereof), impacts to this species would be considered significant ... AR 1943.*
>
> *The County has approved Mitigation Measure 5.2-9 to relocate the WST population to a new habitat that the applicant is to create (at an as-yet unspecified location) and monitored for five years.*
>
> *The parties dispute, first, the sufficiency of the baseline biological surveys for the site, and, thus, dispute not only the number of individuals in the WST community that are*

[1] The biological impact analysis is contained in Section 5.2 of the SDEIR and incorporated herein by reference except where expressly superseded.

to be relocated but also the number and characteristics of the breeding pools that will have to be created to sustain the population in a new habitat. The applicant's Biological Technical Report, Appendix D relies on a single biological survey for its count of WST: "The western spadefoot was observed incidentally during previous amphibian surveys, and in the focused surveys conducted for the species in 2014 (Bon Terra 2000b, 201 4c)." AR 1943. Petitioners argue the BonTerra's surveys underestimate the WST population on the site because the surveys were taken during draught years when the WST numbers were reduced.

The parties dispute, secondly, that the mitigation measures ensure that the relocation of the WST to a new habitat will be successful. The Biological Technical Report asserts that "[i]mplementation of Mitigation Measure 9 [MM 2.5-9) would reduce this impact [on the WST] to less than significant level. " Id. Petitioners argue the mitigation measures are inadequate to assure that result.

The mitigation measures approved by the County to mitigate the loss of WST habitat will require that the existing WST population on the Project Site be captured and relocated to new WST habitat. The DSEIR promises:

> *"Implementation of MM 5.2-9 which requires a western spadefoot relocation program, would reduce this impact to a less than significant level through translocation of individuals to suitable habitat. This measure would result in substantial avoidance of direct impacts to the western spadefoot and as a result the western spadefoot is expected to persist in the region following project implementation." AR 1943.*

The actual mitigation measure MM 2.5-9 reads in its entirety:

A relocation program for western spadefoot toad will be conducted prior to construction during the spring at the height of the breeding season for this species.... Results of the relocation program shall be provided to the CDFW and the LACDRP.

(a) Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the prior appropriate season. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e., 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as others.

(b) The intent of the Relocation Plan is to capture and relocate as many western spadefoot toads as possible. Western spadefoot toads shall be relocated on or off site to an area of suitable habitat, as reviewed by the CDFW and the LACDRP. The relocation site shall be of similar (or better) quality as the habitat within the project impact area where the western spadefoot toads are captured. If no suitable habitat is available for relocation, suitable habitat shall be created.

Petitioners, to reiterate, argue that the WST relocation project violates CEQA because (l) the baseline definition of the WST population understates the extent of the habitat of the species on the Project site; and (2) the mitigation plan to relocate the existing WST population is unformulated and therefore does not assure the WST will be successfully introduced at another location.

These arguments, in the Court's view, are well taken.

The applicant has prepared a detailed relocation plan for the Western spadefoot toad. There is the Relocation Plan itself (AR 7831-7846) and a feasibility analysis (AR 8385-8417). The Relocation Plan specifies the steps that are to be taken to remove the WST population (including larvae, tadpoles and mature specimens) from their existing habitat and to replant them in or near pools that have been constructed to match the dimensions and depths of the pools from the original habitat and inoculized [sic] with soils from their original habitat. The pools would be situated in areas having similar vegetation to the original habitat. The feasibility study identifies six sites that could be constructed to recreate the original habitat (two at the site's north end and two on the adjacent state recreational area). The pools apparently are to be replenished by rainfall only.

The Relocation Plan, however, is designed to duplicate the conditions for the WST habitat that were identified in the 2014 BonTerra Psomos [sic] focused survey. That survey and earlier incidental surveys were allegedly taken in drought years, and, therefore, as petitioners argue, underestimate the extent of the WST habitat and the number of WST individuals. (In drought years the adult WST may stay underground in hibernation.) The parties have not, so far as the Court can ascertain, provided the rainfall data for the years in which the surveys were taken nor established whether those years had below average rainfall. The petitioners, however, assert that surveys taken in 2014 and general surveys taken in 2004 and 2005 were drought years. This issue was raised during the public comment periods, and the Court is unable to find evidence in the record to refute that the surveys were taken in drought years. The issue bears on whether the implementation of MM 2.5-9 will reduce the impact on the WST to less than significant. Petitioners argue that there are 8 to 10 seasonable pools in which the WST have been observed to breed and where larvae and tadpoles live, but the Relocation Plan intends to construct only three breeding pools. If petitioners are correct, Relocation Plan is inadequate to maintain the WST population.

The County's biologist, Joseph Decruyenaere, criticized the SEIR, telling the Planning Commission: "Mitigation for the spadefoot needs to address impacts to all 8 previously documented breeding pools, not just the two that have been observed since 2014. " AR 25823. The CDFW in its June 15, 2017 letter spotted the same problem, telling the Planning Commission: "the Department considers the 2014 surveys not adequate for determining the extent of the western spadefoot toad." AR 7395.

The Errata later [sic] attempted to address this issue by requiring additional surveys to determine the extent of the WST habitat. The Errata (AR 8330) provides:

> *Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the two prior appropriate seasons prior to the issuance of a grading permit. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e. 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as others.*

The Relocation Plan as a mitigation measure is intended to reduce the impacts of the destruction of the WST habitat to less than significant. This requires that the habitat that is to be destroyed must be measured in a manner that obtains its maximum dimensions so that those potential dimensions may be realized in the new circumstances at the site where the WST is relocated. The applicant's focus on its 2014 (or 2015) survey is inadequate because it ignores information indicating that with average or greater than

average rainfall the extent of the WST habitat is larger with more breeding pools to support a larger WST population. The Errata, in other words, is inadequate because it establishes a restriction on the number of breeding ponds that will be duplicated at the new WST habitat, e.g. those identified in the 2014 survey plus any identified in "two prior appropriate season s" before a grading permit is issued. This restricts the extent of a recreated WST colony because it establishes fewer than the maximal number of breeding pools. What happens if the applicant establishes three breeding pools based on the 2014 survey and a year later there is deluge rainfall? The site unlike Grasshopper Canyon may not naturally expand the number of breeding pools. The WST has survived in Grasshopper Canyon through wet years and draught years. The evidence indicates Grasshopper Canyon has the potential to increase its number of breeding pools in wet years and thus to support a larger WTS population. This potential will be lost if the applicant mechanically duplicates the number of breeding pools that it finds from surveys taken before the grading of Grasshopper Canyon begins.

Concluding on the first issue, the applicant has not established a baseline for the WST habitat that must be re-created to preserve the WST population presently existing on the Project site. The mitigation measure for the WST is inadequate for that reason.

On the second issue, petitioners argue the relocation plan provided in MM 5.2-9 is inadequate. While the MM 5.2-9 requires the newly created habitat be monitored for five years the steps that will be taken to ensure success are unspecified. (The amphibian relocation plan is described in the SEIR, Appendix C (Biological Resources Plan) at AR 7839.) The CDFW also raised objections to the relocation plan. AR 7390-7405 (CDFW letter of June 15, 2017). The CDFW notes the applicant has not identified a specific site for relocation and does not promise that successful transplantation can be accomplished. AR 7396. The CDFW, as a trustee agency, does not have authority to approve or disapprove a project; however, it is required to be consulted and may comment as to projects that involve fish and wildlife, rare and endangered native plants, wildlife areas and ecological reserves.

The promise the applicant will create a habitat in which the transplanted WST population will flourish is deferred mitigation. The parties concede that the success of an alternate habitat is uncertain and will require on-going attention during and maybe beyond the monitoring period. The standard governing the acceptability of deferred mitigation measures is provided in Guidelines section 15126.4(a)(l)(B), reading:

> *Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review, provided the agency (1) commits itself to the mitigation; (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard that will be considered, analyzed, and potentially incorporated in the mitigation measure.*

The Court does not find a specific response to the contention that the applicant's deferred mitigation for the loss of the WST habitat does not provide sufficient detail, lacking particularly a specified location for a successful reconstruction of the Grasshopper Canyon WST community. The applicant relies on the September 13, 2018 letter from Glenn Lukos Associates (the Tony Bomkamp letter) to supply substantial evidence that the applicant

> *will succeed in transplanting the WST population. The Bomkamp letter does not make any commitment; it merely points to the process described in the SEIR (AR 7839) and says Bomkamp personally has been involved in establishing "seasonal pool for western spadefoot toads" in Orange County, without providing further detail. AR 16011.*

More is required by Guidelines section 15126 for mitigation measures that are deferred. The MM standards required for future projects are that the mitigation measure itself "inform [the lead agency] what it is to do and what it must accomplish, and they commit [the agency] to mitigating impacts before proceeding." See, Center for Biological Diversity v. Department of Fish & Wildlife (2015) 234 Cal. App.4th 214, 240, 245. The deferred mitigation to create a new habitat for the WST community is inadequate in detail and commitment. The mitigation measures to assure relocation of the WST population at the Project site does not comply with CEQA requirements.

The Court Ruling stated the following regarding special-status plants:

> ***ISSUE FOUR: THE MITIGATION MEASURES PROVIDED IN THE SEIR TO PROTECT THE RARE PLANTS ARE NOT SUFFICIENT UNDER CEQA:***

Five special status plant species have been identified during surveys to exist at various locations on the Project site. These are the round-leaved filaree, the club-haired mariposa lily and the slender mariposa lily (collectively lilies); the paniculate tarplant, and the southwestern spiny rush. AR 1926-29. As special status plant species, a destruction of their habitat must be mitigated to less than significance. Guidelines 15065(a)(l). The loss of these plants through the site development is to be mitigated by the transplantation of all existing individual plants as well as seeds or bulbs that are found. The FSEIR states:

> *A less than significant impact would be achieved through implementation of MM 5.2 -2, MM 5.2-3 and MM 5.2-11... which require a Riparian Restoration Program be developed and approved by USACE [US Army Corps of Engineers], CDFW, and LACDRP prior to issuance of grading permits, ... AR 8564*

MM 5.2-4 specifies procedures for the lilies. Seeds are to be collected and bulbs excavated for transplantation to a mitigation site and established as a self-sustaining population. A Biological Monitor is to prepare a Mitigation Plan for approval of LACDRP and is to oversee its implementation. AR 8568.

MM 5.2-5 specifies procedures for the round-leaved filaree, paniculate tarplant, and southwestern spiny rush. The Project applicant is to prepare procedures to collect and store the plants and seeds, create an alternate site to include soil preparation, irrigation, methods to control competing plants at the new site and prepare a list of "County-approved success criteria."

The CDFW challenges the adequacy of the mitigation measures, pointing out that the sites for transplantation are not selected, that the procedures to accomplish transplantation are not specified, and that success criteria are yet to be determined. CDFW believes that the rare plants cannot be transplanted on the site as the available patches after development will be fragmented. The CDFW is likewise dubious about transplantation off-site:

> *The Department has concerns when the DSEIR states it will transplant species off-site as this implies other areas will be subject to impact by this action. This additional impact would then need mitigation as this ecosystem is now being altered. AR 7398.*

CDFW was concerned that the mariposa lilies might not survive transplantation, saying it was unaware of any population created by seeding or translocation having been successful "at demonstrating long-term self-sustaining population."

CDFW expressed dissatisfaction with the generality of the mitigation measures, saying:

> *MM7 [now MM 5.2-4 and -5] does not allow the Department to comment on the appropriateness of the location, technique, success criteria, monitoring methods, density, length of time monitoring is required, or the method proposed for long-term protection and funding. AR 7399.*

The deficiencies identified in the CDFW letter demonstrate that the deferred mitigation measures for transplantation of the rare plants do not satisfy the CEQA standards set forth in Guidelines section 15126.4(a)(l)(B).

The applicant relies on the Glenn Lukos Associates (Bomkamp) letter to supply the evidence that deferred mitigation measures for the relocation of the six plant varieties are guidance enough. AR16015-18. Bomkamp's letter advises that there are various locations where the soil conditions are suitable to re-establish the individual plant varieties, but, beyond that, no information is provided to address the deficiencies identified by the CDFW. Further detail is required for the mitigation measures proposed for the rare plants in order to mitigate the destruction of their habitat to a less than significant threshold.

The mitigation measures for successful relocation of the rare plants found at the Project Site do not comply with CEQA requirements.

2.1.2 METHODOLOGY

The following section is based on (1) the Western Spadefoot Toad Impact Assessment and Habitat Mitigation and Monitoring Plan, July 2022 (Revised March, June 2023 and April 2024) by Glenn Lukos Associates, Inc. (GLA 2022a [Revised April 2024]; WST Report), (2) the Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan, July 2022 (Revised October and December 2022, February 2023 and April 2024) by Glenn Lukos Associates, Inc. (GLA 2022b [Revised April 2024]) (3) Effects of Potential Listing of Western Spadefoot Toad on NorthLake Project in Castaic, Los Angeles County, California (November 12, 2023) by Glenn Lukos Associates, Inc., (4) Summary of Western Spadefoot Toad Surveys in 2023 and 2024 at NorthLake Project Site, Los Angeles County, California (August 6, 2024) by Glenn Lukos Associates, and (5) Crotch's Bumblebee Survey Results, Impacts and Mitigation for NorthLake Project, Los Angeles County by Glenn Lukos Associates, Inc, dated July 2024 (CBB Survey Report). The full text of each report is included as Technical Appendices B-1, B-2, H through J, respectively, of this document.

2.1.3 BACKGROUND INFORMATION

Western Spadefoot Toad

The WST is a species of amphibian in the family Scaphiopodidae. It is found in western California (USA) and northwestern Baja California (Mexico). WST is a relatively smooth-skinned species of American spadefoot toad. Its eyes are pale gold with vertical pupils. It has a green or grey dorsum, often with skin tubercles tipped in orange, and has a whitish color on the abdomen. On each hind foot is a wedge-shaped black spade. Adult toads are between 3.8 cm and 7.5 cm (1.5 in and 3.0 in) long. Juveniles have a similar appearance to adults, but with more distinct spotting. It is

nocturnal, and activity is limited to the wet season, summer storms, or during evenings with elevated substrate moisture levels.

WST was observed on the Project Site during various general and focused amphibian surveys as well as during focused surveys for listed fairy shrimp species within seasonal pools. The surveys that observed WST were conducted during years with well above-average rainfall (2004/2005) and below-average rainfall (2014). While numerous ephemeral ponds and features have been observed on the Project Site over time during various surveys for different species, only three features have been observed to contain WST and only one additional feature was observed to contain potential WST habitat, despite no WST being observed in this latter feature. Subsequent surveys were conducted in 2023 and 2024. A more detailed discussion of the survey results, including a summary of relevant rainfall data, is provided below.

Special-Status Plants

Five special-status plant species were detected on the Project Site during various surveys over multiple years. The species accounts address the species detected in 1998 and 2001 as well as those detected by BonTerra in 2014. The *Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan* (GLA 2022b [Revised April 2024]) (Impact Assessment, Appendix B-2 to this RPDSEIR) includes important updates, specifically the California Rare Plant Rank (CRPR) for the round-leaved filaree and the addition of the California Natural Diversity Database (CNDDB) Rarity rankings for southwestern spiny rush, paniculate tarplant, slender mariposa lily, and club-haired mariposa lily to provide a more robust analysis relative to the significance of the impacts. (See also SDEIR, Section 5.2.2.)

Round-leaved filaree

Round-leaved filaree (*California macrophylla*) is an annual or biennial herbaceous species that occurs in clay soils in grasslands, openings in coastal sage scrub, and cismontane woodland (Allen and Roberts 2013). This species is less than six inches in height and generally blooms between mid-March and early May. In October 2017, when BonTerra prepared the Rare Plant Plan, round-leaved filaree was listed with a CRPR of 1B.2 (Rare or endangered in California and elsewhere, fairly endangered in California).

A total of 39 individuals of this species was observed in annual grassland in the central portion of the site in silty-clay soils in 2001 and was not observed during botanical surveys conducted in 2014 (BonTerra Psomas 2014). Associated plant species reported in 2001 included salt grass (*Distichlis spicata*), foxtail barley (*Hordeum murinum leporinum*), western plantain (*Plantago erecta*), fascicled tarweed (Deinandra fasciculata), and California goldfields (*Lasthenia californica*); however, neither the geographic extent or density of the population were reported and are thus unknown. On April 6 and 14, 2022, the location was visited by GLA biologist Tony Bomkamp to determine whether the occurrence of round-leaved filaree was extant, and the species was not detected. The site conditions appeared to have become degraded as the area has converted to dense non-native grasses and the species such as salt grass, western plantain, fascicled tarplant and California goldfields were no longer present. These are native forbs and their absence is an indicator that the site has been degraded, most likely by wildfire and/or grazing which has changed the character of the site and likely explains why the round-leaved filaree was not detected on either visit.

In November 2017, after completion of BonTerra's Special Status Plant Species Restoration Plan, the California Native Plant Society removed this species from the "Inventory of Rare and

Endangered Plants" changing the status from 1B.2 to "Considered but Rejected" (CBR)[2] with the note "Too common statewide" and the additional comment "counties that contain small, localized populations under severe threat should track *C. macrophylla* as a species of local concern". Thus, this species no longer has special status under the CRPR; or as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFW) or U.S. Fish and Wildlife Service (USFW) as discussed below in the impact analysis. Nevertheless, round-leaved filaree is considered locally rare by the County of Los Angeles and was addressed in the Rare Plant Plan, should the occurrence be confirmed in preconstruction surveys.

Paniculate Tarplant

Paniculate tarplant (*Deinandra paniculata*) is an annual herbaceous species that is found in grassland, open chaparral and woodland, and disturbed areas, often in sandy or sandy-clay soil (Baldwin et al 2012). This is an upright species that grows up to 30 inches in height and typically blooms between May and November. Paniculate tarplant has a CRPR of 4.2 (Limited distribution in California, fairly endangered in California). Of note is the fact that paniculate tarplant has a CNDDB Rarity Ranking of S4 ("Apparently secure within California")[3] and CalFlora lists 710 records for this species as discussed below in the impact assessment. One population of paniculate tarplant comprised of several hundred individual plants was observed during 2014 botanical surveys in the northern-central portion of the Project Site, in an opening of sage scrub habitat located on a northwest-facing slope. This occurrence was confirmed during a site visit by GLA biologist Tony Bomkamp on April 14, 2022, at which time the geographic extent was mapped using GPS and the density was observed to be variable ranging from approximately one to five plants per square meter, resulting in population estimate of 600. Associated plant species at this location include California sagebrush (*Artemisia californica*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), and nodding needlegrass (*Stipa cernua*).

Southwestern spiny rush

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) is a perennial rhizomatous herb that occurs in alkaline seeps and moist saline soils. This species grows from 20 to 50 inches in height and typically blooms between June and August (Baldwin et al 2012); however, it is detectable throughout the year. Southwestern spiny rush has a CRPR of 4.2 (Limited distribution in California, fairly endangered in California). Like the paniculate tarplant, Southwestern spiny rush has a CNDDB Rarity Ranking of S4[4] ("Apparently secure in California") and CalFlora lists 406 records for this species. Southwestern spiny rush was observed throughout Grasshopper Canyon, and it was estimated by BonTerra that several hundred individual plants exist in the Project development boundary. BonTerra's mapping showed that the majority of Grasshopper Creek was occupied; however, densities were not reported. Approximately 2,000 individuals of this plant were observed throughout the main drainage in Grasshopper Canyon in 2021 by GLA biologists. GLA noted that density varies from occasional individuals to dense thickets of nearly 100-percent cover for some localized patches. In general, the spiny rush was limited to the low flow channel and adjacent terraces. The plants were growing in mule fat scrub and mule fat scrub/spiny rush marsh vegetation. The substrate in these areas is sandy riverwash with cobbles and boulders (BonTerra 2014). The plant species generally associated with southwestern spiny rush includes mule fat (*Baccharis salicifolia*) and sandbar willow (*Salix exigua*).

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2 The California Rare Plant Rank is derived directly from the California Native Plant Society *Inventory of Rare and Endangered Plants*.

3 http://www.rareplants.cnps.org/detail/1892.html.

4 http//rareplants.cnps.org/939.html.

Slender Mariposa Lily and Club-Haired Mariposa Lily

Slender mariposa lily (*Calochortus clavatus* var. *gracilis*) and club-haired mariposa lily (*C. clavatus* var. *clavatus*) are perennial herbs in the lily family and *Calochortus* genus, which consists of 50 species and/or subspecies that are native to California. Slender mariposa lily has a CRPR of 1B.2 (Rare or endangered in California and elsewhere, fairly endangered in California) and a CNDDB Rarity Ranking of S2S3 ("Imperiled" and "Vulnerable"). Club-haired mariposa lily has a CRPR of 4.3 (Limited distribution in California, not very threatened in California) and a CNDDB Rarity Ranking of S3. CalFlora lists 95 and 117 occurrences, respectively. These plants represent varieties of the same species and are known to hybridize with each other. Due to this known hybridization, these two species are often treated as a single species for purposes of impact assessment and mitigation, when necessary. For portions of the population, BonTerra mapped occupied polygons; however, BonTerra did not provide specific counts for each polygon so it is not possible to establish densities; however the total number of plants was provided for the development area which is adequate for determining the impact and required mitigation as set forth below. GLA has observed this species on multiple sites in northern Los Angeles County and densities vary from very low (< one/square meter) to multiple/square meter. Density for the proposed establishment areas is addressed below.

Crotch's Bumblebee

Crotch's Bumblebee (*Bombus crotchii*) (CBB) was petitioned to the State of California in 2018 for listing of the CBB as endangered under the California Endangered Species Act (CESA). The Fish and Game Commission advanced the species to "Candidate" status (for listing as endangered) under the CESA in June 2019. The CBB has a historic range that covers the portions of southern and central California including the NorthLake project site. Subsequently, the candidacy of the CBB was challenged in court, and in November 2020 the Sacramento County Superior Court ruled that insects are not eligible for listing under CESA. The Superior Court's ruling was subject to a subsequent legal challenge regarding CESA's definition of a fish as "a wild fish, mollusk, crustacean, invertebrate, amphibian, or part, spawn, or ovum of any of those animals" and was eventually overruled by the California Court of Appeal on May 31, 2022, making the CBB subject to protection under CESA.[5]

The CBB is a State Candidate Endangered species[6] that inhabits open grassland and scrub habitats. This species occurs primarily in California, including the Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills through most of southwestern California. This species was historically common in the Central Valley of California, but according to the listing package now appears to be absent from most of it, especially in the center of its historic range.

Bumblebees, including CBB, are generalist foragers and have been reported visiting a wide variety of flowering plants. CBB has a very short tongue, and thus is best suited to forage at open flowers with short corollas. The plant families commonly associated with CBB observations or collections from California include Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae. Plants in the genera *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia* are common food plants. These floral associations do not necessarily represent CBB's only preferred plants over other flowering plants, but rather may represent the prevalence of these flowers in the landscape where this species occurs.

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5 *Almond Alliance of California v. Fish and Game Commission* (2022) 79 Cal.App.5th 337.

6 The California Fish and Game Commission voted to designate CBB as Candidate Endangered species on June 12, 2019. That designation was placed on hold during the litigation. Following the Court of Appeal ruling, the candidacy was reinstated on September 30, 2022. The final determination is pending.

Bumblebees are social insects that live in colonies composed of a queen, workers, and reproductive individuals (males and new queens). Colonies are annual and only the new, mated queens overwinter. These queens emerge from hibernation in the early spring and immediately start foraging for pollen and nectar and begin to search for a nest site. Nests are often located underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees. Initially, the queen does the foraging and care for the colony until the first workers emerge and assist with these duties. Bumblebees collect both nectar and pollen of the plants that they pollinate. In general, bumblebees forage from a diversity of plants, although individual species can vary greatly in their plant preferences, largely due to differences in tongue length. Bumblebees are well-known to engage in "buzz pollination," a very effective foraging technique in which they sonicate the flowers to vibrate the pollen loose from the anthers.

2.1.4 EXISTING CONDITIONS

Western Spadefoot Toad

WST was observed at the Project Site during various general and focused amphibian surveys as well as during focused surveys for listed fairy shrimp within seasonal pools.

1. 2004/2005 Fairy Shrimp Surveys

A determination for the extent of suitable habitat for WST is possible from the data collected during wet-season fairy shrimp surveys in 2004/2005, which was one of the wettest rainfall years in the last 50 years[7]. From October 2004 to February 2005, the amount of accumulated rainfall at the Project Site far exceeded the average annual rainfall amount. During this time period, more than 35 inches of rain fell at the Project Site, where the average annual rainfall is 20 inches per year.

Appendix A of the January 17, 2006, BonTerra fairy shrimp report documents the results of the surveys and describes eight ponded features that were identified during the surveys.[8] Ponding was recorded along with water depths during the surveys and the presence of a suite of invertebrates, amphibians (including WST), and other species such as waterfowl. Four of the 8 ponded features identified in that report (ponds VP 1, VP 2, VP 6, and Stock Pond [SP] 1) exhibited sufficient ponding to support WST as noted in the comments in Appendix A of that report. It is important to note that fairy shrimp surveys during the 2004/2005 survey season began

[7] The January 17, 2006 BonTerra Fairy Shrimp Focused Survey reported: "The precipitation from the winter of 2004-05 was well above average. The average rainfall for northwestern Los Angeles County is 20 inches per year. The accumulated rainfall for the months of October 2004 to February 2005 was 44 inches at the Del Valle Weather Station, approximately six miles to the southwest of the Project Site (Table 1) [based on the monthly totals cited by BonTerra the total from October 2004 through February 2005 actually was 34.59 inches and with an additional 1.24 inches in March 2005 which BonTerra included in the 2006 BonTerra Fairy Shrimp Focused Survey, thus the total was 35.83 inches]. There was an initial, early rainfall during October 19 and 26, 2004. A total of 4.72 inches fell at the Del Valle Weather Station during October 2004. November 2004 rainfall totaled 0.17 inch at Del Valle. The majority of the rains came during the months of December 2004 through February 2005. The Del Valle Weather Station rainfall total was 6.82 inches in December 2004, 12.46 inches in January 2005, and 10.42 inches in February 2005 [and 1.24 inches in March 2005]. The above average rainfall enabled the wet season survey to comprehensively sample the ponds for representative invertebrates present. The ponds inundated on December 27 and 28, 2004, during a rainfall event that delivered 4.5 inches over two days and remained inundated above the 0.39-inch (3 cm) standing water criteria until the final site visit on April 9, 2005."

[8] BonTerra Consulting. January 17, 2006. *Results of Focused Presence/Absence Surveys for Fairy Shrimp at the NorthLake Specific Plan and Castaic High School Project Site, Near the Community of Castaic in Unincorporated Los Angeles County*.

on November 27, 2004, and extended to April 9, 2005, ensuring that the surveys fully captured a sufficient segment of the breeding season for the WST.[9]

Ponded features VP 1, VP 2 and SP 1 were observed and documented as supporting WST. WST was not observed and documented at feature VP 6 during the 2004/2005 surveys. However, feature VP 6 supported western toad larvae, which leads to the conclusion that the habitat is potentially suitable for WST, at least during above-average rainfall years.

Critically, the other four ponded features (ponds VP 3, VP 4, VP 5, and VP 7) BonTerra identified during the surveys in 2005 and documented in the 2006 Report were too shallow (i.e., no more than a few inches at maximum depth) and dried out throughout the course of the surveys. Accordingly, these four ponded features lacked sufficient water depth and duration to support WST. This is particularly important information, because if these features were too shallow and therefore failed to pond for sufficient duration during the 2004/2005 rainfall season, which was an exceptionally wet year, their lack of suitability for WST is unambiguously established. No amphibians or fairy shrimp were detected in these features during an extra-optimal year. For these features, there is no potential for WST to successfully breed.

Based on above-average rainfall during the 2004/2005 rainfall season, features listed as VP 1, VP 2, and SP 1 in the 2006 BonTerra report are the only features documented to support WST; one additional feature, VP-6, is the only other feature with potential to support WST (at least in above-average rainfall years). The other 4 ponded features (ponds VP 3, VP 4, VP 5, and VP 7) cannot support WST.

2. 2014 Shrimp Surveys and Western Spadefoot Toad Surveys

In 2014, a year that exhibited lower-than-average rainfall, BonTerra conducted surveys for fairy shrimp and amphibians, as well as focused surveys for WST. A total of 6 ponded features were observed and mapped at the Project Site during the 2014 surveys. Each of the six ponded features were also observed and recorded during the 2004/2005 surveys; no new ponded features were observed at the Project Site during 2014 surveys. Notably, the 2014 surveys labeled the ponded features at the Project Site differently than the 2004/2005 surveys.

WST was only observed at two of the six ponded features that were observed and recorded during the 2014 surveys. WST was previously observed at both of these ponded features during the prior 2004/2005 surveys. As noted above, WST was also observed at a third ponded feature during the 2004/2005 surveys. However, WST was not observed at this ponded feature during the 2014 surveys, most likely due to insufficient ponding in 2014. WST was not observed at the other three ponded features during the 2014 surveys.

As shown in the table below (Table 2-1), during the 2014 surveys, WST tadpoles were observed in the ponded features previously identified in the 2006 BonTerra fairy shrimp report as SP 1 (identified as Pond 7 in the 2014 surveys for fairy shrimp and amphibians, and Pond 1 in the 2014 focused surveys for WST) and VP 1 (identified as Pond 8 in the 2014 surveys for fairy shrimp and amphibians, and Pond 2 in the 2014 focused surveys for WST). WST was not observed in the ponded feature previously identified in the 2006 BonTerra fairy shrimp report as VP 2 (identified as Pond 9 in the 2014 surveys for fairy shrimp and amphibians, and not identified in the 2014 focused surveys for WST).

[9] WST breeding season is typically late winter to the end of March. See: S. Morey, 2000. California Wildlife Habitat Relationships System California Department of Fish and Wildlife California Interagency Wildlife Task Group.

The results of BonTerra's 2014 focused surveys for WST are summarized below:

> *Western spadefoot toad was detected at both Pond 1 and Pond 2 during the surveys (Exhibit 4). Western spadefoot toad tadpoles were detected in Pond 2 on March 31, 2014. Advertising adult males and foraging adults of both sexes were observed at Pond 1 on March 31, April 7 and 15, and May 7, 2014. Amplexing (mating) pairs were observed at Pond 1 on April 7 and 15, 2014. Metamorphs were observed at Pond 1 on May 21, 2014. Photographs of Pond 1 and Pond 2 are presented in Attachment A, and photographs of the western spadefoot toad tadpoles, metamorphs, and adults on the Project Site are presented in Attachment B.*
>
> *Tadpoles observed at Pond 2 were at Gosner stage 26-30[1] a little more than halfway to metamorphosis, and at least one hind limb bud was visible on each of the tadpoles examined. Given that western spadefoot toad larvae have been documented metamorphosing within three weeks of egg-hatching (Lannoo 2005), tadpoles could have potentially metamorphosed within 12 days of the first observation on March 31, 2014. The pool had diminished significantly by the April 7, 2014, survey and no tadpoles were observed. It is unlikely that the tadpoles observed during the March 31 survey had metamorphosed by the second survey on April 7.*
>
> *Up to 15 male spadefoot toads were observed vocalizing at Pond 1 on April 15, representing the peak of breeding activity observed during surveys. The observation of metamorphs on May 21 indicates successful breeding at Pond 1.*[10]

Subsequent WST surveys were conducted in 2023 and 2024 following above average rainfall years. These surveys confirmed the presence of WST in the 3 previously observed ponds – Pond 1, Pond 2 and the Cattle Pond (SP 1). Specifically, the WST population estimates for the Cattle Pond were difficult to quantify as this pond dried faster and earlier in the year than the two smaller ponds and the water was turbid. The detection of WST at the Cattle Pond was low; however, metamorphs were quickly detected during both years. Given the Cattle Pond dries faster than Ponds 1 and 2, WST development may be accelerated in the Cattle Pond. The Cattle Pond is larger than the other two ponds with more soil cracks available for WST refuge; therefore, the number of metamorphs hiding in the cracks is likely much higher than were detected. The detection of WST at Pond 1 yielded the highest consistent detection from 500s to low 1,000s and multiple cohorts were observed co-occurring. Pond 1 appears to remain inundated longer than Pond 2; therefore, it may support a larger population of WST larvae, allowing multiple cohorts to metamorphose. Pond 1 was observed to support multiple cohorts and Baja California treefrog during both years. During the 2024 Pond 2 survey, the WST tadpoles were primarily from one cohort and of similar size to Pond 1's oldest cohort. As mentioned above, Pond 2 appears to dry faster than Pond 1, as it exhibited half the surface area compared to Pond 1 in 2024 and completely dry during the 2023 visit. However, Pond 2 remained inundated long enough, in both years, to produce at least one cohort, given the numerous metamorphs detected in 2023 and the late-stage tadpoles observed in 2024. Although Pond 1 appears to have the ability to support more WST larvae, both ponds are sufficiently proximate to each other to function as a single population that is likely supporting hundreds to low 1,000s of WST metamorphs during above average rainfall years.

[10] BonTerra Psomas. October 2, 2014. Results of Focused Presence/Absence Surveys for the Arroyo Toad and Western Spadefoot Toad on the NorthLake Specific Plan Project Site, Los Angeles County, California.

TABLE 2-1
POND NOMENCLATURE CLARIFICATION AND WST SURVEY RESULTS

Ponded Features Observed 2004/2005 Fairy Shrimp Survey (AR 3828)[a]	Observed in 2004/2005 Fairy Shrimp Survey? (Y/N; Survey ID)	Ponded Features Observed 2014 Fairy Shrimp Survey[b] (AR 3848)	Observed in 2014 Fairy Shrimp Survey? (Y/N; Survey ID)	Ponded Features Observed in 2014 WST Survey[c] (AR 3904)	Observed in 2014 WST Survey (Y/N; Survey ID)?	Ponded Features Observed in 2022/2023 and 2023/2024 WST Surveys	Observed in 2022/2023 and 2023/2024 WST Surveys (Y/N; Survey ID)?	Draft Western Spadefoot Toad Relocation Program Identifier[e]
VP 1	**Y** (AR 3833)	Pond 8	**Y** (AR 3868-3871)	Pond 2	**Y** (AR 3897)	Pond 2	**Y** (Appendix I)	Pond 2
VP 2	**Y** (AR 3834)	Pond 9	N		N	Pond 1	**Y** (Appendix I)	Pond 1
VP 3	N	Pond 4	Not surveyed		Not surveyed		Not surveyed	
VP 4	N	Pond 5	Not surveyed		Not surveyed		Not surveyed	
VP 5	N	Pond 6	Not surveyed		Not surveyed		Not surveyed	
VP 6[d]	N		Not surveyed		Not surveyed		Not surveyed	Pond 3
VP 7	N		Not surveyed		Not surveyed		Not surveyed	
SP 1	**Y** (AR 3835)	Pond 7	**Y** (AR 3852 – 3855)	Pond 1	**Y** (AR 3897)	Cattle Pond	**Y** (Appendix I)	Cattle Pond

[a] Stock Pond = SP; Vernal Pool = VP; Administrative Record citation = AR, followed by the page number.
[b] Ponds 1-3 were different ponds located off site.
[c] Ponds 1 and 2 are the only ponds shown on Exhibit 4 (Ponds Occupied by WST) based on the 2014 survey.
[d] VP 6 appears to have exhibited sufficient ponding but did not support WST at the same time they were observed. VP 6 is designated Pond 3 in the WST Report.
[e] Adopted nomenclature for the WST Report and the RPDSEIR.

3. Number of Ponded Features at Project Site During Optimal Conditions

As reported above, in the 2006 *Fairy Shrimp Report*, BonTerra included a detailed table (Table 1 on page 6) with monthly rainfall data showing that the 2004/2005 rainfall year (approximately 36 inches) was more than the average rainfall for the region (approximately 20 inches). Accordingly, the 2004/2005 rainfall year reflects the most optimal conditions for WST habitat at the Project Site.

The 2004/2005 surveys were conducted during optimal conditions for WST habitat at the Project Site. During the 2004/2005 surveys, WST were observed at three ponded features on the Project Site. A fourth ponded feature at the Project Site exhibited potential for WST habitat, but no WST larvae was observed at this ponded feature during the 2004/2005 surveys. Accordingly, the 2004/2005 surveys demonstrate that the Project Site has a maximum of four ponded features that can support WST. The other four ponded features observed and documented at the Project Site cannot support WST, even during optimal conditions when there has been above-average rainfall.

BonTerra's *DRAFT Western Spadefoot Toad Relocation Program*[11] is based on the four ponded features at the Project Site that can support WST. These ponded features are identified as: Pond 1 (previously identified as VP 2 in the 2006 BonTerra fairy shrimp report, and Pond 9 in the 2014 surveys for fairy shrimp and amphibians); Pond 2 (previously identified as VP 1 in the 2006 BonTerra fairy shrimp report, and Pond 8 in the 2014 surveys for fairy shrimp and amphibians); Pond 3 (previously identified as VP 6 in the 2006 BonTerra fairy shrimp report); and Cattle Pond (previously identified as SP 1 in the 2006 BonTerra fairy shrimp report, and Pond 7 in the 2014 surveys for fairy shrimp and amphibians). While only WST larvae were observed in Pond 3 during the 2004/2005 or 2014 surveys, Pond 3 will be subject to mitigation and pre-construction surveys because it exhibited potential for supporting WST during above-average rainfall years. Pond 3 will also serve as a potential collection site based on the presence or absence of WST as determined by the pre-construction surveys. Table 2-1, above, summarizes the survey results and clarifies the ponded feature nomenclature, consistent with *Western Spadefoot Toad Relocation Program*.

Grading for the previously approved Project would result in the loss of Pond 1, Pond 2 and the Cattle Pond. Grading would also impact Pond 3.

4. Dimensions of Ponded Features at Project Site During Optimal Conditions

The maximum dimensions of the pools discussed above and those subject to mitigation was determined during the 2004/2005 rainfall season, which, as noted above, reflected the optimal conditions for WST habitat at the Project Site. The method for determining the maximum dimensions of the three ponds to be impacted is described on page 2 of BonTerra's *DRAFT Western Spadefoot Toad Relocation Program*:

> *Brian Leatherman and Justin Wood, Consulting Biologists, visited the site on November 11, 2004 to measure the size and extent of the existing ponds and to search for suitable mitigation pool creation sites. A subsequent preliminary assessment searching for pool creation sites was conducted in summer of 2017 simultaneous with other site surveys conducted by BonTerra Psomas Senior Biologist Marc Blain and Biologist Sarah Thomas.* ***The existing breeding habitat consists of three ponds.*** *Two are naturally occurring ephemeral ponds on the plateau above (east of) Grasshopper Canyon, and one is an artificially created cattle pond near the upper end of Grasshopper Canyon (Exhibit 1). Approximate dimensions and surface area of the respective ponds are shown in Table 1. The total surface area of the existence the surface area of the mitigation pools to be created, is 22,859 square feet.*

[11] BonTerra Psomas. September 2017. *DRAFT Western Spadefoot Toad Relocation Program* prepared for the FSEIR: NorthLake Specific Plan Residential Development Project, Los Angeles County, California.

Table 1 of the BonTerra Plan[12] (reproduced below as Table 2-2) includes the following information:

TABLE 2-2
DIMENSIONS OF EXISTING EPHEMERAL PONDS AND CATTLE POND
FROM DRAFT WESTERN SPADEFOOT RELOCATION PROGRAM

Pond	Shape	Dimensions (pond diameters)	Surface Area	Perimeter	Estimated Max. Depth
1 (upslope)	Oval	36 x 61 feet	1,847 sq. ft.	145 feet	1 ft. 2 in.
2 (downslope)	Circular	27.5 x 36 feet	791 sq, ft.	99 feet	1 ft. 9 in.
Cattle Pond	Oval	123 x 198 feet	20,221 sq. ft.	503 feet	3 ft. 6 in.
* Surface area (fourth column) was estimated by averaging diameters and using the formula A = π r2					

Appendix A of the BonTerra 2006 *Fairy Shrimp Report* provides dimensions for the pools that were determined during the wet-season surveys. These were larger estimates for the features, with the caveat that these appear to be estimates and no mention is given in the report of how the dimensions were obtained (as noted below these are inaccurate estimates). Table 2-3 below uses the largest dimension for each of the three pools.

TABLE 2-3
MAXIMUM DIMENSIONS OF EPHEMERAL PONDS AND CATTLE POND
FROM 2006 FAIRY SHRIMP ESTIMATES

Pond	Shape	Surface Area (square meters)	Surface Area (square feet)	Perimeter	Estimated Max. Depth
1 (upslope)	Oval	481	5,177 sq.ft.	Not Provided	51 cm (20.4 in.)
2 (downslope)	Circular	179.8	1,937 sq, ft.	Not Provided	56 cm (22.4 in.)
Cattle Pond	Oval	123 x 198 feet	64,583 sq. ft.	Not Provided	210 cm (84 in.)
* Surface area (fourth column) was estimated by averaging diameters and using the formula A = π r2					

Based on a review of aerial photographs over a period of years, between 1994 and 2021 the normal ponding area is less than the maximum dimensions stated in Table 2-3 and larger than the dimensions in Table 2-2. Exhibit 4 (of the WST Report [Appendix B-1]) is an aerial photograph from April 2011 that shows the limits of WST-occupied ponds with the near-maximum ponding.[13] The images for Ponds 1 and 2 are from December 2017, which show a very clear outline of the maximum or near-maximum extent of potential ponding (the same range of years was used for these ponds as well). Although Pond 3 (previously identified as VP-6 in the 2006 BonTerra fairy shrimp survey) is depicted on Exhibit 4 (of the WST Report [Appendix B-1]), the near-maximum extent from the 2006 *Fairy Shrimp Report* has been included in Table 2-4. Table 2-4 establishes the baseline for WST habitat "that must be recreated to preserve the WST population presently existing on the Project site". (Court Ruling at p. 17.)

[12] BonTerra Psomas. September 2017. *DRAFT Western Spadefoot Toad Relocation Program* prepared for the FSEIR: NorthLake Specific Plan Residential Development Project, Los Angeles County, California.

[13] Aerial photographs that show unambiguous ponding were examined on Google Earth Pro© include 6/1994, 12/2005, 3/2006, 7/2008, 6/2009, 4/2011, 12/2013, 8/2014, 5/2015, 2/2016, 7/2017, and 8/2019. As noted, the aerial from 4/2011 shows the pool at capacity and the areas was calculated using ArcGIS.

TABLE 2-4
REVISED DIMENSIONS OF EXISTING EPHEMERAL PONDS AND CATTLE POND

Pond	Shape	Dimensions	Surface Area	Perimeter[1]	Estimated Depth[2]
1 (upslope)	Oval	NA	2,600 square feet	190 feet	1 foot 2 inches
2 (downslope)	Circular	NA	1,300 square feet	110 feet	1 foot 9 inches
Cattle Pond	Oval	NA	35,284 square feet	790 feet	3 feet 6 inches
3	Oval	NA	2,178 square feet	177 feet	14 inches
Total			41,362 square feet (0.95 acre)		

[1] Perimeter measurements are based on review of aerial photographs over a period of years, between 1994 and 2021.
[2] Depths are from Table 1 of the BonTerra *DRAFT Western Spadefoot Toad Relocation Program.*

Special-Status Plants

Round-Leaved Filaree

Round-leaved filaree was observed during 2001 plant surveys, when 39 plants were observed within the Project's development boundary. However, this species was not observed during surveys conducted in 2014, indicating that this species may have been extirpated from the Project Site. Site visits on April 6 and 14, 2022, to the site location where the species was previously detected in 2001 did not find the population, consistent with the finding that the population may have been extirpated.

Paniculate Tarplant

Paniculate tarplant was observed in 2014 in a single population that consisted of several hundred individual plants, all of which occur in the Project's development boundary. The population was detected on April 14, 2022, consistent with the previous observations.

Southwestern Spiny Rush

Southwestern spiny rush was observed throughout Grasshopper Canyon and it was estimated that several hundred individual plants exist in the Project's development boundary. GLA conducted a focused survey and census in 2021 and found approximately 2,000 individuals in Grasshopper Creek.

Slender mariposa lily and club-haired mariposa lily

During botanical surveys conducted in 2014, BonTerra reported that approximately 1,709 individuals of slender/club-haired mariposa lily hybrids were observed at 36 locations on the Project Site. An additional 22 populations contained plants of varying densities, likely representing an additional 1,000 or more individuals. It is estimated that over 3,000 individuals occur on the Project Site; however, in the BonTerra *Draft Rare Plant Plan*, it was clarified that of the approximately 3,000 individuals observed on the Project Site, approximately 2,000 individuals are located within the Project's development boundary.

Crotch's Bumblebee

Surveys were conducted by GLA biologists experienced in conducting focused surveys for the CBB in areas of suitable habitat within the proposed development area as well as areas of onsite and offsite open space as depicted on Exhibit 1 of the CBB Survey Report (Attachment J).

GLA biologists performed focused surveys for the CBB within suitable habitat areas within the NorthLake Project site. Surveys followed a protocol developed by GLA which largely encompasses the CBB flight season (March to September) when the queen, daughters, males and new queens are generally active. Surveys are preferably spaced out throughout the flight season to take advantage of different blooming periods and floral resources. The survey protocol recommends that individual biologists conduct three focused surveys during the flight season, beginning within the three acres that contain the highest quality floral resources per every 50 acres of potential suitable habitat. Based on previous mapping by BonTerra[14], the Project Site supports up to 1001.8 acres of potential suitable habitat, and due to the overall size of the Project Site and distance between suitable habitat areas, four different biologists conducted three focused surveys each, with two or three biologists during each survey visit. In addition to the focused surveys listed in Table 1 below, CBB were observed on April 3, 2024 during other biological surveys conducted by GLA.

During each focused survey, two sampling approaches were implemented. During the first phase, the surveyor conducted one hour of visual survey effort within the three-acre flowering area identified as supporting the highest quality habitat as determined by the surveyor. If CBB were not detected during the first hour of searching, a second hour of survey effort was conducted. During the second hour, the surveyor could either choose to resurvey the same flowering area (if any *Bombus* species were detected prior) or the surveyor could choose to conduct a second hour of searching within another high quality three-acre flowering area on site. If CBB were not detected during the second hour of the survey effort, the second survey phase was implemented, in which the surveyor surveyed the best additional flowering areas throughout the site, as deemed appropriate. The surveyor scanned suitable flowering areas for bumblebee activity and focused on those areas. Minimal time was spent in lesser quality habitat. Depending on the size of the habitat area, the opportunistic survey effort generally did not exceed one hour. In addition, GLA biologists documented bumblebee activity incidentally during all other biological surveys.

Focused surveys were conducted by GLA biologists Jason Fitzgibbon, Chris Waterston, Stephanie Cashin, and Ian Rhodes on May 15, May 16, May 23 and June 27, 2024. Pursuant to the survey guidelines, the surveys were conducted during daytime hours when floral resources were in bloom and when it was sufficiently warm for bumblebee activity. Weather conditions during the surveys were conducive to a high level of bee activity. Table 1 of the CBB Survey Report summarizes the CBB survey visits.

CBB were detected within the proposed development areas and within proposed open space areas as depicted on Exhibit 1 of the CBB Survey Report. Based on previous vegetation mapping for the Project Site conducted for the Biological Technical Assessment Report (BTAR) prepared by BonTerra (2015), the Project Site contains areas of sage scrub communities, native grassland communities and wildflower fields that provide suitable nectar sources and therefore considered suitable habitat for the CBB. As recorded in the BTAR and depicted on Exhibit 2 of the CBB Survey Report, the following vegetation associations were confirmed by GLA to exhibit suitable conditions based on a combination of CBB survey observations and the presence of suitable

[14] BonTerra. December 2015. Biological Technical Assessment Report, NorthLake Specific Plan Development Project, Prepared for Woodridge Capital Partners, LLC 1999 Avenue of the Stars Suite 2850 Los Angeles, California 90067.

nectar plants: sage scrub communities, native grassland communities and California annual grassland/Wildflower fields.

2.1.5 RELEVANT PLANS, POLICIES, AND REGULATIONS

Federal

Federal Endangered Species Act[15]

The Federal Endangered Species Act (FESA) of 1973 protects plants and animals that the government has listed as "Endangered" or "Threatened". The FESA is implemented by enforcing Sections 7 and 9 of the Act. A federally listed species is protected from unauthorized "take" pursuant to Section 9 of the FESA. "Take", as defined by the FESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt to engage in any such conduct. All persons are presently prohibited from taking a federally listed species unless and until (1) the appropriate Section 10(a) permit has been issued by the USFWS or (2) an Incidental Take Permit is obtained as a result of formal consultation between a federal agency and the USFWS pursuant to Section 7 of the FESA and the implementing regulations that pertain to it (*Code of Federal Regulations* [CFR], Title 50, Section 402). "Person" is defined in the FESA as an individual, corporation, partnership, trust, association, or any private entity; any officer, employee, agent, department or instrument of the federal government; any State, Municipality, or political subdivision of the State; or any other entity subject to the jurisdiction of the U.S. The Project Applicant is a "person" for purposes of the FESA.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 661–666), enacted in 1934, applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate State wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the National Environmental Policy Act (NEPA) process and Section 404 permit process.

Section 404 and 401 of the Clean Water Act of 1972

Section 404 of the Clean Water Act (CWA, 33 USC 1251 et seq.) regulates the discharge of dredged or filled material into "Waters of the U.S.", including wetlands. "Waters of the U.S." include navigable coastal and inland waters, lakes, rivers, streams, and their tributaries; interstate waters and their tributaries; wetlands adjacent to such waters; intermittent streams; and other waters that could affect interstate commerce. The USACE is the designated regulatory agency responsible for administering the 404 permit program and for making jurisdictional determinations. This permitting authority applies to all "Waters of the U.S." where the material has the effect of (1) replacing any portion of "Waters of the U.S." with dry land or (2) changing the bottom elevation

[15] On December 5, 2023, U.S. Fish and Wildlife Service (USFWS) issued a "Proposed Rule" to list the WST. Currently, the WST remains a California Species of Concern and the finding of significance would not change. The new federal status of "Proposed Threatened" would not change the finding that the impacts on the WST from the previously approved Project would be significant (see below). Under the CEQA Appendix G Guidelines, the proposed mitigation would remain adequate, and no additional mitigation would be necessary due to the new federal Proposed Rule. (Appendix H to the RPDSEIR, Effects of Potential Listing of Western Spadefoot Toad on NorthLake Project in Castaic, Los Angeles County, California (November 12, 2023) by Glenn Lukos Associates, Inc. [GLA 2023b])

of any portion of "Waters of the U.S.". These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in the "Waters of the U.S.". Dredge and fill activities are typically associated with development projects; water-resource related projects; infrastructure development and wetland conversion to farming; forestry; and urban development.

Under Section 401 of the CWA, an activity requiring a USACE Section 404 permit must obtain a State Water Quality Certification (or waiver thereof) to ensure that the activity will not violate established State water quality standards. The U.S. Environmental Protection Agency (USEPA) is the federal regulatory agency responsible for implementing the CWA. However, the State Water Resources Control Board (SWRCB), in conjunction with the 9 California Regional Water Quality Control Boards (RWQCBs), has been delegated the responsibility for administering the Section 401 water quality certification program.

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act. The RWQCB's jurisdiction extends to all "Waters of the State" and to all "Waters of the U.S.", including wetlands (isolated and non-isolated). Section 401 requires the RWQCB to provide "certification that there is reasonable assurance that an activity which may result in the discharge to 'waters of the U.S.' will not violate water quality standards". Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives that can be found in each of the 9 Regional Boards' Basin Plans.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 may have originally been intended to reduce hunting of migratory birds, but has been interpreted more broadly by some resource agencies in recent years. The broader interpretation is that bird nests containing eggs or young are protected under the MBTA from any disturbance that may directly or indirectly affect the success of the nesting attempt regardless of the intent of the activity that caused the disturbance. Although federal agencies have not enforced this interpretation, some State and local agencies have referred to it as a reason to require avoidance measures as part of project approval permits.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668) provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting—except under certain specified conditions—the taking, possession, and commerce of these 2 bird species. The 1972 amendments increased penalties for violating provisions of the Act and strengthened other enforcement measures. A 1978 amendment authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. A 1994 Memorandum (59 CFR 22953, April 29, 1994) from President William J. Clinton to the heads of Executive Agencies and Departments sets out the policy concerning collection and distribution of eagle feathers for Native American religious purposes.

State

California Endangered Species Act

Pursuant to the CESA and Section 2081 of the *California Fish and Game Code*, an Incidental Take Permit from the CDFW is required for projects that could result in the take of a State-listed Threatened or Endangered species. Under the CESA, a "take" is defined as an activity that would

directly or indirectly kill an individual of a species, but the definition does not include "harm" or "harass", as the federal act does. As a result, the criteria for a take under the CESA is less strict than that under the FESA. A CDFW-authorized Incidental Take Permit under Section 2081(b) is required when a project could result in the take of a State-listed Threatened or Endangered Species.

California Fish and Game Code

California Native Plant Protection Act

The Native Plant Protection Act (NPPA; *California Fish and Game Code,* Sections 1900–1913) of 1977 directed the CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as "Endangered" or "Rare" and to protect Endangered and Rare plants from take. The CESA expanded on the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the *California Fish and Game Code.* To align with federal regulations, CESA created the categories of "Threatened" and "Endangered" species. It converted all "Rare" animals in the Act as Threatened species, but did not do so for Rare plants. Thus, there are three listing categories for plants in California: Rare, Threatened, and Endangered. Because Rare plants are not included in CESA, mitigation measures for impacts to Rare plants are specified in a formal agreement between the CDFW and the project proponent.

Chapter 6 of the California Fish and Game Code

Sections 1600–1616 of the *California Fish and Game Code* require a State, local governmental agency, or public utility to notify the CDFW before beginning construction on a project that will (1) divert, obstruct, or change the natural flow or the bed, bank, channel, or bank of any river, stream, or lake; (2) use materials from a streambed; or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. When an existing fish or wildlife resource may be substantially adversely affected, the CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement (SAA) that becomes part of the plans, specifications, and estimates documents for a project.

The term "stream," which includes creeks and rivers, is defined in the CCR as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Stream-dependent riparian habitat is defined in the *California Fish and Game Code* (Section 2785) as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source". Removal of stream-dependent riparian vegetation may also require a SAA from the CDFW.

Section 1802

State law confers upon the CDFW the trustee responsibility and authority for the public trust resource of wildlife in California. The CDFW may play various roles under the CEQA process. By State law, the CDFW has jurisdiction over the conservation, protection, and management of the wildlife, native plants, and habitat necessary to maintain biologically sustainable populations. The CDFW shall consult with lead and responsible agencies and shall provide the requisite biological

expertise to review and comment on environmental documents and impacts arising from project activities.

As a trustee agency, the CDFW has jurisdiction over certain resources held in trust for the people of California. Trustee agencies are generally required to be notified of CEQA documents relevant to their jurisdiction, whether or not these agencies have actual permitting authority or approval power over aspects of the underlying project (*California Code of Regulations* [CCR], Title 14, Section 15386). The CDFW, as a trustee agency, must be notified of CEQA documents regarding projects involving fish and wildlife of the state as well as Rare and Endangered native plants, wildlife areas, and ecological reserves. Although, as a trustee agency, the CDFW cannot approve or disapprove a project, lead and responsible agencies are required to consult with them. The CDFW, as the trustee agency for fish and wildlife resources, shall provide the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities and shall make recommendations regarding those resources held in trust for the people of California (*California Fish and Game Code*, Section 1802).

Sections 3503, 3503.5, and 3513

Nesting birds are protected in Sections 3503, 3503.5, and 3513 of the *California Fish and Game Code.* These sections state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code. Section 3503.5 explicitly provides protection for all birds of prey, including their eggs and nests. Section 3513 makes it unlawful to take or possess any migratory non-game bird as designated in the MBTA.

Regional

County of Los Angeles Oak Tree Ordinance

Within Los Angeles County, the County of Los Angeles Oak Tree Ordinance (Ordinance No. 22.174.030) stipulates that a person shall not cut, destroy, remove, relocate, inflict damage, or encroach into the protected zone of any tree of the oak tree genus that is 8 inches or more in diameter 4½ feet above mean natural grade or, in the case of oaks with multiple trunks, a combined diameter of 12 inches or more of the 2 largest trunks, without first obtaining a permit.

County of Los Angeles General Plan

The current General Plan requires the NLSP to address the following policies, as stated in Conservation/Natural Resources Element. The Project's consistency with the following policies is presented in Section 5.9, Land Use, of the SEIR.

Conservation/Natural Resources Element

- **Policy C/NR 3.1:** Conserve and enhance the ecological function of diverse natural habitats and biological resources.
- **Policy C/NR 3.10:** Require environmentally superior mitigation for unavoidable impacts on biologically sensitive areas, and permanently preserve mitigation sites.
- **Policy C/NR 3.11:** Discourage development in riparian habitats, streambeds, wetlands, and other native woodlands in order to maintain and support their preservation in a natural state, unaltered by grading, fill, or diversion activities.

Santa Clarita Valley Area Plan

The SCVAP 2012 requires the NLSP to address the following policies from its Conservation and Open Space Element. The Project's consistency with the following policies is presented in Section 5.9, Land Use, of the SEIR.

Conservation and Open Space Element

- **Policy CO-1.1.3:** In making land use decisions, encourage development proposals that preserve natural ecosystem functions and enhance the health of the surrounding community.
- **Policy CO-3.1.2:** Avoid designating or approving new development that will adversely impact wetlands, floodplains, threatened or endangered species and habitat, and water bodies supporting fish or recreational uses, and establish an adequate buffer area as deemed appropriate through site specific review.
- **Policy CO-3.1.3:** On previously undeveloped sites ("greenfields"), identify biological resources and incorporate habitat preservation measures into the site plan, where appropriate. (This policy will generally not apply to urban infill sites, except as otherwise determined by the reviewing agency).
- **Policy CO-3.1.5:** Promote the use of site-appropriate native or adapted plant materials, and prohibit use of invasive or noxious plant species in landscape designs.
- **Policy CO-3.1.6:** On development sites, preserve and enhance natural site elements including existing water bodies, soil conditions, ecosystems, trees, vegetation and habitat, to the extent feasible.
- **Policy CO-3.1.7:** Limit the use of turf-grass on development sites and promote the use of native or adapted plantings to promote biodiversity and natural habitat.
- **Policy CO-3.1.8:** On development sites, require tree planting to provide habitat and shade to reduce the heat island effect caused by pavement and buildings.
- **Policy CO-3.1.9:** During construction, ensure preservation of habitat and trees designated to be protected through use of fencing and other means as appropriate, so as to prevent damage by grading, soil compaction, pollution, erosion or other adverse construction impacts.
- **Policy CO-3.1.10:** To the extent feasible, encourage the use of open space to promote biodiversity.
- **Policy CO-3.2.1:** Protect wetlands from development impacts, with the goal of achieving no net loss (or functional reduction) of jurisdictional wetlands within the planning area.
- **Policy CO-3.2.3:** Ensure protection of any endangered or threatened species or habitat, in conformance with State and federal laws.
- **Policy CO-3.3.3:** Identify and protect one or more designated wildlife corridors linking the Los Padres and Angeles National Forests through the Santa Clarita Valley (the San Gabriel-Castaic connection).
- **Policy CO-3.3.5:** Encourage connection of natural open space areas in site design, to allow for wildlife movement.
- **Policy CO-3.4.1:** Coordinate with the United States Forest Service on discretionary development projects that may have impacts on the National Forest.

- **Policy CO-3.5.1:** Continue to plant and maintain trees on public lands and within the public right-of-way to provide shade and walkable streets, incorporating measures to ensure that roots have access to oxygen at tree maturity, such as use of porous concrete.
- **Policy CO-3.5.2:** Where appropriate, promote planting of trees that are native or climactically appropriate to the surrounding environment, emphasizing oaks, sycamores, maple, walnut, and other native species in order to enhance habitat, and discouraging the use of introduced species such as eucalyptus, pepper trees, and palms except as ornamental landscape features.
- **Policy CO-3.6.1:** Minimize light trespass, sky-glow, glare, and other adverse impacts on the nocturnal ecosystem by limiting exterior lighting to the level needed for safety and comfort; reduce unnecessary lighting for landscaping and architectural purposes, and encourage reduction of lighting levels during non-business nighttime hours.
- **Policy CO-3.6.2:** Reduce impervious surfaces and provide more natural vegetation to enhance microclimates and provide habitat. In implementing this policy, consider the following design concepts:
    - Consideration of reduced parking requirements, where supported by a parking study and/or through shared use of parking areas;
    - Increased use of vegetated areas around parking lot perimeters; such areas should be designed as bioswales or as otherwise determined appropriate to allow surface water infiltration;
    - Use of connected open space areas as drainage infiltration areas in lieu of curbed landscape islands, minimizing the separation of natural and landscaped areas into isolated “islands”; and
    - Breaking up large expanses of paving with natural landscaped areas planted with shade trees to reduce the heat island effect, along with shrubs and groundcover to provide diverse vegetation for habitat.
- **Policy CO-3.6.5:** Ensure revegetation of graded areas and slopes adjacent to natural open space areas with native plants (consistent with fire prevention requirements).

2.1.6 THRESHOLD CRITERIA

Threshold 2-1 Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

2.1.7 RELEVANT PROJECT CHARACTERISTICS

The Project includes the preservation of approximately 325.5 acres of undeveloped natural land. In addition, the southeastern reach of Grasshopper Creek would be preserved as a significant habitat mitigation and restoration area. Additionally, in accordance with the NLSP, whenever possible, overall plant material selection for a given area shall have compatible drought resistant characteristics and irrigation programming shall be designed to minimize water applications so that impacts to adjacent natural areas are minimized.

2.1.8 IMPACT ANALYSIS AND MITIGATION MEASURES

Western Spadefoot Toad

As described above, the Project Site contains a maximum of four ponded features that can support WST. These four ponded features will be potentially impacted by the Project. As shown in Table 2-4 above, the four ponded features total 0.95 acres of habitat for the WST. The loss of 0.95 acre of habitat for the WST would be considered significant before mitigation. With implementation of revised MM 5.2-9, below, the impact would be reduced to a less than significant level. Revised MM 5.2-9 is designed to recreate the optimal conditions for WST habitat that was observed and documented in the 2006 BonTerra fairy shrimp report.

Rationale For Expecting Success With Mitigation

As noted in the WST Report, and summarized herein, WST has shifted habitat use in portions of California from vernal pools to artificial ponds such as stock ponds and other ponding features of anthropogenic origin, many of which have created WST breeding areas quite by accident. As such, any assertions that it is difficult to create ponds that are suitable for WST breeding are not necessarily accurate. GLA has been involved in WST habitat creation projects that have been successful and provided an example of one such effort that has been well-studied since the seasonal ponds were created in 2005 and 2006 on Irvine Mesa in an area known as East Orange, which is now part of the Orange County Central Coastal Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) Reserve. The 15 created pools overall achieved performance standards after six years of monitoring and included breeding WST in eight of the pools as of the 2009/2010 rainfall season. It is important to note that the performance standards included a number of components that were focused on the quality of the created pools and included hydroperiod (length of ponding) as it was recognized that this is clearly the most critical component of WST pond creation. Presence of fairy shrimp, a common food source for WST larvae were an important pool component and these along with the egg masses and larvae were introduced from the impact pools to the created pools. It was understood that pools with the proper characteristics would ultimately support WST. Thus, the results of follow-up studies conducted up to seven years following completion of the initial program, showed that WST had expanded to 12 pools within the 15-pool complex. Importantly, even in a drought year the pools exhibited sufficient ponding for breeding, though as is often the case for WST in such years, desiccation resulted in the loss of many tadpoles. Revised MM 5.2-9, below, is based on GLA's expert and successful experience in creating ponds that are suitable for WST breeding. The *Western Spadefoot Toad Impact Assessment and Habitat Mitigation and Monitoring Plan*, which is incorporated into revised MM 5.2.9, also includes a ten-year monitoring and maintenance program and contingency measures that would be implemented should WST translocation of inoculum not be on a trajectory for meeting the final success criteria.

Special-status Plants

Round-Leaved Filaree

Round-leaved filaree was observed during 2001 plant surveys, when 39 plants were observed within the Project development boundary. However, this species was not observed during surveys conducted in 2014, indicating that this species may have been extirpated from the Project Site. Site visits on April 6 and 14, 2022 to the site location where the species was previously detected in 2001 did not find the population, consistent with the finding that the population may have been extirpated. If this species is not detected during pre-construction plant surveys, it would be considered extirpated, and no mitigation would be required.

As noted above, in November 2017, the California Native Plant Society removed this species from the "Inventory of Rare and Endangered Plants" changing the status from 1B.2 to CBR with the note: "Too common statewide"; with the additional comment: "counties that contain small, localized populations under severe threat should track *C. macrophylla* as a species of local concern." This species has over 600 reported occurrences in CalFlora statewide. Thus, this species no longer has special status in California. The round-leaved filaree is not listed on an official local or regional plan; nevertheless, there are only a few occurrences in northern Los Angeles County and is considered locally rare.[15] Therefore, potential impacts to this species, if determined to be present, would be considered significant under CEQA. With implementation of MM 5.2-5(a), below, the impact would be reduced to a less than significant level.

Rationale For Expecting Success With Mitigation

Round-leaved filaree is an annual herb that reproduces by seed in open areas such as grasslands and in openings in coastal sage scrub. Collection of seed with germination, propagation and translocation of propagated plants to suitable habitat/soils by a qualified nursery or similar institution as set forth in MM 5.2-5(a) below, will ensure a high probability of success for the translocation program. The round-leaved filaree translocation program also includes a ten-year monitoring and maintenance program and contingency measures that would be implemented should translocation sites not be on a trajectory for meeting the final success criteria.

Paniculate Tarplant

Paniculate tarplant was observed in 2014 in a single population that consisted of several hundred individual plants, all of which occur within the Project's development boundary. The population was detected on April 14, 2022, consistent with the previous observations. As noted, this species is listed as S4 in the CNDDB or "apparently secure within California". Moreover, while (1) the CRPR rank of 4 and the S4 Rarity Ranking, (2) over 700 reported population occurrences in CalFlora statewide–substantially exceeding the minimum threshold of 100 occurrences for the S4 category, and (3) that this species is not on any official local or regional plans, there are only a few occurrences in northern Los Angeles County and is considered locally rare. Therefore, removal of the Project Site population would be considered significant under CEQA and would require mitigation. With implementation of MM 5.2-5(b), below, the impact would be reduced to a less than significant level.

Rationale For Expecting Success With Mitigation

Paniculate tarplant is an annual herb that reproduces prolifically by seed in open areas such as grasslands, disturbed areas such as roadsides, as well as in openings in coastal sage scrub. Collection of seed with hand broadcasting to suitable habitat/soils over a period of three seasons to the translocation of seed as set forth in MM 5.2-5(b) habitat by a qualified biologist or botanist as set forth in MM 5.2-5(b) below, will ensure a high probability of success for the translocation program. The paniculate tarplant translocation program also includes a ten-year monitoring and maintenance program and contingency measures that would be implemented should translocation sites not be on a trajectory for meeting the final success criteria.

Southwestern Spiny Rush

Southwestern spiny rush was observed throughout Grasshopper Canyon and it was estimated that several hundred individual plants exist in the Project development boundary. GLA conducted a focused survey and census in 2021 and found approximately 2,000 individuals in Grasshopper Creek. As noted, this subspecies is listed as S4 in the CNDDB or "apparently secure within California". Moreover, while (1) the CRPR rank of 4 and the S4 Rarity Ranking, (2) over 400

reported occurrences in CalFlora statewide–substantially exceeding the minimum threshold of 100 occurrences for the S4 category, and (3) that this species is not on any official local or regional plans, there are only a few occurrences in northern Los Angeles County and it is considered locally rare. Therefore, removal of the Project Site population would be considered significant under CEQA and would require mitigation. With implementation of MM 5.2-5(c), below, the impact would be reduced to a less than significant level.

Rationale For Expecting Success With Mitigation

Southwestern spiny rush is a perennial rush that propagates from seed and vegetatively from rhizomes. Southwestern spiny rush grows along streams and also grows in areas with springs or seeps. Seed will be collected from southwestern spiny rush plants located within the impact boundaries by a qualified nursery or similar institution as set forth in MM 5.2-5(c) below. This will ensure a high probability of success for the translocation program. The collected seed will be stored for propagation of container plants. Once propagated, the container plants would be introduced to the translocation site. The southwestern spiny rush translocation program also includes a ten-year monitoring and maintenance program and contingency measures that would be implemented should translocation sites not be on a trajectory for meeting the final success criteria.

Slender Mariposa Lily and Club-Haired Mariposa Lily

BonTerra reported that approximately 1,709 individuals of slender/club-haired mariposa lily hybrids were observed at 36 locations on the Project Site during botanical surveys conducted in 2014; an additional 22 populations contained plants of varying densities, likely representing an additional 1,000 or more individuals. It is estimated that over 3,000 individuals occur on the Project Site. However, in the BonTerra *Draft Rare Plant Plan*, it was clarified that of the approximately 3,000 individuals observed in the Project Site, approximately 2,000 individuals are located within the Project's development boundary. Given the List 1B status and S2S3 CNDDB Rank for the slender mariposa lily and the S3 Rarity Rank for the club-haired mariposa lily and the CalFlora occurrences (95 and 117 respectively), impacts to this species would be considered significant under CEQA and mitigation would be required. With implementation of MM 5.2-4, below, the impact would be reduced to a less than significant level.

Rationale For Expecting Success With Mitigation

The slender/club-haired mariposa lily is a short-lived perennial bulb that reproduces from seed. As set forth in MM 5.2-4, translocation will be implemented through a combination methods including 1) collection of existing bulbs for translocation by qualified habitat restoration specialist and seed collection with propagation by a qualified nursery or similar institution for translocation following propagation. The slender/club-haired mariposa lily translocation program also includes a ten-year monitoring and maintenance program and contingency measures that would be implemented should translocation sites not be on a trajectory for meeting the final success criteria.

Crotch's Bumblebee

Project grading will impact the following vegetation alliances that support or could potentially support CBB based on the presence of suitable floral resources.

Sage Scrub Communities
A total of 634.70[16] acres of sage scrub would be impacted by Project implementation, which includes Purple sage scrub, California sagebrush–California buckwheat scrub, Black sage scrub, California sagebrush–California buckwheat scrub/Foothill needlegrass grassland, California sagebrush–California buckwheat scrub/California annual grassland, and the burned sage scrub areas: burned Purple sage scrub, burned California sagebrush–California buckwheat scrub, burned Black sage scrub, and burned California sagebrush–California buckwheat scrub/California annual grassland. Impacts on these vegetation types would be considered significant due to the loss of this vegetation type in southern California and the potential for this habitat to support special status species.

Native Grassland Communities
A total of 24.23 acres[17] of Foothill needlegrass grassland and burned Foothill needle grass grassland would be impacted by Project implementation. Impacts on this vegetation type would be considered significant due to the limited distribution of this vegetation type in California.

California Annual Grassland/Wildflower Fields
A total of 342.85 acres[18] of California annual grassland/Wildflower fields would be impacted by Project implementation. Impacts on California annual grassland/Wildflower fields would be considered adverse and potentially significant because of the density and diversity of native plants found in this vegetation type and because of the general lack of similar areas in the Project vicinity.

Based on the detection of CBB within the NorthLake development area, it is expected that an Incidental Take Permit will be needed to authorize incidental take of CBB during grading. Mitigation for direct impacts to CBB and associated habitat will be fulfilled through compensatory mitigation at a minimum 2:1 suitable habitat that provides replacement of equal functions and values to those impacted by the NorthLake project, or as otherwise determined through the Incidental Take Permit process. Mitigation will be accomplished either through a combination of onsite conservation, offsite conservation on adjacent NorthLake owned lands, and/or through a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate will be prepared to estimate the initial start-up costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source will be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount will be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record will consider all management activities required in the Incidental Take Permit to fulfill the requirements of the conservation easement(s), which are currently in review and development.

[16] BonTerra. December 2015, p. 60.
[17] Ibid, p. 60.
[18] Ibid, p. 61.

Based on areas of suitable habitat, the Project would provide 337.55 acres of mitigation within the onsite conservation areas and 156.7 acres of conservation on adjacent NorthLake ownership for a total of 492.2 acres of preservation. (Exhibit 3 to the CBB Survey Report.) Thus, based on impacts to up to 1,001.8 acres of suitable habitat which supports or potentially supports CBB, the mitigation ratio of 2:1 would be 2,003.6 acres. To achieve 2:1 mitigation, NorthLake will provide approximately 337.5 acres onsite, 156.7 acres on NorthLake-owned offsite property, and obtain 1,509.4 acres from a CDFW-approved mitigation bank or through purchase and long-term conservation of suitable habitat, or a combination of the two options to account for the remainder. Appendix B to the CBB Survey Memo (Feasibility Analysis of NorthLake Biological Resources Contributors, Attachment 2 [Table 3, Top 20 High Scoring Parcels from Regional Analysis]) is a Mitigation Feasibility Assessment that includes candidate properties with suitable habitat such as coastal sage scrub, chaparral, and native grasslands that contain suitable habitat for CBB.

The proposed mitigation will correspond to the requirements of the NorthLake Specific Plan Final Supplemental EIR (FSEIR) that were set forth in the previous approvals. With the implementation of the previously approved proposed mitigation set forth below, significant impacts on CBB would be reduced to less-than-significant consistent with the FSEIR measures excerpted below.

Rationale For Expecting Success With Mitigation

Regarding the mitigation, it is important to note that for a recently issued Incidental Take Permit[19] for CBB, the CDFW required a ratio of 1.5:1 consisting of a combination of restoration and enhancement. The preservation of Open Space Mitigation Areas, including onsite areas and adjacent offsite areas owned by NorthLake plus purchase of suitable habitat in a mitigation bank or other approved lands determined in coordination with CDFW results in conservation of substantial areas of high-quality chaparral and coastal sage scrub and other habitat types that are both suitable for and occupied by the CBB at a 2:1 ratio exceeding the amount required for the Incidental Take Permit referenced above.

Mitigation Measures

Western Spadefoot Toad

SDEIR Mitigation Measure 5.2-9 is revised as follows:

MM 5.2-9 A mitigation program for western spadefoot toad (WST) shall be implemented prior to construction, ground disturbance, or vegetation removal that would impact the WST breeding habitat, or areas within 1,000 feet of WST-occupied ponds within the Project Site. The mitigation program would include the components set forth below. A detailed methodology for this effort shall be reviewed by the CDFW and the LACDRP prior to implementation of the mitigation program. Results of the mitigation program shall be provided to the CDFW and the LACDRP.

- Prior to implementing the Spadefoot Relocation Plan, two focused surveys during average or above-average rainfall years will be conducted within the prior appropriate seasons. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e., 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as those identified in recent surveys.

[19] California Department of Fish and Wildlife, 2024. California Endangered Species Act Incidental Take Permit No. 2081-2023-035-06 for the Shady View Project in Chino Hills, California.

- Suitable sites for seasonal pond creation, within the Project open space, specifically within other NorthLake-owned properties, have been identified and 1.07 acres of seasonal pond habitat will be created. The specific location of the 1.07-acre pool complex is depicted on Exhibit 5 of the *NorthLake Castaic, Los Angeles County, California, Western Spadefoot Toad Impact Assessment and Habitat Mitigation and Monitoring Plan July 2022 (Revised March and June 2023)* (HMMP). As described in the WST Mitigation Implementation Plan, three pools would be created based on current grading plans. The combined size of the three pools (1.07 acres) exceeds the maximum combined size of potential WST habitat currently at the Project Site (0.95 acres, as shown in Table 2-4, above). The WST Mitigation Implementation Plan would address the following issues specific to the site or sites:
    - Soil Characteristics and whether clay liners will be necessary
    - Pool locations and site access routes for construction
    - Types of habitat potentially affected by construction and measures to restore damaged subject to temporary impacts
    - Watershed size and characteristics
    - Grading plan with cross section for each pool to be created
    - Specifications for clay liner (in needed) including source of clay and installation methods
    - Upland habitat characteristics, including soil suitability for burrowing and vegetative buffer, will also be addressed in the plan
- Following creation of the 1.07-acre pool complex or complexes and prior to grading of the impacted pools, each pool within each complex will be monitored during the rainy season to ensure that the created pools exhibit at least 60 days of ponding during an average or above-average rainfall year.
- Following documentation of adequate ponding for each created pool during an average or above-average rainfall year, and prior to grading of the impacted pools, soil inoculum from the impacted pools will be translocated to the created pools to provide a food source for WST.
- Following documentation of adequate ponding for each created pool during an average or above-average rainfall year, and prior to grading of the impacted pools, WST egg masses, larvae and metamorphs will be translocated to the created pools for at least two wet seasons where WST egg masses, larvae and metamorphs are present in the impact pools and suitable conditions to receive the WST egg masses, larvae and metamorphs are present in the created pools. In addition, data regarding successful breeding will be submitted to CDFW for concurrence that sufficient reproduction has occurred to allow impacts to the pools in the development area.
- During grading of the pools to be impacted, the Project Biologist will be present to rescue any adult WST that would be relocated to the created pool complex.

- Following the two seasons of translocation of WST egg masses, larvae and metamorphs, and successful breeding, the created pools will be monitored for ten years as set forth in HMMP Table 6 (Conceptual Schedule for Pond Creation Milestones) to document the progression of the WST toward the performance standards provided in the WST HMMP prepared for the project:
    - **Hydrological Monitoring Performance Standard.** Ponding duration of at least 60 days must be documented to occur during average or above average rainfall years prior to translocation of egg masses, larvae, metamorphs, or adults. Ponding duration of at least 60 days must also be documented during the 10-year monitoring period. At the end of the ten-year monitoring period, this performance standard will have been achieved if ponding duration equals or exceeds ponding duration of 60 days during average or above-average rainfall years. It is important to note that during below-average rainfall years, depending on the severity of drought conditions that the created ponds will not pond for sufficient duration to allow WST to reach maturity. Thus, during the ten-year monitoring period, it is to be expected that some years will not pond for 60 days. Nevertheless, the performance standard for hydrology will be considered achieved as long a ponding for 60 days occurs during average rainfall years. Finally, hydrology may be augmented at the direction of the Project Biologist, especially once breeding is observed and is threatened by declining water levels in the pools due to lower-than average rainfall. In the event that the Project Biologist determines that additional water should be added to any pond occupied by egg masses or larvae, it will be necessary to ensure protection of the egg masses and larvae by discharging water to the pool(s) in a manner that does not disturb the egg masses or larvae and does not result in the erosion of soil into the pool(s). This could be accomplished through temporary placement of large gravel at the discharge site (at the edge of the pool(s)) underlain by plastic that would allow the water to enter the pool(s) slowly and with no sediment.
    - **Performance Standard Prior to Grading**. Prior to Project grading that removes the impacted doner pools, during an average or above-average rainfall year, at least two of the three created ponds within the pond complex exhibits emergence of metamorphs in each pond to ensure breeding in subsequent years. Successful breeding would be determined by the presence of egg masses that are not present due to translocation but which occur due to reproduction. Should this occur during a below-average rainfall year, the condition would be satisfied as it would show that the pools are performing as intended. In any case, data regarding successful breeding will be submitted to CDFW for concurrence that sufficient reproduction has occurred to allow impacts to the pools in the development area.
    - **Performance Standard Post-Grading**. Following Project grading that removes the impacted donor pools, during an average or above-average rainfall year, at least two of the three created ponds within the pond complex will exhibit breeding as indicated by the

presence of WST egg masses, tadpoles/larvae/ or metamorphs, to confirm establishment of breeding WST for each pond complex created. Should this occur during a below-average rainfall year, the condition would be satisfied as it would show that the pools are performing as intended.

Special-Status Plants

DSEIR Mitigation Measures 5.2-5 and 5.2-4 are revised as follows:

Round-Leaved Filaree

MM 5.2-5(a) Mitigation for the round-leaved filaree shall consist of transplantation of round-leaved filaree to a mitigation site and establishment of a self-sustaining population as set forth in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (*Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*).[20] The *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* has been subject to review and approval by LACDRP and CDFW. A designated Project Biologist approved by the LACDRP and CDFW shall oversee its implementation. Seeds will be collected from round-leaved filaree that are located within the impact boundaries and stored for propagation of container plants to provide for introduction of propagated plants to the translocation site depicted on Exhibit 4A of the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*. The Mitigation Program in the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* sets forth the following activities necessary to fully mitigate the significant impacts to the round-leaved filaree:

- A pre-grading survey shall be conducted for two seasons, prior to grading of the occupied area, during the peak flowering period (approximately March through May) by the Biological Monitor. The Biological Monitor shall clearly identify the extent of the round-leaved filaree location within the impact area with pin flags and record the extent of the population using sub-meter GPS for later collection. The pre-grading surveys shall also document the approximate coverage of native and non-native plants at the location of the population to be impacted.
- Prior to seed collection, the existing round-leaved filaree locations marked during pre-construction surveys shall be monitored every two weeks by the Biological Monitor or a qualified Seed Collector to determine when the seeds are ready for collection. The Seed Collector shall collect seeds from the plants within the collection area when the seeds are ripe. The seeds shall be cleaned and stored by a qualified nursery or an institution with appropriate storage facilities.
- Collected seeds, up to one half, will be used to grow a minimum of 300 plants and the remaining half will be stored to allow for contingency purposes all of which would be planted at the receptor site once performance standards are achieved.

[20] Glenn Lukos Associates. July 2022 [Revised October and December 2022, February and April 2024]. *NorthLake Castaic, Los Angeles County, California, Special-Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (Appendix B-2 to this RPDSEIR).

- Receptor site or sites identified by GLA during site assessments in 2021 (see Exhibit 4A in *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*[21]) shall be located in dedicated open space or the site will be subject to dedication with a Conservation Easement. The receptor site or sites have been shown to exhibit similar soils, associated native species, and topographical features to the impact areas.

Performance criteria have been developed in the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* and pre-approved by the LACDRP and CDFW. In developing the performance standards for the round-leaved filaree, it is important to consider the primary goal of the plan referenced above, which is to establish a self-sustaining population of this plant consisting of the number of individuals/population size determined during pre-construction surveys. With replacement of the existing population, the impacts would be fully mitigated. This requires consideration of the following factors:

- The number of flowering individuals in any given year can vary substantially, based on environmental conditions, such that it is necessary to observe the translocated populations over a period of years to accurately determine survival and overall stability of the population. To this end, this plan proposes a ten-year monitoring term to track emergent plants along with flowering individuals which in combination provides the best and easiest indicators to track that the translocation is succeeding.
- Various threats to the plants must be minimized during the ten-year monitoring and maintenance period to ensure survival, germination, and ultimate flowering of recruited individuals, with seed set, leading to future germination/successful reproduction.
- Habitat characteristics, including non-native grasses and herbaceous weeds, are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the variability in the number of flowering individuals from year-to-year, the performance standards will have been achieved during at least three years of the ten-year monitoring program. Thus, the standards provide specific criteria showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period. Thus, if the following standards are met in at least three years of the ten-year monitoring period then the program is considered successful. Program funding shall be suitably established to the County's satisfaction.

Year One Through Year Ten

- Flowering of a minimum of 100-percent of the total number of flowering plants counted during pre-construction surveys originating from container stock or seed bank. As noted, the number of container stock individuals planted or plants originating from seed following the initial establishment will equal or exceed the number impacted as determined during pre-

[21] Glenn Lukos Associates. July 2022 [Revised October and December 2022, February and April 2024]. *NorthLake Castaic, Los Angeles County, California, Special-Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (Appendix B-2 to this RPDSEIR).

construction surveys during at least three years of the ten-year monitoring period; and

- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial planting (30-percent).

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the receptor site is observed to be failing significantly to achieve the performance standards during the ten-year monitoring period (e.g., flowering of 100-percent is not achieved after three years with normal or above-normal rainfall), the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be propagated from the contingency seed supply held at the nursery for contingency purposes (and maintained for at least ten years). Should the performance standards be achieved, contingency plant materials will be broadcast or installed in the translocation sites, with no additional performance standards for the contingency materials.

The alternate site(s) will be prepared as outlined for the initial site and modifications incorporated as determined by the Project Biologist in coordination with LACDRP and CDFW. Once an approach has been determined in coordination with LACDRP and CDFW, the container stock would be propagated from the contingency seed and the plants would be installed at the alternate site(s) and a ten-year program, that included monitoring and maintenance, would be initiated as set forth above.

Paniculate Tarplant

MM 5.2-5(b) Mitigation for the paniculate tarplant shall consist of transplantation of paniculate tarplant by means of seed broadcasting to a mitigation site with establishment of a self-sustaining population as set forth in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (*Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*). [22] The *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* has been subject to review and approval by LACDRP and CDFW. A designated Project Biologist approved by the LACDRP and CDFW shall oversee its implementation. Seeds will be collected from paniculate tarplant that are located within the impact boundaries and stored for introduction to the receptor site depicted on Exhibit 4A of the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*. The Mitigation Program in the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* sets forth the following activities necessary to fully mitigate the significant impacts to the paniculate tarplant:

- A pre-grading survey shall be conducted for two seasons during the peak flowering period (approximately June through August) by the Project

[22] Glenn Lukos Associates. July 2022 [Revised October and December 2022, February and April 2024]. *NorthLake Castaic, Los Angeles County, California, Special-Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (Appendix B-2 to this RPDSEIR).

Biologist. The Project Biologist shall clearly identify the extent of the paniculate tarplant location within the impact area with perimeter pin flags and sub-meter GPS for later use during seed collection. The pre-grading survey shall also document the approximate coverage of native and non-native plants at the location of the population to be impacted.

- Prior to seed collection, the existing paniculate tarplant locations marked during pre-construction surveys shall be monitored every two weeks by the Project Biologist or a qualified Seed Collector under the direction of the Project Biologist to determine when the seeds are ready for collection. The Seed Collector shall collect seeds from the plants within the collection area when the seeds are ripe. The seeds shall be cleaned and stored by a qualified nursery or an institution with appropriate storage facilities.
- One third of the collected seeds will be used to broadcast on the receptor site during an initial year and one third would be retained for the second year at the receptor site. The remaining one-third of the seed would be held for contingency purposes until performance standards are achieved. Once they are achieved, the contingency seed would be distributed into the mitigation site.
- The receptor site identified by GLA during 2021 (see Exhibit 4A in *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*[23]) shall be located in dedicated open space or the site will be subject to dedication with a Conservation Easement. The receptor site or sites have been shown to exhibit similar soils, associated native species, and topographical features to the impact areas.

Performance criteria have been developed in the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* and pre-approved by the LACDRP (and CDFW). In developing the performance standards for the paniculate tarplant, it is important to consider the primary goal of the plan as set forth above, which is to establish a self-sustaining population of this plant consisting of the number of individuals/population size determined during the largest population number of the two years of pre-construction surveys. With replacement of the existing population, the impacts would be fully mitigated. This requires consideration of the following factors:

- The number of flowering individuals in any given year can vary substantially, based on environmental conditions, such that it is necessary to observe the translocated populations over a period of years to accurately determine survival and overall stability of the population. To this end, this plan proposes a ten-year monitoring term to track flowering individuals to confirm that the translocation is succeeding.
- Various threats to the plants must be minimized during the ten-year monitoring and maintenance period to ensure survival, germination, and ultimate flowering of recruited individuals, with seed set, leading to future germination/successful reproduction.

[23] Glenn Lukos Associates. July 2022 [Revised October and December 2022, February and April 2024]. *NorthLake Castaic, Los Angeles County, California, Special-Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (Appendix B-2 to this RPDSEIR).

- Habitat characteristics including non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the variability in the number of flowering individuals from year-to-year, the performance standards will have been achieved during at least three years during the ten-year monitoring program. Thus, the annual standards provide specific criteria showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period. Thus, if the following standards are met in at least three years of the ten-year monitoring period then the program is considered successful. Program funding shall be suitably established to the County's satisfaction.

Year One Through Year Ten

- Flowering of a minimum of 100-percent of the total number of flowering plants counted during the larger of the two years during which pre-construction monitoring was conducted. This would be achieved during at least three years of the ten-year monitoring period); and
- Habitat subject to translocation must exhibit same or less cover by non-native grasses; and forbs than during the initial planting (30-percent).

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the receptor site is observed to be failing significantly to achieve the performance standards during the ten-year monitoring period (e.g., flowering of 100-percent is not achieved after three years with normal or above-normal rainfall), the Biological Monitor will identify an alternate site(s) in which to install the contingency seed held at the nursery for contingencies purposes (and maintained for at least ten years). Should the performance standards be achieved, contingency plant materials will be broadcast or installed in the translocation sites, with no additional performance standards for the contingency materials.

The alternate site(s) will be prepared as outlined for the initial site and modifications incorporated as determined by the Project Biologist in coordination with LACDRP and CDFW. Once an approach has been determined in coordination with LACDRP and CDFW, contingency seed would be installed at the alternate site(s) and a ten-year program, that included monitoring and maintenance would be initiated as set forth above.

Southwestern Spiny Rush

MM 5.2-5(c) Mitigation for the southwestern spiny rush includes two components to ensure long-term persistence of southwestern spiny rush in northern Los Angeles County. Mitigation includes 1) preservation of streambed habitat within Marple Canyon that contains 523 individuals of the spiny rush, and 2) planting of southwestern spiny rush at a mitigation site with establishment of a self-sustaining population as set forth in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (*Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan)*.[24] The *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* has been subject to review and approval by LACDRP and CDFW. A designated Project Biologist approved by the LACDRP and CDFW shall oversee its implementation. Seed will be collected from southwestern spiny rush plants located within the impact boundaries. The collected seed will be stored for propagation of container plants. Once propagated, the container plants would be introduced to the translocation site depicted on Exhibit 4B of the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan.* The Mitigation Program in the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* sets forth the following activities necessary to fully mitigate the significant impacts to the southwestern spiny rush:

- A pre-grading survey shall be conducted during a single season during the peak flowering period (approximately March through May) by the Biological Monitor. The Biological Monitor shall identify the extent of the southwestern spiny rush location within the impact area using sub-meter GPS for later seed collection.
- Prior to seed collection, the existing southwestern spiny rush locations marked during pre-construction surveys shall be monitored every two weeks by the Biological Monitor or a qualified Seed Collector to determine when the seeds are ready for collection. The Seed Collector shall collect seeds from the plants within the collection area when the seeds are ripe. The seeds shall be cleaned and stored by a qualified nursery or an institution with appropriate storage facilities.
- Collected seeds will be used to grow a minimum of 600 plants to allow for contingency purposes all of which would be planted at the receptor site. Half of the seed collected will be retained by the nursery for additional propagation as a contingency measure.
- Receptor site or sites identified by GLA during site assessments in 2021 (see Exhibit 4B in *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*[25]) shall be located in dedicated open space or the site will be subject to dedication with a Conservation Easement. The receptor site or sites have been shown to exhibit similar soils, associated native species, and topographical features to the impact areas.

[24] Glenn Lukos Associates. July 2022 [Revised October and December 2022, February and April 2024]. *NorthLake Castaic, Los Angeles County, California, Special-Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (Appendix B-2 to this RPDSEIR).

[25] Glenn Lukos Associates. July 2022 [Revised October and December 2022, February and April 2024]. *NorthLake Castaic, Los Angeles County, California, Special-Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (Appendix B-2 to this RPDSEIR).

Performance criteria have been developed in the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* and pre-approved by the LACDRP and CDFW. In developing the performance standards for the southwestern spiny rush, it is important to consider the primary goal of the plan as set forth above, which is to provide for a combination of preservation and establishment of a self-sustaining population of this plant consisting of the 300 individuals, which in combination of the preservation in Marple Canyon would mitigate impacts to this species. In order to achieve survival of 200 plants within Grasshopper Creek, 300 individuals will be planted initially to allow for natural attrition. With the combined preservation and replacement of the existing population, the impacts would be fully mitigated. This requires consideration of the following factors:

- Southwestern spiny rush is a perennial plant and the number of flowering individuals in any given year does not vary substantially. However, based on environmental conditions, it is not expected that populations change significantly over the period of years needed to accurately determine survival and overall stability of the population. To this end, this plan proposes a ten-year monitoring term to track the existing population within Marple Canyon along with established individuals in Grasshopper Creek to determine progress.
- Various threats to the plants established within Grasshopper Creek must be minimized during the ten-year monitoring and maintenance period to ensure survival, germination, and ultimate flowering of planted and recruited individuals, with seed set, leading to future germination/successful reproduction.
- Habitat characteristics including non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the expected stability in the number of flowering individuals from year-to-year, the performance standards will have been achieved at the end of the ten-year monitoring program. Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period. Thus, if the following standards are met in at least three years of the ten-year monitoring period then the program is considered successful. Program funding shall be suitably established to the County's satisfaction.

Marple Canyon Year One Through Year Ten

- Persistence of Marple Canyon population totaling 523 individuals with no more than ten-percent reduction due to such factors such as drought. Thus, there would be a minimum of 471 individuals at the end of the ten-year monitoring period.

Grasshopper Creek Year One

- Survival of 80-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock needed to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Grasshopper Creek Year Two

- Survival of 90-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock needed to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Grasshopper Creek Year Three through Ten

- Survival of 100-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock needed to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the Grasshopper Creek receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period (e.g., survival of 100-percent of 200 established individuals is not achieved by the end of ten years), the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be propagated from the contingency seed supply held at the nursery for the (and maintained for at least ten years). Should the performance standards be achieved, contingency plant materials will be broadcast or installed in the translocation sites, with no additional performance standards for the contingency materials.

The alternate site(s) will be prepared as outlined for the initial site and modifications incorporated as determined by the Project Biologist in coordination with LACDRP and CDFW. Once an approach has been determined in coordination with LACDRP and CDFW, the container stock would be propagated from the contingency seed and the plants would be installed at the alternate site(s) and a ten-year program, that included monitoring and maintenance, would be initiated as set forth above.

Slender Mariposa Lily and Club-Haired Mariposa Lily

MM 5.2-4 Mitigation for the club-haired mariposa lily and the slender mariposa lily shall consist of transplantation of lilies to a mitigation site and establishment of a self-sustaining population as set forth in the *NorthLake Castaic, Los Angeles County, California, Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan* (*Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*).[26] The *Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan* has been subject to review and approval by LACDRP and CDFW. A designated Project Biologist approved by the LACDRP and CDFW shall oversee its implementation. Seeds will be collected from lilies that are located within the impact boundaries and bulbs will be subsequently excavated and stored for later transplantation to the translocation site depicted on Exhibit 5 of the *Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan*. The Mitigation Program in the *Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan* sets forth the following activities necessary to fully mitigate the significant impacts to the club-haired mariposa lily and the slender mariposa lily:

- A pre-grading survey shall be conducted for two seasons following emergence of leaves and during the peak flowering period (approximately March through June) by the Biological Monitor. The Biological Monitor shall clearly identify each lily location within the impact area with a pin flag for later collection. The pre-grading survey shall also document the approximate coverage of native and non-native plants at each lily population to be impacted.
- Prior to seed collection, the existing lily locations marked during pre-construction surveys shall be monitored every two weeks by the Biological Monitor or a qualified Seed Collector to determine when the seeds are ready for collection. The Seed Collector shall collect seeds from the plants within the collection area when the seeds are ripe. The seeds shall be cleaned and stored by a qualified nursery or an institution with appropriate storage facilities.
- Individual lily bulbs shall be excavated and collected following the seed collection and once the bulbs have entered their winter dormancy period (approximately September 1). The bulbs shall be stored by a qualified nursery or institution with appropriate storage facilities and all non-target bulbiferous species shall be discarded.
- A portion of the collected seeds will be used to grow 500 slender/club-haired mariposa lilies for contingency purposes and stored a native plant nursery until needed as determined by the project biologist.
- Receptor site or sites identified in BonTerra's *Feasibility Analysis of NorthLake Biological Mitigation Requirements* and refined by GLA (as shown on Exhibit 5 of the *Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan*) shall be located in dedicated open space or the site will be subject to dedication with a Conservation Easement. The receptor site or sites have been shown to exhibit similar

[26] Glenn Lukos Associates. July 2022 [Revised October and December 2022, February and April 2024]. *NorthLake Castaic, Los Angeles County, California, Special-Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* (Appendix B-2 to this RPDSEIR).

soils, associated native species, and topographical features to the impact areas.

- Receptor sites on lands currently owned by NorthLake will be managed by SMMC or other approved entities. Prior to commencing the actions set forth in this plan, the applicant shall submit final agreements to CDFW and the County with the acceptable entities that will hold the Conservation Easement(s) (CE) and provide long-term management.
- Funding for this measure shall be suitably established to the County's satisfaction.
- Performance criteria have been developed in the *Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan,* dated February 2023, and pre-approved by the LACDRP and CDFW. The performance criteria shall address (1) native and non-native plant coverage requirements (mitigation site conditions should be consistent with lily populations in the impact area) and (2) percentage of lilies that exhibit emergent leaves that that bloom each year as follows (because the salvaged plantings will be phased over a three-year period as described above, the monitoring period would be ten years for each phase or a minimum of 13 years beginning from the start of phase 1. As set forth in Table 3 of the of the *Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan*, under the phased translocation, 40-percent of plants would be translocated in year 1, 40-percent in year 2 and 20-percent in year 3):

Year One

- Emergence of leaves of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Two

- Emergence of leaves of a minimum of 60-percent of the translocated bulbs
- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Three

- Emergence of leaves of a minimum of 50-percent of the translocated bulbs
- Flowering of a minimum of 30-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Four

- Emergence of leaves of a minimum of 50-percent of the translocated bulbs
- Flowering of a minimum of 30-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Five

- Emergence of leaves of a minimum of 60-percent of the translocated bulbs
- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Six

- Emergence of leaves of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Seven

- Emergence of leaves of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Eight

- Emergence of leaves of a minimum of 80-percent of the translocated bulbs
- Flowering of a minimum of 60-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Nine

- Emergence of leaves of a minimum of 90-percent of the translocated bulbs
- Flowering of a minimum of 70-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Ten

- Emergence of leaves of a minimum of 100-percent of the translocated bulbs
- Flowering of a minimum of 70-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

The monitoring shall be conducted for ten years (for each phase) from installation of the translocated bulbs or from installation of container plants. As noted, this could result in two separate and unrelated ten-year monitoring efforts, including one that originates with bulb installation and a subsequent effort that begins with container stock installation. If the performance standards are not being met during the first year, additional measures may be suggested as determined appropriate by the Project Biologist as set forth in the Contingency Plan set forth in the *Special-Status Plants Impact Assessment and Habitat Mitigation and Monitoring Plan* as set follows:

- If any of the translocation/receptor sites are observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be stored at a nursery for the first year of the program.
- If the receptor sites appear on track to meet the performance standards no sooner than year seven of the monitoring and maintenance period, the remaining plant material may be planted at the receptor sites (if space allows) or additional acceptable receptor sites will be identified.
- Seeds and/or bulbs will continue to be harvested from lilies maintained in the nursery and installed in the receptor sites on an as-needed basis to ensure receptor sites are progressing toward final performance.
- If the receptor sites fail to achieve the performance standards by the tenth year of the program, the monitoring period may be extended if the Project Biologist in consultation with LACDRP and CDFW, determines that the site is continuing to progress and can ultimately achieve the performance standards. Alternatively, if it is determined that a particular receptor site is not able to meet performance standards, then additional receptor sites will be identified to make up the difference. Thus, for example, if a receptor site received 500 bulbs, at the 80-percent success criteria it must have 400 emergent plants or 300 flowering plants to be successful. If the site only exhibits 40-percent emergent plants and 30-percent of flowering Mariposa lilies, then the site would be credited with the partial success achieved and an additional site where the shortfall could be made up would be identified.
- Potential seed sources from additional donor sites shall also be identified in case it becomes necessary to collect additional seed for use on the site following performance of remedial measures.

Crotch Bumble Bee

The previously approved Project is already required to provide mitigation for Coastal Sage Scrub and other flowering resources as set forth below. Coastal Sage Scrub and other flowering resource mitigation is more than adequate for the CBB. In fact, Coastal Sage Scrub is the preferred habitat for CBB. As set forth above, mitigation of flowering resources at a 2:1 ratio exceeds what CDFW requires for the CBB. Based on areas of suitable habitat, the Project would provide 337.55 acres of mitigation within the onsite conservation areas and 156.7 acres of conservation on adjacent NorthLake ownership for a total of 492.2 acres of preservation. (Exhibit 3 to the CBB Survey Report.) Thus, based on impacts to up to 1,001.8 acres of suitable habitat which supports or potentially supports CBB, the mitigation ratio of 2:1 would be 2,003.6 acres. To achieve 2:1 mitigation, NorthLake will provide approximately 337.5 acres onsite, 156.7 acres on NorthLake-owned offsite property, and obtain 1,509.4 acres from a CDFW-approved mitigation bank or through purchase and long-term conservation of suitable habitat, or a combination of the two options to account for the remainder. Appendix B to the CBB Survey Memo (Feasibility Analysis of NorthLake Biological Resources Contributors, Attachment 2, Table 3, Top 20 High Scoring Parcels from Regional Analysis) is a Mitigation Feasibility Assessment that includes candidate properties with suitable habitat such as Coastal Sage Scrub, chaparral, and native grasslands that contain suitable habitat for CBB.

MM 5.2-6 (Coastal Sage Scrub)

> The loss of sage scrub habitat within the impact area is considered a significant impact. Sage scrub habitat shall be preserved, restored, or enhanced on site and/or off site at a ratio to be determined by the County of Los Angeles Department of Regional Planning (LACDRP), but shall be no less than 2:1 for habitat restoration, enhancement or preservation, or combination thereof. A total of 634.70 acres of sage scrub would be impacted by Project implementation, which includes Purple sage scrub, California sagebrush–California buckwheat scrub, Black sage scrub, California sagebrush–California buckwheat scrub/Foothill needlegrass grassland, California sagebrush–California buckwheat scrub/California annual grassland, and the burned sage scrub areas: burned Purple sage scrub, burned California sagebrush–California buckwheat scrub, burned Black sage scrub, and burned California sagebrush–California buckwheat scrub/California annual grassland. Habitat restoration is the creation of native target habitat that does not currently exist; enhancement is the improvement of existing, disturbed native habitat areas through the removal of exotic plant species, the addition of native plants and/or seeds, or other measures. Preservation is conservation of existing habitat that exhibits the functions needed to support target species such as the CBB. The mitigation ratio for habitat restoration, enhancement, and preservation shall depend on the initial quality of the habitat area to be restored, enhanced or preserved and would be determined by the Project Applicant and the LACDRP. Sage scrub habitat restoration/enhancement implementation shall begin not more than one year following project impacts to this habitat type. Where restoration or enhancement is the proposed mitigation, the Project Applicant shall develop a Habitat Mitigation and Monitoring Program (HMMP) and shall submit it to the LACDRP for review and approval. The HMMP shall be developed by a qualified restoration ecologist, submitted for review and approval to the LACDRP prior to the issuance of grading permits, and shall be implemented by a qualified restoration ecologist and a qualified restoration

contractor (as defined below). Habitat restoration/enhancement will consist of seeding and/or installing container plants of suitable sage scrub species. If it is ecologically appropriate for the selected mitigation site (e.g., soil types), Peirson's morning-glory will be incorporated into the restoration/enhancement planting and/or seeding palettes. The Project Applicant shall implement the HMMP as approved by the LACDRP and according to its specified materials, methods, and performance criteria, which shall include the following items

a. **Responsibilities and Qualifications**. The responsibilities and qualifications of the Project Applicant, ecological specialists, and restoration (landscape) contracting personnel who will implement the plan shall be specified. At a minimum, the HMMP shall specify that the ecological specialists and contractors have performed successful installation and long-term monitoring and maintenance of southern California native habitat mitigation/restoration programs, implemented under LACDRP mitigation measures and/or State or federal natural resource agency permit conditions. A successful program shall be defined as one that has been signed off on by the LACDRP and/or a State or federal natural resource agency.

b. **Performance Criteria**. Mitigation performance criteria to be specified in the HMMP shall include native vegetation percent coverage and diversity (minimum), non-native vegetation percent coverage (maximum), and the cessation of irrigation a minimum of two years prior to eligibility for sign-off. The HMMP shall state that the use of the mitigation site by special status wildlife species (e.g., coastal California gnatcatcher), though not a requirement for site success, would be regarded by the LACDRP as a significant factor in considering eligibility for program sign-off.

c. **Site Selection.** The mitigation sites shall be determined in coordination with the Project Applicant and the LACDRP. The site(s) shall be located in dedicated open space areas (or areas available for dedication), and shall be contiguous with other natural open space areas. Mitigation sites include onsite, NorthLake-owned offsite property, and obtaining acres from a CDFW-approved mitigation bank or through purchase and long-term conservation of suitable habitat, including areas where restoration or enhancement is needed, or a combination of the two options to account for the remainder. The Project Applicant shall demonstrate acquisition of suitable lands for restoration, enhancement, or preservation prior to issuance of the Project grading permit.

d. **Native Plant and Seed Materials Procurement**. For restoration or enhancement, at least three years prior to mitigation implementation, the Project Applicant or its consultants/contractors shall initiate collection of the native seed materials specified in the HMMP. All seed mixes shall be of local origin: i.e., collected within 30 miles, and within the same Watershed (Santa Clara River Watershed), as the selected restoration/enhancement site(s), to ensure genetic integrity. All container plants shall be propagated from seed of local origin as defined above. No plant or seed materials of unknown or non-local geographic origin shall be used. Seed collection shall be prioritized according to habitat area, in the' following order: (a) project impact

areas (highest priority); (b) other on-site habitat areas; and (c) off-site habitat areas (lowest priority), assuming availability of seed species in multiple locations.

e. **Wildlife Surveys and Protection.** The HMMP shall specify any wildlife surveys (i.e., nesting bird surveys, focused/protocol surveys for special status species [e.g., coastal California gnatcatcher]) and biological monitoring that are required to avoid adverse impacts to wildlife species during the performance of mitigation site preparation, installation, or maintenance tasks. The HMMP shall also describe potential restrictions on these management tasks due to sensitive wildlife conditions on the mitigation site (e.g., suspension of these tasks during the nesting bird season, as defined in project permits).

f. **Site Preparation and Plant Materials Installation.** For restoration or enhancement, mitigation site preparation shall include, as necessary (a) protection of existing native species and habitats (including compliance with seasonal restrictions, if any); (b) installation of protective fencing and/or signage (as needed); (c) initial trash and weed removal (outside the nesting bird season) and methods; (d) soil treatments, as needed (i.e., imprinting, decompacting); (e) installation of erosion-control measures (i.e., fully natural/bio-degradable [not 'photodegradable'] fiber roll); (f) application of salvaged native plant materials (i.e., duff) as available, and supervised by a biological monitor, (g) temporary irrigation installation; (h) a minimum one-year preliminary weed abatement program (prior to the installation of native plant and seed materials including specification of approved herbicides); (i) planting of container species; and (j) seed mix application.

g. **Schedule.** An implementation schedule shall be developed for restoration or enhancement, that includes planting and seeding to occur in late fall and early winter (i.e., between November 1 and December 31) and the frequency of long-term maintenance and monitoring activities (including the dates of annual quantitative surveys, as described below).

h. **Maintenance Program**. The Maintenance Program for restoration or enhancement shall include (a) protection of existing native species and habitats (including compliance with seasonal restrictions, if any); (b) maintenance of protective fencing and/or signage; (c) trash and weed removal-including specification of approved herbicides; (d) maintenance of erosion-control measures; (e) inspection/repairs of irrigation components; (f) replacement of dead container plants (as needed); (g) application of remedial seed mixes (as needed); (h) herbivory control; and (i) removal of all non-vegetative materials (i.e., fencing, signage, irrigation components) upon project completion. The mitigation site shall be maintained for a period of five years to ensure the successful sage scrub habitat establishment within the restored/enhanced sites; however, the Project Applicant may request to be released from maintenance requirements by the LACDRP prior to five years if the mitigation program has achieved all performance criteria.

i. **Monitoring Program**. The Monitoring Program for restoration or enhancement shall include (a) qualitative monitoring (i.e., general habitat conditions, photo-documentation from established photo stations); (b) quantitative monitoring (e.g., randomly placed point-intercept transects); (c) annual monitoring reports, which shall be submitted to the LACDRP for five years or until project completion; and (d) wildlife surveys and monitoring as described above. The annual monitoring reports shall include a detailed discussion of mitigation site performance (e.g., measured vegetation coverage and diversity) and compliance with required performance criteria, a discussion of wildlife species' use of the restored and/or enhanced habitat area(s), and a list of proposed remedial measures to address non-compliance with any performance criteria. The site shall be monitored for five years or until the Project Applicant has been released from maintenance requirements by the LACDRP.

j. **Long-term preservation**. Long-term preservation of the sites shall be outlined in the HMMP to ensure that the mitigation sites are not impacted by future development. A conservation easement and a performance bond shall be secured prior to implementation of the mitigation program.

MM 5.2-7 (Grassland/Wildflower field)

The loss of California annual grassland/wildflower fields within the impact area is considered to be a significant impact. California annual grassland/wildflower fields shall be preserved, restored, or enhanced on site and/or off site at a ratio to be determined by the County of Los Angeles Department of Regional Planning (LACDRP), but the ratio shall be no less than 2:1 for habitat restoration, enhancement, or preservation or combination thereof. A total of 24.23 acres of Foothill needlegrass grassland and burned Foothill needle grass grassland would be impacted by Project implementation. Habitat restoration is the creation of native target habitat that does not currently exist; enhancement is the improvement of existing, disturbed native habitat areas through the removal of exotic plant species, the addition of native plants and/or seeds, or other measures. Preservation is conservation of existing habitat that exhibits the functions needed to support target species such as the CBB. The mitigation ratio for habitat restoration, enhancement, or preservation shall depend on the initial quality of the habitat area to be restored, enhanced, or preserved and would be determined by the project applicant and the LACDRP. The mitigation ratio shall also be no less than 6.5 acres of habitat preserved/restored per burrowing owl location impacted (individual or pair using the same burrows) or greater than 6.5 acres of habitat enhancement per burrowing owl location impacted, depending on the ratio applied to the enhancement site(s). California annual grassland/wildflower fields habitat restoration/enhancement implementation shall begin not more than one year following project impacts to this habitat type. The project applicant shall develop a HMMP and shall submit It to the LACDRP for review and approval. The HMMP shall be developed by a qualified restoration ecologist submitted for review and approval to the LACDRP prior to issuance of grading permits, and shall be implemented by a qualified restoration ecologist and a qualified

restoration contractor (as defined below). The HMMP shall also provide mitigation for the loss of burrowing owl habitat; therefore, mitigation site selection criteria shall include the suitability of the potential site(s) for burrowing owls. Habitat restoration/enhancement shall consist of seeding of suitable California annual grassland/wildflower fields plant species. If it is ecologically appropriate for the selected mitigation site (e.g., soil type), Peirson's morning-glory will be incorporated into the restoration/enhancement palette. The Project Applicant shall implement the HMMP as approved by the LACDRP and according to its specified materials, methods, and performance criteria, which shall include the following items:

- The responsibilities and qualifications of the project applicant, ecological specialists, and restoration (landscape) contracting personnel who will implement the plan shall be specified. At a minimum, the HMMP shall specify that the ecological specialists and contractors have performed successful installation and long-term monitoring and maintenance of southern California native habitat mitigation/restoration enhancement programs, implemented under LACDRP mitigation measures or State and/or federal natural resource agency permit conditions. A successful program shall be defined as one that has been signed off on by the LACDRP and/or a State or federal natural resource agency.
- Mitigation performance criteria to be specified in the HMMP shall include native vegetation percent coverage and diversity (minimum), non-native vegetation percent coverage (maximum), and the cessation of irrigation a minimum of two years prior to eligibility for sign-off. The performance criteria shall reflect the habitat requirements for burrowing owls; i.e., grassland habitat with vegetation gaps or areas of lower vegetation coverage. The HMMP shall state that the establishment of burrowing owls, and/or special status plant species (e.g., Peirson's morning-glory), though not a requirement for site success, would be regarded by the LACDRP as a significant factor in considering eligibility for program.
- The mitigation sites shall be determined in coordination with the project applicant and the LACDRP. The site(s) shall be (1) located in dedicated open space areas or areas available for dedication as open space, and shall be contiguous with other natural open space areas; (2) configured to provide maximum habitat values for burrowing owls and other wildlife species; e.g., opportunities for escape and refuge from stochastic events such as fire, flood, etc.; (3) consist of level or gently sloping terrain, soil types, and microhabitat conditions suitable for occupation by the burrowing owl as determined by a qualified Biologist; and (4) include, to the extent feasible. soil types and microhabitat conditions suitable for the special status plant species listed above.
- At least two years prior to mitigation plant and seed installation associated with restoration of enhancement, the Project Applicant or its consultants/contractors shall initiate collection of the native seed materials specified in the HMMP. All seed mixes shall be of local origin; i.e., collected within 30 miles, and within the same Watershed (Santa Clara River Watershed), as the selected restoration/enhancement

site(s), to ensure genetic integrity. No seed materials of unknown or non-local geographic origin shall be used. Seed collection shall be prioritized according to habitat area, in the following order: (a) project impact areas (highest priority); (b) other on-site habitat areas; and (c) off-site habitat areas (lowest priority), assuming availability of seed species in multiple locations.

- The HMMP shall specify any wildlife surveys (i.e., nesting bird surveys, focused/protocol surveys for special status species [e.g., burrowing owl]) and biological monitoring that are required to avoid adverse impacts to wildlife species during the performance of mitigation site preparation, installation, or maintenance tasks. Specifically, the HMMP shall specify the performance of wintering and breeding season surveys for burrowing owls, to determine the species' occupation of the mitigation site(s). The HMMP shall also describe potential restrictions on these tasks due to sensitive wildlife conditions on the mitigation site (e.g., suspension of these tasks during the nesting bird season, as defined in project permits).
- For restoration or enhancement, mitigation site preparation shall include (a) protection of existing native species and habitats (including compliance with seasonal restrictions, if any); (b) installation of protective fencing and/or signage (as needed); (c) initial trash and weed removal (outside the nesting bird season) and methods; (d) soil treatments, as needed (i.e., imprinting, de-compacting); (e) installation of erosion-control measures (i.e., fully natural/bio-degradable [not 'photo-degradable'] fiber roll); (f) temporary irrigation installation; (g) a minimum one-year preliminary weed abatement program (prior to the installation of native plant and seed materials)--including specification of approved herbicides; and (g) seed mix application. Mitigation site preparation and installation shall reflect the habitat requirements for burrowing owls; i.e., grassland habitat with vegetation gaps or areas of lower vegetation coverage.
- An implementation schedule shall be developed that includes seeding to occur in late fall and early winter (i.e., between November 1 and December 31) and the frequency of long-term maintenance and monitoring activities (including the dates of annual quantitative surveys, as described below).
- The Maintenance Program for restoration or enhancement shall include (a) protection of existing native species and habitats (including compliance with seasonal restrictions, if any); (b) maintenance of protective fencing and/or signage; (c) trash and weed removal-including specification of approved herbicides; (d) maintenance of erosion control measures; (e) inspection/repairs of irrigation components; (f) application of remedial seed mixes (as needed); (g) herbivory control; and (h) removal of all non-vegetative materials (i.e., fencing, signage, irrigation components) upon project completion. Mitigation site preparation and installation shall reflect the habitat requirements for burrowing owls; i.e., grassland habitat with vegetation gaps or areas of lower vegetation coverage. The mitigation site shall be maintained for a period of five years to ensure successful foothill needlegrass grassland habitat establishment within the

restored/enhanced sites; however, the Project Applicant may request to be released from maintenance requirements by the LACDRP prior to five years if the mitigation program has achieved all performance criteria for restoration or enhancement.

- The Monitoring Program shall include (a) qualitative monitoring (i.e., general habitat conditions, photodocumentation from established photo stations); (b) quantitative monitoring; (c) annual monitoring reports, which shall be submitted to the LACDRP for five years or until project completion; and (d) wildlife surveys and monitoring as described above. The annual monitoring reports shall include a detailed discussion of mitigation site performance (e.g., measured vegetation coverage and diversity) and compliance with required performance criteria, a discussion of wildlife species' use of the restored and/or enhanced habitat area(s), and a list of proposed remedial measures to address non-compliance with any performance criteria. The site shall be monitored for five years or until the project applicant has been released from maintenance requirements by the LACDRP.
- Long-term preservation of the sites shall be outlined in the HMMP to ensure that the mitigation sites are not impacted by future development. A conservation easement and a performance bond shall be secured prior to implementation of the mitigation program.

MM 5.2-8 (Needlegrass Grassland)

The loss of foothill needle grass grassland within the impact area is considered to be a significant impact. Foothill needle grass grassland shall be preserved, restored, or enhanced on site and/or off site at a ratio to be determined by the County of Los Angeles Department of Regional Planning (LACDRP), but the ratio shall be no less than 2:1 for habitat restoration, enhancement, or preservation or combination thereof. A total of 342.85 acres of California annual grassland/Wildflower fields would be impacted by Project implementation. Habitat restoration is the creation of native target habitat that does not currently exist; enhancement is the improvement of existing, disturbed native habitat areas through the removal of exotic plant species, the addition of native plants and/or seeds, or other measures. Preservation is conservation of existing habitat that exhibits the functions needed to support target species such as the CBB. The mitigation ratio for habitat restoration, enhancement, or preservation shall depend on the initial quality of the habitat area to be restored, enhanced, or preserved and would be determined by the project applicant and the LACDRP. The mitigation ratio shall also be no less than 6.5 acres of habitat preserved/restored per burrowing owl location impacted (individual or pair using the same burrows) or greater than 6.5 acres of habitat enhancement per burrowing owl location impacted, depending on the ratio applied to the enhancement site(s). Foothill needlegrass grassland habitat restoration/enhancement implementation shall begin not more than one year following project impacts to this habitat type. The project applicant shall develop a HMMP and shall submit it to the LACDRP for review and approval. The HMMP shall be developed by a qualified restoration ecologist, submitted for review and approval to the LACDRP prior to issuance of grading permits, and shall be implemented by a

qualified restoration ecologist and a qualified restoration contractor (as defined below). The HMMP shall also provide mitigation for the loss of burrowing owl habitat; therefore, mitigation site selection criteria shall include the suitability of the potential site(s) for the burrowing owl. Habitat restoration/enhancement shall consist of seeding of suitable foothill needlegrass grassland plant species. If it is ecologically appropriate for the selected mitigation site (e.g., soil type), Peirson's morning-glory will be incorporated into the restoration/enhancement palette. The Project Applicant shall implement the HMMP as approved by the LACDRP and according to its specified materials, methods, and performance criteria, which shall include the following items:

a. **Responsibilities and Qualifications**. The responsibilities and qualifications of the project applicant, ecological specialists, and restoration (landscape) contracting personnel who will implement the plan shall be specified. At a minimum, the HMMP shall specify that the ecological specialists and contractors have performed successful installation and long-term monitoring and maintenance of southern California native habitat mitigation/restoration programs, implemented under LACDRP mitigation measures or State and/or federal natural resource agency permit conditions. A successful program shall be defined as one that has been signed off on by the LACDRP and/or a State or federal natural resource agency.

b. **Performance Criteria**. Mitigation performance criteria to be specified in the HMMP shall include native vegetation percent coverage and diversity (minimum), non-native vegetation percent coverage (maximum), and the cessation of irrigation a minimum of two years prior to eligibility for sign-off. The performance criteria shall reflect the habitat requirements for the burrowing owl; i.e., grassland habitat with vegetation gaps or areas of lower vegetation coverage. The HMMP shall state that the establishment of burrowing owls, and/or special status plant species (e.g., Peirson's morning-glory), though not a requirement for site success, would be regarded by the LACDRP as a significant factor in considering eligibility for program sign-off.

c. **Site Selection**. The mitigation sites shall be determined in coordination with the project applicant and the LACDRP. The site(s) shall be (1) located in dedicated open space areas or areas available for dedication, and shall be contiguous with other natural open space areas; (2) configured to provide maximum habitat values for burrowing owls and other wildlife species; e.g., opportunities for escape and refuge from stochastic events such as fire, flood, etc.; (3) consist of level or gently sloping terrain, soil types, and microhabitat conditions suitable for occupation by the burrowing owl as determined by a qualified Biologist; and (4) include, to the extent feasible, soil types and microhabitat conditions suitable for the special status plant species listed above.

d. **Seed Materials Procurement.** At least two years prior to mitigation plant and seed installation, the Project Applicant or its consultants/contractors shall initiate collection of the native seed materials specified in the HMMP. All seed mixes shall be of local origin; i.e., collected within 30 miles, and within the same Watershed (Santa

Clara River Watershed), as the selected restoration/enhancement site(s), to ensure genetic integrity. No seed materials of unknown or non-local geographic origin shall be used. Seed collection shall be prioritized according to habitat area. in the following order: (a) project impact areas (highest priority); (b) other on-site habitat areas; and (c) off-site habitat areas (lowest priority), assuming availability of seed species in multiple locations.

e. **Wildlife Surveys and Protection**. The HMMP shall specify any wildlife surveys (i.e., nesting bird surveys, focused/protocol surveys for special status species [e.g., burrowing owl]) and biological monitoring that are required to avoid adverse impacts to wildlife species during the performance of mitigation site preparation, installation, or maintenance tasks. Specifically, the HMMP shall specify the performance of wintering and breeding season surveys for burrowing owls, to determine the species' occupation of the mitigation site(s). The HMMP shall also describe potential restrictions on these tasks due to sensitive wildlife conditions on the mitigation site (e.g., suspension of these tasks during the nesting bird season, as defined in project permits).

f. **Site Preparation and Plant Materials Installation**. For restoration or enhancement, mitigation site preparation shall include (a) protection of existing native species and habitats (including compliance with seasonal restrictions, if any); (b) installation of protective fencing and/or signage (as needed); (c) initial trash and weed removal (outside the nesting bird season) and methods; (d) soil treatments, as needed (i.e., imprinting, decompacting); (e) installation of erosion-control measures (i.e., fully natural/bio-degradable [not 'photodegradable'] fiber roll); (f) temporary irrigation installation; (g) a minimum one-year preliminary weed abatement program (prior to the installation of native plant and seed materials)--including specification of approved herbicides; and (h) seed mix application. Mitigation site preparation and installation shall reflect the habitat requirements for burrowing owls; i.e., grassland habitat with vegetation gaps or areas of lower vegetation coverage.

g. **Schedule**. An implementation schedule shall be developed that includes seeding to occur in late fall and early winter (i.e., between November 1 and December 31) and the frequency of long-term maintenance and monitoring activities (including the dates of annual quantitative surveys, as described below).

h. **Maintenance Program**. The Maintenance Program for restoration or enhancement shall include (a) protection of existing native species and habitats (including compliance with seasonal restrictions, if any); (b) maintenance of protective fencing and/or signage; (c) trash and weed removal- including specification of approved herbicides; (d) maintenance of erosion-control measures; (e) inspection/repairs of irrigation components; (f) application of remedial seed mixes (as needed); (g) herbivory control; and (h) removal of all non-vegetative materials (i.e., fencing, signage, irrigation components) upon project completion. Mitigation site preparation and installation shalt reflect the habitat requirements for burrowing owls; i.e., grassland habitat with vegetation gaps or areas of lower vegetation coverage. The mitigation

site shall be maintained for a period of five years to ensure successful foothill needlegrass grassland habitat establishment within the restored/enhanced sites; however, the Project Applicant may request to be released from maintenance requirements by the LACDRP prior to five years if the mitigation program has achieved all performance criteria.

i. **Monitoring Program.** The Monitoring Program shall include (a) qualitative monitoring (i.e., general habitat conditions, photo-documentation from established photo stations); (b) quantitative monitoring; (c) annual monitoring reports, which shall be submitted to the LACDRP for five years or until project completion; and (d) wildlife surveys and monitoring as described above. The annual monitoring reports shall include a detailed discussion of mitigation site performance (e.g., measured vegetation coverage and diversity) and compliance with required performance criteria, a discussion of wildlife species' use of the restored and/or enhanced habitat area(s), and a list of proposed remedial measures to address non-compliance with any performance criteria. The site shall be monitored for five years or until the project applicant has been released from maintenance requirements by the LACDRP.

j. **Long-term preservation**. Long-term preservation of the sites shall be outlined in the HMMP to ensure that the mitigation sites are not impacted by future development. A conservation easement and a performance bond shall be secured prior to implementation of the mitigation program.

2.1.9 CUMULATIVE IMPACTS

This cumulative impact analysis considers potential impacts to sensitive biological resources that would result from combined, incremental impacts of the Project when added to other past, present, and reasonably foreseeable future projects having closely related impacts. The following cumulative impact analysis is based on a review of related projects in the vicinity of the Project Site, the Project's direct and indirect impacts with implementation of mitigation measures, existing conditions in the Project vicinity, and an analysis of aerial photographs.

The Project would have potentially significant adverse impacts on biological resources. Several mitigation measures (MM 5.2-1 through MM 5.2-22, including as modified above) would be implemented to reduce these impacts to less than significant levels. Cumulative projects in the area are expected to have similar potential impacts to the Project on biological resources in the Project vicinity due to similar development activity and/or similar existing conditions. The cumulative impact on biological resources would be considered greater than the Project alone. However, when considering all the proposed and existing projects in the Project area, the previously approved Project contributes a relatively small portion of the impacts in the area due to its relatively small impact acreage, and the location adjacent to existing development. The Project is not expected to contribute a significant impact to the Project area. Incremental impacts would not be cumulatively considerable, and no additional mitigation is required.

2.2 TRAFFIC – VEHICLE MILES TRAVELLED

2.2.1 INTRODUCTION

This section supplements the SEIR Traffic section, Section 5.1.1. At the time the previously approved Project traffic analysis was prepared, level of service (LOS) was the metric used to evaluate transportation impacts. The previously approved Project would result in significant and unavoidable impacts using the LOS methodology, specifically at the Ridge Route Road at Lake Hughes intersection under Existing Plus Project and Horizon Year (2028) scenarios. At the time this RPDSEIR was undertaken, VMT had replaced LOS as the appropriate methodology for evaluating a project's transportation impacts under the CEQA Guidelines. This analysis was prepared in accordance with CEQA and the Los Angeles County Department of Public Works Transportation Impact Analysis Guidelines for CEQA analysis (July 2020, Version 1.1, updated September 2020; "TIA Guidelines"). The purpose of this analysis is to use the VMT metric to identify potential significant impacts related to transportation due to the implementation of the proposed Project. Using the VMT metric, the previously Approved Project would result in a less than significant impact determination. Impacts to the other traffic impact issues (plan consistency, hazardous design and emergency access) would also be less than significant. This analysis is based on the Northlake Specific Plan Transportation Analysis for CEQA, November 19, 2024, Appendix C-1 to this RPDSEIR and Los Angeles County Department of Public Work's Approval Letter dated December 2, 2024, Appendix C-2 to this RPDSEIR.

The previously approved Northlake Traffic Impact Analysis (TIA)[27] is included in Appendix C-1 to the Northlake Specific Plan Transportation Analysis for CEQA, November 19, 2024 (Appendix C-1 to this RPDSEIR) for information purposes only, as the approved TIA evaluated project impacts using the LOS metric which is no longer the applicable metric for identifying significant impacts under CEQA. The approved TIA represents a conservative, worst-case analysis of the Project's effect on LOS and therefore an update is not required.

2.2.2 METHODOLOGY

This analysis evaluates the Project's impact on VMT, potential conflicts with current transportation planning programs (plans, ordinances, and policies), and increased hazards due to the Project's geometric design features, emergency access and construction traffic.

Project Description

The NLSP was adopted by the Board of Supervisors on June 1, 1992, and includes the development of 2,337 single family residential units, 1,286 multi-family units (for a total of 3,623 units), 169,884 square feet of commercial uses, 545,589 square feet of light industrial uses, an 18-hole golf course, school, parks and open space. In 2019[28], changes to the land use plan were approved (referred to herein as the previously approved Project) and include the development of 1,143 single family residential units, 1,341 multifamily residential units, 345 age qualified single family residential units, 315 affordable mixed-use housing units and 6 market-rate live-work units, for a total of 3,150 residential units. The previously approved Project would also construct highway

[27] Stantec, 2016

[28] In 2019 the Project was approved by the Los Angeles County Board of Supervisors. Subsequently, due to a superior court ruling, the County rescinded the Project approvals. The Project applicant is currently proposing to recirculate portions of the NLSP SEIR. At the time the previously approved Project traffic analysis was prepared, LOS was the metric used to evaluate transportation impacts. VMT is now the metric used to evaluate a transportation impact per Senate Bill 743. Los Angeles County has updated their Transportation Impact Analysis Guidelines to utilize the VMT metric.

commercial (e.g., retail near the highway), a middle school (as an option), private and public recreational parks, and a fire station.

Table 2-5 summarizes the NLSP land uses and the 2019 previously approved Project land uses.

TABLE 2-5
NORTHLAKE SPECIFIC PLAN PROJECT LAND USE SUMMARY

Category	NLSP			Previously Approved Project			Difference		
	(AC)	(DU)	(SQ. FT.)	(AC)	(DU)	(SQ. FT.)	(AC)	(DU)	(SQ. FT.)
Residential	600.3	3,623	--	362	3,150	--	-238.3	-794	--
Single Family	504.8	2,337	--	235	1,488	--	-269.8	-593	--
Multi-Family	95.5	1,286	--	107	1,341	--	11.5	-201	--
Affordable Mixed-Use Housing/Live-Work***	0	0	--	20	321*	--	10.8	321	--
General Commercial	9.2	--	100,188		--	38,700**		--	-61,488
Highway Commercial	4	--	69,696	2	--	32,175**	2	--	-37,521
Industrial	50.1	--	545,589	0	--	0	-50.1	--	-545,589
School	23.1	--	--	44	--	--	20.9	--	--
Recreation/Park	167	--	--	167	--	--	0	--	--

* For the purposes of the VMT analysis, the affordable mixed-use housing / market-rate live-work units are treated as multi-family units.

** Square footage per Northlake Design Guidebook

*** 315 affordable mixed-use units and 6 market-rate live-work units.

Mandatory CEQA Impact Criteria

Signed by the Governor in 2013, SB 743 requires the Governor's Office of Planning and Research (OPR) to identify new metrics for the identification of transportation related impacts within CEQA. Regulatory changes to CEQA guidelines that implement SB 743 were approved on December 28, 2018, establishing VMT as a new metric to replace LOS for transportation analysis. Within CEQA, a project's effect on vehicle delay shall not constitute a significant transportation impact (Section 15064.3(a)). Thresholds for determining a project's significant transportation impact shall be pursuant to section 15064.3 of the CEQA Guidelines. OPR released a Technical Advisory that contains recommendations for assessing VMT, thresholds of significance, and mitigation measures. OPR and the California Natural Resources Agency (CNRA) have concluded that VMT is the most appropriate metric to evaluate a project's transportation impacts. On July 1, 2020, statewide implementation occurred.

The Los Angeles County Public Works (LACPW) Department published the TIA Guidelines that provides recommendations for assessing VMT for development in unincorporated Los Angeles County. As such, the VMT analysis has been prepared in accordance with the County's guidelines and guidance from County Public Works staff. The previously approved Project is evaluated as a land use plan and VMT per service population is the metric used for the VMT impact analysis. An increase in the NLSP VMT on a per capita basis would result in a significant impact. This methodology is used because the NLSP was approved prior to SB 743 adoption and Project modifications are being made after SB 743 adoption.

2.2.3 THRESHOLD CRITERIA

2.2.3.1 Would the project conflict or be inconsistent with State CEQA Guidelines Section 15064.3, Subdivision (b)?

2.2.3.2 Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

2.2.3.3 Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

2.2.3.4 Would the project result in inadequate emergency access?

2.2.4 IMPACT ANALYSIS AND MITIGATION MEASURES

Project-Level VMT Analysis

The County's VMT Tool uses data from the Southern California Association of Government's Regional Transportation Plan/Sustainable Communities Strategy (SCAG RTP/SCS) travel demand forecasting model and was specifically designed to be used to develop project-specific daily residential VMT per capita and daily employment VMT per employee metrics for residential, office, and industrial land use development projects in the unincorporated areas of the County of Los Angeles.[29]

The estimated VMT for the NLSP establishes the baseline for the currently proposed Project to be evaluated against for determining a potential significant CEQA transportation impact. This is due to the approval occurring before SB 743 and modifications happening after SB 743. Unlike a brand new project, the previously approved Project does not need to be evaluated against the County baseline, as determined from the County's VMT Tool.

Table 2-6 summarizes the Project's VMT, service population, and the VMT per service population estimated for the NLSP and for the previously approved Project (VMT calculations are attached to Appendix C-1). The VMT estimates presented here are intended to compare the allowed uses of the NLSP and the previously approved Project, using VMT per service population as the basis of comparison. Therefore, the same assumptions to calculate the VMT per service population are applied to both the NLSP and the previously approved Project to provide an equal point of comparison. In regard to the on-site commercial, parks, and school, these uses are assumed to primarily serve the Project residents, therefore the VMT associated with these uses is primarily captured in the residential VMT totals, with any additional visitor VMT being generally equivalent between the NLSP and for the previously approved Project. As shown in Table 2-6, the previously approved Project would generate less VMT and have a VMT per service population rate lower than the NLSP. Due to the VMT reduction, the previously approved Project's impacts would be less and the Project would not result in any new or increased significant transportation impacts.

[29] County of Los Angeles VMT Tool User Guide, Los Angeles County Public Works. December 2020.

TABLE 2-6
NLSP AND PREVIOUSLY APPROVED PROJECT VMT SUMMARY

Category	NLSP VMT	Previously Approved Project VMT
Single Family Residential	260,013	165,568
Multi-Family Residential	77,860	100,623
Commercial Retail	8,765	3,670
Light Industrial	13,869	--
Recreation/Park	1,320	2,640
School	2,640	2,640
Project VMT	**364,467**	**275,141**
Service Population	**13,485**	**10,705**
VMT per Service Population	**27.0**	**25.7**
See Appendix C-1 for the VMT and Service Population Worksheets.		

The VMT estimates presented above use data from a travel demand model and are based on location and land use types only. The travel demand mode data does not consider the unique features of a specific project. For the previously approved Project, there are a number of features that tend to reduce VMT such as constructing a pedestrian network, integrating affordable housing, constructing bicycle trails, and expanding the transit network. VMT reduction ranges from the California Air Pollution Control Officers Association's (CAPCOA) Handbook for Analyzing Greenhous Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook) are noted below.

Pedestrian Network: The previously approved Project would promote a high level of walkability by providing access to recreational destinations. Pedestrian facilities in the neighborhood would include multi-use trails, enhanced parkways, and neighborhood pedestrian trails. Neighborhood trails connect homes to the larger network, bringing all community amenities within pedestrian, bicycle, or equestrian access and reducing the need for automobiles.[30] The GHG Handbook's T-18 Provide Pedestrian Network Improvement measure cites up to a 6.4% potential reduction in VMT, however, the previously approved Project is not taking any quantitative credit for this project feature.

Bicycle Trails: The previously approved Project would construct a Class I Bike Path, Class II Bike Lanes, and Class III Bike Route. Per the Northlake Design Guidebook, a Class I Bike Path is planned along Northlake Boulevard and Ridge Route Road south of Northlake Boulevard. Class II bike lanes are planned for Local Collectors "A" and "B" and Fire Access Road. Class III Bike Route is planned along Ridge Route Road north of Northlake Boulevard. The GHG Handbook's T-19A Construct or Improve Bike Facility measure cites up to a 0.08% potential reduction, however, the previously approved Project is not taking any quantitative credit for this project feature.

Affordable Housing: The previously approved Project includes affordable housing, which represents approximately 10% of the total number of residential units. The GHG Handbook's T-4 Integrate Affordable and Below Market Rate Housing measure cites up to a 28.6% potential reduction in VMT, however, the previously approved Project is not taking any quantitative credit for this project feature.

[30] Northlake Design Guidebook, April 2018.

Expand Transit Network: The Project would provide a community shuttle and service ("tram") for the Project residents and guests. The tram would service local destinations within the Project Site as well as regional destinations outside the site. The Northlake Design Guidebook provides a conceptual diagram of a well-connected public transit route within the Project site, providing access to local destinations. The GHG Handbook's T-25 Extend Transit Network Coverage or Hours measure cites up to a 4.6% potential reduction in VMT, however, the previously approved Project is not taking any quantitative credit for this project feature.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

Cumulative VMT Impact Analysis

The previously approved Project would have a less than significant VMT impact at the Project-level and would, therefore, also have a less-than-significant cumulative VMT impact.[31]

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

2.2.5.1 Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

The Project does not conflict with the General Plan, any program plan, ordinance, or policy addressing the circulation system. The Project does not propose to amend or adjust roadway classifications, roadway network, transit routes, or bicycle network under existing conditions and future conditions as identified in the General Plan.

The Project would enhance the pedestrian experience by constructing multi-use trails, enhanced parkways, and neighborhood pedestrian trails. Neighborhood trails connect homes to the larger network, bringing all community amenities within pedestrian, bicycle, or equestrian access and reducing the need for automobiles. The Project would also construct a Class I Bike Path, Class II Bike Lanes, and Class III Bike Route. Per the Northlake Design Guidebook, a Class I Bike Path is planned along Northlake Boulevard and Ridge Route Road south of Northlake Boulevard. Class

[31] "A project that falls below an efficiency-based threshold that is aligned with long-term goals and relevant plans has no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than significant project impact would imply a less than significant cumulative impact, and vice versa." Technical Advisory on Evaluating Transportation Impacts in CEQA, Governors' Office of Planning and Research, December 2018, page 6.

II bike lanes are planned for Local Collectors "A" and "B" and Fire Access Road. Class III Bike Route is planned along Ridge Route Road north of Northlake Boulevard. Lastly, the Project would expand the transit network by creating a route alignment and bus stop locations within the Project Site. Therefore, the Project does not conflict with the General Plan, any program plan, ordinance, or policy addressing the circulation system.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

2.2.5.2 Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Project would involve construction of a new internal circulation system. According to the Santa Clarita Valley Area Plan 2012 EIR, hazards due to roadway design would be evaluated on a project-by-project basis. The Project would include implementation of the Access and Circulation Plan that provides circulation and design standards for the layout of arterial highways and local collector streets in support of the Northlake land use plan. Because the NLSP, including the Access and Circulation Plan, was evaluated as part of the Northlake 1992 EIR and approved as part of the NLSP, no significant impacts are anticipated. Further, all roadway designs would comply with applicable design standards and requirements set forth in the NLSP and would be subject to review and approval by the LACPW. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

Would the project result in inadequate emergency access?

Development of the Project Site will not alter or impede emergency response routes or plans set in place by the County. Access during construction will be addressed in the Project's construction traffic management plan.

Emergency vehicles would access the Project Site using Ridge Route Road and use the internal street network. North of the Project Site, existing Ridge Route Road can be accessed from Templin Highway. Vehicular circulation within the Project Site would be accommodated by public and private roadways, which would be constructed consistent with applicable Los Angeles County Department of Public Works design standards for local roads. According to the California Fire Code (2016), fire apparatus access roads need to be no less than 20 feet wide and shall always

be unobstructed, which the internal Project streets will meet. Based on the previously approved Project Site plan, the internal streets and intersections, including the Project cul-de-sacs, would accommodate a fire truck.

The Project driveways are designed to comply with turning radius requirements for emergency vehicles and will not cause hazardous driving conditions. The Project's detailed design will be completed in compliance with California Fire Code requirements and not impair emergency vehicle access in the vicinity of the Project during construction and in ongoing operation. Compliance with the California Fire and Building Codes will be mandated through the plan check and approval process. This process will also ensure that adequate access for emergency services is provided, and the County's emergency response plan will be upheld during construction. Emergency access is further discussed below in Section 2.3, Wildfire, of this RPDSEIR. Therefore, the Project's impact on emergency access would be less than significant.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

Would the project result in construction VMT impacts?

Construction of the proposed Project would generate temporary VMT associated with construction activities. It is anticipated that construction of the proposed Project would be phased based on market demand.

Construction-related VMT would primarily be associated with mass grading including movement of soils within the Project Site, delivery of building materials and construction equipment, removal of construction debris, and construction workers commuting to/from the Project Site. The amount of construction VMT would vary daily depending on the nature of the activity. In general, phased construction of the proposed uses is not anticipated to result in substantial construction related VMT, except possibly for the initial demolition and clearing stages, which would generate the highest number of heavy truck VMT. All grading materials are anticipated to be balanced on the Project Site; therefore, the primary source of construction related VMT would occur during the building phases of the Project. Construction traffic is expected to access the Project Site from I-5 at Lake Hughes Road, which leads to Ridge Route Road, and which is the most direct and shortest route from the site to the regional freeway system. Construction workers would primarily be from the southern California region. In some cases, specialized workers will be housed temporarily in the local area for the duration of their work activity. The distance construction workers travel to jobsites is a function of the worker's home location and the jobsite location, which is continually changing due to the short-term nature of construction work. Construction related VMT is variable, short-term, and is substantially lower than the project's operational VMT. As such, construction related VMT would be less than significant.

As described in Mitigation Measure 5.11-3 to the previously approved Project (which would be implemented here as well), to minimize traffic impacts during construction, a Construction Traffic Management Plan will be prepared and submitted to the County; this plan will describe safe detours, provide temporary traffic-control measures during construction activities, and identify

requirements to be met when one or more travel lanes are obstructed during construction. To reduce traffic congestion, the plan would also include, as necessary, appropriate, and practicable, the following activities: implementing temporary traffic controls (e.g., a flag person) during all phases of construction to maintain smooth traffic flow; implementing signage for detours, if needed; assigning dedicated turn lanes for movement of construction trucks and equipment on and off the site; scheduling construction activities that affect traffic flow on the arterial system to off-peak hours; consolidating truck deliveries; rerouting construction trucks away from congested streets or sensitive receptors; and synchronizing signals to improve traffic flow. Conducting construction activities in compliance with the Construction Traffic Management Plan would reduce potential impacts related to construction traffic to less than significant levels.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

2.3 WILDFIRE

2.3.1 INTRODUCTION

This section supplements the SEIR Section 5.5, Fire Hazards, Emergency Response, and Environmental Safety. Specifically, this analysis supplements the analysis of wildfire risk and emergency evacuation in the event of a wildfire event. For this RPDSEIR, wildfire is a standalone section that incorporates the new threshold questions from CEQA Appendix G, which were added in December 2018 as a part of a comprehensive update to the CEQA Guidelines. The previously approved Project was concluded to result in less than significant impacts with implementation of identified regulatory standards related to wildfire risk and emergency evacuation. These determinations were upheld by the Superior Court; as such recirculation was not required.

The purpose of this analysis is to identify potential significant impacts related to wildfire risk and emergency evacuation with implementation of the previously approved Project, as described in Section 1.2, Project Summary. This analysis is based on the following technical reports, which address the previously approved Project:

- *Wildland Fire Risk Report, NorthLake Project* (Wildfire Report), prepared by Firesafe Planning Solutions, dated December 4, 2024 (Appendix D-1 to this RPDSEIR);
- *NorthLake Specific Plan Wildland Fire Evacuation Scenarios – Evacuation Time Estimates Memorandum* (Wildfire Evacuation Memo), prepared by Consulting Services, Inc., dated August 9, 2024 (Appendix D-2 to this RPDSEIR);
- *NorthLake Drainage Memorandum* (Drainage Memo), prepared by Sikand Engineering, dated May 17, 2023 (Appendix D-3 to this RPDSEIR); and
- *Wildland Fire Risk Report, NorthLake Project Addendum #1, December 2024* (Appendix K to this RPDSEIR)

These analyses support the significance determinations for the previously approved Project presented in the SEIR.

2.3.2 METHODOLOGY

California Attorney General Guidelines

The California Attorney General's (AG) *Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act* (AG Guidelines), published in October 2022, encompasses the threshold questions for the topic of wildfire in Appendix G of the CEQA Guidelines established in 2018, as previously discussed. The Wildland Fire Risk Report (Wildfire Report) states it addresses the following tasks from the AG Guidelines:

1) Determine if project impact will substantially impair an adopted emergency response plan or emergency evacuation plan;
2) Determine the project-specific Wildland Fire Hazard and Wildland Fire Risk to quantify issues that may exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
3) Determine if the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment;
4) Determine if people or structures will be exposed to significant risks due to the completion of the project; and
5) Consider whether a project will "expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires".

Wildfire Report Methodology

The Wildfire Report examined the topography (i.e., slope, aspect, elevation, location of development related to upslope and downslope areas), weather history and weather conditions during extreme fire conditions, fire history, wildland fuels (i.e., type, configuration, continuity, and density), and current/anticipated infrastructure (i.e., roads, fuel modification, fire resources, and water distribution and storage system). The current and future (i.e., in place by the time of development) regulations, codes, standards, guidelines, and recommended practices relating to wildland fire safety were also considered. It was assumed that the previously approved Project would comply with all current and future regulations in the development of the Project Site and the construction of the structures. The report provides results of computer calculations that measured the fire intensity, flame lengths, rate of spread, and fire travel distance (arrival times) from worst-case scenario wildfires in both the extreme (Diablo wind) and the predominant (Onshore wind) wind conditions (ten different wildfire scenarios). The results of the fire behavior calculations have been incorporated into the analysis of the interfaces of the previously approved Project with adjacent wildlands and the potential ingress/egress routes that would be used at the site daily and under emergency conditions where evacuation might be possible or necessary. The analysis of wildland fire risk starts with the review of the hazards, the likelihood of an event, and the intensity of that event which is then examined against the vulnerability (exposure and susceptibility) to provide a "level of risk". This was accomplished using fire modeling (BehavePlus and FlamMap) software as provided by the U.S. Forest Service (Firesafe, Wildfire Report 2024).

Wildfire Evacuation Memo Methodology

The Wildfire Evacuation Memo estimated the evacuation time for all ten of the wildfire scenarios modeled in the Wildfire Report. The estimated evacuation time is based on consideration of the population of the Project area, the average number of vehicles owned by each household, the relative location of households in relation to the roadway network, and the available roadway

capacity. The number of residential units and the average vehicle ownership per household in the Castaic community was used to estimate the potential number of Northlake vehicles that would need to be evacuated during a wildland fire event. Households in the Castaic community own an average of 2.34 vehicles per household. A conservative roadway capacity estimate of 500 vehicles per hour per lane (VPHPL) was used in this analysis to represent extreme congested conditions under a worst-case evacuation scenario. The analysis is also based on a worst-case assumption that all residents of dwelling units under evacuation are assumed to be at home and would attempt to evacuate using all available vehicles for each household. Analysis also considers the existing residential neighborhoods just south of the Project Site (i.e., Northlake Hills and Wildwood), which also rely on Ridge Route Road for evacuation. Traffic from the three evacuation (i.e., egress) points would proceed south along Ridge Route Road towards the Lake Hughes Road intersection. For a worst-case condition, the analysis assumes that no vehicles would be evacuated to the north towards Templin Highway (Stantec, Wildfire Evacuation Memo 2024a).

The focus of the evacuation analysis is on Ridge Route Road within the NLSP area and south to Lake Hughes Road where Ridge Route Road enters the existing Castaic community. Conditions on Lake Hughes Road and on Ridge Route Road south of Lake Hughes Road can affect the overall capacity of vehicles passing through the Ridge Route Road/Lake Hughes Road intersection. For the evacuation analysis, it is assumed that these downstream conditions are being actively managed by County emergency management personnel and that sufficient capacity is available to receive and/or stage the evacuating residents (Stantec, Wildfire Evacuation Memo 2024a).

In addition, the Genasys Protect application (app), formerly known as Zone Haven, is an evacuation management tool that helps communities, and first responders, more effectively plan, communicate, and execute evacuations. It is a platform where residents can look up their addresses using the search bar and use the zone map to find evacuation information for their area.

Pre-established evacuation zones help fire, law, and emergency service agencies prepare for, streamline, and reduce confusion around the evacuation process so that roads are clear for those who need to evacuate quickly. By evacuating the most at-risk zones first, emergency personnel are able to manage the traffic flow and more easily prevent the traffic jams that occur when an entire town or city tries to evacuate all at the same time. The pre-established zones also provide a common reference system for all first responders and the community.

Evacuation routes are always incident-specific because the best route to take is always relative to the location and type of threat. When an emergency evacuation occurs, residents will be asked to check the County's alerts and open the Genasys Protect app to review the status of their zone. When it is time to evacuate, residents will be asked to follow the direction of the law enforcement directing traffic.

The Genasys Protect mobile app for Apple and Android contains all the same functions as the website, with the additional feature of being able to follow a zone to receive push notifications about status changes to that zone. It should be noted that the Genasys Protect is not a navigation tool like Google or Apple Maps, which means it cannot plot directions or receive evacuation directions.

All zones in Genasys Protect are published by the County and are authoritative. Genasys works directly with each county served and all information for a zone or county listed on the site has been approved by the county. The County worked directly with Genasys to add and approve all

of the information for specific zones, and the appointed emergency response personnel update the statuses and information during emergencies.

The Project site is within zone CAS-RIDGE. The first three letters represent the city's name or if in an unincorporated area - the county, the E is short for Evacuation, and the last three numbers are the unique code that distinguishes the zone from the others in the immediate area. This system is consistent across the county and makes it easy for first responders to plan and execute evacuations. The zone identifier system provides each zone with a globally unique identification so there is no confusion about which zone is being referenced.

During an incident, first responders may need to split the zone into multiple sections in order to evacuate community members or repopulate a zone in the most effective way. If a zone contains a letter on the end (example: E005-A, E005-B, E005-C), this means that the original zone (E005) was split up into smaller areas for better management of the evacuation.

Fire Hazards Reduction Programs

The Los Angeles County Fire Department (LACoFD) has multiple Fire Hazards Reduction Programs, including the Defensible Space Inspection Program and Vegetation Management Program. The Defensible Space Program is a joint effort between the LACoFD and the County of Los Angeles Agricultural Commissioner Weights and Measures Department, Weed Hazard and Integrated Pest Management Bureau. These measures create "Defensible Space" for effective fire protection, and the Department's Defensible Space Unit enforces the Fire Code as it relates to brush clearance on improved parcels, coordinates inspections and compliance efforts with fire station personnel, and provides annual defensible space training to fire station personnel. The Vegetation Management Program is an ongoing effort to analyze the history and effects of wildland fires in Los Angeles County, and LACoFD has developed fuel management projects with stakeholders, including cities, community groups, and other agencies; experimentation with various methods of reducing or removing fuels in fire prone areas, as well as evaluation of environmental impacts and effects of these practices (Los Angeles County Fire Department 2024).

2.3.3 THRESHOLD CRITERIA

If located in or near State responsibility areas or lands classified as VHFHSZ, would the project:

2.3.3.1 Substantially impair an adopted emergency response plan or emergency evacuation plan?

2.3.3.2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

2.3.3.3 Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

2.3.3.4 Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

2.3.4 IMPACT ANALYSIS

2.3.4.1 Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

The Project area does not have an adopted emergency evacuation plan. Neither construction nor operation of the Project would impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. The area's emergency response would be enhanced by implementation of the previously approved Project with the addition of the proposed fire station and improvements to the public roadways. This evacuation analysis for the previously approved Project would be the first formal process that can be found in a search of the available records. Previous evacuations in the area from several incidents over the past years have provided the emergency staff with experience that is helpful for future actions. One example is the closure of Interstate 5 due to an emergency. In previous closures, the action was to take traffic off the freeway at Lake Hughes Road, which results in almost immediate gridlock. Shutting the freeway at Hasley Canyon Road or State Route 126 provides for better redirection of the freeway traffic and leaves the Castaic area more evacuation options (Firesafe, Wildfire Report 2024). Project Design Features (PDFs) that would reduce the impact of the previously approved Project on emergency response and evacuation include:

PDF-3: Evacuation Plan: A detailed Evacuation Plan would be prepared and shall include, at a minimum, the below described evacuation plan elements, actions during a wildfire, and actions during site evacuation due to wildfire:

Evacuation Plan Elements

Coordination with applicable agencies: During development of the Evacuation Plan, the applicant will communicate with public agencies that may provide emergency response to the Project area in the event of a disaster, such as a wildfire, and emergency assistance is needed. Public agencies could include LACPW, LACoFD, Los Angeles County Sheriff's Department (LASD), County Supervisor's Office, California Department of Transportation (Caltrans), California Highway Patrol (CHP), and companies providing utility services for the community.

Evacuation zones map: The Evacuation Plan will categorize the Project into Evacuation Zones; the Project Site is within zone CAS-RIDGE. The purpose of the Evacuation Zones is to aid agencies and/or emergency personnel in quickly identifying areas of the Project to plan for the evacuation timing, the evacuation order, and the evacuation routes so that traffic flow is managed and traffic bottlenecks are avoided. For example, the Priority Area under evacuation would be identified by the applicable Evacuation Zones.

Ingress and egress routes: The Evacuation Plan will identify regional and local ingress and egress routes such as the I-5 freeway, Lake Hughes Road Interchange, Ridge Route Road Interchange, and the Ridge Route Road and Lake Hughes Road intersection.

Street routes: The Evacuation Plan will detail the Project's internal circulation and provide evacuation routes using the Project's main three evacuation points: "B" Street at Ridge Route Road, Northlake Boulevard at Ridge Route Road, and "A" Street at Ridge Route Road.

Detour plan: In the event an evacuation point is not available, the evacuation plan will identify alternative routes to an available evacuation point.

Pre-identified safe refuge areas: The Evacuation Plan will provide a map with pre-identified safe refuge areas.

Evacuation traffic control plans: The Evaluation Plan will include traffic control plans such as, but not limited to, deployment of portable generators to intersections with traffic signals, changeable message signs to inform motorists, and modification of signal timing to allow emergency personnel to operate the traffic signals manually.

Resident outreach and education: Resident outreach will be conducted to educate residents on what evacuation zone they are in, evacuation routes, evacuation points, emergency contacts, pre-identified safe refuge areas, and notification systems to enlist.

Actions During a Wildfire

Initial action: LACoFD would assess the event and communicate with LASD if an evacuation order, evacuation warning, or a shelter in place notice is needed. LASD will coordinate with other agencies such as (but not limited to) Caltrans and CHP to close routes into the area. This could mean closing sections of the I-5 freeway or diverting local traffic in the Castaic community near Lake Hughes Road.

Community notifications: The County of Los Angeles will notify the community before, during and after an emergency. Communication will be done via an emergency alert system, Alert LA County, commercial media, amateur radio, and websites. The emergency alert system is broadcasted directly by LASD.[32] Alert LA County is a Community Mass Notification System that is an emergency system used to contact County residents through phone calls, text messages, and email.[33] Commercial media refers to television stations in the surrounding area. Amateur radio refers to Los Angeles County Disaster Communications Service (DCS) works ham radio operators throughout the County. Lastly, websites such as the Los Angeles County Website and National Weather Service will provide up to date fire information and shelter sites. Social media could also be used to notify residents. Residents would be notified of available evacuation routes, shelter locations, refuge areas, and animal shelters.

Response organization contact list: The Evacuation Plan will include a list of contacts that will implement the evacuation plan, such as, but not limited to, LACPW, LACoFD, LASD, Caltrans, CHP, school district, and utilities.

Site Evacuation Due to Wildfire

Evacuation of the Priority Area: Emergency personnel would determine the Priority Area and provide community notifications to the affected evacuation zones on an evacuation warning, evacuation order, or a shelter in place.

Identification of available/open evacuation points closest to the Priority Area: Community notifications would include information related to the availability of the nearest evacuation points. At this time emergency personnel would monitor the movement of the fire and provide updates to the availability of the evacuation points.

[32] The County of Los Angeles Emergency Survival Guide, County of Los Angeles, Chief Executive Office, Office of Emergency Management, 2022.

[33] www.lacounty.gov/emergency accessed February 2025.

Deployment of emergency personnel to direct evacuation: Based on the movement of the wildfire, emergency personnel would open or close the available evacuation points and help reroute vehicles so residents can efficiently exit the area and avoid traffic bottlenecks.

The Wildfire Evacuation Memo determined that all modeled scenarios allowed all vehicles to evacuate within the allowable time limit. This assumes that an evacuation point would only temporarily close (approximately 90 minutes at most) and would reopen after the fire is no longer a threat to that area. The closure of the southerly segments of Ridge Route Road would result in a temporary pause on evacuations. Since Ridge Route Road is the only egress route, a "shelter in place" recommendation may be made in an event where Ridge Route Road cannot reopen. However, an evacuation route directly onto the I-5 freeway from Ridge Route Road would provide an alternative to Ridge Route Road but would require a substantial amount of evaluation and coordination with Caltrans to implement (Stantec 2024a).

From a wildland fire perspective, the Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Project Site-specific evacuation plans would be completed as an integral part of Resident Information and Community Communications efforts by the Project sponsors, builders, and the homeowner's associations (HOAs) who would have the ongoing responsibility for this information (Stantec 2024a). In addition, the Genasys Protect app is an evacuation management tool that will be available to assist future residents and first responders to effectively evacuate in the event of a wildfire occurrence. Based on the findings of both the Wildfire Report and Wildfire Evacuation Memo, there would be less than significant impacts related to emergency response and evacuation due to a wildland fire affecting the previously approved Project area or surrounding area during construction and operations, and no mitigation is required.

Information provided to Stantec by the Los Angeles County Department of Regional Planning indicates that there is currently one cumulative (i.e., related) project in the vicinity of the Project Site: the Centennial Specific Plan. This project will not utilize Ridge Route Road for access; therefore, traffic generation from this project would not affect the findings of the evacuation analysis (Stantec 2024a).

There would be less than significant cumulative impacts related to emergency response and evacuation.

Level of Significance Before Mitigation

Less than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than Significant Impact.

2.3.4.2 Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The Wildfire Report examined the Project-specific wildland fire hazards and the resulting risks with application of required regulatory standards and PDF-3 above and PDF-4 below and determined that the resulting level of risk is no greater than similar communities in the area and generally better than projects constructed prior to the current regulatory standards. Neither

construction nor operation of the Project would exacerbate wildfire risks, thereby exposing occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire. As described in further detail below, during construction, the Project would be required to implement all applicable Federal, State and local regulations pertaining to wildfire. Consistent with current regulations, all dwelling units during operations would be protected with automatic fire sprinklers and the site design would implement appropriate fuel breaks, fire breaks and fuel modification zones. The Project would create buffer zones and defensible space within and adjacent to the proposed development, with particular attention to ensuring that vegetation would not touch structures or overhang roofs. Structures and homes would be fire hardened in accordance with Chapter 7A of the Building Code, Section R337 of the Residential Code and the specific requirements of LACoFD during the development review process for the site-specific locations. On-site, gravity fed, water supply/storage would be provided to ensure fire flow during power outages for the required duration established in the Fire Code (Firesafe 2024). The Fire Management Program specified in the NLSP requires compliance with the County Fire Code and all other regulatory standards.[34] PDFs above and beyond the regulatory standards that provide additional wildfire protection are listed below.

PDF-4: Wildfire Prevention and Protection Features: The Project includes several features that would both help prevent a wildfire from starting from within the site and protect the on-site population and structures if a wildfire occurred on or near the site. These features include:

- The Project includes increased housing density and a consolidated design to reduce or eliminate, where possible, wildland fuels within the interior of the site and to keep the edge of the site as an identifiable interface.
- The Project has been designed to avoid and minimize low-density urban development patterns or leapfrog-type developments (i.e., those with undeveloped wildland between developed areas).
- Decreasing the extent and amount of “edge,” or interface area, where development is adjacent to undeveloped wildlands.
- The Project would establish the legal obligations within the codes, covenants, and restrictions (CCR’s) to ensure that defensible space measures are retained over time.
- Undergrounding of power lines throughout the entire Project Site except for the SCE overhead transmission lines that bisect the site.
- The Project design limits development along steep slopes and amidst rugged terrain to decrease exposure to rapid fire spread and increase accessibility for firefighting. Only a few locations have wildland fuels below (lower than proposed structures) the site and these sites would have additional protections such as radiant heat walls, increased built-in fire protection features, and/or placement of the structure so that the effects of “underslung fuels” are reduced.
- Structures and features have been sited to maximize the role of low-flammability landscape features and roadways that may buffer the development from fire spread.
- The Project would expand existing fire resources in the region, including a new fire station location and more water storage than required resulting in additional regional fire duration capacity.
- Proposed development has been situated within the existing or planned ingress/egress and designated evacuation routes to efficiently evacuate the on-site

[34] NorthLake Draft SEIR, Appendix B [NorthLake Specific Plan], pages IV-10 through IV-13.

population and the existing community population, consistent with evacuation plans, while simultaneously allowing emergency access.

The size, location, and configuration of the Project makes it unlikely that a fire would affect the entire site at a single time but rather the fire would affect sections of the site's interface over a period of time allowing for resources to be redistributed and for evacuation opportunities after the fire front has passed a specific location. Travel within the site should be viable at all times given the distance from the wildland fuels and the wildland fire protection features. The modeling indicates there would always be some portion of the community that is not impacted or has already been impacted and is now no longer a significant risk to the occupants/evacuees. The Project Site would have three egress points available for evacuation efforts should law enforcement deem it necessary. Additionally, the combination of fuel modification, hardened structures, the placement of the structures, and features on the topography relative to the wildland fuels creates a community that is capable of "sheltering in place" if necessary. While never a first choice by emergency service providers, if moving the population is a greater risk, this community as designed and as it would be constructed would be capable of a sheltering operation without undue risk to the residents.

All ten fire scenarios that have been modeled have at least one evacuation point that is viable for four hours or more except one, the Freeway Spots scenario. In the Freeway Spots scenario, all three evacuation points would be viable for an estimated 30 minutes until it is limited by fire and would reopen in an estimated 60 to 90 minutes depending on location. All fire scenarios were run under extreme conditions which have been recorded in previous fires or which are likely to occur in the future and are considered the worst-case scenarios. Fires with wildland fuels, such as adjacent to the Project Site, tend to burn in "ribbons of fire" which have a flaming front and little fire behavior behind the flaming front. For this reason, once the fire has passed, so has most of the risk associated with the fire. Residents closest to the impacted areas should be moved first and then the evacuation area expanded based on risk to the community and/or evacuation routes. It may be necessary to shelter in place for short periods of time in areas which are less at risk or would not be affected before the evacuation is completed. The Wildfire Report concluded that while fire would be expected to affect portions of the Project Site before the entire population is evacuated, options exist to change routes, use areas of refuge on a temporary basis, or shelter populations that are not currently at risk until those at risk have been moved to safer areas (Firesafe 2024).

The Project traffic engineer, Stantec, modeled scenarios to validate the time needed to empty the at risk or priority populations and the entire Project Site. With each modeled scenario, the number of people at risk determines the number of dwelling units that would be a priority to evacuate (hereby referred to as priority area). In some instances, the entire Project Site is in the priority area. After the priority area has evacuated, the remainder of the site would evacuate. Based on worst-case assumptions, discussed above, the Wildfire Evacuation Memo estimated that it would require between 1 and 3.5 hours to evacuate the priority area (for the eight scenarios where the priority area is not the entire Project Site) and between 3.5 and 5.75 hours to evacuate the entire Site. For the Freeway Spots scenario, the Wildfire Evacuation Memo estimates it would require an estimated 2.5 hours to evacuate the priority area and 5 hours to evacuate the entire Project Site (Stantec 2024a). As discussed above, for the Freeway Spots scenario the three egress points would each be viable for approximately 30 minutes. Therefore, in such a scenario the remaining on-site population would shelter in place until one or more evacuation points reopen (estimated to be in 60 to 90 minutes) and then evacuation would continue.

Evacuation reduces exposure to pollutant concentrations generated by a wildfire. Therefore, the combined effects of the fuel modification, roadside clearance, building code requirements, and the site design/placement of the structures work together to protect the community from a wildfire.

The Project Site would, in fact, provide a buffer to some of the existing communities by removing or modifying the wildland fuels that are upwind from them. With the fuel modification and roadside clearance in place, the probability of a fire originating from the Project Site is lower than the adjacent communities without this protection. To access the wildlands, it would be necessary to traverse the 200-foot-wide fuel modification zone. Ignitions from the normal sources associated with development would be much less likely to occur (Firesafe 2024). There would be less than significant impacts related to exacerbation of wildfire risk that would expose the population to fire-related pollutant concentrations during construction and operations, and no mitigation is required.

Level of Significance Before Mitigation

Less than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than Significant Impact.

2.3.4.3 Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Construction of the Project would not require the installation of associated infrastructure that would exacerbate fire risk. In addition, the Wildfire Report concluded that none of the proposed infrastructure would exacerbate the wildfire risk for the Project Site during operations. In fact, the improved water supply for the general area, placement of fuel modification zones, and establishment of a community that has the option to “shelter in place” if needed provides an alternative to existing residents in the immediate area where this level of protection does not exist. If evacuation to the south is not possible, nearby communities would be safer on the Project Site development areas than they would be in some of the current neighborhoods due to the protections provided as part of the previously approved Project (Firesafe 2024). There would be less than significant impacts related to installation and maintenance of infrastructure that could exacerbate wildfire risk during construction and operations, and no mitigation is required.

Level of Significance Before Mitigation

Less than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than Significant Impact.

2.3.4.4 Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

As proposed, the Project would not expose people or structures on the Project Site, either directly or indirectly, during construction or operations, to a significant risk of loss, injury or death due to

a wildland fire in the undisturbed areas adjacent to the site due to the use of fuel modification, defensible space, fire sprinklers, placement of the structure on the landscape/topography, street widths, amount of fire protection water available, and placement of fire hydrants at specified intervals, hardening of the structures to comply with the current wildland interface regulations, and availability of firefighter resources within the Project Site, and the regional assets available to combat a wildland fire by LACoFD and the other associated agencies (CalFire, USFS, mutual aid fire resources, call when needed fire resources) who routinely assist in the suppression of wildfires in the region (Firesafe 2024).

During construction, the Project would be required to comply with all applicable federal, State and local rules and regulations governing construction fire safety, including Chapter 33 of the California State Fire Code entitled, Fire Safety During Construction and Demolition, which provides requirements for precautions against fire and requires readily accessible means of reporting emergencies, access roadways and fire department water supplies to all areas where combustible construction is occurring. This section also requires the development, implementation and maintenance of an approved, written Site Safety Plan establishing a fire prevention program at the Project Site applicable throughout all phases of the construction, repair, alteration or demolition work. This plan addresses the requirements of the Fire Code, the duties of staff and staff training requirements. The Site Safety Plan must be submitted and approved before the issuance of a building permit. The Project would also be required to comply with California (Cal/OSHA) regulation section 5141.1, which protects outdoor employees exposed to wildfire smoke and poor air quality through monitoring air quality levels, required trainings and instructions, and control of harmful exposures to workers by providing respiratory protective equipment and portable air filters. A Project-specific Construction Monitoring Plan and Stormwater Pollution Prevention Plan (SWPPP) would be required to ensure all appropriate erosion control measures and best management practices (BMPs) are implemented during construction activities. The BMPs would include, but would not be limited to, physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other measures that would substantially reduce or prevent erosion from occurring during construction. In the event that a wildland fire is followed by a rain event, and results in downstream flooding or landslides as a result of post-fire runoff, the BMP measures required to be implemented under the SWPPP would reduce the risk of runoff, post-fire slope instability, and drainage changes.

Per the approved hydrology study[35] and latest County policies, the Project has been designed with upstream debris basins that are engineered to contain debris flows from upstream natural areas that have burned in wildfires. Upstream flows are conveyed into these basins where debris settles, and clear water would then be conveyed downstream through a conduit. Based on the approved hydrology study for the Project, Sikand concluded the proposed flows during operations exiting the Project Site would mimic the existing conditions and as such would not result in downslope or downstream flooding (Sikand, Northlake Drainage Memo 2023).

In addition, the increase in wildfire risk due to human caused ignitions was assessed. (See Wildland Fire Risk Report NorthLake Project Addendum #1 December 2024, Appendix K.) Development of the Project Site would introduce additional wildfire risk factors as compared to existing conditions. Specifically, increased human habitation in a wildlife-urban interface increases the fire risk from arson, children playing with fire, and debris-burning; increased vehicular traffic increases fire risk from sparks, catalytic converters, and discarding of cigarettes; and the introduction of residences within the site would create a wildland-urban interface that increases the general potential for human-ignited wildfires. The Project would introduce

[35] NorthLake Hydrology Study, 2017 (Appendix D-4 to this RPDSEIR).

residences within the site creating a wildland-urban interface that increases the general potential for human-ignited wildfires. All of these factors could expose Project occupants to pollutant concentrations from wildfire or the uncontrolled spread of wildfire near or into the development footprint. Although additional opportunities for wildfires would occur, factors associated with the changes in the wildland fuels and topography would have an offsetting effect. The ignition gradient along lateral development could lower ignition probabilities when new development areas are located nearest to the previous urban development, while outlying development patterns in the wildland areas may have higher probabilities for wildfire. This builds on the concept that, at a point of development density, wildland fuels are reduced/eliminated or fragmented to a point where fire suppression efforts are more effective. A higher level of development would also have a greater concentration of emergency services resources to aid the protective actions needed to bring the incident to a close.

As noted above, the Project would not expose people or structures on the Project Site, either directly or indirectly, to a significant risk of loss, injury or death due to a wildland fire caused by human ignitions due to the use or implementation of:

- fuel modification,
- defensible space,
- fire sprinklers,
- placement of the structure on the landscape/topography,
- street widths,
- amount of fire protection water available,
- placement of fire hydrants at specified intervals,
- hardening of the structures to comply with the current wildland interface regulations,
- availability of firefighter resources within the Project Site, and
- the regional assets available to combat a wildland fire by LACoFD and the other associated agencies (CalFire, USFS, mutual aid fire resources, call when needed fire resources) who routinely assist in the suppression of wildfires in the region.

The Project would avoid human-ignited wildfire risk by:

- Prohibiting smoking in wildland and wildland interface,
- Banning solid fuel outfire fires within the community without spark arrestor and only in approved devices, and
- Limiting access to vulnerable open space.

The Project would minimize, prevent and reduce human-ignited wildfire risk by providing:

- Fuel Breaks and Fire Breaks which reduce fire intensity and forward progress in the direction of the community,
- Undergrounding of utilities, pump stations, switch gear to make them less impacted by wildfires,
- Annual inspections for wildland interface (common areas) to insure readiness

- Defensible space inspections to educate and inform homeowners on what can be accomplished to make the structure more resistant to wildland fires,
- Community cleanup programs (ongoing) to assist in removing wildland fuels from the interface and the community as a whole,
- Back up of critical infrastructure (water, communications, traffic control, electrical) to ensure that they are functional when needed,
- Fuel modification zones which slow or stop the forward progression of the wildland fire
- Defensible space which eliminates or greater reduces the fire pathways between the native fuels and the ignition zone around the structure,
- Roadside clearance zones which increase the utility of the roads for evacuation while reducing the impact of possible ignition sources by reducing fuels near the roads by creating a buffer area,
- New fire suppression resources which are closer/faster to the incident in order to intercede before the fire reaches a point where it exceeds the local resources and become a large wildland fire,
- Hardened structures to wildland fire impacts through physical construction, distance and configuration of items on or near the structure which might ignite, and
- Placement of structures relative to the potential wildland fires to reduce or eliminate the possible ignition of the structure or the vegetation around it.

Finally, the Project would compensate and offset human-ignited wildfire risk through:

- Increased detection of ignition which result in actions which limit the size and scope of the fire with early intervention by citizens or emergency personnel,
- Rapid suppression capabilities (as opposed to longer responses to areas without immediate access),
- Fire prevention and public education programs to reduce, eliminate and prevent wildland fires by changing behavior and practice which could elevate the risk of a wildland fire or its impacts,
- Community information and communication systems to keep residents informed and aware of risks, actions needed and increases the ability to plan for future actions such as evacuation prior to being in harm's way, and
- Preplanned evacuation areas/routes which are known to residents to insure that, if evacuation is needed, it can be completed quickly and in the most efficient and effective manner.

As such, the increased wildfire risk from human-ignited wildfire would be less than significant.

As shown above, there would be less than significant impacts related to downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes during construction and operations, and no mitigation is required.

Level of Significance Before Mitigation

Less than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than Significant Impact.

2.4 REVISED ALTERNATIVES ANALYSIS

2.4.1 INTRODUCTION

This section[36] provides an updated Alternatives analysis in direct response to the Court Ruling. The Court Ruling stated the following:

> ***ISSUE TWO: THE REASONABLE RANGE OF ALTERNATIVES PRESENTED IN THE SEIR IS DEFICIENT FOR FAILING TO CONSIDER AN ALTERNATIVE THAT WOULD PRESERVE THE GRASSHOPPER CREEK HABITAT:***
>
> *CEQA requires the lead agency to consider a reasonable range of alternatives to evaluate whether an alternative to the Project exists that will reduce or better mitigate the significant environmental impacts of a project. PRC 21002; Guidelines section 15126.6. An EIR is to "ensure that all reasonable alternatives to proposed projects are thoroughly assessed" by the decisionmakers. Laurel Heights Improvement Association v. Regents of the University of California (1988) 47 Cal.3d 376, 400.*
>
> *The SEIR's alternate analysis for the Project does not include an alternative that would protect Grasshopper Creek (AR 2403-2426), and for that reason is fatally flawed.*
>
> *[…]*
>
> *Without necessarily finding a violation of section 15151, the Court finds that the County's exclusion of the "creek avoidance" alternative from the range of alternatives is not supported by substantial evidence. That failure is a violation of Guidelines section 15126.6 and, therefore, of PRC 21002. The failure invalidates the approvals given for the Project and requires the submittal of an amended EIR that includes an appropriate analysis section for consideration by the County's decisionmakers.*

The analysis is provided below in response to the Court Ruling to support the SEIR's discussions and impact conclusions and the County's associated findings. The analysis considers two alternatives that look to avoid impacts to Grasshopper Creek: (1) the Creek Avoidance Alternative and (2) the Partial Creek Avoidance Alternative. The analysis is based, in part, upon:

1) Creek Avoidance Alternative Assessment, July 2021 (Revised June 2022), by Sikand Engineering Associates (Appendix F-1 to this RPDSEIR);
2) Geotechnical/Hydrological Review of Creek Avoidance Alternative Design Northlake, Vesting Tentative Tract Map No. 7336, Castaic, Los Angeles County, California by G_3SoilWorks, July 14, 2021 (Appendix F-2 to this RPDSEIR);
3) Glenn Lukos Technical Memorandum, Biological Conditions with Grasshopper Creek Avoidance Alternative, July 1, 2021 (Appendix F-3 to this RPDSEIR);

[36] The Alternatives analysis is contained in Section 6.0 of the SDEIR and incorporated herein by reference except where expressly superseded.

4) Sikand Engineering Associates Technical Memorandum Re: Partial Creek Avoidance Alternative, July 12, 2022 (Revised October 14, 2024) (Appendix F-4 to this RPDSEIR); and

5) Northlake Specific Plan Alternatives VMT Analysis, February 27, 2025, by Stantec (Appendix F-5 to this RPDSEIR).

In summary, the previously approved Project consists of development of Phase 1, Phase 2, and associated off-site external map improvements in both Phase 1 and Phase 2 areas totaling 65.13 acres, including remedial grading, drainage features, and road and utility alignments. Phase 1 comprises 1) development of a 720-acre portion of the Project Site with a total of 2,295 dwelling units, including 288 single-family units on approximately 41 acres, 1,341 multi-family units on approximately 41 acres, 345 senior multi-family units on approximately 49 acres, 315 affordable units and 6 market-rate live/work units (included within 20 acres of commercial use). Of the 315 affordable units, 95 would be designated as senior-living affordable units. The market-rate live-work units and deed restricted affordable mixed-use units are considered multi-family residential units under some impact methodologies. Phase 1 also includes, and lots are also provided for commercial development (22 acres), open space and parks (412 acres), roadways (86 acres), school pad (21) and a fire station pad (1 acre).

The remainder of the Project Site, referred to as the Phase 2 area, would be developed with 855 single family homes, 386 acres of parks, trails, and open space, 23 acres of school uses, and 36 acres of associated roadway and infrastructure improvements.

2.4.2 CREEK AVOIDANCE ALTERNATIVE

Description of the Alternative

The Creek Avoidance Alternative (CAA) assumes the same design basis as the previously assessed screening alternative in the SEIR (Section 6.5, Alternatives Deemed Not Feasible, Section 6.5.1 Creek Avoidance Alternative): avoid disturbing the creek bottom that runs through the Project Site while developing a viable land plan effectuating the approved NLSP. The existing landform is created by landslides that traverse the Project Site from the westerly side of Grasshopper Creek to the easterly side of the Site boundary. Typically, per standard engineering and design practices and Los Angeles County requirements, all underlying landslides would be removed and recompacted to provide suitable soil conditions for Project development. Grasshopper Creek has several existing landslides directly underneath the creek bottom that extend from approximately 10 feet to 200 feet easterly and westerly of the creek bottom. A 300-foot setback[37] from the creek bottom was determined to be an appropriate buffer for the CAA. Thus, the developable area for the CAA would commence at the creek setback line and ascend easterly to the easterly boundary of this Alternative. Unlike the previously approved Project, the CAA would require the realignment and new construction of Ridge Route Road, export of approximately 8.2 million cubic yards (mcy) of soils from the Project Site, and the construction of three clear span bridges to access the Project from Ridge Route Road.

[37] This setback was based on three considerations: 1) Topography ascending to the east from the creek can be rather steep (locally 1.5:1 to 1:1 +/-). The 300-foot setback generally removes the toe of development into areas with 3:1 to 4:1 slope gradients. 2) The irregular / meandering path of the creek bed required a suitable setback to accommodate a design that would allow a toe for a fill slope configuration, as development is proposed for the easterly slopes and developable pads will need to be graded. 3) The 300-foot setback allowed the proposed fill slope to begin further east / upslope of the upper portions of most of the small to moderate size landslides which are located along the east side of the creek bed. (Creek Avoidance Alternative Assessment, July 2021 (Revised June 2022), by Sikand Engineering Associates, Appendix F-1.)

The developable acreage for the CAA decreases from 364 acres to 286 acres, thereby reducing the amount of area available for development. After incorporating other conditioned site elements such as a 23-acre school site and 1 acre fire station (as per the NLSP), along with 167 acres of recreation and park areas, under the CAA the residential unit count would be reduced to 1,815 units (of which 165 units would be affordable). Compared to the 3,150 dwelling units (of which 315 units would be affordable) under the previously approved Project, the CAA would result in a reduction of 1,335 dwelling units. The CAA would have similar commercial acreages as the previously approved Project. Proportionately, the affordable unit count would be reduced from 315 to 165 units. The CAA is shown on Figure 2, NorthLake Creek Avoidance Alternative.

TABLE 2-7
LAND USE STATISTICAL SUMMARY TABLE
FOR THE CREEK AVOIDANCE ALTERNATIVE[a]

Use	Dwelling Units	Area (Acres)
Residential	1,815	264
Mixed Use Residential/Commercial	–	20[a]
Highway Commercial	–	2
Parks	–	26
Open Space- Manufactured Slope	–	285
Open Space- Undisturbed	–	636
Roadways	–	71
Fire Station Pad	–	1
School Pad	–	23
Totals	***1,815***	***1,329***

[a] This overlay provides for a development option of attached single-family residences and age-restricted areas designated for homeowners that are 55 years of age and older. Lot sizes and configurations would be similar to those in the Single-Family area with the addition of the Attached Single-Family designation as an option. It should be noted that development within these areas may or may not be age-restricted.

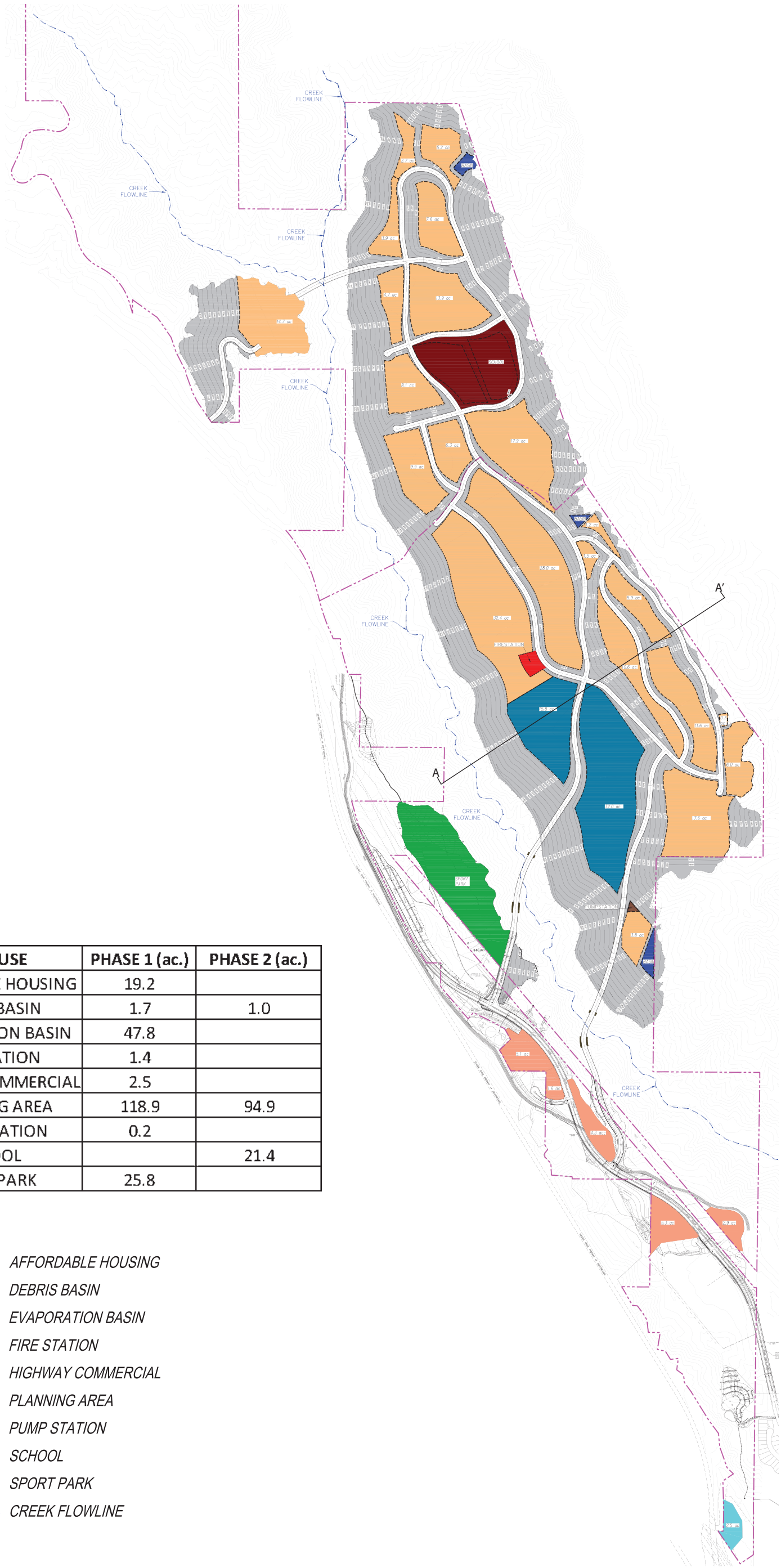
The CalEEMod parameters assume 26.4 acres for this use based on an assumption that the affordable housing would be 10 percent of the total units; thus, the acreage would likewise be 10 percent. This acreage does not affect any other aspect of emissions modeling and the small change in acreage also would not affect the modeling results.

Source: Sikand Engineering 2022.

Comparative Analysis of Environmental Impacts

Aesthetics

Similar to the previously approved Project, the CAA would alter the existing visual condition of the Project Site through introduction of development on a previously disturbed, undeveloped site. The CAA would comply with the design guidelines set forth in the NLSP and as described in Section 4.0, Project Description, of the DSEIR, including requirements for grading, circulation, landscape, architecture, and signage. The CAA would limit the graded area to a 735-acre portion of the NLSP situated on the eastern side of Grasshopper Creek. The area defined for grading and development would be 29 percent smaller than the previously approved Project. Therefore, the visual impacts would be reduced when compared to the previously approved Project due to the smaller development area. As with the previously approved Project, implementation of the CAA would not affect scenic resources along a State scenic highway. Similar to the previously approved Project, development under the CAA would conform to the lighting design guidelines set forth in the NLSP; therefore, potential impacts would be less than significant. However, the impacts of lighting would be reduced when compared to the previously approved Project due to



LAND USE	PHASE 1 (ac.)	PHASE 2 (ac.)
AFFORDABLE HOUSING	19.2	
DEBRIS BASIN	1.7	1.0
EVAPORATION BASIN	47.8	
FIRE STATION	1.4	
HIGHWAY COMMERCIAL	2.5	
PLANNING AREA	118.9	94.9
PUMP STATION	0.2	
SCHOOL		21.4
SPORT PARK	25.8	

LEGEND:

- *AFFORDABLE HOUSING*
- *DEBRIS BASIN*
- *EVAPORATION BASIN*
- *FIRE STATION*
- *HIGHWAY COMMERCIAL*
- *PLANNING AREA*
- *PUMP STATION*
- *SCHOOL*
- *SPORT PARK*
- *CREEK FLOWLINE*

Source: G SoilWorks 2021

NorthLake Creek Avoidance Alternative

Exhibit 2

NorthLake Specific Plan, Recirculated Portions of the Supplemental Draft EIR

N W E S

Map not to scale

PSOMAS

(12/05/2024 PLO) R:\Projects\WCP\3WCP000200\Graphics\ex_Creek_Avoidance.pdf

D:\Projects\3WCP\Northlake\Graphics\SEIR\Graphics\ex_Creek_Avoidance.ai

the smaller development area. No significant impacts would occur with either the previously approved Project or the CAA.

Impact conclusions would be consistent with the previously approved Project.

Air Quality

To determine how the CAA would affect air quality emissions, the California Emissions Estimator Model (CalEEMod) was used to calculate construction-source and operational-source criteria air pollutant emissions from direct and indirect sources. Emissions from both the previously approved Project and the CAA were modeled with CalEEMod and without planned project design features and/or mitigation measures to provide an apples-to-apples comparison. The emissions were calculated using the same model version as was used for the original SEIR to allow for a direct comparison of the previously approved Project with the alternative.

Table 2-8, Comparison of Estimated Maximum Daily Construction Emissions for the Creek Avoidance Alternative without Mitigation, summarizes the maximum emissions for each criteria air pollutant for the two scenarios (previously approved Project and CAA) as well as the percent change from the previously approved Project and the CAA.

TABLE 2-8
COMPARISON OF ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS FOR THE CREEK AVOIDANCE ALTERNATIVE WITHOUT MITIGATION

	Emissions (lbs/day)					
	VOC	**NO_x**	**CO**	**SO_x**	**PM10**	**PM2.5**
Previously Approved Project Maximum Emissions[a]	49	584	363	1	64	43
Creek Avoidance Alternative Maximum Emissions	69	1,109	443	2	188	77
Difference	***+41%***	***+90%***	***+22%***	***100%***	***+194%***	***+79%***
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
CAA Exceeds SCAQMD Thresholds?	**No**	**Yes**	**No**	**No**	**Yes**	**Yes**

lbs/day: pounds per day; VOC: volatile organic compound; NO_x: nitrogen oxides; CO: carbon monoxide; SO_x: sulfur oxides; PM10: respirable particulate matter 10 microns or less in diameter; PM2.5: fine particulate matter 2.5 microns or less in diameter; SCAQMD: South Coast Air Quality Management District.

Values are higher of summer or winter.

[a] Values represent 2018 calculated emission from DSEIR Table 5.1-6, the highest of all years analyzed.

Source: SCAQMD 2019 (thresholds); see Appendix E for CalEEMod model outputs.

Although the development footprint would be reduced by approximately 29 percent (which includes an associated reduction in overall site grading), the CAA would result in increased criteria air pollutant emissions during construction as compared to the previously approved Project because excavated soils would need to be exported offsite instead of distributed onsite (the previously Approved Project was a balanced site requiring no import or export of soil or associated off-site truck trips[38]). Due to the additional construction equipment and truck trips required to export 8.2 mcy of excavated soils offsite, which would not be required under the previously approved Project, the CAA would result in increases of all criteria pollutants compared to the previously approved Project. As shown in Table 2-8, construction of the CAA would result in significant increases of criteria pollutants ranging from 22 percent to 194 percent. The previously

[38] An estimated 99 16-cy truck trips per hour, or approximately 792 truck round trips per day, for 652 days, would be required to export 8.2 mcy of soil. (Detailed calculations in Appendix E for CalEEMod model outputs)

approved Project concluded that the construction activity resulting in regional and local emissions of nitrogen oxides (NO_x) would be significant and unavoidable with implementation of mitigation measures. Like the previously approved Project, the CAA would exceed the South Coast Air Quality Management District's (SCAQMD) regional emissions threshold for NO_x, but to a significantly greater extent than the previously Approved Project. Additionally, the CAA would be expected to exceed the SCAQMD thresholds for particulate matter (PM10 and PM2.5) prior to the implementation of mitigation measures.

Given that the CAA's construction NO_x emissions would be approximately 11 times the SCAQMD threshold (1,109 pounds per day with a 100 pounds per day threshold), it can be concluded the CAA would continue to result in a significant and unavoidable impact after mitigation as there are no additional feasible mitigation measures (same as the previously Approved Project, but to a significantly greater extent (90%)). Further, as the estimated PM10 and PM2.5 emissions would be greater than the previously approved Project and exceed the SCAQMD significance thresholds (unlike the previously Approved Project), construction of the CAA can be considered to result in a greater significant impact after mitigation including new significant impacts to PM10 and PM2.5.

Table 2-9, Comparison of Estimated Daily Operational Emissions for the Creek Avoidance Alternative without Project Design Features, on the following page summarizes the operations phase emissions for each criterial air pollutant for the two scenarios as well as the percent change from the previously approved Project and the CAA.

TABLE 2-9
COMPARISON OF ESTIMATED DAILY REGIONAL OPERATIONAL EMISSIONS FOR THE CREEK AVOIDANCE ALTERNATIVE WITHOUT PROJECT DESIGN FEATURES

	Emissions (lbs/day)					
	VOC	**NO_x**	**CO**	**SO_x**	**PM10**	**PM2.5**
Previously Approved Project Emissions	182	328	1,100	6	351	99
Creek Avoidance Alternative Emissions	110	165	582	2	186	53
Difference	-61%	-50%	-53%	-33%	-53%	-53%
SCAQMD Significance Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
CAA Exceeds Threshold?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**No**

lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SO_x: sulfur oxides; PM10: respirable particulate matter 10 microns or less in diameter; PM2.5: fine particulate matter 2.5 microns or less in diameter; SCAQMD: South Coast Air Quality Management District.

* Some totals may not add due to rounding. Highest of Winter or Summer model runs shown.

Source: SCAQMD 2019 (thresholds); see Appendix E for CalEEMod model outputs.

The previously approved Project concluded that long-term operational emissions for carbon monoxide (CO), volatile organic compounds (VOC), NO_x, PM10, and PM2.5 would remain significant and unavoidable with implementation of project design features and mitigation measures. As shown in Table 2-9, operation of the CAA would result in decreases of all criteria pollutants, ranging from 33 percent to 61 percent. This is consistent with the reduction in proposed land uses, particularly residential dwelling units, and the related decrease in vehicle trips. Like the previously approved Project, the CAA would exceed the SCAQMD threshold for VOC, NO_x, CO, and PM10 emissions. However, unlike the previously approved Project, the CAA would not exceed the SCAQMD thresholds for PM2.5 before consideration of project design features and mitigation measures. Therefore, the CAA would partially avoid a significant unavoidable impact related to emissions of these criteria pollutants.

Overall impact conclusions for regional construction emissions for the CAA would be consistent with the previously approved Project, although daily emissions of all criteria pollutants except SO_x would be substantially higher. Impact conclusions for operational emissions from the CAA would be reduced and would partially avoid a significant and unavoidable impact related to emissions of PM2.5.

Biological Resources

The CAA would involve disturbance of on- and off-site areas; however, the development footprint would be reduced by approximately 29 percent compared to the previously approved Project. The area that would not be developed contains some significant biological resources. As with the previously approved Project, the CAA would continue to have the potential to significantly impact biological resources. However, due to the reduced development footprint, impacts to Foothill needlegrass, black sage scrub, California annual grassland/Wildflower fields, California sagebrush–California buckwheat scrub, California sagebrush–California buckwheat scrub/Foothill needlegrass grassland, slender/club-haired mariposa lily, and southern California walnut as well as impacts to California gnatcatcher and an open water area would be reduced under this alternative. Impacts to WST would be similar to the previously approved Project, based on the locations of the three pond locations that have been established to support WST, as discussed above in Section 2.1 of the RPDSEIR. Impacts to CBB would be reduced as impacts to suitable habitat would be less than the previously approved Project.

While the CAA would avoid direct impacts on Grasshopper Creek, geotechnically-required grading to remediate the upper landslides would result in the loss of up to two-thirds of the creek's current tributary (surface) water and eliminate subsurface water. The latter would occur because the remedial grading needed would in turn eliminate the landslide debris and bedding planes that store and transmit the subsurface flows. This substantial reduction in surface and subsurface water would adversely impact habitat productivity in Grasshopper Creek. Elimination of the subsurface water source would result in the elimination of the phreatophytic[39] vegetation, which contributes to the conditions within Grasshopper Creek that are associated with the biological values. In short, the conditions that contribute to the important biological functions in Grasshopper Creek would be eliminated and the creek would no longer be able to maintain the existing conditions. These water sources support southwestern spiny rush (a special status species) and the suite of other riparian phreatophytes in and near the creek, as discussed above in Section 2.1, Revised Biological Impact Analysis. Therefore, the CAA would result in significant indirect impacts to southwestern spiny rush and other riparian phreatophytes in and near the creek. However, impacts to paniculate tarplant would be avoided as this species is not dependent on the water sources within the landslide masses.

In summary, impacts to Foothill needlegrass, black sage scrub, California annual grassland/Wildflower fields, California sagebrush–California buckwheat scrub, California sagebrush–California buckwheat scrub/Foothill needlegrass grassland, slender/club-haired mariposa lily, and southern California walnut, California gnatcatcher, and an open water area would be reduced but would remain significant. Impacts to CBB would be reduced as impacts to suitable habitat would be less than the previously approved Project. Impacts to WST would be similar to the previously approved Project. Indirect impacts to Grasshopper Creek would remain significant. Impacts to southwestern spiny rush would remain the same as the previously approved Project. Impacts to paniculate tarplant would be avoided; therefore, implementation of MM 5.2-5(b), above, would not be required.

[39] A phreatophyte is a plant that depends on perennial groundwater (subsurface water) that lies within their root zones.

Impact conclusions would be consistent with the previously approved Project except for impacts to paniculate tarplant, which would be avoided.

It was determined and upheld by the Superior Court that the previously approved Project would not have impacts to wildlife movement under CEQA, including as to mountain lions. Despite this finding, the Project Applicant voluntarily accepted a condition of approval (Condition of Approval No. 51) to provide for wildlife movement post project development. A preliminary Wildlife Connectivity Plan was adopted as part of this condition of approval for the previously approved Project. It is anticipated that the Wildlife Connectivity Plan would also apply to the CAA alternative. Therefore, impact conclusions related to wildlife movement would be consistent with the previously approved Project.

Cultural Resources

The CAA would involve disturbance of on- and off-site areas that would occur with implementation of the NLSP; however, this alternative would result in a reduced development footprint. However, because potential impacts would involve archaeological and paleontological resources that have not yet been discovered, there is no way to tell if the reduction in development area would reduce actual impacts. Therefore, as with the previously approved Project, development of the CAA would have the potential to impact unknown archaeological and paleontological resources during ground disturbing activities. Consistent with the previously approved Project, these impacts would be reduced to less than significant levels with implementation of identified mitigation measures.

Impact conclusions would be consistent with the previously approved Project.

Energy

The CAA would result in an increased construction demand for energy, related to the fuel required for operation of additional construction equipment and truck trips required to export 8.2 mcy of soils compared to the previously approved Project, which would have balanced excavated soil onsite. The long-term operational demand for energy would be reduced compared with the previously approved Project commensurate with the reduction in the development footprint and proposed land uses. Consistent with the previously approved Project, impacts related to energy would be less than significant.

Impact conclusions would be consistent with the previously approved Project, although construction demand for energy related to soil export would be greater.

Geology and Soils

The CAA would involve development of the Project Site including off-site areas that would occur with implementation of the previously approved Project; however, this alternative would result in a smaller impact footprint. As with the previously approved Project, development of the CAA would expose people and structures to seismic ground shaking and the Project Site would be subject to soil erosion and loss of topsoil. Further, the presence of unsuitable soils and potentially expansive soils within the area identified for development under this alternative would result in a potentially significant impact that could be mitigated to a less than significant level, same as the previously approved Project.

While the grading footprint would be reduced under the CAA, a review of the alternative by G_3SoilWorks concluded its implementation would result in unacceptable increases in risks to the proposed uses and would be infeasible from engineering geologic, geotechnical, and hydrogeologic perspectives. The CAA would require three clear span bridges to provide access

from the west to east side of the canyon. Neither the sidewalls nor the creek bottom present suitable conditions for bridge foundation embedment and expose the bridges to high risks of instability. Also, the keyway/buttress assemblies along the western revised earthwork limits would be less effective than the original plan and would provide less protection against future instabilities.

As discussed above under "Biological Resources", above, the CAA would result in the elimination of most water sources to Grasshopper Creek. This loss would also result in a substantial reduction in sediment recharge leading to scouring of the bottom and banks and eventual downcutting. This, in turn, would lead to a recurrence of the conditions that produced the existing landslides on the Project Site. These conditions would represent substantial risks to the proposed development, including compromising the integrity of proposed bridges (on top of the instability risk discussed above), risk of spillage and/or interruption of associated utilities, and slope instabilities and endangerment to the development above the slopes. The increased risk of substantial adverse effects due to the likelihood of instabilities of the underlying geologic and geotechnical conditions, which could not be mitigated to a less than significant level because the risks would be a direct result of the CAA's implementation, represents a new significant and unavoidable impact.

Impact conclusions would be greater than the previously approved Project, including a new significant and unavoidable impact.

Greenhouse Gas Emissions

As discussed above for air quality, to determine how the CAA would affect greenhouse gas (GHG) emissions, CalEEMod was used to calculate construction-source and operational-source GHG emissions. Emissions from both the previously approved Project and the CAA were modeled with CalEEMod and without planned project design features and/or mitigation measures to provide an apples-to-apples comparison. The emissions were calculated using the same model version as was used for the original SEIR to allow for a direct comparison of the previously approved Project with the alternative.

Table 2-10, Comparison of Estimated GHG Emissions for the Creek Avoidance Alternative without Project Design Features, summarizes the amortized construction and annual GHG emissions for the two scenarios as well as the percent change from the previously approved Project and the CAA.

TABLE 2-10
COMPARISON OF ESTIMATED GHG EMISSIONS FOR THE CREEK AVOIDANCE ALTERNATIVE WITHOUT PROJECT DESIGN FEATURES

	Previously Approved Project	**Creek Avoidance Alternative**
Construction Emissions (Amortized) ($MTCO_2e$/yr)	961	2,216
Operational Emissions ($MTCO_2e$/yr)	66,083	36,769
Total Annual Emissions ($MTCO_2e$/yr)	**67,044**	**38,985**
Difference	***N/A***	***-58%***

$MTCO_2e$: metric tons of carbon dioxide equivalent; N/A: not applicable

Notes:

- Totals may not add due to rounding variances.

Detailed calculations in Appendix E for CalEEMod model outputs.

The CAA would result in increased GHG emissions during construction related to the operation of additional construction equipment and truck trips required to export 8.2 mcy of soils compared

to the previously approved Project, which would have excavated soils balanced onsite. As shown in Table 2-10, amortized construction GHG emissions would be approximately 2.3 times higher than for the previously approved Project. However, the total annual GHG emissions would be reduced by an estimated 58 percent, commensurate with the reduction in the development footprint and proposed land uses. Consistent with the previously approved Project, impacts related to GHG emissions would be less than significant.

Impact conclusions would be consistent with the previously approved Project.

Hazards, Emergency Response, and Environmental Safety

The CAA would involve disturbance of a smaller development area. This alternative would generate a smaller population and would thereby expose fewer residents to hazards, including wildfire hazards, in comparison to the previously approved Project. However, as discussed above under "Geology and Soils", implementation of the CAA would result in "unacceptable increases in risks" to the three proposed bridges, among other components, due to both existing and proposed geologic and geotechnical conditions. This would result in greater hazards related to emergency access and response and emergency evacuation, as the bridges would provide access from the east side to the west side of the canyon. This would represent a new significant and unavoidable impact, which could not be mitigated to a less than significant level because the risks would be a direct result of the CAA's implementation. Comparative wildfire hazards discussed further under "Wildfire" heading below.

Impact conclusions would be greater than the previously approved Project, including a new significant and unavoidable impact.

Hydrology and Water Quality

As with the previously approved Project, there is a potential for construction-related surface erosion with the CAA. Potential impacts from this alternative would be less than the previously approved Project because of a reduced development footprint. Surface runoff from a developed condition (with either this alternative or the previously approved Project) would have a different composition in comparison to the existing condition, which is undeveloped. This runoff is likely to include a similar type of pollutants commonly found in urban runoff. The previously approved Project and this alternative would be required to comply with applicable regulations related to water quality that would minimize potential short-term, construction-related and long-term, operational water quality impacts.

Similar to the previously approved Project, development under the CAA would increase the amount of storm water runoff and alter existing drainage patterns due to the increase in the amount of impervious surfaces. The previously approved Project was designed assuming existing Grasshopper Creek would be graded and filled with the tributary drainage areas being captured and routed through the Project Site in a covered storm drain system. At the downstream end of the Project Site was a series of regional basins (retention and detention) that were designed to mitigate increases to storm drain runoff volume due to site development and to satisfy hydromodification requirements.[40] Since these basins are located within the footprint of the existing creek, they could not be utilized for the CAA. The only place where infiltration would be feasible on the Project Site was within the creek bottom area. Therefore, for hydromodification and Low Impact Development (LID) purposes, the use of infiltration for the CAA would be

[40] Hydromodification control criteria must be implemented by project applicants to control potential adverse impacts of changes in hydrology that may result from projects located within natural drainage systems; Los Angeles County Public Works, Low Impact Development, Standard Manual, February 2014.

considered infeasible. Similarly, there would not be enough irrigation demand to implement a harvest and re-use program. Biofiltration would therefore be required to meet the LID volume criteria. The CAA would reduce the hydromodification impacts compared to the previously approved Project, because there would be debris in the creek which would reduce the effects of "hungry water" as these alternative releases the developed "Q" (i.e., runoff) into the existing drainage course. However, there would still be some degree of impact. To reduce this impact, the CAA would require that drainage acceptance letters for any hydraulic impacts be obtained from all downstream owners but whether such letters could be obtained is speculative. As such, this impact could not be feasibly reduced to a less than significant level. This would represent a new significant and unavoidable impact.

Additionally, as discussed above under "Biological Resources" and "Geology and Soils", while the CAA avoids direct grading of Grasshopper Creek, the CAA would result in the elimination of most water sources to the creek. This loss would result in a substantial reduction in sediment recharge leading to scouring of the bottom and banks and eventual downcutting. Therefore, the CAA would substantially alter the existing drainage pattern of Grasshopper Creek that would result in substantial erosion on-site and a change in hydrologic conditions downstream due to on-site changes. This would represent a new significant and unavoidable impact, which could not be mitigated to a less than significant level because the impact would be a direct result of the CAA's implementation.

Impact conclusions would be greater than the previously approved Project, including a new significant and unavoidable impact.

Land Use and Planning

The CAA would result in the development of a primarily residential project, similar to the previously approved Project; however, the CAA would include development of a reduced area and approximately 42 percent fewer dwelling units (1,815 units versus 3,150 units). The amount of park acreage associated with the CAA would be similar and other land uses, including commercial, would be consistent with the previously approved Project. The CAA would also comply with design guidelines outlined in the NLSP to ensure compatibility with the existing character of the area. Because the types of land uses under this alternative would be the same as that allowed with the previously approved Project, this alternative would be consistent with relevant goals and policies of applicable local and regional planning programs. However, because the number of housing units would be reduced, this alternative would not provide as many housing opportunities and would not contribute as much towards the County's Regional Housing Needs Assessment (RHNA) allocation as the previously approved Project. In particular, the affordable unit count would be reduced from 315 units to 165 units, proportional to the reduction in dwelling units as a whole. The 2016 Los Angeles Countywide Comprehensive Parks Needs Assessment (PNA) estimated that Los Angeles County had a median of 3.3 acres of park space per 1,000 people (LA County 2016). In the 2022 Los Angeles Countywide Comprehensive Parks Needs Assessment Plus (PNA+), it was estimated that there are 99 acres of regional recreation and conservation areas in Los Angeles County per 1,000 residents (LA County 2022). Because the amount of park acreage would be similar to the previously approved Project, the CAA would have a higher on-site ratio of parklands to residents than the previously approved Project. The reduction in residential dwelling units while maintaining the same acreage of commercial development would result in a higher ratio of residential to commercial uses; however, the number of employment opportunities may be reduced based on the demand for different types of commercial uses to serve a smaller overall population. Therefore, it is not possible to predict a change to the jobs-housing balance associated with the CAA when compared to the previously approved Project. However, because the commercial uses would primarily support on-site residential uses, the CAA would encourage a reduction in VMT through the reduction of trips to off-site commercial

uses. Therefore, the CAA would support the County General Plan (Guiding Principle 3, Policy LU 5.10) and the 2012 SCVAP (Policy ED 2.5, LU-5.2.3, CO-8.2.13). Therefore, the CAA would be consistent with goals and policies of relevant local and regional planning programs and would meet the goals and policies of the NLSP.

Impact conclusions would be consistent with the previously approved Project.

Noise

Development of the CAA would involve similar construction activities and generate peak daily on-site noise levels similar to the previously approved Project. The construction scenario for both the previously approved Project and the CAA is approximately 11 years. However, there would be additional construction truck trips during the approximately 2.5-year grading phase to export approximately 8.2 mcy of soils, or about 13,400 cy of soils per workday. An estimated 1 million truck trips would be required to export soil during the grading phase. If all truck trips related to soil export occur during the mass grading phase, there would be an estimated 1,587 truck trips per day. The Interstate (I) 5 freeway has 108,000 average annual vehicle trips proximate to the Project Site of which 17,496 are trucks[41]. The addition of 1,587 daily truck trips attributable to the Project's export of soils would add 1% to the total number of vehicles and 9% to the volume of trucks along the I-5 freeway. An increase of this magnitude would result in noise increases of less than 3 decibels (dBA) which is not considered a perceptible change in outdoor environments. The DSEIR evaluated off-site construction traffic noise for local roadways. For the previously approved Project, it was estimated that there could be 250 to 300 worker trips on Ridge Route Road north of Lake Hughes Road at the start and end of the construction day for peak building periods. It was also estimated that a maximum of 10 one-way truck trips per hour could occur during the workday for the previously approved Project. The CAA would have comparable levels of traffic during construction phases except for the grading phase which involves the removal of 8.2 mcy of soils. This would involve an estimated 120 14-cy truck trips per hour which is substantially higher than the 10 truck trips per hour estimated for the previously approved Project. For the previously approved Project, the 10 truck trips per hour in addition to the 250-300 worker trips would result in noise level increases of approximately 2 dBA Community Noise Equivalent Level (CNEL) which is below the noise threshold of 3 dBA CNEL. If all the truck trips associated with the soil export under the CAA travelled along this route, the construction phase of the CAA could result in approximately 16 times more truck trips than the 10 trucks analyzed in the DSEIR and is anticipated to result in noise levels in excess of the 3 dBA CNEL noise threshold. For the previously approved Project, short-term construction noise levels were found to be less than significant with mitigation except for blasting activity, which would be significant and unavoidable. Due to the magnitude of anticipated truck traffic associated with the export of 8.2 mcy of soil from the site, CAA related construction traffic noise would exceed the 3 dBA CNEL noise threshold and result in an unavoidable significant impact.

Vibration generation associated with the CAA is anticipated to involve similar types and quantities of equipment. While the CAA will involve substantially more truck trips associated with the export of 8.2 mcy of soil, trucks travelling on paved roadways generate low levels of vibration that are very localized to the roadway and would not result in significant levels of vibration. Other sources of vibration associated with the construction phase, such as blasting, would be similar to those discussed in the DSEIR and would likewise have potentially significant vibration impacts.

[41] Caltrans 2021 (December). California 2020 Public Road Data. https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/california-public-road-data/prd-2020-a11y.pdf

Long-term, operational noise levels related to traffic would be reduced due to a reduction in anticipated vehicle trips, including those that would impact off-site residential uses due to Project-generated traffic on Ridge Route Road north of Castaic Lake Road and Ridge Route Road north of Lake Hughes Road. Though the magnitude of traffic noise increases would be less under the CAA due to less vehicle trips, the increase in traffic noise under the CAA would be expected to exceed the noise threshold of 3 dBA CNEL and would also result in significant traffic noise impact. As with the previously approved Project, long-term operational noise and vibration impacts would be significant and unavoidable.

Impact conclusions would be consistent with the previously approved Project except for construction truck traffic noise which would be significant and unavoidable.

Public Services and Utilities

The CAA would create new demand for public services including fire protection services and police services, but the level of demand for service calls and regular patrols would be reduced when compared to the previously approved Project due to reduction of uses. Generation of school-age children would also be reduced as compared to the previously approved Project. Overall, impacts to public services would be less than significant with this alternative and the previously approved Project.

The CAA would increase demand on local utility providers (i.e., water, sewer, solid waste, electricity, natural gas, and telephone), but the level of demand would be less compared to the previously approved Project due to the reduction in development requiring utility service. Consistent with the previously approved Project, the CAA would continue to require the installation of on-site and off-site utilities to serve proposed uses and the impacts associated with installation of this infrastructure would be similar to the previously approved Project.

However, as discussed above under “Geology and Soils”, the CAA would require three clear span bridges to provide access from the west to east side of the canyon. Neither the sidewalls nor the creek bottom present suitable conditions for bridge foundation embedment and expose the bridges to high risks of instability. Additionally, the hydrogeological changes to Grasshopper Creek that would result with development of the CAA would lead to compromising the integrity of the proposed bridges and risk of spillage and/or interruption of associated utilities that would be attached to the bridges. This would represent a new significant and unavoidable impact, which could not be mitigated to a less than significant level because the impact would be a direct result of the CAA’s implementation.

Impact conclusions would be greater than the previously approved Project, including a new significant and unavoidable impact.

Traffic, Access, and Circulation

Construction-related traffic for the CAA would be greater than for the previously approved Project despite the reduced development footprint and proposed land uses, due to truck trips required to export 8.2 mcy of soils. An estimated 99 16-cy truck trips per hour, or approximately 792 truck round trips per day, for 652 days, would be required to export soil during the grading phase (Detailed calculations in Appendix E for CalEEMod model outputs). Construction is proposed for a period of eight hours per day, Monday through Friday. It is estimated that soil export would result in one to two truck trips every two minutes, assuming use of 16-cy trucks. To minimize traffic impacts during construction, MM 5.11-3 requires that a Construction Traffic Control Plan be prepared and submitted to the County of Los Angeles. This plan will describe safe detours, provide temporary traffic-control measures during construction activities, and identify

requirements to be met when one or more travel lanes are obstructed during construction. With implementation of MM 5.11-3, required for the previously approved Project, the presence of a significantly larger number of haul trucks, in addition to the routine construction traffic addressed in the SEIR, consistently during construction hours over the approximate 2.5-year grading phase–as a worst-case scenario–would not result in a new or more severe impact to transportation, including emergency access, in the Project area.

Operation of the CAA would result in an approximate 28 percent reduction in average daily traffic (ADT) and 37 percent in VMT from residential land uses. Non-residential development for the CAA would be reduced by 162 acres and would there also have reduced ADT and VMT (Stantec 2025 [Appendix F-5 to this RPDSEIR]). As with the previously approved Project, the CAA would not conflict with the Los Angeles County Congestion Management Program, would provide or accommodate non-vehicular transportation facilities, and would not conflict with adopted policies supporting alternative transportation. Like the previously Approved Project, the CAA results in less residential VMT than the NLSP and as such the VMT impact would be less than significant.

Impact conclusions would be reduced compared to the previously approved Project.

Wildfire

As with the previously approved Project, the Project Site is within a designated Very High Fire Hazard Severity Zone (VHFHSZ) and would be essentially surrounded by undeveloped lands in the VHFHSZ category. A portion of the Project Site would be graded and developed with structures, roadways, and manufactured slopes. This development would eliminate the natural vegetation and wildfire “fuel” sources and some of the manufactured slopes within the footprint of the Project Site would be landscaped and regularly irrigated. Therefore, the outer fringes of the Project Site would be the main interface of exposure to potential wildfire risks. Fire hazards on private property are increased when adjacent to non-irrigated natural vegetation that has not been modified to minimize potential fuel sources because suburban development is a potential source of wildfire ignition. With application of the Fire Management Program specified in the NLSP, which would require compliance with the County Fire Code and all other regulatory standards, impacts related to development within a VHFHSZ were determined to be less than significant for the previously approved Project. This determination is supported by the Wildfire Report prepared by Firesafe (2024) and summarized above. The Wildfire Report notes that the CAA has vegetation present on both sides of all three Project Site access roadways compared to the previously approved Project that has this condition for one of the three roadways.

The CAA would involve disturbance of a smaller development area. This alternative would generate a smaller population and would thereby expose fewer residents to potential wildfire hazards in comparison to the previously approved Project. Regarding Project Site-specific wildfire risk, the Wildfire Report concludes all ten fire scenarios that have been modeled have at least one evacuation point that is viable for four hours or more except one, the Freeway Spots scenario, same as the previously approved Project. For the previously approved Project and the CAA, the two southernmost evacuation points remain the same. The third, northern, evacuation point would be different for the CAA. In the Freeway Spots scenario, all three evacuation points for the CAA would be viable for an estimated 30 minutes, same as the previously approved Project. However, unlike the Project, one of the evacuation points would reopen sooner (estimated 60 minutes) and one evacuation point would remain closed. All fire scenarios were run under extreme conditions that have been recorded in previous fires or which are likely to occur in the future and are therefore considered worst-case scenarios (Firesafe 2024). The Wildfire Evacuation Memo determined it would generally require less time to evacuate the priority area and Project Site than the previously approved Project, as expected due to a smaller on-site population, except for the Freeway Spots scenario. This scenario would require more time to evacuate the priority area, but less time to

evacuate the Project Site– 3.25 hours for the priority area and 4.5 hours to evacuate the Project Site compared to 2.5 hours and 5 hours, respectively, compared to the previously approved Project (Stantec 2024a).

In addition, although the CAA would introduce additional wildfire risk factors as compared to existing conditions due to reasons such as increased human habitation in a wildlife-urban interface increases the fire risk from arson, children playing with fire, and debris-burning; that increased vehicular traffic increases fire risk from sparks, catalytic converters, and discarding of cigarettes; and that the introduction of residences within the site would create a wildland-urban interface that increases the general potential for human-ignited wildfires, the CAA may also assist in avoiding, preventing, and offsetting human human-ignited wildfire risk for reasons including but not limited to prohibiting smoking in wildland and wildland interface, providing fuel breaks and fire breaks which reduce fire intensity and forward progress in the direction of the community, and preplanned evacuation areas/routes which are known to residents to insure that, if evacuation is needed, it can be completed quickly and in the most efficient and effective manner. Consistent with the previously approved Project, impacts related to human-ignited wildfire would be less than significant.

With application of the Fire Management Program specified in the NLSP, which would require compliance with the County Fire Code and all other regulatory standards, as well as the other regulatory requirements and project design features, impacts related to development within a VHFHSZ were determined to be less than significant for the previously approved Project. This determination is supported by the Wildfire Report prepared by Firesafe (2024) and summarized above. However, as discussed above under “Geology and Soils”, implementation of the CAA would result in “unacceptable increases in risks” to the three proposed bridges, among other components, due to both existing and proposed geologic and geotechnical conditions. This would result in greater hazards related to emergency access and evacuation in the event of a wildfire, as the bridges would provide the access from the east side to the west side of the canyon. This would represent a new significant and unavoidable impact, which could not be mitigated to a less than significant level because the risks would be a direct result of the CAA’s implementation.

Impact conclusions would be greater than the previously approved Project, including a new significant and unavoidable impact related to geotechnical risks to the proposed bridges and resulting increased emergency response and evacuation risk.

Conclusions

Ability to Avoid or Substantially Lessen the Significant Impacts of the Project

Development of the Project Site with the CAA would decrease development intensity compared to the previously approved Project. Although the degree of impacts for many topics may be similar or less with this alternative, from an engineering geologic, geotechnical, and hydrologic perspective, the alternative is not feasible. Consistent with the previously approved Project, the CAA would result in significant and unavoidable impacts related to air quality (construction NOx, PM10, and PM2.5 and operational VOC and NOx), noise, and traffic. As discussed above, the CAA would result in new significant and unavoidable impacts related to geology and soils, hazards and hazardous materials, hydrology and water quality, traffic (VMT) and wildfire (greater hazards related to emergency access and evacuation due to both existing and proposed geologic and geotechnical conditions).

Attainment of Project Objectives

The CAA would not provide as many housing opportunities (1,815 units versus 3,150 units) and would not contribute as much towards the County's RHNA allocation as the previously approved Project. In particular, the affordable unit count would be reduced from 315 units to 165 units, proportional to the reduction in dwelling units as a whole. As such, the CAA does not meet the following objective to the same degree as the previously approved Project:

- Specific Plan III, Housing, Goal i: To develop housing that satisfies the needs of the present and future residents of the NorthLake community.

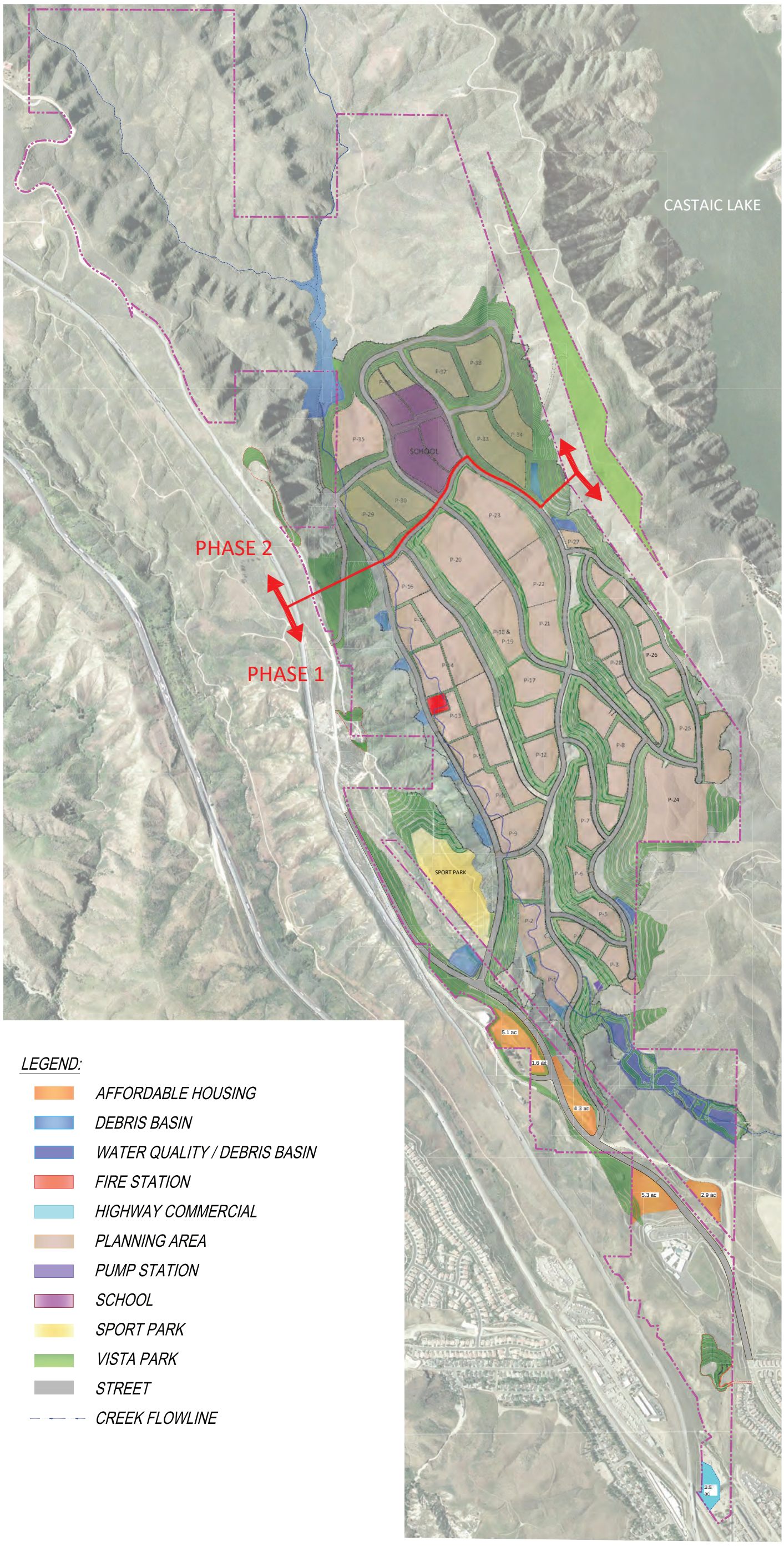
The CAA would not meet the following objectives due to the adverse indirect impacts to Grasshopper Creek and resulting geotechnical and hydrogeological risks to the development compared to the previously approved Project:

- Specific Plan I, Land Use, Goal i: To encourage high quality design in all development projects compatible with and sensitive to the natural and man-made environment.
- Specific Plan IV, Open Space/Recreation, Goal ii: To preserve and protect sites with scenic and/or recreational value.
- Specific Plan IV, Open Space/Recreation, Goal iii: To reduce the risk to life and property from seismic occurrences, flooding, erosion, wildland fires and landslides.
- Specific Plan VII, Safety, Goal i: Protection of life and property.
- Specific Plan VII, Safety, Goal ii: Reduction of adverse economic, environmental and social conditions resulting from fires and geologic hazards.

2.4.3 PARTIAL CREEK AVOIDANCE ALTERNATIVE

Description of the Alternative

The Partial Creek Avoidance Alternative (PCAA) would leave Phase 1 as designed in the previously approved Project but reduces the scope of Phase 2 development. The reduced Phase 2 design avoids a cluster of smaller and larger landslides in the northern portion of Project Site, which result in adverse geotechnical, hydrological, and biological affects as discussed above in Section 2.2.2, Creek Avoidance Alternative. This alternative is therefore proposed to avoid disturbing the landslides and the associated risk of additional loss of creek area. This alternative design would reduce the total disturbance area in Phase 2 by 61 percent, which would preserve a portion of Grasshopper Creek and the associated sensitive habitat within this area of the Project Site. Specifically, disturbance to the northern portion of Grasshopper Creek on the Project Site would be reduced by approximately 20 percent. This alternative provides a balanced site within the proposed Phase 2 grading footprint and does not require any additional import or export of soil, same as the previously approved Project. Furthermore, this alternative greatly reduces the raw earthwork of Phase 2 by approximately 10 mcy. This alternative would maintain the same amount of housing provided on the Project Site as the previously approved Project. The PCAA would include the agreed upon affordable mixed-use housing (315 units), and 6 market-rate live-work units; and preserves the school and fire station sites, commercial sites, and sports park proposed in the previously approved Project. The PCAA is shown on Figure 3, NorthLake Partial Creek Avoidance Alternative, and summarized in Table 2-11, Land Use Statistical Summary Table for the Partial Creek Avoidance Alternative, in the following page.



LEGEND:

- *AFFORDABLE HOUSING*
- *DEBRIS BASIN*
- *WATER QUALITY / DEBRIS BASIN*
- *FIRE STATION*
- *HIGHWAY COMMERCIAL*
- *PLANNING AREA*
- *PUMP STATION*
- *SCHOOL*
- *SPORT PARK*
- *VISTA PARK*
- *STREET*
- *CREEK FLOWLINE*

Source: SIKAND 2024

NorthLake Partial Creek Avoidance Alternative

Exhibit 3

NorthLake Specific Plan, Recirculated Portions of the Supplemental Draft EIR

N W E S

Map not to scale

PSOMAS

(12/11/2024 PLO) R:\Projects\WCP\3WCP000200\Graphics\ex_Partial_Creek_Avoidance.pdf

D:\Projects\3WCP\Northlake\Graphics\SEIR\Graphics\ex_Partial_Creek_Avoidance.ai

TABLE 2-11
LAND USE STATISTICAL SUMMARY TABLE
FOR PARTIAL CREEK AVOIDANCE ALTERNATIVE

Use	Phase 1		Phase 2	
	Number of Units	Area (Acres)	Number of Units	Area (Acres)
Residential: Single-Family	288	41	855	53
Residential: Multi-Family	1,341	107	–	–
Residential: Affordable Senior[a]	345	49	–	–
Mixed Use Residential/Commercial[b]	321	20	–	–
Highway Commercial	–	2	–	–
Park(s)				
• Trails	–	7.8	–	–
• Grasshopper Creek Park	–	11	–	–
• Enhanced Parkway	–	38	–	–
• Castaic Lagoon Park	–	17	–	–
• Ridge Route Park	–	–	–	–
• Lower Ridge Route BT		2.2		
• North Valley Paseo Park	–	–	–	–
• North Valley Park	–	–	–	–
• Sports Park	–	26	–	–
• Cody Dog Park	–	1	–	–
• Vista Park	–	--	–	27
Open Space- Manufactured Slope	–	151	–	67
Open Space- Undisturbed	–	158	–	407
Roadways	–	86	–	14
Fire Station Pad	–	1	–	–
School Pad	–	21	–	22
Totals	***2,295***	***739***	***855***	***590***

[a] This overlay provides for a development option of attached single-family residences and age-restricted areas designated for homeowners that are 55 years of age and older. Lot sizes and configurations will be similar to those in the Single-Family area with the addition of the Attached Single-Family designation as an option. It should be noted that development within these areas may or may not be age-restricted.

[b] The Project would designate 315 mixed-use units as affordable units and 6 residential units as market-rate live-work units, which would combine residential living space with commercial space.

Source: Sikand Engineering 2022.

Comparative Analysis of Environmental Impacts

Aesthetics

Similar to the previously approved Project, the PCAA would alter the existing visual condition of the Project Site through introduction of development on a previously disturbed, undeveloped site. The PCAA would comply with the design guidelines set forth in the NLSP and as described in Section 4.0, Project Description, of the DSEIR, including requirements for grading, circulation, landscape, architecture, and signage. The PCAA would limit the graded area to a 739-acre portion of the NLSP. It is expected that the overall visual appearance under this alternative would be similar to the previously approved Project and would not represent a significant change or a significant impact; however, the area defined for development (i.e., grading footprint) would be 25 percent smaller than the previously approved Project. Therefore, the visual impacts would be

reduced when compared to the previously approved Project due to the smaller development area. As with the previously approved Project, implementation of the PCAA would not affect scenic resources along a State scenic highway. Similar to the previously approved Project, development under the PCAA would conform to the lighting design guidelines set forth in the NLSP; therefore, potential impacts would be less than significant. However, the impacts of lighting would be reduced when compared to the previously approved Project due to the smaller development area. No significant impacts would occur with either the previously approved Project or the PCAA.

Impact conclusions would be consistent with the previously approved Project.

Air Quality

The PCAA would result in decreased criteria pollutant emissions during construction due to the 25 percent reduction in grading footprint (from 979 acres to 739 acres) and reduction in earthmoving by 10 mcy with no soil export (the site would be balances [i.e. cut and fill would be the same] like the previously Approved Project). Construction of the previously approved Project was estimated to exceed the SCAQMD threshold for NOx by almost six times prior to mitigation and be significant and unavoidable with implementation of mitigation. As with the previously approved Project, it is anticipated the impact would remain significant and unavoidable as it cannot be assured the amount of Tier 4 Final engines needed to reduce the impact to a less than significant level would be available. The long-term operational air quality emissions would be the same as the previously approved Project since the total amount of proposed residential land uses remains the same. Operation of the previously approved Project was estimated to exceed the SCAQMD thresholds for VOC, NOx, CO, PM10, and PM2.5 by between approximately 1.75 and 5.5 times, depending on the pollutant. Long-term direct and cumulative regional emissions would remain significant and unavoidable.

Impact conclusions would be consistent with the previously approved Project.

Biological Resources

The PCAA would involve disturbance of on- and off-site areas; however, the development footprint would be reduced by approximately 25 percent when compared to the previously approved Project. The area that would not be developed contains some significant biological resources, therefore, development under this alternative would preserve a portion of the biological resources. However, as with the previously approved Project, the PCAA would continue to have the potential to significantly impact biological resources but due to the reduced development footprint, impacts to Foothill needlegrass, black sage scrub, California annual grassland/Wildflower fields, California sagebrush–California buckwheat scrub, California sagebrush–California buckwheat scrub/Foothill needlegrass grassland, slender/club-haired mariposa lily, and southern California walnut as well as impacts to California gnatcatcher and an open water area would be reduced under this alternative. Impacts to the paniculate tarplant would be similar to the previously approved Project. Impacts to CBB would be reduced as impacts to suitable habitat would be less than the previously approved Project. Impacts to WST would be similar to the previously approved Project, based on the locations of the three pond locations that have been established to support WST, as discussed above in Section 2.1 of the RPDSEIR. Notably, the PCAA would reduce impacts to Grasshopper Creek, and associated phreatophytic vegetation including southwestern spiny rush (a special status species), by 20 percent compared to the previously approved Project. Consistent with the previously approved Project, these impacts would be reduced to less than significant levels with implementation of mitigation measures identified (and revised) above and in Draft SEIR Section 5.2, as applicable.

The *NorthLake Partial Creek Avoidance Alternative and Associated Wildlife Movement Enhancements Memo* was prepared by Glenn Lukos Associates (GLA 2023a; Appendix G to this RPDSEIR) to determine the effects of the PCAA on wildlife movement compared with the previously approved Project. It was determined and upheld by the Superior Court that the previously approved Project would not have impacts to wildlife movement under CEQA, including as to Mountain Lions. Despite this finding, the Project Applicant voluntarily accepted a condition of approval (Condition of Approval No. 51) to provide for wildlife movement post project development. Exhibit 1 of the *NorthLake Partial Creek Avoidance Alternative and Associated Wildlife Movement Enhancements Memo* depicts the preliminary Wildlife Connectivity Plan adopted as a condition of approval for the Project. It is anticipated that if the previously approved Project is approved, the same or a functionally equivalent Wildlife Connectivity Plan would be adopted as depicted on Exhibit 1 of the *NorthLake Partial Creek Avoidance Alternative and Associated Wildlife Movement Enhancements Memo*. In addition, it is anticipated that the Wildlife Connectivity Plan would also apply to the PCAA alternative. The PCAA's reduced northerly footprint would result in implications regarding the Wildlife Connectivity Plan. Under the previously approved Project, wildlife would have an unobstructed path from the nearby culvert under I-5 to the Castaic Lake environs. However, the PCAA would eliminate the northernmost approximately 2,200 feet of development assumed for the previously approved Project, leaving a broad corridor across the northern end of the Project Site, including a variety of pathways along drainages and other suitable topographic features. See Exhibit 2 of the *NorthLake Partial Creek Avoidance Alternative and Associated Wildlife Movement Enhancements Memo* (Appendix G to this RPDSEIR).

Exhibit 3 of the *NorthLake Partial Creek Avoidance Alternative and Associated Wildlife Movement Enhancements Memo* depicts the Project Site in the context of the *South Coast Missing Linkages Project: A Linkage Design for the Sierra Madre-Castaic Connection* (Penrod 2005) that discusses "permeability" for a suite of wildlife species. The previously approved Project would fully avoid areas of permeability for the Mountain Lion; however, the previously approved Project would encroach into the Least Cost Corridor areas of mule deer permeability. When areas of highest permeability (i.e., most ideal for animal passage) are considered, those areas are north of the Project Site, and thus would not be impacted by the Project. As such, the previously approved Project would have a less than significant impact on mule deer movement. The PCAA, because it eliminates development at the northern end of the Project Site, also fully avoids areas of permeability for the Mountain Lion, to an even greater extent. Exhibit 4 of the *NorthLake Partial Creek Avoidance Alternative and Associated Wildlife Movement Enhancements Memo* shows that with the PCAA, encroachment into the area of Least Cost Corridor areas for mule deer permeability would be reduced substantially and encroachment would be entirely outside the areas of highest permeability. Similar to the previously approved Project, the PCAA would result in less than significant impacts on mule deer movement in the identified wildlife corridor.

As discussed above, the PCAA would eliminate approximately 2,200 feet of development in the northern portion of the site when compared to the previously approved Project, which would enable wildlife movement along multiple paths between the northern I-5 under-crossing and Castaic Lake. Additionally, the PCAA would also enable wildlife movement along the more southerly of the two I-5 undercrossings, connecting wildlife movement to Castaic Lake. The PCAA would also enable wildlife movement along pathways through the southerly part of the Project's development area, consistent with the preliminary Wildlife Connectivity Plan adopted as a condition of approval of the Project.

By eliminating development at the northern end of the Project Site, the PCAA would enable enhanced wildlife movement when compared with the previously approved Project, resulting in a less than significant impact related to wildlife movement.

Impact conclusions would be consistent with the previously approved Project.

Cultural Resources

The PCAA would involve disturbance of on- and off-site areas that would occur with implementation of the NLSP; however, this alternative would result in a reduced development footprint. However, because potential impacts would involve archaeological and paleontological resources that have not yet been discovered, there is no way to tell if the reduction in development area would reduce actual impacts. Therefore, as with the previously approved Project, development of the PCAA would have the potential to impact unknown archaeological and paleontological resources during ground disturbing activities. Consistent with the previously approved Project, these impacts would be reduced to less than significant levels with implementation of identified mitigation measures.

Impact conclusions would be consistent with the previously approved Project.

Energy

The PCAA would result in a reduced construction demand due to the smaller development footprint in Phase 2 but similar operational demand for energy compared with the previously approved Project commensurate with the reduction in the development footprint. Consistent with the previously approved Project, impacts related to energy would be less than significant.

Impact conclusions would be consistent with the previously approved Project.

Geology and Soils

The PCAA would involve development of the Project Site including off-site areas that would occur with implementation of the previously approved Project; however, this alternative would result in a smaller development footprint. As with the previously approved Project, development of the PCAA would expose people and structures to seismic ground shaking and the Project Site would be subject to soil erosion and loss of topsoil. Further, the presence of unsuitable soils and potentially expansive soils within the area identified for development under this alternative would result in a potentially significant impact that could be mitigated to a less than significant level, same as the previously approved Project. Because the PCAA avoids a cluster of landslides in the northern portion of the Project Site, this alternative would not result in the safety issues and new geotechnical impact associated with the CAA. Like the previously approved Project, grading for the PCAA would be balanced on-site with no import or export of soil necessary.

Impact conclusions would be consistent with the previously approved Project.

Greenhouse Gas Emissions

The PCAA would result in decreased GHG emissions during construction due to the 25 percent reduction in grading footprint (from 979 acres to 739 acres) and reduction in earthmoving by 10 mcy with no soil export. The long-term operational GHG emissions would also be reduced compared with the previously approved Project commensurate with the reduction in the development footprint. As with the proposed Project, impacts would be less than significant with incorporation of the identified mitigation measures.

Impact conclusions would be consistent with the previously approved Project.

Hazards, Emergency Response, and Environmental Safety

The PCAA would involve disturbance of a smaller development area, but have the same size residential population as the previously approved Project. The proposed reduction in the scale of Phase 2 in the PCAA would provide an improved firebreak between the developed portion of the Project Site and wildland areas. Because the PCAA avoids a cluster of landslides in the northern portion of the Project Site, this alternative would not result in emergency response and evacuation issues, and new hazards, associated with the CAA. Consistent with the previously approved Project, these impacts would less than significant. Comparative wildfire hazards are discussed further under "Wildfire" heading below.

Impact conclusions would be consistent with the previously approved Project.

Hydrology and Water Quality

As with the previously approved Project, there is a potential for construction-related surface erosion with the PCAA. Potential impacts from this alternative would be less than the previously approved Project because of a reduced development footprint. Surface runoff from a developed condition (with either this alternative or the previously approved Project) would have a different composition in comparison to the existing condition, which is undeveloped. This runoff is likely to include a similar type of pollutants commonly found in urban runoff. The previously approved Project and this alternative would be required to comply with applicable regulations related to water quality that would minimize potential short-term, construction-related and long-term, operational water quality impacts.

The PCAA would involve development of on-site and off-site areas same as the previously approved Project; however, this alternative would result in reduced impacts related to hydrology and water quality due to a reduced development footprint. Similar to the previously approved Project, development under this alternative would increase the amount of storm water runoff and alter existing drainage patterns due to the increase in the amount of impervious surfaces. The previously approved Project was designed assuming existing Grasshopper Creek would be graded and filled with the tributary drainage areas being captured and routed through the Project Site in a covered storm drain system. At the downstream end of the Project Site was a series of regional basins (retention and detention) that were designed to mitigate increases to storm drain runoff volume due to site development and to satisfy hydromodification requirements. This alternative would include application of similar BMPs would ensure that impacts to storm drain infrastructure and off-site, downstream hydrology are less than significant. Specifically, an on-site storm drain system would be constructed to detain flows such that they are released from the site at pre-development levels. Additionally, this alternative preserves the portion of Grasshopper Creek in the northern portion of the Project Site. As with the previously approved Project, hydrology and water quality impacts resulting from this alternative would be less than significant.

Impact conclusions would be consistent with the previously approved Project.

Land Use and Planning

The PCAA would result in the development of a primarily residential project, similar to the previously approved Project; however, the PCAA would include development of a reduced area with the same amount of residential uses. The amount of park and recreation acreage associated with the PCAA would be less (130 acres versus 167 acres) than with the previously approved Project. However, undisturbed open space acreage would be increased (572 acres versus 328 acres) due to the reduction in Phase 2 development area. Other land uses, including commercial, would be consistent with the previously approved Project. The PCAA would also comply with

design guidelines outlined in the NLSP to ensure compatibility with the existing character of the area. Because the types of land uses under this alternative would be the same as that allowed with the previously approved Project, this alternative would be consistent with relevant goals and policies of applicable local and regional planning programs. As the PCAA would maintain the same amount of residential uses, the PCAA contributes the same towards the County's RHNA allocation as the previously approved Project. The 2016 PNA estimated that Los Angeles County had a median of 3.3 acres of park space per 1,000 people (LA County 2016). In the 2022 PNA+, it was estimated that there are 99 acres of regional recreation and conservation areas in Los Angeles County per 1,000 residents (LA County 2022). Because the amount of park acreage under this alternative would not directly correlate to the number of units constructed, the PCAA would have a higher on-site ratio of parklands to residents than the previously approved Project. As with the previously approved Project, the PCAA supports the County General Plan (Guiding Principle 3, Policy LU 5.10) and the 2012 SCVAP (Policy ED 2.5, LU-5.2.3, CO-8.2.13). Therefore, the PCAA would be consistent with goals and policies of relevant local and regional planning programs and would meet the goals and policies of the NLSP.

Impact conclusions would be consistent with the previously approved Project.

Noise

Development of the PCAA would involve similar construction activities and generate peak daily on-site noise levels similar to the previously approved Project. However, the total duration of construction noise would be reduced due to the reduction of the development footprint (with balanced grading). As with the previously approved Project, short-term construction noise and vibration levels would be less than significant with mitigation except for blasting activity, which would be significant and unavoidable.

Long-term, operational noise levels related to traffic would be similar to the previously approved Project, including those that would impact off-site residential uses due to Project-generated traffic on Ridge Route Road north of Castaic Lake Road and Ridge Route Road north of Lake Hughes Road. As with the previously approved Project, long-term operational noise and vibration impacts would be significant and unavoidable.

Impact conclusions would be reduced compared to the previously approved Project.

Public Services and Utilities

The PCAA would create new demand for public services including fire protection services and police services similar to the previously approved Project. Generation of school-age children would also be similar to the previously approved Project. It is noted the PCAA would maintain the school and fire station sites provided under the previously approved Project. Overall, impacts to public services would be less than significant with this alternative and the previously approved Project.

The PCAA would also increase demand on local utility providers (i.e., water, sewer, solid waste, electricity, natural gas, and telephone) similar to the level of demand of the previously approved Project. Consistent with the previously approved Project, the PCAA would continue to require the installation of on-site and off-site utilities to serve proposed uses and the impacts associated with installation of this infrastructure would be similar to the proposed Project. Consistent with the previously approved Project, potential impacts resulting from the PCAA would be less than significant.

Impact conclusions would be consistent with the previously approved Project.

Traffic, Access and Circulation

Construction-related traffic for the PCAA would be reduced compared to the previously approved Project as total duration of construction would be reduced due to the reduction of the development footprint. As discussed above, to minimize traffic impacts during construction, MM 5.11-3 requires that a Construction Traffic Control Plan be prepared and submitted to the County of Los Angeles.

Operation of the PCAA would result in similar ADT from residential land uses. Non-residential development for the PCAA would be reduced by 64 acres and would therefore also have reduced ADT and VMT (Stantec 2025 [Appendix F-5 to this RPDSEIR]). As with the previously approved Project, the PCAA would not conflict with the Los Angeles County Congestion Management Program, would provide or accommodate non-vehicular transportation facilities, and would not conflict with adopted policies supporting alternative transportation. The PCAA would have the same residential VMT as the previously Approved Project, and since that VMT is less than the NLSP VMT, PCAA VMT impacts would be less than significant.

Impact conclusions would be consistent compared to the previously approved Project.

Wildfire

As with the previously approved Project, the Project Site is within a designated VHFHSZ and would be essentially surrounded by undeveloped lands in the VHFHSZ category. A portion of the Project Site would be graded and developed with structures, roadways, and manufactured slopes. This development would eliminate the natural vegetation and wildfire “fuel” sources and some of the manufactured slopes within the footprint of the Project Site would be landscaped and regularly irrigated. Therefore, the outer fringes of the Project Site would be the main interface of exposure to potential wildfire risks. Fire hazards on private property are increased when adjacent to non-irrigated natural vegetation that has not been modified to minimize potential fuel sources because the suburban development is a potential source of wildfire ignition. The proposed reduction in the development area of Phase 2 in the PCAA would provide an improved firebreak between the developed portion of the site and wildland areas. The PCAA would involve disturbance of a smaller development area. This alternative would generate the same sized residential population as the previously approved Project.

In addition, although the PCAA would introduce additional wildfire risk factors as compared to existing conditions due to reasons such as increased human habitation in a wildlife-urban interface increases the fire risk from arson, children playing with fire, and debris-burning; that increased vehicular traffic increases fire risk from sparks, catalytic converters, and discarding of cigarettes; and that the introduction of residences within the site would create a wildland-urban interface that increases the general potential for human-ignited wildfires, the PCAA may also assist in avoiding, preventing, and offsetting human human-ignited wildfire risk for reasons including but not limited to prohibiting smoking in wildland and wildland interface, providing fuel breaks and fire breaks which reduce fire intensity and forward progress in the direction of the community, and preplanned evacuation areas/routes which are known to residents to insure that, if evacuation is needed, it can be completed quickly and in the most efficient and effective manner. Consistent with the previously approved Project, impacts related to human-ignited wildfire would be less than significant.

Regarding Project Site-specific wildfire risk, the Wildfire Report concludes all ten fire scenarios that have been modeled have at least one evacuation point that is viable for four hours or more except one, the Freeway Spots scenario, same as the previously approved Project. For the previously approved Project and the PCAA, all three evacuation points remain the same. In the Freeway Spots scenario, all three evacuation points for the PCAA would be viable for an

estimated 30 minutes and would reopen in an estimated 90 minutes (at 120 minutes from the start of the fire), same as the previously approved Project. All of the fire scenarios were run under extreme conditions that have been recorded in previous fires or which are likely to occur in the future and are therefore considered worst-case scenarios (Firesafe 2024). The Wildfire Evacuation Memo determined it would generally require the same or less time to evacuate the priority area and the Project Site than the previously approved Project, except for five scenarios (the SSWat40Line scenario, Freeway Spots scenario, LakeSpotat40 Scenario, NNEat70Line scenario and Templin Trigger). For the SSWat40Line scenario, this scenario would require .25 hours more to evacuate the priority area and the same time to evacuate the entire Project Site – 2.25 hours for the priority area and 4.25 hours for the Project Site compared to 2 hours for the priority area and 4.25 hours for the Project site, respectively, compared to the previously approved Project (Stantec 2024a). For the Freeway Spots Scenario, this scenario would require .25 hours more to evacuate the priority area and the same time evacuate the entire Project Site – 2.75 hours for the priority area and 5 hours for the Project Site compared to 2.5 hours and 5 hours, respectively, compared to the previously approved Project (Stantec 2024a). For the LakeSpotat40 scenario, this scenario would require .25 hours more to evacuate the priority area and the same time to evacuate the entire Project Site – 1.5 hours for the priority area and 3.5 hours for the Project Site compared to 1.25 hours for the priority area and 3.5 hours for the Project site, respectively, compared to the previously approved Project (Stantec 2024a). For the NNEat70Line scenario, this scenario would require .25 hours more to evacuate the priority area and less time to evacuate the entire Project Site – 1.75 hours for the priority area and 4.5 hours for the Project Site compared to 1.5 hours for the priority area and 4.75 hours for the Project site, respectively, compared to the previously approved Project (Stantec 2024a). For the Templin Trigger scenario, this scenario would require more time to evacuate the entire Project Site (there is no priority area – 5.5 hours compared to 3.75 hours for the previously approved Project (Stantec 2024a).

With application of the Fire Management Program specified in the NLSP, which would require compliance with the County Fire Code and all other regulatory standards, impacts related to development within a VHFHSZ were determined to be less than significant for the previously approved Project. This determination is supported by the Wildfire Report prepared by Firesafe (2024a) and Wildfire Evacuation Memo prepared by Stantec (2024a), summarized above.

Impact conclusions would be consistent with the previously approved Project.

Conclusions

Ability to Avoid or Substantially Lessen the Significant Impacts of the Project

Development of the Project Site with the PCAA would decrease the development disturbance area compared to the previously approved Project, although the uses remain the same. Although the degree of impacts for some topics may be less with this alternative, the overall impact conclusions would be consistent with the previously approved Project. Consistent with the previously approved Project, the PCAA would result in significant and unavoidable impacts related to air quality, noise, and traffic (VMT). No additional significant or more significant impacts would occur with this alternative.

Attainment of Project Objectives

The PCAA provides the same number of residential units as the previously approved Project, but on a smaller Phase 2 development area. As such, the PCAA contributes the same as the previously approved Project regarding the County's RHNA allocation as the previously approved Project. As with the previously approved Project, the affordable unit count would be maintained

at 315 units. However, the PCAA provides significantly less active recreational and open space area (37 fewer acres). Accordingly, the PCAA does not meet the following objective to the same degree as the previously approved Project:

Specific Plan 4, Open Space/Recreational Area, Goal i: To improve opportunities for a variety of outdoor recreational experiences

2.4.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of an environmentally superior alternative. Section 15126.6(e)(2) of the CEQA Guidelines states that if the No Project Alternative is the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives.

Table 2-12, Alternatives Impact Comparison, on the following page shows a comparison of impacts for each impact area for all alternatives (including the CAA and PCAA) to the previously approved Project.

TABLE 2-12
ALTERNATIVES IMPACT COMPARISON

Environmental Topic	Proposed Project[a]	Alternative 1: No Project/No Development	Alternative 2: No Project /Development Pursuant to the NLSP	Alternative 3: No Industrial	Alternative 4: Phase 1 Development	Recirculated Alternative 1: Creek Avoidance Alternative	Recirculated Alternative 2: Partial Creek Avoidance Alternative
Aesthetics	Less than Significant	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project
Air Quality	Significant and Unavoidable	Less than Proposed Project	More Emissions; Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	More Construction Emissions; Partial Avoidance of Operational Significant and Unavoidable Impact, Consistent with Proposed Project	Consistent with Proposed Project
Biological Resources	Mitigated to Less than Significant	Less than Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Paniculate tarplant Impacts Avoided, Consistent with Proposed Project	Smaller Footprint, Reduced Impacts. Consistent with Proposed Project
Cultural Resources	Mitigated to Less than Significant	Less than Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project
Energy	Less than Significant	Less than Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Reduced Demand, Consistent with Proposed Project	Consistent with Proposed Project
Geology and Soils	Mitigated to Less than Significant	Less than Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	New Significant and Unavoidable Impact	Consistent with Proposed Project
Greenhouse Gas Emissions	Mitigated to Less than Significant	Less than Proposed Project	More Emissions; Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Less Emissions, Consistent with Proposed Project	Less Emissions, Consistent with Proposed Project
Hazards, Emergency Response, and Environmental Safety	Less than Significant	Less than Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	New Significant and Unavoidable Impact	Consistent with Proposed Project
Hydrology and Water Quality	Mitigated to Less than Significant	Less than Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	New Significant and Unavoidable Impact	Consistent with Proposed Project

TABLE 2-12
ALTERNATIVES IMPACT COMPARISON

Environmental Topic	Proposed Project[a]	Alternative 1: No Project/No Development	Alternative 2: No Project /Development Pursuant to the NLSP	Alternative 3: No Industrial	Alternative 4: Phase 1 Development	Recirculated Alternative 1: Creek Avoidance Alternative	Recirculated Alternative 2: Partial Creek Avoidance Alternative
Land Use	Less than Significant	Policies not met to same extent; Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Less than Proposed Project	Consistent with Proposed Project
Noise	Significant and Unavoidable	Less than Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Less than Proposed Project	Consistent with Proposed Project; New Significant and Unavoidable Impact (construction truck traffic)	Less than Proposed Project (construction)
Public Services and Utilities	Mitigated to Less than Significant	Less than Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	New Significant and Unavoidable Impact	Consistent with Proposed Project
Traffic, Access, and Circulation	Less Than Significant[c]	Less than Proposed Project	Greater than Proposed Project	Consistent with Proposed Project	Less than Proposed Project	Less than Proposed Project	Consistent with Proposed Project
Wildfire[b]	Less than Significant	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	Consistent with Proposed Project	New Significant and Unavoidable Impact	Consistent with Proposed Project

[a] For the sake of consistency with the DSEIR, Proposed Project is used to refer to the previously approved Project.
[b] At the time of the DSEIR, there was no separate wildfire impact section in CEQA Guidelines Appendix G; rather wildfire was included under Hazards, Emergency Response, and Environmental Safety. Wildfire impact conclusions for Alternatives 1 through 4 were derived from that analysis. The Proposed Project prior wildfire analysis is superseded by the wildfire analysis contained in this RPDSEIR.
[c] Under the LOS methodology the Proposed Project resulted in a significant and unavoidable impact traffic impact. Under the required VMT methodology, which replaced the LOS methodology, the Proposed Project has a less than significant traffic impact.

The No Project/No Development Alternative has the least impact to the environment because it would not involve any construction activities and would not introduce development of any uses that would generate potential operational impacts. Specifically, there would be no impacts associated with air quality, GHG emissions, noise or traffic, each of which are considered significant and unavoidable impacts for the previously proposed Project. The No Project/No Development Alternative would not require the provision of additional public services and facilities and would not result in an increased demand for utilities or service systems. Additionally, no impacts associated with development would occur, including impacts related to aesthetics, biological resources, cultural resources, geology and soils, and hydrology and water quality. While this alternative would avoid the significant and unavoidable effects of the previously approved Project, the benefits of the previously approved Project associated with providing commercial lands to accommodate the projected labor force and to develop housing that satisfies the needs of the present and future residents of the NorthLake community and the County's RHNA allocation would not occur; none of the Project objectives would be met.

Alternative 4, the Phase 1 Development, was determined to be the environmentally superior alternative in the SEIR. This was due to the reduction in development area footprint as well as the reduction in proposed dwelling units and reduced impacts to Grasshopper Creek. In addition, the impact levels would be less than the previously approved Project for traffic and noise, primarily due to the reduction in dwelling units and the length of construction.

Based on the alternatives analysis in this RPDSEIR, in compliance with Section 15126.6(e)(2) of the State CEQA Guidelines, Recirculated Alternative 2, the Partial Creek Avoidance Alternative, would be the environmentally superior alternative among all six Project alternatives summarized in Table 2-12 above as it reduces the development footprint, thus reducing biology impacts and greenhouse gas emissions and would have less construction noise impacts (though construction noise would still be significant and unavoidable). However, the significant and unavoidable impacts to air quality would not be reduced to below a level of significance. All other impacts would be similar to the previously approved Project. On balance, Recirculated Alternative 2 would result in the greatest reduction in impacts compared to the previously approved Project while maintaining the same amount of housing. For these reasons, Recirculated Alternative 2 is the environmentally superior alternative. As compared to project objectives, the PCAA provides significantly less active recreational and open space area (37 fewer acres). Accordingly, the PCAA does not meet the following objective to the same degree as the previously approved Project:

- Specific Plan 4, Open Space/Recreational Area, Goal i: To improve opportunities for a variety of outdoor recreational experiences.

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APPENDIX A

COURT RULING

FILED
Superior Court of California
County of Los Angeles

JAN 11 2021

Sherri R. Carter, Executive Officer/Clerk
R. Inostroza
BY: R. INOSTROZA, DEPUTY

STATEMENT OF DECISION ON VERIFIED PETITION OF MANDATE AND COMPLAINT FOR INJUNCTIVE RELIEF

WRIT GRANTED

RULINGS ON PETITIONERS' REQUESTS FOR JUDICIAL NOTICE

CENTER FOR BIOLOGICAL DIVERSITY and ENDANGERED HABITATS LEAGUE v. COUNTY OF LOS ANGELES, et al, and Real Parties in Interest, NORTHLAKE ASSOCIATES, et al, Case No. 19STCP01610

INTRODUCTION:

The Project is the Northlake Specific Plan (the "Project"). The applicant is NorthLake Associates, LLP and related entities.

The Project is residential project to be built on 1,330 acres of disturbed but undeveloped land north of Castaic and east of the Interstate 5 Highway (the "I-5"). The site is 3.5 miles on the side that parallels the I-5 and about a half mile wide. The I-5 is a divided highway at this point with the northbound lanes separated from the southbound to create an island of undeveloped land between the two segments. (This isolated middle area becomes important in discussing wildlife connectivity issues.) The Project site's western edges are variable distances from the I-5's southbound lanes ranging between 50 feet and about 500 feet. AR 8474, 8480.The land between the southbound I-5 and the site's western edges is undeveloped.

The County Planning Commission by a divided vote (3-1) approved the Project on April 18, 2018.

The Board of Supervisors by a divided vote (4-1) approved the Project on April 2, 2019.

Petitioners filed a verified Petition for Writ of Mandate on May 1, 2019. The Petition was argued on September 24, 2020, and stood submitted once the Court received the transcript.

Petitioners in their writ of mandate action allege the County's approvals of the Project violated the California Environmental Quality Act ("CEQA"), Public

Resources Code (PRC) 21000 et seq.[1] Petitioners allege four causes of action, but only two were briefed and argued. The causes of action that were argued are the first, that alleges various findings made in the supplemental environmental impact report (SEIR) and the approvals based thereon are not supported by substantial evidence; and the third, that alleges the County failed to recirculate the SEIR when the applicant made changes in the Project after the public comment period was closed. The causes of action that have been abandoned are: the second, alleging that a statement of overriding considerations for the Project is not supported by substantial evidence (the briefs fail even to cite the applicable Guidelines section 15093 for SOCs); and the fourth, alleging violation of California's Planning and Zoning Laws (Gov. Code section 65300 et seq.).

The Court grants relief on the first cause of action, finding the SEIR is deficient in its alternates analysis and in failing to define adequate mitigation measures for the relocation of an amphibian and plants of special concern due to the loss of their habitat. The Court does not find that the SEIR required re-circulation, and, therefore, denies relief on the second cause of action.

GENERAL DESCRIPTION OF THE PROJECT AND PROJECT SITE:

The Project site is 3.5 miles long but tapering at each end with maximum width of half a mile. The site drops 1,200 feet north to south. The site on its west side overlooks the I-5 and on its east side rises to a ridge that overlooks the Castaic Lake Reservoir state recreation area. Hills having steep slopes stud the site's western boundary. For aerial photos and diagrams, see AR 3618-3620, 4114-4118, 8256 et al.

National forests surround the area. The Los Padres National Forest is located to the north and west, and the Angeles National Forest is located to the east and southeast. AR 3826 (map). The Project site lies within the Sierra Madre-Castaic Connection which links the wildlife protected areas of Los Padres and Angeles National Forests. AR 3612-21, 31172-34, 30100-10, 30132.

Grasshopper Canyon bisects the site along the north-south axis. AR 3903 and 7760. Grasshopper Creek lies at the bottom of Grasshopper Creek. The development plan will fill-in Grasshopper Canyon with dirt excavated elsewhere on the site to create level building areas. Thirty-three million cubic yards of earth will be excavated and moved within the site to accommodate the planned construction. The fill-in will eliminate the blue-stream Grasshopper Creek at the bottom of the Canyon. The Creek's water shed creates a biological habitat for plants and animal species. The destruction of Grasshopper Canyon will have a significant impact on biological resources. The SEIR Biological Resources Assessment provides:

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[1] CEQA Guidelines (authorized in PRC 21083) are codified in title 14, section 15000 et seq. of the California Code of Regulations.

> Grasshopper Canyon and Grasshopper Creek comprise the dominant topographic features of the Project site and therefore contain biological resources unique to these areas. While the majority of the Project site consists of scrub and grassland habitats, Grasshopper Canyon contains various riparian vegetation types.... AR 7758.

The Project requires the relocation of five species of rare plants and the western spadefoot toad, a species of special concern, now living in the habitat created by Grasshopper Canyon.

The Project, in two phases, will build out with 2,295 dwelling units, with additional units allowed up to a unit cap of 3,150 dwelling units allowed. AR 455. (A build-out of 3,150 dwelling units would house a population of about 9,734 residents.) The dwelling units will be mix of condominiums, apartments, live/work space and detached dwelling units. AR 499. From the photographs, the completed Project will have the appearance of two- and three-story apartment blocks. AR 10457-58. The Regional Planning Commission required that some 315 units be deed restricted as affordable housing, 95 of which are to be senior-living affordable units. AR 10163. The Project will include a 23-acre school site in phase 2 and a 1.4 acre pad for a future fire station. AR 7391. Project-related improvements that would extend outside the site include a 4.64 acre connection with a park on the state recreational land, 2.39 acres in trail connections, and a 5 acre pad for a water tank.

SUMMARY OF ADMINISTRATIVE PROCEEDINGS AND ACTION ON PETITION:

The Northlake Specific Plan was considered two times, 25 years apart by the County—in 1987-1992 and in 2015-2019. The 1992 proposal would preserve Grasshopper Canyon and its Creek, but the 2018/2019 proposal would fill-in the Canyon to make building sites.

The Northlake Specific Plan in 1992.

The County voted approval of the Northlake Specific Plan in 1992. AR 450, 1818. The DEIR for the current Project states for the 1992 project:

> The NorthLake Specific Plan included a statistical summary of uses allocated within very general land use areas.... At the time of the 1992 approvals, it had been anticipated that a focused Site Plan review and follow-up CEQA review would be conducted, as more project-specific level details were developed to implement phases of the NorthLake Specific Plan. AR 1818.

The 1992 Northlake Specific Plan included residential, commercial (13.2 acres), industrial (50.1 acres) and recreational uses (including a "championship golf course") on the same 1,330 acre site, but it would protect Grasshopper Canyon as a "landform feature and natural resource" of the site. AR 2682, 2688. The DEIR advises: "Subsequent to the 1992 approval of the Northlake Specific

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Plan, market conditions and changes in property ownership placed development ... on hold." AR 1818. The development approvals expired in April 2013. AR 1818, 1826.[2] The current applicant, by letter dated April 3, 2018, abandoned the development agreement the County had approved in 1992. AR 10168.

The Northlake Specific Plan in 2017-2019

The steps taken by the County are presented in chronological order in the Findings made by the Board of Supervisors (AR 449-468) and are not repeated here. The Court does note that the applicant changed its Project by eliminating industrial uses and reducing commercial uses after the public comment period had ended. Based on this, petitioners argue that a recirculation of the SEIR is required.

The Planning Commission after an Initial Study released its supplemental environmental impact report (SEIR) on May 2, 2017. AR 14020, 1703.Two SEIR errata were subsequently released to address Project changes made during the public review process. Public hearings were held on May 24, 2017 at a Northlake Elementary School in Castiac and on February 21, 2018 before the Planning Commission.

In between, the Planning Commission released the Final SEIR on January 20, 2018. AR 9579-80.

The Commission, at the February 21, 2018 hearing, instructed the applicant to consider adding an affordable housing component and continued the hearing to April 18, 2018. On April 5, 2018, the Planning Commission released a Supplemental Memorandum that included the applicant's response to the Commission's comments at the February 21 hearing. AR 10163-66. The applicant agreed to these changes in the SEIR development plan: the elimination of industrial uses and a reduction in commercial uses; an increase in dwelling units from 1,974 to 2,295 units (AR 455); the relocation of 323 dwelling units from a phase 2 site to space vacated by industrial uses, with the build-out of those units to occur in phase 1 and in a location closer to the southbound I-5; the placing of affordable housing deed-restrictions on 315 units. AR 10174. The April 5, 2018 Supplemental Memo included another Errata to the SEIR. The new Errata announced that recirculation of the SEIR was not required, saying: "The Revised Project would not create a new significant impact or substantial increase in the severity of previously identified effects." AR 10185.

After a further hearing on April 18, 2018, the Planning Commission adopted entitlements and CEQA findings, certified the SEIR, and approved the Northlake Specific Plan. AR 552. The vote was 3 to 1. AR 453. The Center for Biological Diversity, Santa Monica Mountains Conservancy, and Golden State

[2] The County in its June 15, 2017 response to the CDFW letter asserts: "It should be noted that the 1992 Specific Plan is still a valid approval.... The Proposed Project can be viewed as a less dense alternative to the previously approved 1992 Northlake Specific Plan Project."

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Environmental Justice Alliance filed appeals from the Commission's approvals to the Board of Supervisors.

On August 28, 2018, the County released an Errata to the Northlake Specific Plan including as Attachment E a Health Risk Assessment. AR 8345-8738.

In mid-September 2018, the County circulated a 47-page letter from Glenn Lukos Associates Regulatory Services dated September 13, 2018 (the Tony Bomkamp letter). The SEIR that the Planning Commission approved had been prepared by BonTerra Psomas, the applicant's consultant. The Lukos Associates' letter, which biologist Tony Bomkamp prepared and signed, described the letter as an "Independent Review of Biological Resources Assessment by BonTerra Psomas for the Northlake Final Supplemental EIR." The Bomkamp letter addresses the objections to the Project raised by the three appellants. AR 15999-16043 (not all pages included). County and Real Parties in their Joint Opposition Brief refer to the Bomkamp letter as containing the opinions of "the Peer Review Expert Biologist."

The Board of Supervisors conducted a public hearing on the Northlake Specific Plan and the appeals on September 25, 2019. The Board Chair allowed the three appellants a total of four minutes to present their objections. The Board voted (four ayes, with Supervisor Kuehl abstaining) to reject the appeals, and to uphold the Planning Commission approvals and to make findings to certify the SEIR. AR 454-458, 553, 12475-12477 (hearing record). The Board instructed staff to draft the necessary findings.

On April 2, 2019, the Board held a public hearing and adopted findings and conditions for vesting the tentative tract map, adopted the Final Supplemental Environmental Impact Report (FSEIR); and made finings and statement of overriding considerations. AR 12570; 448-760; 859-956. Four supervisors voted aye; Supervisor Kuehl abstained. A Notice of Determination (NOD) was filed and posted on April 4, 2019. AR 1-5.

On May 1, 2019, petitioners Center for Biological Diversity and Endangered Habitats League commenced this action by filing their verified Petition against the County of Los Angeles, its Board of Supervisors, its Planning Commission and its Department of Regional Planning (collectively "County") and Real Parties-In-Interest.

THE COURT DENIES PETITIONERS' FOUR REQUESTS FOR JUDICIAL NOTICE:

The Court will first address petitioners' requests that the Court take judicial notice of documents in support of petitioners' briefs. Petitioners filed four requests of judicial notice ("RJN"). Petitioners rely upon Evidence Code sections 452(c) and 453.

The administrative record (AR) was certified on February 3, 2020. The certified AR is "the record of proceedings related to the subject matter of the action or proceeding." PRC 21167(a). If a court receives documents offered through an RJN during the briefing, the court is, in effect, an augmenting the AR with the additional documents.

The parties' briefs were filed shortly after the AR was certified: the opening brief on February 7, 2020; the County's and Real Parties' Joint Brief on May 11, 2020; and Petitioners' reply on June 17, 2020.

County and Real Parties filed objections to the RJN because the documents tendered through the RJNs were not included in the administrative record and did not qualify as exceptions to PRC 21167. County and Real Parties argue that under CEQA review is limited to the evidence that was before the agency when it made the decision challenged by the petition, citing Western States Petroleum Association v. Superior Court (1995) 9 Cal.4th 559, 576. Evidence that was not before the agency when the project was approved is "extra-record" evidence and is not admissible, subject to limited exceptions. Id. at 576. This exclusion is to ensure that courts do not "engage in independent fact finding rather than engaging in a review of the agency's discretionary decision." Friends of the Old Trees v. Cal. Dept. of Forestry & Fire Protection (1997) 52 Cal.App.4th 1383, 1391.

The Supreme Court in Western States specified limits for extra record evidence that may be admitted under exceptional circumstances:

> *Extra record evidence is admissible under this exception only in those rare instances in which (1) the evidence in question existed before the agency made its decision, and (2) it was not possible in the exercise of reasonable diligence to present this evidence to the agency before the decision was made so that it could be considered and included in the administrative record.* (Id. at 578; emphasis original.)

With this background, the Court turns to the documents which the petitioners offer into evidence in their RJNs.

Petitioners offered for judicial notice a 53-page memorandum from the director of CDFW (California Department of Fish and Wildlife) to respond to a request that the Southern California/Central Coast Mountain Lion be listed as a threatened species under the California Endangered Species Act (codified as Fish and Game Code 2050 et. seq.). See, RJN filed March 2, 2020. County/Real Parties filed an opposition on May 11, 2020; petitioners filed a Reply on June 17, 2020. Petitioners in their Reply advised that the California Fish and Game Commission had granted "candidate species" status to the Central Coast/South mountain lion population.

Next, on June 17, 2020, petitioners filed a Supplemental Request for Judicial Notice to put into evidence the Los Angeles County After Action Review

of the Woolsey Fire that ignited on November 8, 2018. (The Report is undated but was prepared after the April 2, 2019 date when the County approved the Project.) The Report has 108 pages with a 35-page appendix "History and Context Prior to the Woolsey Fire" with Exhibits A, B and C. The Exhibit A provides a tabulation of wildfires occurring in the Santa Monica Mountains from1897 to present. The County and Real Parties filed their opposition to the Supplemental RJN on June 29, 2020.

The certified AR is "the record of proceedings related to the subject matter of the action or proceeding." PRC 21167(a).

The Court declines to receive the CDFW report re the local mountain lion population and the County's After-Action Report for the Woolsey Fire because the documents were not available before the County approved the Project. Documents that were not considered nor available for consideration at the time action was taken may not be received in a mandamus action reviewing an administrative decision. Western States, supra, at 578.

Petitioners rely on Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora (2007) 155 Cal.App.4th 1214, but that case is not apposite. In Tuolumne County the issue was whether the EIR for a shopping center was deficient because it omitted analysis of street alignments that were imposed as a condition to project approval. The appellate court held that the whole of the project was a legal issue, and, in that case, the issue could be decided by the appellate court because the documents pertinent the street alignment were included in the administrative record. That is not the case here: the reports that petitioners want the Court to judicially notice did not exist as the time the Project approval and are not part of the administrative record.

Petitioners' Second Supplemental RJN filed on September 2, 2020 seeks to introduce three pages from the California Fish and Game Commission's California Policy for Native Plants. The Native Plant Policy was adopted by the Commission on June 11, 2015. Petitioners argue that, since the SEIR concludes that the Project's impacts will be reduced to less than significant levels by transplantation, the CDFW's view about the efficacy of transportation should be considered. AR 7398; Pets.' Br. at 23.

The Native Plant Policy excerpt that Petitioners offer in their Second Supplemental Request did exist before the Board approved the Project. The issue under Western States is whether petitioners could have presented the documents "in the exercise of reasonable diligence...to the agency before the decision was made." Petitioners provide no declaration to show they exercised reasonable diligence but were unable to offer the Native Plant Policy to support their arguments to the Board of supervisors. The Court will not take judicial notice of the Native Plant Policy as petitioners have not shown their failure to provide the document to the County is excused by their failure after exercise of reasonable diligence.

Petitioners' Third Supplemental Request for Judicial Notice was filed on December 17, 2020. (The courtesy copy arrived in the courtroom on January 6, 2021.) The third RJN provides night-time photographs of a mountain lion entering the site area from undercrossing (or tunnel) No. 2 taken by an automated wildlife camera at about 3 a.m. on November 4, 2020. The six photographs are authenticated in the declaration of Chad Christensen, an employee of the Mountains Recreation and Conservation Authority (MRCA), an affiliate of the Santa Monica Mountains Conservancy. (The photos show the mountain lion on MRCA conservation land immediately west of the Project site at the location of tunnel No. 2.) Petitioners argue that the photographs do not contradict evidence in the AR but rather confirm statements in the EIR (AR 7642, 7635) that "mountain lions may occur on the Project site." County and Real Parties filed objections based on the Western States decision.

The Court declines to receive the mountain lion photographs because they were not available when the County approved the Project and therefore were unavailable to provide to the decisionmakers when the Project was approved. Western States, supra, at 578. The Court also overrules the evidentiary objections.

ISSUE ONE: COUNTY'S DECISION TO NOT RECIRCULATE THE SEIR IS SUPPORTED BY SUBSTANTIAL EVIDENCE:

Petitioners argue that recirculation of the SEIR was required under PRC 21092.1 because the new information that the County released on April 5, 2018 is "significant new information." Recirculation is required for "significant new information" under PRC 21092.1. The phrase is interpreted in Guidelines section 15088.5(a), subd. (1) and (2), reading:

> (a) A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification.... "Significant new information" requiring recirculation includes, for example, a disclosure showing that:
> (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
> (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.

The parties dispute whether the "Supplemental Memo for Project Update and Response" that the Planning Commission staff released on April 5, 2018 is "significant new information" of the type that requires recirculation.

The Planning Commission decided that issue in the negative. On April 5, 2018, it issued an Errata to conform to Guidelines section 15088.5 that stated: "The Revised Project would not create a new significant impact or substantial

increase in the severity of previously identified effects." AR 10185. And a new Section 11 was added to the FSEIR to state: "The Final SEIR and Errata merely ... makes insignificant modifications to the adequate SEIR." AR 445.

The Court, on this point, agrees with the County. It finds the County's conclusion that the new information added by the Supplemental Memo on April 5, 2018 did not require recirculation is supported by substantial evidence.

Petitioners identify as the "significant new information" the applicant's proposed Project changes "to replace the industrial and commercial uses next to the freeway with residential uses." See, Pets.' Br. at p. 33, citing the staff's notice to Planning Commissioners. AR 10163-166. Petitioners previously raised the issue in their pre-filing letter of April 17, 2018, saying: "[T]he 'Supplemental Memo'... disclosed [] revisions to the Project ... which removed virtually all of the commercial and industrial uses in favor of more dwelling units. Such revisions effect (sic) the traffic analysis, and by extension the air quality analysis and GHG analysis, as well as the studies supporting those analyses." AR 28001.

This "significant new information" that petitioners identify was contained in a packet of documents that were released on April 5, 2018 with a "Supplemental Memo for Project Update and Response." The Supplemental Memo included the applicant's April 3, 2018 letter response to the Commission's comments from the February 21 hearing. AR 10168-10170. The applicant in its letter made these changes to the proposed development: it eliminated industrial uses and confined reduced commercial uses to centrally located mixed use locations (AR 455); it increased the dwelling units from 1,974 to 2,295 units (AR 455); it relocated 323 dwelling units from a phase 2 site to a now empty industrial site, thus building those units earlier as phase 1 development and placing them closer to traffic on the southbound I-5; and it deed-restricted low income housing for 315 units. AR 10174.

Petitioners do not support with evidence their assertion that the changes made in the Supplemental Memo require the recirculation of the SEIR. The elimination of industrial and commercial uses from the Project will not cause "a new significant environmental impact." The addition of 323 dwelling units to the Project newly approved for 2,297 dwelling units alone does not qualify as a "substantial increase in the severity of the environmental impact." Both the previous approval for 1,974 units and the new approval for 2,297 units are still within the cap of 3,150 dwelling units. The SEIR analyzes the environmental impacts for a build-out of 3,150 dwelling units.

Petitioners' argument is more narrow: petitioners argue that where the 323 new dwelling units are to be placed on the site constitutes a "substantial increase" in environmental impact because those units will be placed closer to the I-5 traffic than other housing groupings. A Project map (AR 8480) shows the locations previously designated for industrial or commercial uses where the

323 new dwelling units will be placed. All of these units are designated as "affordable units," except the eight live/work units. The 323 units will be placed in five groupings on both sides of Ridge Route Road. Their distances from the I-5 traffic is not provided, but petitioners assert that some units, apparently those at the most northly location, are 470 feet from the I-5. If so, the map shows that most of the units at that location would be at a greater distance than 470 feet from the I-5.[3]

Petitioners' argument, to narrow it further, is based on studies that have suggested that it may be hazardous to reside within 500 feet of a freeway. Pets.' Br., pp. 33-34. Petitioners cite to the Center's letter to the County dated April 16, 2018 and specifically to its page 28 where it states "... the scientific literature cited above indicates that the closer people live to a freeway, the more severe and pervasive the potential impacts are upon these persons." AR 28001. County/Real Parties point out that petitioners rely on general studies and provide no evidence that the locations for the build-out of the 323 units are significantly more hazardous than other housing scheduled for construction in phase 1.

The traffic analysis including for air quality and GHG studies has already been completed in the SEIR for the 1,974 units that were scheduled for construction in phase 1. The draft EIR discussed the air quality effects on multi-family homes within 900 to 1500 feet of the I-5's southbound lanes. AR 1898. Petitioners do not demonstrate that an increase of 323 more homes, even if some are sited at a distance of 500 feet from the I-5, is "significant new information" that requires recirculation under Guidelines section 15088.5.

Petitioners argue also that a Board resolution adopted on December 18, 2018 requesting further information about the Woolsey Fire (AR 28976) is "significant new information." (The Woolsey Fire began on November 8, 2018.) The Court does not understand this argument because the criteria for recirculation applies when "significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review." Guidelines section 15088.5(a). The SEIR errata published on April 5, 2018 could not refer to the later occurring Woolsey Fire nor change SEIR's conclusions (AR 10177) as to fire hazard or greenhouse gas emissions. After the Woolsey Fire, the Center sent letters to the County dated April 1, 2019 and February 11, 2019 (AR 28962 and 28970) to argue that the Board's finding that more wildfires are the "new normal" should be evaluated, but that information was not included in the County's new information released on April 5, 2018 and therefore could not be argued as a basis for recirculation.

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[3] The record does not disclose precisely where the 323 houses will be placed, other than in the color-coded patches found at AR 8480, so the Court is unable to determine whether any units will be built within 470 feet of the I-5 and, if so, how many. The opposing brief at footnote 16, points out that petitioners "fail to differentiate the Project's development footprint, which is the building areas, from the Project Site boundary." Opp. Br., p. 14, fn. 34.

The County's decision that the Errata that recirculation was not required because of new information released with the Supplemental Memo of April 5, 2018 is supported by substantial evidence. The Court denies relief under the second cause of action.

ISSUE TWO: THE REASONABLE RANGE OF ALTERNATIVES PRESENTED IN THE SEIR IS DEFICIENT FOR FAILING TO CONSIDER AN ALTERNATIVE THAT WOULD PRESERVE THE GRASSHOPPER CREEK HABITAT:

CEQA requires the lead agency to consider a reasonable range of alternatives to evaluate whether an alternative to the Project exists that will reduce or better mitigate the significant environmental impacts of a project. PRC 21002; Guidelines section 15126.6. An EIR is to "ensure that all reasonable alternatives to proposed projects are thoroughly assessed" by the decision-makers. Laurel Heights Improvement Association v. Regents of the University of California (1988) 47 Cal.3d 376, 400.

The SEIR's alternate analysis for the Project does not include an alternative that would protect Grasshopper Creek (AR 2403-2426), and for that reason is fatally flawed.

The applicant for the 1992 Project submitted "a land plan ... that avoided [filling-in] the creek bottom that runs through the middle of the project." "This land plan placed development on one side of the creek...to minimize grading. This plan was attempting to avoid impacting the creek habitat...." AR 2403 (Project DSEIR).

In re-presenting the Project in 2015 the current applicant discarded any consideration of this "creek avoidance" alternative at the screening stage. AR 2403. The DSEIR considered four alternatives: no project; the proposed Project; no industrial uses; and a development limited to Phase 1. AR 24189 (CDFW's letter June 15, 2017). Objectors criticized the SEIR for its failure to include a "creek avoidance' alternative in its alternatives discussion. AR 7492 (letter from Santa Monica Mountains Conservancy of May 22, 2017; AR 24189 (CDFW letter of June 4, 2017; and AR 7537 (petitioners' letter).

An applicant has considerable leeway to determine the range of reasonable alternatives, but that discretion is governed by the "rule of reason" and any exclusion of a reasonable alternative for economic reasons must be justified by substantial evidence. Preservation Action Council v. City of San Jose (2006) 141 Cal.App.4th 1336, 1352-57. The applicant's exclusion of the "creek avoidance" alternative is not supported by substantial evidence in the record.

The inclusion of a "creek avoidance" alternative in a range of alternatives that should be considered is appropriate for many separate reasons. The Court includes these reasons for its ruling to require the consideration of a "creek avoidance" alternative in a reasonable range of alternatives. The "creek avoidance" alternative would: (1) preserve Grasshopper Creek with its regionally

significant wildlife habitat; (2) avoid as a mitigation requirement a need to relocate from Grasshopper Creek its population of special interest species Western spadefoot toad; (3) avoid as a mitigation requirement a need to relocate the rare plant species found in the Grasshopper habitat; (4) avoid adverse impacts to the Castaic Lake recreational lands that are east of the site (see CDFW letter, AR 7397); and (5) reduce substantially the grading and earth movement needed to fill-in Grasshopper Canyon (with the grading own adverse impacts on air quality and GHG emissions).

That an alternative exists that may protect the habitat of an amphibian and plant species of special concern in itself requires a consideration of the "creek avoidance" in a reasonable range of alternatives. Whether that alternative would meet the major economic objectives of the Project and whether it would protect the existing habitat for species of special concern cannot be predicted, but those issues should be considered in an alternatives analysis. The exclusion of a "creek avoidance" alternative requires that the approvals for the Project be voided so that a more appropriate alternatives analysis can be provided.

County and Real Parties give four reasons for screening out any consideration of a "creed avoidance" alternative. (Opp. Br., pp. 27-33; see also discussion in the SEIR. AR 7561, 7500, 7562, 7570.) These specific reasons, in the Court's view, demonstrate affirmatively the need to analyze the "creek avoidance" alternative, rather than eliminating it from an alternatives analysis.

The County and Real Parties argue that the "creek avoidance" alternative will nonetheless require the excavation of 10 million cubic yards of soil to buttress the building sites. That argument concedes these benefits: a reduction in the earth excavation of 23 million cubic yards, plus the preservation of the Grasshopper Creek habitat; this reason, therefore, fails to justify the screening out of the "creek avoidance" from the alternatives analysis. The applicant, secondly, argues that the "creek avoidance" alternative would require the elimination of the industrial and commercial uses in the Project. That depends on the development plan. The 1992 Project included 50 acres of industrial uses, as well as a greater number of housing units, and would still preserve the Grasshopper Creek habitat. This argument, however, was mooted when the applicant on April 3, 2018 eliminated the industrial and commercial uses. AR 10168-69 (applicant letter to the Planning Commission). This reason surely does not justify an alternative analysis that screens out the "creek avoidance" alternative. The applicant, thirdly, argues that the "creek avoidance" alternative would require that Grasshopper Creek be spanned by utility pipelines to serve housing on both sides. Whether that creates a possibility of "accidental spills" may be evaluated in an alternatives analysis; the possibility, however, is speculative, and does not justify any screening out a "creek avoidance" alternative. The final reason given for not studying a "creek avoidance" alternative is that it would reduce the Project's developable acreage. That

result would not necessarily make a "creek avoidance" alternative infeasible, and it is not, therefore, a basis to screen out a "creek avoidance" alternative.

The four reasons given by the County for screening out the "creek avoidance" alternative, whatever their merits, are not supported by substantial evidence in the record.

Given that Grasshopper Creek and its riparian habitat is a dominant physical feature of the site and connects to the state recreational lands east of the site, the County's failure to consider an alternative that would preserve Grasshopper Canyon is a failure to provide an EIR to serve as an informational document for the decision-makers. That role is mandated for an EIR in Guidelines section 15151. That section reads:

> An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences.

Without necessarily finding a violation of section 15151, the Court finds that the County's exclusion of the "creek avoidance" alternative from the range of alternatives is not supported by substantial evidence. That failure is a violation of Guidelines section 15126.6 and, therefore, of PRC 21002. The failure invalidates the approvals given for the Project and requires the submittal of an amended EIR that includes an appropriate analysis section for consideration by the County's decisionmakers.

ISSUE THREE: THE BASELINE AND MITIGATION MEASURES PROVIDED IN THE SEIR TO PROTECT THE WESTERN SPADEFOOT TOADS ARE NOT SUFFICIENT UNDER CEQA:

A project has a significant effect on the environment if it will eliminate a species of special concern from the Project site. Guidelines 15065. Section 15065(a) provides:

> A lead agency shall find that a project may have a significant effect on the environment ... where there is substantial evidence ... that any of the following conditions may occur (1) The project ... threaten[s] to eliminate a plant or animal community ....

In that event, section 15065(b)(2) requires the project proponent to:

> implement mitigation requirements relating to such species and habitat pursuant to an approved habitat conservation plan or natural community conservation plan.

The Western spadefoot toad ("WST") is a California species of special concern. AR 3665 (CDFW letter); see AR 3644 defining "species of special concern." A self-sustaining WST population exists at the Project site in and adjacent to Grasshopper Canyon. AR 3689. The WST habitat in Grasshopper

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Creek and nearby seasonal wet areas will be eliminated by the Project. Grasshopper Canyon itself will be filled in and levelled for building sites. The DSEIR acknowledges the Project will destroy the WST habitat along Grasshopper Canyon.

> Since this Grasshopper Canyon population is one of few known populations in the region and Project impacts would result in the loss of these populations (or a substantial portion thereof), impacts to this species would be considered significant... AR 1943.

The County has approved Mitigation Measure 5.2-9 to relocate the WST population to a new habitat that the applicant is to create (at an as yet unspecified location) and monitored for five years.

The parties dispute, first, the sufficiency of the baseline biological surveys for the site, and, thus, dispute not only the number of individuals in the WST community that are to be relocated but also the number and characteristics of the breeding pools that will have to be created to sustain the population in a new habitat. The applicant's Biological Technical Report, Appendix D relies on a single biological survey for its count of WST: "The western spadefoot was observed incidentally during previous amphibian surveys, and in the focused surveys conducted for the species in 2014 (Bon Terra 2000b, 2014c)." AR 1943. Petitioners argue the BonTerra's surveys underestimate the WST population on the site because the surveys were taken during draught years when the WST numbers were reduced.

The parties dispute, secondly, that the mitigation measures ensure that the relocation of the WST to a new habitat will be successful. The Biological Technical Report asserts that "[i]mplementation of Mitigation Measure 9 [MM 2.5-9] would reduce this impact [on the WST] to less than significant level." Id. Petitioners argue the mitigation measures are inadequate to assure that result.

The mitigation measures approved by the County to mitigate the loss of WST habitat will require that the existing WST population on the project site be captured and relocated to new WST habitat. The DSEIR promises:

> "Implementation of MM 5.2-9 which requires a western spadefoot relocation program, would reduce this impact to a less than significant level through translocation of individuals to suitable habitat. This measure would result in substantial avoidance of direct impacts to the western spadefoot and as a result the western spadefoot is expected to persist in the region following project implementation." AR 1943.

The actual mitigation measure MM 2.5-9 reads in its entirety:

> A relocation program for western spadefoot toad will be conducted prior to construction during the spring at the height of the breeding season for

this species....Results of the relocation program shall be provided to the CDFW and the LACDRP.

(a)Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the prior appropriate season. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e.2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as others.

(b)The intent of the Relocation Plan is to capture and relocate as many western spadefoot toads as possible. Western spadefoot toads shall be relocated on or off site to an area of suitable habitat, as reviewed by the CDFW and the LACDRP. The relocation site shall be of similar (or better) quality as the habitat within the project impact area where the western spadefoot toads are captured. If no suitable habitat is available for relocation, suitable habitat shall be created.

Petitioners, to reiterate, argue that the WST relocation project violates CEQA because (1) the baseline definition of the WST population understates the extent of the habitat of the species on the Project site; and (2) the mitigation plan to relocate the existing WST population is unformulated and therefore does not assure the WST will be successfully introduced at another location.

These arguments, in the Court's view, are well taken.

The applicant has prepared a detailed relocation plan for the Western spadefoot toad. There is the Relocation Plan itself (AR 7831-7846) and a feasibility analysis (AR 8385-8417). The Relocation Plan specifies the steps that are to be taken to remove the WST population (including larvae, tadpoles and mature specimens) from their existing habitat and to replant them in or near pools that have been constructed to match the dimensions and depths of the pools from the original habitat and inoculized with soils from their original habitat. The pools would be situated in areas having similar vegetation to the original habitat. The feasibility study identifies six sites that could be constructed to recreate the original habitat (two at the site's north end and two on the adjacent state recreational area). The pools apparently are to be replenished by rainfall only.

The Relocation Plan, however, is designed to duplicate the conditions for the WST habitat that were identified in the 2014 BonTerra Psomos focused survey. That survey and earlier incidental surveys were allegedly taken in drought years, and, therefore, as petitioners argue, underestimate the extent of the WST habitat and the number of WST individuals. (In drought years the adult WST may stay underground in hibernation.) The parties have not, so far as the Court can ascertain, provided the rainfall data for the years in which the surveys were taken nor established whether those years had below average rainfall. The

petitioners, however, assert that surveys taken in 2014 and general surveys taken in 2004 and 2005 were drought years. This issue was raised during the public comment periods, and the Court is unable to find evidence in the record to refute that the surveys were taken in drought years. The issue bears on whether the implementation of MM 2.5-9 will reduce the impact on the WST to less than significant. Petitioners argue that there are 8 to 10 seasonable pools in which the WST have been observed to breed and where larvae and tadpoles live, but the Relocation Plan intends to construct only three breeding pools. If petitioners are correct, Relocation Plan is inadequate to maintain the WST population.

The County's biologist, Joseph Decruyenaere, criticized the SEIR, telling the Planning Commission: "Mitigation for the spadefoot needs to address impacts to all 8 previously documented breeding pools, not just the two that have been observed since 2014." AR 25823. The CDFW in its June 15, 2017 letter spotted the same problem, telling the Planning Commission: "the Department considers the 2014 surveys not adequate for determining the extent of the western spadefoot toad." AR 7395.

The Errata later attempted to address this issue by requiring additional surveys to determine the extent of the WST habitat. The Errata (AR 8330) provides:

> Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the two prior appropriate seasons prior to the issuance of a grading permit. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e. 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as others.

The Relocation Plan as a mitigation measure is intended to reduce the impacts of the destruction of the WST habitat to less than significant. This requires that the habitat that is to be destroyed must be measured in a manner that obtains its maximum dimensions so that those potential dimensions may be realized in the new circumstances at the site where the WST is relocated. The applicant's focus on its 2014 (or 2015) survey is inadequate because it ignores information indicating that with average or greater than average rainfall the extent of the WST habitat is larger with more breeding pools to support a larger WST population. The Errata, in other words, is inadequate because it establishes a restriction on the number of breeding ponds that will be duplicated at the new WST habitat, e.g. those identified in the 2014 survey plus any identified in "two prior appropriate seasons" before a grading permit is issued. This restricts the extent of a recreated WST colony because it establishes fewer than the maximal number of breeding pools. What happens if the applicant establishes three breeding pools based on the 2014 survey and a year later there is deluge rainfall? The site unlike Grasshopper Canyon may not naturally expand the

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number of breeding pools. The WST has survived in Grasshopper Canyon through wet years and draught years. The evidence indicates Grasshopper Canyon has the potential to increase its number of breeding pools in wet years and thus to support a larger WTS population. This potential will be lost if the applicant mechanically duplicates the number of breeding pools that it finds from surveys taken before the grading of Grasshopper Canyon begins.

Concluding on the first issue, the applicant has not established a baseline for the WST habitat that must be re-created to preserve the WST population presently existing on the Project site. The mitigation measure for the WST is inadequate for that reason.

On the second issue, petitioners argue the relocation plan provided in MM 5.2-9 is inadequate. While the MM 5.2-9 requires the newly created habitat be monitored for five years the steps that will be taken to ensure success are unspecified. (The amphibian relocation plan is described in the SEIR, Appendix C (Biological Resources Plan) at AR 7839.) The CDFW also raised objections to the relocation plan. AR 7390-7405 (CDFW letter of June 15, 2017). The CDFW notes the applicant has not identified a specific site for relocation and does not promise that successful transplantation can be accomplished. AR 7396. The CDFW, as a trustee agency, does not have authority to approve or disapprove a project; however, it is required to be consulted and may comment as to projects that involve fish and wildlife, rare and endangered native plants, wildlife areas and ecological reserves.

The promise the applicant will create a habitat in which the transplanted WST population will flourish is deferred mitigation. The parties concede that the success of an alternate habitat is uncertain and will require on-going attention during and maybe beyond the monitoring period. The standard governing the acceptability of deferred mitigation measures is provided in Guidelines section 15126.4(a)(1)(B), reading:

> Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review, provided the agency (1) commits itself to the mitigation; (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard that will be considered, analyzed, and potentially incorporated in the mitigation measure.

The Court does not find a specific response to the contention that the applicant's deferred mitigation for the loss of the WST habitat does not provide sufficient detail, lacking particularly a specified location for a successful

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reconstruction of the Grasshopper Canyon WST community. The applicant relies on the September 13, 2018 letter from Glenn Lukos Associates (the Tony Bomkamp letter) to supply substantial evidence that the applicant will succeed in transplanting the WST population. The Bomkamp letter does not make any commitment; it merely points to the process described in the SEIR (AR 7839) and says Bomkamp personally has been involved in establishing "seasonal pools for western spadefoot toads" in Orange County, without providing further detail. AR 16011.

More is required by Guidelines section 15126 for mitigation measures that are deferred. The MM standards required for future projects are that the mitigation measure itself "inform [the lead agency] what it is to do and what it must accomplish, and they commit [the agency] to mitigating impacts before proceeding." See, Center for Biological Diversity v. Department of Fish & Wildlife (2015) 234 Cal.App.4th 214, 240, 245. The deferred mitigation to create a new habitat for the WST community is inadequate in detail and commitment. The mitigation measures to assure relocation of the WST population at the Project site does not comply with CEQA requirements.

ISSUE FOUR: THE MITIGATION MEASURES PROVIDED IN THE SEIR TO PROTECT THE RARE PLANTS ARE NOT SUFFICIENT UNDER CEQA:

Five special status plant species have been identified during surveys to exist at various locations on the Project site. These are the round-leaved filaree, the club-haired mariposa lily and the slender mariposa lily (collectively lilies); the paniculate tarplant, and the southwestern spiny rush. AR 1926-29. As special status plant species, a destruction of their habitat must be mitigated to less than significance. Guidelines 15065(a)(1). The loss of these plants through the site development is to be mitigated by the transplantation of all existing individual plants as well as seeds or bulbs that are found. The FSEIR states:

> A less than significant impact would be achieved through implementation of MM 5.2-2, MM 5.2-3 and MM 5.2-11... which require a Riparian Restoration Program be developed and approved by USACE [US Army Corps of Engineers], CDFW, and LACDRP prior to issuance of grading permits, ... AR 8564

MM 5.2-4 specifies procedures for the lilies. Seeds are to be collected and bulbs excavated for transplantation to a mitigation site and established as a self-sustaining population. A Biological Monitor is to prepare a Mitigation Plan for approval of LACDRP and is to oversee its implementation. AR 8568.

MM 5.2-5 specifies procedures for the round-leaved filaree, paniculate tarplant, and southwestern spiny rush. The Project applicant is to prepare procedures to collect and store the plants and seeds, create an alternate site to include soil preparation, irrigation, methods to control competing plants at the new site and prepare a list of "County-approved success criteria."

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The CDFW challenges the adequacy of the mitigation measures, pointing out that the sites for transplantation are not selected, that the procedures to accomplish transplantation are not specified, and that success criteria are yet to be determined. CDFW believes that the rare plants cannot be transplanted on the site as the available patches after development will be fragmented. The CDFW is likewise dubious about transplantation off-site:

> The Department has concerns when the DSEIR states it will transplant species off-site as this implies other areas will be subject to impact by this action. This additional impact would then need mitigation as this ecosystem is now being altered. AR 7398.

CDFW was concerned that the mariposa lilies might not survive transplantation, saying it was unaware of any population created by seeding or translocation having been successful "at demonstrating long-term self-sustaining population."

CDFW expressed dissatisfaction with the generality of the mitigation measures, saying:

> MM7 [now MM 5.2-4 and -5] does not allow the Department to comment on the appropriateness of the location, technique, success criteria, monitoring methods, density, length of time monitoring is required, or the method proposed for long-term protection and funding. AR 7399.

The deficiencies identified in the CDFW letter demonstrate that the deferred mitigation measures for transplantation of the rare plants do not satisfy the CEQA standards set forth in Guidelines section 15126.4(a)(1)(B).

The applicant relies on the Glenn Lukos Associates (Bomkamp) letter to supply the evidence that deferred mitigation measures for the relocation of the six plant varieties are guidance enough. AR16015-18. Bomkamp's letter advises that there are various locations where the soil conditions are suitable to re-establish the individual plant varieties, but, beyond that, no information is provided to address the deficiencies identified by the CDFW. Further detail is required for the mitigation measures proposed for the rare plants in order to mitigate the destruction of their habitat to a less than significant threshold.

The mitigation measures for successful relocation of the rare plants found at the Project site do not comply with CEQA requirements.

ISSUE FIVE: THE SEIR'S CONCLUSION THAT THE PROJECT LIKELY WILL NOT CREATE A NEW IMPEDIMENT TO MOUNTAIN LION USE OF UNDERCROSSINGS ADJACENT TO THE PROJECT IS SUPPORTED BY SUBSTANTIAL EVIDENCE:

The term "Sierra Madre-Castiac Connection" is used to describe a "habitat linkage" between the Los Padres National Forest and the Angeles National Forest. AR 31172-73. These protected forest areas are separated by the I-5. The I-5 due to its structure and high traffic volume has been a barrier to the passage by animal species from one national forest to the other. Petitioners

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argue that the I-5 barrier has prevented mountain lions from passing readily between protected forest environments for breeding purposes and, thus, furthered a loss of genetic diversity in the species.

There are three tunnels (or undercrossings) beneath the southbound lanes of the I-5 along frontage that parallels the 3.5 mile Project site. The tunnel locations are described with photographs in the SEIR Appendix D (Wildlife Crossing Assessment Memo). AR 7847-7859.

Petitioners' narrow argument is that the Project will impede the passage of special status animals, and in particular mountain lions, crossing under the southbound lanes of the I-5 once the Project is built out because animals then will be deterred from entering the Project site to use the existing tunnels adjacent to the Project's western edge. There are three undercrossings opposite the Project site. Their locations are shown on a map overlay at AR 7852. Undercrossing No. 1 is opposite the extreme south point of the site; undercrossing No. 2 is opposite the mid-point of the site; and undercrossing No. 3 is opposite the north end of the site. These three tunnels are apparently used to provide utility crew access; they were not built as wildlife corridors. Animals travelling through these particular tunnels (going from east to west) would cross under the southbound I-5 lanes to an island of undeveloped land between the I-5's northbound and southbound lanes. There are tunnels under the northbound lanes, but those tunnels are not directly opposite to tunnels Nos. 2 and 3 to provide a straight route under both branches of the I-5. AR 7409.

There is a fourth tunnel that is five miles north of the Project site at Templin Highway. This undercrossing is a double lane public highway. The I-5's northbound and southbound at this point are joined. The Templin Highway passes entirely under the I-5's eight lanes of traffic. An animal using the Templin highway undercrossing would have access to a national forest on both sides of the I-5.

Undercrossing No. 3 is at the southern end of the Sierra Madre-Castiac Connection. The Connection runs for 17 miles northward of the Project site.

The County in its FSEIR impliedly concluded that tunnels Nos. 1, 2 and 3 were not being used by large animals and that, therefore, the build-out of the Project would not create a new impediment to the movement of mountain lions between the two national forests separated by the I-5. The Court finds the County's determination is supported by substantial evidence. The Court, therefore, rejects petitioners' argument that the Project will have a significant adverse effect on the range of mountain lions.

The premise of petitioners' argument is that animals of special concern—mountain lions being the paradigm--use or may in the future use the undercrossings to traverse the I-5 in search of a broader mating pool. The

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Project, they argue, will foreclose this opportunity to enhance genetic diversity, and, therefore, would limit the range and eventually the survival of any local species imperiled by a lack of genetic diversity. Petitioners rely on Guidelines section 15065 in their argument. Section 15065 provides that a project will a significant effect if it "substantially reduce(s) the number or restrict(s) the range of an endangered, rare or threatened species."

Petitioners' argument finds support in the record from the CDFW's letter of June 15, 2017 (AR 7390-7405) which in Comment #3 (DSEIR's "Analysis of Wildlife Crossing and Use of Site") states that:

> The South Coast Wildlands Missing Linkages Report7 (2005) identified the Project area and adjacent crossings in the linkage design [for the Sierra Madre-Castiac Connection] and considers this area as highly suitable for American badger, mule deer, pacific kangaroo rat, California spotted owl, and western pond turtle—the latter two being species of special concern. AR 7394.

The CDFW recommended that "the DSEIR include studies that track wildlife dispersal, including that for large mammals, across the Project site and across the three under-crossings discussed above, and discuss how the Project will affect the use and dispersal patterns." Id.

The applicant followed the CDFW's recommendation, but further studies did not provide support for petitioners' arguments. The further studies included site visits by experienced biologists employed by Bon Terra Psomos, the applicant's consultant, and the study of aerial photographs to identify terrain features and vegetative covering that would encourage animal use. Only at undercrossing No. 4, the underpass at Templin Highway five miles north of the Project site, did the biologists locate evidence of large animal (mule deer) presence.

The use of the undercrossings by large animals was thoroughly discussed in the SEIR and a response was made to the CDFW letter in the FSEIR dated January, 2018. AR 7409-11. The Bomkamp letter of September 13, 2018 addressed the studies as to whether the tunnels had provided significant wildlife corridors. AR 16008-10. The County had the best available information on the topic when it approved the Project in April 2019. The County's implied determination that the Project will not interfere with mountain lion crossings of the I-5 is supported by substantial evidence.

PREPARATION OF JUDGMENT AND ORDERS:

The Court denies petitioners' challenge to the Project based on alleged the SEIR having an inadequate analysis of aesthetics (viewshed) impacts; an inadequate disclosure and analysis of the air quality and public health impacts; and an inadequate wildfire analysis.

The Court shall enter judgment for petitioners on the first cause of action based on its rulings on Issues 2, 3 and 4 above that find the SEIR to be inadequate. The Court shall enter judgment for the County and Real Parties on the third cause of action based on its ruling on issue 3. Petitioners did not submit briefs in support of their second and fourth causes of action, and the Court shall enter judgment for the County and Real Parties on those causes of action.

The Court directs the petitioners to prepare and lodge a judgment and any orders appropriate to implement this Statement of Decision within ten days.

The Court Clerk shall enter and serve the Statement of Decision on the parties by U.S. Mail this date.

JANUARY 11, 2021

RICHARD L. FRUIN, JR.
Superior Court of California
County of Los Angeles

APPENDIX B-1

WESTERN SPADEFOOT TOAD IMPACT ASSESSMENT AND HABITAT MITIGATION AND MONITORING PLAN

DRAFT

NORTHLAKE
CASTAIC, LOS ANGELES COUNTY, CALIFORNIA

WESTERN SPADEFOOT TOAD (*Spea hammondii*)

IMPACT ASSESSMENT

AND

HABITAT MITIGATION AND MONITORING PLAN

July 2022 [Revised March and June 2023 and April 2024]

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I. INTRODUCTION/BACKGROUND

The project involves the phased development of up to 3,150 residential units, 9.2 acres of commercial uses, 13.9 acres of industrial uses, 799.5 acres of parks and open space, a 22.9-acre school site and a 1.4-acre pad for a future fire station (Project). Subsequent to the publication of the Final SEIR, the Regional Planning Commission requested that the Applicant include an affordable housing component in the Project. The Applicant made minor revisions to the Project to include an affordable component. Specifically, the Applicant eliminated 108,283 square feet (SF) of industrial use and 13,197 SF of commercial uses and reallocated 323 units from the Phase 2 area of the Project to the Phase 1 area. The County of Los Angeles Planning Commission approved the NorthLake Project [Exhibits 1 and 2] on April 18, 2018, and the Los Angeles County Board of Supervisors approved the Project on April 2, 2019. Exhibit 1 is a Regional Map for the site and Exhibit 2 is a vicinity map showing the project location.

On January 11, 2021 the Los Angeles Superior Court ruled (Court Ruling) on the Center For Biological Diversity and Endangered Habitats League v. County Of Los Angeles, et al, and Real Parties in Interest, NorthLake Associates, et al, Case No. 19STCPO1610, finding that relative to the Western Spadefoot Toad (WST) that the Supplemental Environmental Impact Report (SEIR) was deficient in failing to adequately delineate the WST baseline and failing to provide adequate mitigation measures for the relocation of the WST. The ruling on the WST is as follows:

> ***ISSUE THREE: THE BASELINE AND MITIGATION MEASURES PROVIDED IN THE SEIR TO PROTECT THE WESTERN SPADEFOOT TOADS ARE NOT SUFFICIENT UNDER CEQA:***
>
> *A project has a significant effect on the environment if it will eliminate a species of special concern from the Project site. Guidelines 15065. Section l 5065(a) provides:*
>
> > *A lead agency shall find that a project may have a significant effect on the environment ... where there is substantial evidence ... that any of the following conditions may occur (1) The project ... threaten[s] to eliminate a plant or animal community ....*
>
> *In that event, section 15065(b)(2) requires the project proponent to:*
>
> > *implement mitigation requirements relating to such species and habitat pursuant to an approved habitat conservation plan or natural community conservation plan.*[1]

[1] The Court appears to have taken CEQA Guidelines Section 15065(b)(2) out of context. Section 15065(b)(2) provides "Furthermore, where a proposed project has the potential to substantially reduce the number or restrict the range of an endangered, rare or threatened species, the lead agency need not prepare an EIR solely because of such an effect, if: (A) the project proponent is bound to implement mitigation requirements relating to such species and habitat pursuant to an approved habitat conservation plan or natural community conservation plan." Here, the County prepared a comprehensive SEIR, and there is no approved habitat conservation plan or natural community conservation plan applicable to the Project site. As such, Section 15065(b)(2) is inapplicable.

The Western spadefoot toad ("WST") is a California species of special concern. AR 3665 (CDFW letter); see AR 3644 defining "species of special concern." A self-sustaining WST population exists at the Project site in and adjacent to Grasshopper Canyon. AR 3689. The WST habitat in Grasshopper Creek and nearby seasonal wet areas will be eliminated by the Project. Grasshopper Canyon itself will be filled in and levelled for building sites. The DSEIR acknowledges the Project will destroy the WST habitat along Grasshopper Canyon.

> *Since this Grasshopper Canyon population is one of few known populations in the region and Project impacts would result in the loss of these populations (or a substantial portion thereof), impacts to this species would be considered significant ... AR 1943.*

The County has approved Mitigation Measure 5.2-9 to relocate the WST population to a new habitat that the applicant is to create (at an as-yet unspecified location) and monitored for five years.

The parties dispute, first, the sufficiency of the baseline biological surveys for the site, and, thus, dispute not only the number of individuals in the WST community that are to be relocated but also the number and characteristics of the breeding pools that will have to be created to sustain the population in a new habitat. The applicant's Biological Technical Report, Appendix D relies on a single biological survey for its count of WST: "The western spadefoot was observed incidentally during previous amphibian surveys, and in the focused surveys conducted for the species in 2014 (Bon Terra 2000b, 2014c)." AR 1943. Petitioners argue the BonTerra's surveys underestimate the WST population on the site because the surveys were taken during draught years when the WST numbers were reduced.

The parties dispute, secondly, that the mitigation measures ensure that the relocation of the WST to a new habitat will be successful. The Biological Technical Report asserts that "[i]mplementation of Mitigation Measure 9 [MM 2.5-9) would reduce this impact [on the WST] to less than significant level. " Id. Petitioners argue the mitigation measures are inadequate to assure that result.

The mitigation measures approved by the County to mitigate the loss of WST habitat will require that the existing WST population on the project site be captured and relocated to new WST habitat. The DSEIR promises:

> *"Implementation of MM 5.2-9 which requires a western spadefoot relocation program, would reduce this impact to a less than significant level through translocation of individuals to suitable habitat. This measure would result in substantial avoidance of direct impacts to the western spadefoot and as a result the western spadefoot is expected to persist in the region following project implementation." AR 1943.*

The actual mitigation measure MM 2.5-9 reads in its entirety:

A relocation program for western spadefoot toad will be conducted prior to construction during the spring at the height of the breeding season for this species.... Results of the relocation program shall be provided to the CDFW and the LACDRP.

(a) Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the prior appropriate season. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e.2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as others.

(b) The intent of the Relocation Plan is to capture and relocate as many western spadefoot toads as possible. Western spadefoot toads shall be relocated on or off site to an area of suitable habitat, as reviewed by the CDFW and the LACDRP. The relocation site shall be of similar (or better) quality as the habitat within the project impact area where the western spadefoot toads are captured. If no suitable habitat is available for relocation, suitable habitat shall be created.

Petitioners, to reiterate, argue that the WST relocation project violates CEQA because
(l) the baseline definition of the WST population understates the extent of the habitat of the species on the Project site; and (2) the mitigation plan to relocate the existing WST population is unformulated and therefore does not assure the WST will be successfully introduced at another location.

These arguments, in the Court's view, are well taken.

The applicant has prepared a detailed relocation plan for the Western spadefoot toad. There is the Relocation Plan itself (AR 7831-7846) and a feasibility analysis (AR 8385-8417). The Relocation Plan specifies the steps that are to be taken to remove the WST population (including larvae, tadpoles and mature specimens) from their existing habitat and to replant them in or near pools that have been constructed to match the dimensions and depths of the pools from the original habitat and inoculized with soils from their original habitat. The pools would be situated in areas having similar vegetation to the original habitat. The feasibility study identifies six sites that could be constructed to recreate the original habitat (two at the site's north end and two on the adjacent state recreational area). The pools apparently are to be replenished by rainfall only.

The Relocation Plan, however, is designed to duplicate the conditions for the WST habitat that were identified in the 2014 BonTerra Psomos focused survey. That survey and earlier incidental surveys were allegedly taken in drought years, and, therefore, as petitioners argue, underestimate the extent of the WST habitat and the number of WST individuals. (In drought years the adult WST may stay underground in hibernation.) The parties have not, so far as the Court can ascertain, provided the rainfall data for the years in which the surveys were taken nor established whether

those years had below average rainfall. The petitioners, however, assert that surveys taken in 2014 and general surveys taken in 2004 and 2005 were drought years. This issue was raised during the public comment periods, and the Court is unable to find evidence in the record to refute that the surveys were taken in drought years. The issue bears on whether the implementation of MM 2.5-9 will reduce the impact on the WST to less than significant. Petitioners argue that there are 8 to 10 seasonable pools in which the WST have been observed to breed and where larvae and tadpoles live, but the Relocation Plan intends to construct only three breeding pools. If petitioners are correct, Relocation Plan is inadequate to maintain the WST population.

The County's biologist, Joseph Decruyenaere, criticized the SEIR, telling the Planning Commission: "Mitigation for the spadefoot needs to address impacts to all 8 previously documented breeding pools, not just the two that have been observed since 2014. " AR 25823. The CDFW in its June 15, 2017 letter spotted the same problem, telling the Planning Commission: "the Department considers the 2014 surveys not adequate for determining the extent of the western spadefoot toad." AR 7395.

The Errata later [sic] attempted to address this issue by requiring additional surveys to determine the extent of the WST habitat. The Errata (AR 8330) provides:

> *Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the two prior appropriate seasons prior to the issuance of a grading permit. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e. 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as others.*

The Relocation Plan as a mitigation measure is intended to reduce the impacts of the destruction of the WST habitat to less than significant. This requires that the habitat that is to be destroyed must be measured in a manner that obtains its maximum dimensions so that those potential dimensions may be realized in the new circumstances at the site where the WST is relocated. The applicant's focus on its 2014 (or 2015) survey is inadequate because it ignores information indicating that with average or greater than average rainfall the extent of the WST habitat is larger with more breeding pools to support a larger WST population. The Errata, in other words, is inadequate because it establishes a restriction on the number of breeding ponds that will be duplicated at the new WST habitat, e.g. those identified in the 2014 survey plus any identified in "two prior appropriate seasons" before a grading permit is issued. This restricts the extent of a recreated WST colony because it establishes fewer than the maximal number of breeding pools. What happens if the applicant establishes three breeding pools based on the 2014 survey and a year later there is deluge rainfall? The site unlike Grasshopper Canyon may not naturally expand the number of breeding pools. The WST has survived in Grasshopper Canyon through wet years and draught years. The evidence indicates Grasshopper Canyon has the potential to increase its number of breeding pools in wet years and thus to support a larger WTS population. This potential will be lost if the applicant mechanically duplicates the number of

breeding pools that it finds from surveys taken before the grading of Grasshopper Canyon begins.

Concluding on the first issue, the applicant has not established a baseline for the WST habitat that must be re-created to preserve the WST population presently existing on the Project site. The mitigation measure for the WST is inadequate for that reason.

On the second issue, petitioners argue the relocation plan provided in MM 5.2-9 is inadequate. While the MM 5.2-9 requires the newly created habitat be monitored for five years the steps that will be taken to ensure success are unspecified. (The amphibian relocation plan is described in the SEIR, Appendix C (Biological Resources Plan) at AR 7839.) The CDFW also raised objections to the relocation plan. AR 7390-7405 (CDFW letter of June 15, 2017). The CDFW notes the applicant has not identified a specific site for relocation and does not promise that successful transplantation can be accomplished. AR 7396. The CDFW, as a trustee agency, does not have authority to approve or disapprove a project; however, it is required to be consulted and may comment as to projects that involve fish and wildlife, rare and endangered native plants, wildlife areas and ecological reserves.

The promise the applicant will create a habitat in which the transplanted WST population will flourish is deferred mitigation. The parties concede that the success of an alternate habitat is uncertain and will require on-going attention during and maybe beyond the monitoring period. The standard governing the acceptability of deferred mitigation measures is provided in Guidelines section 15126.4(a)(l)(B), reading:

> *Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review, provided the agency (1) commits itself to the mitigation; (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard that will be considered, analyzed, and potentially incorporated in the mitigation measure.*

The Court does not find a specific response to the contention that the applicant's deferred mitigation for the loss of the WST habitat does not provide sufficient detail, lacking particularly a specified location for a successful reconstruction of the Grasshopper Canyon WST community. The applicant relies on the September 13, 2018 letter from Glenn Lukos Associates (the Tony Bomkamp letter) to supply substantial evidence that the applicant will succeed in transplanting the WST population. The Bomkamp letter does not make any commitment; it merely points to the process described in the SEIR (AR 7839) and says Bomkamp personally has been involved in establishing "seasonal pool for

western spadefoot toads" in Orange County, without providing further detail. AR 16011.

More is required by Guidelines section 15126 for mitigation measures that are deferred. The MM standards required for future projects are that the mitigation measure itself "inform [the lead agency] what it is to do and what it must accomplish, and they commit [the agency] to mitigating impacts before proceeding." See, Center for Biological Diversity v. Department of Fish & Wildlife (2015) 234 Cal. App.4th 214, 240, 245. The deferred mitigation to create a new habitat for the WST community is inadequate in detail and commitment. The mitigation measures to assure relocation of the WST population at the Project site does not comply with CEQA requirements.

II. IMPACT ASSESSMENT

The purpose of this WST Assessment (Impact Assessment) and Habitat Mitigation and Monitoring Plan (HMMP) is to evaluate potential impacts to WST associated with the Project and to develop a feasible and effective mitigation program that reduces the potential impacts to less than significant in accordance with the California Environmental Quality Act (CEQA) Appendix G Guidelines. The Court Ruling includes certain statements that are addressed as part of the Impact Assessment component of this document as well aspects of the proposed HMMP to ensure that the HMMP fully and accurately addresses the concerns raised by the Court Ruling.

Before setting forth the proposed mitigation program, the following issues relative to potential impacts to WST and associated habitat are addressed below:

- Status of the WST within northern Los Angeles County
- Identification of the specific features on the Project site occupied by the WST
- Quantification of the habitat area on the Project site occupied by the WST

This HMMP proposes to collect additional data regarding the WST population within the occupied features as part of pre-construction monitoring. Nevertheless, the performance standards are "habitat based" with the recognition, that with creation of suitable habitat and translocation of a substantial number of egg masses and larvae, the translocated population will be self-sustaining and will persist for the long-term. The habitat-based impact analysis is necessary because the previous surveys that identified WST within seasonal pools on the site did not include a census regarding the number of WST egg masses, larvae, or metamorphs. Thus, the available baseline data does not include numbers of egg masses, larvae, or metamorphs that could be used to inform the performance standards for the proposed pond creation and translocation program. Therefore, the impact assessment and mitigation is focused on the total area of documented occupied habitat. As discussed below, impacts to the WST will be fully mitigated through the creation of an equal or greater area of suitable habitat in conjunction with the translocation of WST egg masses, larvae, and metamorphs during a minimum of two seasons with ideal conditions for such relocation efforts, which will occur only after the hydrology performance standards for the created pools have been achieved to ensure that the relocation of egg masses, larvae, and metamorphs will be successful.

A. Status of WST in Castaic and Nearby Areas of Los Angeles County

The Court Ruling reiterated comments that were submitted on the SEIR. Specifically, the Court Ruling stated:

> *Since this Grasshopper Canyon population is one of few known populations in the region and Project impacts would result in the loss of these populations (or a substantial portion thereof), impacts to this species would be considered significant … AR 1943.*

The Court suggests that WST are very rare within the Castaic area and the surrounding areas of northern Los Angeles County. Exhibit 3 shows WST locations from the California Natural Diversity Database (CNDDB) from the Whitaker Peak and surrounding 7.5 Minute Quadrangles.[2] Including the Northlake site, a total of 35 locations for the WST are shown on Exhibit 3 plus additional locations nearby to the southeast. While all of these are not extant, many are, and based on the extent and distribution, it is expected that other populations that have not been formally identified add to the regional population associated with the depicted portion of northern Los Angeles County. As such, just within the surrounding area, there are many known WST populations in addition to the one located at the Project site. As such, WST populations are not rare in the nearby areas.

B. Identification of Specific Features Occupied by the WST

WST was observed on the NorthLake Project site during various general and focused amphibian surveys as well as during focused surveys for listed fairy shrimp within seasonal pools. As discussed below, contrary to various statements that the fairy shrimp surveys in 2004/2005 occurred during a drought year; the 2004/2005 rainfall season was nearly double of normal seasonal rainfall with approximately 36 inches[3] of rain compared with the average of approximately 20 inches. Exhibit 4 depicts Vernal Pool (VP) 1, VP 2, VP 6, and Stock Pond (SP) 1. While numerous ephemeral ponds and features have been observed on the Project site over time with respect to various surveys for different species, at no time have more than 3 features been observed to contain WST and one additional feature was observed to contain potential WST habitat, despite no WST being observed.

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[2] The California Natural Diversity Database (CNDDB) is an inventory of the status and locations of rare plants and animals in California maintained by the California Department of Fish and Wildlife (CDFW). (https://wildlife.ca.gov/Data/CNDDB.) CNDDB staff work with partners to maintain current lists of rare species, as well as to maintain an ever-growing database of GIS-mapped locations for these species.

[3] The January 17, 2006 BonTerra Fairy Shrimp Focused Survey included the following: "The precipitation from the winter of 2004-05 was well above average. The average rainfall for northwestern Los Angeles County is 20 inches per year. The accumulated rainfall for the months of October 2004 to February 2005 was 44 inches at the Del Valle Weather Station, approximately six miles to the southwest of the project site (Table 1) [based on the monthly totals cited by BonTerra the total from October 2004 through February 2005 actually was 34.59 inches and with an additional 1.24 inches in March which BonTerra included in the 2006 BonTerra Fairy Shrimp Focused Survey, thus the total was 35.83 inches]."

1. 2004/2005 Wet Season Fairy Shrimp Surveys

A determination for the extent of suitable habitat for WST is possible from the data collected during wet-season fairy shrimp surveys in 2004/2005, which was one of the wettest rainfall years in the last 50 years[4]. Appendix A of the January 17, 2006, BonTerra fairy shrimp report documents the results of the surveys including descriptions of eight ponded features identified during the surveys.[5] Ponding was recorded along with water depths during the surveys and the presence of a suite of invertebrates, amphibians (including WST), and other species such as waterfowl. Features identified in that report, including VP 1, VP 2, VP 6, and Stock Pond (SP) 1 exhibited sufficient ponding to support WST as noted in the comments in Appendix A of the report. It is important to note that fairy shrimp surveys during the 2004/2005 survey season began on November 27, 2004 and extended to April 9, 2005 ensuring that the surveys fully captured a sufficient segment of the breeding season for the WST.[6]

Critically, features BonTerra identified as VP 3, VP 4, VP 5, and VP 7 during the surveys in 2005 and documented in the 2006 Report were too shallow (i.e., no more than a few inches at maximum depth) and dried out throughout the course of the surveys and thereby lacked sufficient depth and duration to support WST. This is particularly important information, because if these features were too shallow and therefore failed to pond for sufficient duration during the 2004/2005 rainfall season, which was an exceptionally wet year, their lack of suitability for WST is unambiguously established. No amphibians or fairy shrimp were detected in these features during an extra-optimal year. For these features, there is no potential for WST to successfully breed. Feature VP 6, appears to have exhibited sufficient ponding but did not support WST at the same time they were observed in SP 1 and VP 1 but did support western toad larvae leading to the conclusion that the habitat is at least potentially suitable during such above-average years.

Based on the more than double average rainfall (this is further addressed below) during the 2004/2005 rainfall season, features listed as VP 1, VP 2, and SP 1 in the 2006 BonTerra Report

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[4] The January 17, 2006 BonTerra Fairy Shrimp Focused Survey included the following: "**The precipitation from the winter of 2004-05 was well above average**. The average rainfall for northwestern Los Angeles County is 20 inches per year. The accumulated rainfall for the months of October 2004 to February 2005 was 44 inches at the Del Valle Weather Station, approximately six miles to the southwest of the project site (Table 1) [based on the monthly totals cited by BonTerra the total from October 2004 through February 2005 actually was 34.59 inches and with an additional 1.24 inches in March which BonTerra included in the 2006 BonTerra Fairy Shrimp Focused Survey, thus the total was 35.83 inches]. There was an initial, early rainfall during October 19 and 26, 2004. A total of 4.72 inches fell at the Del Valle Weather Station during October 2004. November 2004 rainfall totaled 0.17 inch at Del Valle. The majority of the rains came during the months of December 2004 through February 2005. The Del Valle Weather Station rainfall total was 6.82 inches in December 2004, 12.46 inches in January 2005, 10.42 inches in February 2005 [and 1.24 inches in March 2005]. The above average rainfall enabled the wet season survey to comprehensively sample the ponds for representative invertebrates present. The ponds inundated on December 27 and 28, 2004, during a rainfall event that delivered 4.5 inches over two days and remained inundated above the 0.39-inch (3 cm) standing water criteria until the final site visit on April 9, 2005."

[5] BonTerra Consulting. January 17, 2006. *Results of Focused Presence/Absence Surveys for Fairy Shrimp at the NorthLake Specific Plan and Castaic High School Project Site, Near the Community of Castaic in Unincorporated Los Angeles County*.

[6] WST breeding season is typically late winter to the end of March. See: S. Morey, 2000. California Wildlife Habitat Relationships System California Department of Fish and Wildlife California Interagency Wildlife Task Group.

are the only features documented to support WST; while one additional feature, VP-6, is the only other feature with potential (at least in extreme rainfall years).

2. 2014 Wet Season Fairy Shrimp Surveys and Western Spadefoot Toad Surveys

In 2014, surveys for fairy shrimp and amphibians, were conducted and the nomenclature for the features mapped and surveyed in 2004/2005 was modified. The features that previously supported WST were identified as Ponds 8, 9, & 7, respectively, in the 2014 90-Day BonTerra fairy shrimp report.[7] As noted in the 90-day report, WST tadpoles were observed in Pond 8 (Previously VP 1) and Pond 7 (Previously SP 1). WST was not observed in Pond 9 (VP 2) due to lack of sufficient ponding in 2014 which exhibited lower-than-average rainfall. BonTerra also conducted focused surveys for WST in 2014 and the results are summarized below (note: the 2014 WST Report used a different nomenclature for the pools than the 2006 and 2014 fairy shrimp reports adding to the potential confusion).

> *Western spadefoot toad was detected at both Pond 1 and Pond 2 during the surveys (Exhibit 4). Western spadefoot toad tadpoles were detected in Pond 2 on March 31, 2014. Advertising adult males and foraging adults of both sexes were observed at Pond 1 on March 31, April 7 and 15, and May 7, 2014. Amplexing (mating) pairs were observed at Pond 1 on April 7 and 15, 2014. Metamorphs were observed at Pond 1 on May 21, 2014. Photographs of Pond 1 and Pond 2 are presented in Attachment A, and photographs of the western spadefoot toad tadpoles, metamorphs, and adults on the project site are presented in Attachment B.*
>
> *Tadpoles observed at Pond 2 were at Gosner stage 26-30[l] a little more than halfway to metamorphosis, and at least one hind limb bud was visible on each of the tadpoles examined. Given that western spadefoot toad larvae have been documented metamorphosing within three weeks of egg-hatching (Lanoo 2005), tadpoles could have potentially metamorphosed within 12 days of the first observation on March 31, 2014. The pool had diminished significantly by the April 7, 2014, survey and no tadpoles were observed. It is unlikely that the tadpoles observed during the March 31 survey had metamorphosed by the second survey on April 7.*
>
> *Up to 15 male spadefoot toads were observed vocalizing at Pond 1 on April 15, representing the peak of breeding activity observed during surveys. The observation of metamorphs on May 21 indicates successful breeding at Pond 1.*[8]

[7] BonTerra Psomas. September 24, 2014. 90-Day Report for the Wet Season Presence/Absence Survey for Vernal Pool Branchiopods Conducted on the NorthLake Specific Plan Project Site, Los Angeles County, California.

[8] BonTerra Psomas. October 2, 2014. Results of Focused Presence/Absence Surveys for the Arroyo Toad and Western Spadefoot Toad on the NorthLake Specific Plan Project Site, Los Angeles County, California

TABLE 1 – POND NOMENCLATURE CLARIFICATION AND WST SURVEY RESULTS

Ponded Features Observed 2004/2005 Fairy Shrimp Survey (AR 3828)[a]	Observed in 2004/05 Fairy Shrimp Survey? (Y/N; Survey ID)	Ponded Features Observed 2014 Fairy Shrimp Survey[b] (AR 3848)	Observed in 2014 Fairy Shrimp Survey (Y/N; Survey ID)	Ponded Features Observed 2014 WST Survey [c] (AR 3904)	Observed in 2014 WST Survey? (Y/N; Survey ID)	Draft Western Spadefoot Toad Relocation Program Identifier[e]
VP 1	**Y** (AR 3833)	Pond 8	**Y** (AR 3868-3871)	Pond 2	**Y** (AR 3897)	Pond 2
VP 2	**Y** (AR 3834)	Pond 9	N		N	Pond 1
VP 3	N	Pond 4	Not Surveyed		N	
VP 4	N	Pond 5	Not Surveyed		N	
VP 5	N	Pond 6	Not Surveyed		N	
VP 6[d]	N		Not Surveyed		N	
VP 7	N		Not Surveyed		N	
SP 1	**Y** (AR 3835)	Pond 7	**Y** (AR 3852 – 3855)	Pond 1	**Y** (AR 3897)	Cattle Pond
		[a] Stock Pond = SP; Vernal Pool = VP; Administrative Record citation = AR, followed by the page number. [b] Ponds 1-3 were different ponds located off site [c] Only ponds shown on Exhibit 4 (Ponds Occupied by WST). [d] VP 6 appears to have exhibited sufficient ponding but did not support WST at the same time they were observed. It is designated as Pond 3 for the purposes of this report. [e] Adopted nomenclature for this report.				

Thus, based on the most optimal conditions for the period during which surveys were conducted on the Project site, there is little question that the SEIR identified the only three sites occupied by WST, despite comments to the contrary including from the County Biologist.

One final note, BonTerra's *DRAFT Western Spadefoot Toad Relocation Program*[9] refers to the three features that have been identified as exhibiting both suitable habitat and supporting the WST as Pond 2 (VP 1, Pond 8), Pond 1 (VP 2, Pond 9) & Cattle Pond (SP 1 and Pond 7). For purposes of this report, the nomenclature in BonTerra's *DRAFT Western Spadefoot Toad Relocation Program* will be used, thus the three features will be identified as Pond 1, Pond 2, and Cattle Pond as set forth and clarified in Table 1, above. In addition, the feature designated VP 6 by BonTerra exhibited suitable ponding but WST were not detected. This feature, which is now designated as Pond 3, will be subject to mitigation as well as being subject to pre-construction surveys and will serve as a potential collection site based on the presence or absence of WST as determined by the

[9] BonTerra Psomas. September 2017. *DRAFT Western Spadefoot Toad Relocation Program* prepared for the FSEIR: NorthLake Specific Plan Residential Development Project, Los Angeles County, California.

pre-construction surveys. As noted, features VP 3, VP 4, VP 5, and VP 7 do not exhibit potential for supporting WST and are not further addressed in this plan.

C. Quantification of the Habitat Area Occupied by the WST

The Court Ruling includes certain statements regarding WST habitat and relocation. Specifically, the Court states:

> *The Relocation Plan, however, is designed to duplicate the conditions for the WST habitat that were identified in the 2014 BonTerra Psomos focused survey. That survey and earlier incidental surveys were allegedly taken in drought years, and, therefore, as petitioners argue, underestimate the extent of the WST habitat and the number of WST individuals. (In drought years the adult WST may stay underground in hibernation.) The parties have not, so far as the Court can ascertain, provided the rainfall data for the years in which the surveys were taken nor established whether those years had below average rainfall. The petitioners, however, assert that surveys taken in 2014 and general surveys taken in 2004 and 2005 were drought years. This issue was raised during the public comment periods, and the Court is unable to find evidence in the record to refute that the surveys were taken in drought years.*

As already noted, the Court's contention that rainfall in 2014 was during a drought period is accurate; however, the statement that 2004/2005 was a drought year is incorrect. As reported above, in the 2006 Fairy Shrimp Report, BonTerra included a detailed table (Table 1 on page 6) with monthly rainfall data showing that the 2004/2005 rainfall year totaled about 35.83 inches, when March is included in the data. Thus, 2004/2005 exhibited nearly double the average rainfall for the region, which is approximately 20 inches, and this detailed information was clearly in the Project record. Furthermore, the extent of the pools was determined during the 2004/2005 rainfall season as described on page 2 of the *DRAFT Western Spadefoot Toad Relocation Program*, BonTerra, that sets for the method for determining the size of the three ponds to be impacted:

> *Brian Leatherman and Justin Wood, Consulting Biologists, visited the site on November 11, 2004 to measure the size and extent of the existing ponds and to search for suitable mitigation pool creation sites. A subsequent preliminary assessment searching for pool creation sites was conducted in summer of 2017 simultaneous with other site surveys conducted by BonTerra Psomas Senior Biologist Marc Blain and Biologist Sarah Thomas.* ***The existing breeding habitat consists of three ponds.*** *Two are naturally occurring ephemeral ponds on the plateau above (east of) Grasshopper Canyon, and one is an artificially created cattle pond near the upper end of Grasshopper Canyon (Exhibit 1). Approximate dimensions and surface area of the respective ponds are shown in Table 1. The total surface area of the existence the surface area of the mitigation pools to be created, is 22,859 square feet.*

Grading for the Project would result in the loss of Pond 1, Pond 2 and the Stock Pond. On page 2 of the *DRAFT Western Spadefoot Toad Relocation Program*, BonTerra sets for the method for determining the size of the three ponds to be impacted. Grading would also impact the feature

originally designated VP 6 and now identified as Pond 3, which was determined to have sufficient ponding for WST; however, WST was not detected during the 2004/2005 surveys or in subsequent surveys. Nevertheless, Pond 3 will be subject to mitigation due to its potential for supporting WST.

Table 1 of the BonTerra Plan (reproduced below as Table 2) includes the following information:

TABLE 2
DIMENSIONS OF EXISTING EPHEMERAL PONDS AND STOCK POND FROM DRAFT WESTERN SPADEFOOT RELOCATION PROGRAM

Pond	Shape	Dimensions (pond diameters	Surface Area*	Perimeter	Estimated Max. Depth
1 (upslope)	Oval	36 x 61 feet	1,847 sq. ft.	145 feet	1 ft. 2 in.
2 (downslope)	Circular	27.5 x 36 feet	791 sq, ft.	99 feet	1 ft. 9 in.
Stock Pond	Oval	123 x 198 feet	20,221 sq. ft.	503 feet	3 ft. 6 in.
* Surface area was estimated by averaging diameters and using the formula A = π r2					

Appendix A of the BonTerra 2006 Fairy Shrimp Report provides dimensions for the pools that were determined during the wet-season surveys, which provide larger estimates for the features, with the caveat that these appear to be estimates; no mention is given in the report of how the dimensions were obtained (as noted below these are inaccurate estimates). Table 3 below uses the largest dimension for each of the three pools.

TABLE 3
MAXIMUM DIMENSIONS OF EPHEMERAL PONDS AND STOCK POND FROM 2006 FAIRY SHRIMP ESTIMATES

Pond	Shape	Surface Area (square meters)	Surface Area (square feet)*	Perimeter	Estimated Max. Depth
1 (upslope)	Oval	481	5,177 sq.ft.	Not Provided	51 cm (20.4 in.)
2 (downslope)	Circular	179.8	1,937 sq, ft.	Not Provided	56 cm (22.4 in.)
Stock Pond	Oval	123 x 198 feet	64,583 sq. ft.	Not Provided	210 cm (84 in.)
* Surface area was estimated by averaging diameters and using the formula A = π r2					

Based on a review of aerial photographs over a period of years, between 1994 and 2021 the normal ponding area is less that the maximum dimensions stated in Table 3 and larger than the dimensions in Table 2. Exhibit 4 is an aerial photograph that shows the limits of WST occupied ponds with the near-maximum ponding derived from an aerial photograph from April, 2011 as shown.[10] The

[10] Aerial photographs that show unambiguous ponding were examined on Google Earth Pro© include 6/1994, 12/2005, 3/2006, 7/2008, 6/2009, 4/2011, 12/2013, 8/2014, 5/2015, 2/2016, 7/2017, and 8/2019. As noted, the aerial from 4/2011 shows the pool at capacity and the areas was calculated using ArcGIS.

images for Ponds 1 and 2 are from December 2017, which show a very clear outline of the maximum or near-maximum extent of potential ponding (the same range of years was used for these ponds as well). VP-6 is depicted on Exhibit 4, the near-maximum extent from the 2006 Fairy Shrimp Report has been included in Table 4. Table 4 establishes the baseline for WST habitat "that must be re-created to preserve the WST population presently existing on the Project site." (Court Ruling at p. 17.)

TABLE 4
REVISED DIMENSIONS OF EXISTING EPHEMERAL PONDS AND STOCK POND

Pond	Shape	Dimensions	Surface Area	Perimeter[1]	Estimated Depth[2]
1 (upslope)	Oval	NA	2,600 square feet	190 feet	1 foot 2 inches
2 (downslope)	Circular	NA	1,300 square feet	110 feet	1 foot 9 inches
Stock Pond	Oval	NA	35,284 square feet	790 feet	3 feet 6 inches
3	Oval	NA	2,178 square feet	177 feet	14 inches
Total			41,362 square feet (0.95 acre)		
				[1] Perimeter measurements are based on review of aerial photographs over a period of years, between 1994 and 2021.	[2] Depths are from Table 1 of the BonTerra *DRAFT Western Spadefoot Toad Relocation Program*

D. Summary of Impacts to Habitat

Based on the above evaluation, the NorthLake site contains three features that were documented to support the WST, as WST were only observed at these three features; one additional feature designated VP-6 in the 2006 BonTerra fairy shrimp report and designated Pond 3 for this plan was observed to support the western toad during the 2004/2005 surveys but no WST were observed and this feature is not occupied by WST. Thus, a total of 0.95 acre of habitat for the WST will be potentially impacted by the Project as shown in Table 4. The loss of 0.95 acre of habitat for the WST would be considered significant before mitigation. With mitigation, the impacts would be reduced to less than significant.

E. Quantification of Impacts to Upland Habitat

Section II(B)(2) above provides a summary of WST observations within the Stock Pond and Seasonal Pond 1 during the 2014 focused surveys as well as for Pond 2 and Vernal Pond 6, to the extent that these last two features remain occupied during suitable years. Assuming occupation, the upland habitat for the Stock Pond and seasonal pools, using CDFW's standard value of a 1,000-foot radius from the ponds, accounts for a total of approximately 188 acres of upland habitat that would occur in the development area. As discussed below, the restoration ponds are adjacent to undeveloped lands under the ownership of NorthLake and well as lands within the State-owned Castaic Recreation Area

that would remain undeveloped. Thus, there will be sufficient upland areas adjacent to the created ponds to support WST foraging and aestivation.

III. HABITAT MITIGATION AND MONITORING PLAN

Development of a feasible and effective mitigation program requires an understanding of the habitat requirements of WST so that created habitat exhibits suitable conditions to allow for a complete breeding cycle for WST. Habitat requirements for the WST are set forth below; however, before describing the conditions that will be necessary to establish it is helpful to consider some historical background for WST in California as set forth in *Amphibian Declines: The Conservation Status of the United States Species*:

> *Western spadefoot toads have been eliminated wherever urban development and irrigated agriculture have destroyed areas where they once lived (e.g., Fisher and Shaffer, 1996). On the other hand, as with all North American spadefoot toads,* ***western spadefoot toads readily breed in ephemeral artificial impoundments such as stock tanks and pools that form at the base of road and railroad grades, and they have colonized many areas where natural pools are rare or nonexistent****. Thus, the distribution of western spadefoot toads probably differs from historical conditions…*
>
> *…Historical versus Current Abundance. Patterns of abundance have been influenced substantially by human activities.* ***Wherever human activities have created ephemeral impoundments where natural pools are rare or absent, western spadefoot abundance is probably higher than in the past. Examples can be found in the Coast Ranges south of San Francisco Bay, which have an abundant supply of manmade stock tanks****, and in places along the eastern edge of the Great Valley and the nearby foothills, where a variety of human activities on the grazing lands have created breeding pools where suitable natural pools are rare or absent.*[11]

The observations document the shift in habitat use from natural vernal pools and other seasonal wetlands to artificial features such as stock ponds. This is true of the NorthLake site, where about 90-percent of the occupied habitat consists of an artificial stock pond and shows that creation of habitat for WST occurs inadvertently in a variety of settings. Thus, creation of suitable habitat for WST is not difficult in the proper setting with suitable soils and topography. Breeding habitat requirements are described by Morey:

> *Breeding habitat. Western spadefoot toads breed most frequently in temporary pools such as vernal playas, vernal pools, stock tanks, and pools that form at the base of road and railroad grades, but they occasionally breed in intermittent*

[11] Morey, Stephen. 2005. Western Spadefoot in Michael Lannoo (Ed). *Amphibian Declines: The Conservation Status of the United States Species*. Accessed online at: https://amphibiaweb.org/cgi/amphib_query?where-genus=Spea&where-species=hammondii.

streams where larvae develop in more or less isolated pools as the streams dry. In order to support metamorphosis, breeding pools must remain filled long enough to accommodate at least the minimum larval period—in nature about 30 d (days). There is almost always substantial mortality due to desiccation among larvae born in pools lasting fewer than 35 d (days) after the eggs are laid (Feaver, 1971; Morey, 1998). Nevertheless, it is not uncommon for western spadefoot toads to breed in pools that remain filled for only 3–4 wk, usually with unfortunate consequences for larvae. Feaver (1971), for example, observed the desiccation of entire cohorts of larvae in 17 of 23 vernal pools in the Central Valley (Fresno County).

Given these considerations, establishment of the ponds that hold water for a minimum of 60 days during normal rainfall years is the goal to ensure that the created ponds exhibit optimal conditions for persistence and maturation of WST larvae resulting in metamorphosis in most years when breeding occurs. A detailed discussion of WST ecology/biology is provided below.

A. Western Spadefoot Toad Ecology/Biology

The biology, life history, and ecological requirements of WST are relatively well known. This species has a narrow home range and often forms large aggregations around breeding sites that include a variety of shallow pool types, such as vernal pools, seasonal ponds and can include artificial basins and even road ruts. Specific adaptive traits that allow WST to utilize ephemeral pools for breeding also provides rationale for successful relocation of the species to created pool habitats. These traits include accelerated embryonic and larval development in rapidly drying temporary pools, a high tolerance to heat, and a broad food base for larvae and adults that includes many common invertebrate species. These and other aspects of its life history make WST highly vulnerable to local extinction, but also make WST an ideal candidate for inclusion in an adaptive management program, including a capture and release program.

1. Species Description

WST is a 1.5- to three-inch toad characterized by its relatively smooth skin, a dusky green or gray dorsum with tubercles tipped in orange, and a whitish venter without markings. WST is easily distinguished from other toad species in the south coast region by its pale gold eyes with a vertical elliptical pupil ("cat's eye"), teeth in their upper jaw, and the wedge-shaped spade found on each hind foot. Juvenile toads are similar to adults, but they often have more distinct spotting. The call of this toad is a coarse trill, but to some it sounds snore-like, lasts about one second, and is audible at great distances.

2. Habitat Ecology, Reproduction, and Natural History

WST occupy coastal sage scrub, chaparral, woodlands, grasslands or mixed grassland/sage scrub habitats associated with vernal pools and other ephemeral seasonal ponds. However, there is a strong selection for grassland habitats by WST.[12,13] WST have been shown to burrow in areas characterized

[12] Morey, S. 2000. Western Spadefoot (*Spea hammondii*). California Wildlife Habitat Relationships Systems, California Department of Fish and Wildlife.
[13] Baumberger, K. L., Eitzel, M. V., Kirby, M. E., & Horn, M. H. 2019. Movement and habitat selection of the western spadefoot (*Spea hammondii*) in southern California. PloS one, 14(10).

by non-native grass duff in the genera *Bromus* and *Avena.*[13] In addition to inhabiting vernal pools, WST will also occupy artificial features such as stock ponds, abandoned borrow sites, and other types of depressional areas created by activities such as construction or off-road vehicle use. The presence of vernal pools, rain pools, and other seasonal ponds are key to the survival of the species, which are essential for breeding and egg laying. In fact, their entire post-metamorphic home range is centered on such pools.

WST is almost entirely nocturnal and most above ground activity is restricted to rainy nights during the breeding season. Holland and Goodman (1998) note that breeding efforts are directly associated with rainfall.[14] After periods of warm rain (10 Celsius – 12.8 degrees Celsius), typically in late winter and early spring, WST emerge from burrows and often form large (>1,000 individuals) aggregations. The critical thermal minimum for WST is 9 degrees Celsius and this species waits until water temperatures are at least 10 degrees Celsius before laying eggs.[15,16] Breeding usually takes place between January and March, but WST may emerge and become surface active between October and April if rain thresholds are met.

WST enter the water only to breed. Water temperature is critical to breeding, and temperatures between 9 degrees Celsius and 30 degrees Celsius are required for WST to successfully reproduce.[17] The duration of standing water is also critical and must be present for approximately four or more weeks in order for the larvae to metamorphose.[18] Morey observed that successful metamorphosis occurred in pools that filled between 36 to 133 days; the fastest time he observed completion of larval development was 30 days.[19] The breeding pools must be free of fish, bullfrogs, and crayfish in order for WST to successfully reproduce and metamorphose. Holland and Goodman (1998)[14] also report that toads may use pools in riparian and stream habitats with suitable conditions for breeding, which are also free of exotic pests.

Eggs are deposited in irregular small clusters, about 25-30 centimeters in diameter, which are attached to vegetation or debris in shallow temporary pools or infrequently in ephemeral stream pools. Eggs usually hatch within six days, but hatching is also water temperature dependent.

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[14] Holland, D.C., and R.H. Goodman Jr. 1998. A guide to the amphibians and reptiles of MCB Camp Pendleton, San Diego County, California. Final report prepared for AC/S Environmental Security Resources Management Division under Contract M00681-94-0039.

[15] Brown, H.A. 1966. Temperature adaptation and evolutionary divergence in allopatric populations of the spadefoot toad, *Scaphiopus hammondii*. PhD Dissertation, University of California, Riverside, California.

[16] Brown, H.A. 1967. Embryonic temperature adaptations and genetic compatibility of two allopatric populations of the spadefoot toad, *Scaphiopus hammondii*. Evolution 21: 742-761.

[17] Newman, R.A. 1998. Ecological constraints on amphibian metamorphosis: interactions of temperature and larval density with responses to changing food level. Oecologia 115: 9-16.

[18] Feaver, P.E. 1971. Breeding pool selection and larval mortality of three California amphibians: *Ambystoma tigrinum californiense* Gray, *Hyla regilla* Baird and Girard, and *Scaphiopus hammondii* Girard. MA Thesis, Fresno State College, Fresno, California.

[19] Morey, S. R. 1996. Pool duration influences age and body mass at metamorphosis in the western spadefoot toad: implications for vernal pool conservation. Pp. 86-91. In: Witham, C., E. Bauder, D. Belk, W. Ferren, and R. Ornduff (editors). Ecology, conservation, and management of vernal pool ecosystems. Proceeding from a 1996 conference. California Native Plant Society, Sacramento, CA.

WST exhibit numerous adaptations to successfully breed in rapidly drying temporary pools, including rapid embryonic and larval development, cannibalism, a high tolerance to heat, and the production of growth inhibitors that affect other larvae.[14]

WST larvae consume detritus, plankton, and algae, but they are also carnivorous. WST tadpoles forage on dead vertebrates and many other invertebrates[20], including fairy shrimp, mosquito larvae, smaller tadpole species[21], butterfly and moth larvae, beetles, termites, ants,[22,23] crickets, flies, earthworms, and any other invertebrates that are small enough to swallow.[24,25,26] Complete larval development occurs rapidly, often within three weeks[14], but may take as long as 11 weeks in cooler conditions. The rate of development is controlled by water temperature, evaporation, and availability of food resources. Larvae subjected to water volume reduction (rapid drying) show significant acceleration of metamorphosis.[27] Individuals may take up to two years to mature.[28]

WST do not move far from breeding pools during the year,[29] where they remain in underground burrows for a relatively long period of dormancy (aestivation) for eight to nine months. The burrows are approximately one meter in depth. The soils associated with these burrows are usually hard and compact during the dry summer months[30] and often contain significant amounts of clay, or silt mixed with indurate layers of gravel or cobbles.

IV. WESTERN SPADEFOOT TOAD MITIGATION

BonTerra prepared a *DRAFT Western Spadefoot Relocation Program* (BonTerra Plan) dated September 2017. BonTerra incorporated the most up-to-date information regarding WST biology into the plan and included sound elements in the relocation program including such factors as pond design. As such, this plan incorporates the best aspects of the BonTerra Plan while proposing additional components to provide the optimal HMMP for the WST. As noted above, the focus of

[20] Bragg, A.N. 1964. Further study of predation and cannibalism in spadefoot tadpoles. Herpetologica 20: 17-24.
[21] Bragg, A.N. 1962. Predation on arthropods by spadefoot tadpoles. Herpetologica 18: 144.
[22] Dimmett, M. A., and R. Ruibal. 1980a. Exploitation of food resources by spadefoot toads *(Scaphiopu*s). Copeia 4: 854-862.
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[28] Denver, R.J. 1998. Hormonal correlates of environmentally induced metamorphosis in the western spadefoot toad, *Scaphiopus hammondi*. General and Comparative Endocrinology 110: 326- 336.
[29] Zeiner, D. C., W. F. Laudenslayer, Jr., and K. E. Mayer (editors). 1988. California's wildlife. Volume I. Amphibians and reptiles. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, California.
[30] Ruibal, R., L. Tevis, Jr., and V. Roig. 1969. The terrestrial ecology of the spadefoot toad *Scaphiopus hammondi*i. Copeia 3: 571-584.

this HMMP is on replacement of suitable habitat for WST through establishment of three seasonal pools with optimal hydrology. The proposed translocation of egg masses, larvae (tadpoles) and metamorphs during two average or above-average rainfall seasons from the impacted pools to established pools will ensure that the project impacts are fully mitigated.

A. Summary of Plan

This Plan proposes to relocate soils from the original breeding ponds affected by Project grading. The WST breeding pool habitat removed by the Project will be mitigated through the establishment of 1.07 acres of WST breeding pond habitat that is adjacent to larger areas of open space on NorthLake holdings and State-owned open space. An additional key component of the program is management of pools established for WST and adjacent upland aestivation habitats. Implementation of this program will ensure the long-term preservation of the species and its habitat. The mitigation program will be conducted under the direction of a qualified biologist with appropriate experience in habitat restoration, vernal pools, and knowledge of the ecology and life cycle of WST.

The key components of this mitigation creation plan include:

(1) identifying sites for potential WST pond establishment;
(2) identifying sites for clay salvage to be used in pool creation as needed;
(3) establishment of the 1.07 acres of WST breeding pond habitat within three ponds on the site (total acreage as opposed to number of ponds is all that is relevant);
(4) native revegetation along the perimeter of the ponds and the incorporation of a buffer area;
(5) implementation of a hydrological monitoring program to ensure that adequate ponding is present for optimal larval development in established pools;
(6) translocation of soil from the original breeding ponds and VP 6 to the created WST breeding ponds, and relocation of healthy egg masses, larvae, and/or metamorphs from the original breeding ponds to the created ponds for a minimum of two successful breeding cycles;
(7) enhancement of the aquatic and terrestrial environment surrounding the created ponds, including relocation of algal and invertebrate inoculum from the original breeding ponds to the mitigation pools that would provide a food base for WST larvae;
(8) measures to restrict public access from future unintended impacts/maintenance at the created pond site;
(9) measures to ensure the created ponds are suitable for foraging and breeding prior to salvage and translocation efforts; and
(10) implementation of a monitoring program, lasting up to ten years, that would track the progress of the mitigation project. The mitigation program will follow the general standards of practice for minimizing disease transmission among amphibians[31].

1. Identifying Sites for Pond Creation

The site selection process consisted of a site survey of the Project Site and adjacent areas under NorthLake ownership to determine if there was/were suitable location(s) for WST pond establishment. Suitable areas for seasonal pond creation were identified within NorthLake ownership. Specifically, suitable areas on terraces above Grasshopper Creek were identified

[31] Declining Amphibian Populations Task Force. 1998. The DAPTF fieldwork code of practice. Froglog 27.

downstream and beyond the southern boundary of the development within NorthLake ownership. The location of three ponds is depicted on Exhibits 5 and 6 and the grading for each of the ponds has been designed by the project civil engineer. The ponds will be constructed in open space and exhibit a minimum of 500-foot buffers from development, with buffers extending well beyond 1,000 feet as shown on Exhibit 6. Currently, a public trail/road extends along the northern edge of the proposed ponds. During grading of the ponds, the roads will be relocated to the north to provide a minimum of 20 feet between the ponds and road edge closest to the ponds. In addition, post-and-cable fencing will be placed between the public trail/road with appropriate signage to prevent access by the public into the ponds.

As part of site selection, this HMMP has identified specific sites(s)/area(s) that would be protected and depicts these site(s)/area(s) on accompanying exhibits. The plan specifies what resource(s) would occur/be protected in conserved site(s)/area(s) on Exhibit 9. The Santa Monica Mountains Conservancy (SMMC) will serve as landowner, land manager, and endowment holder for the Marple Canyon spiny rush preservation site. The Mountains Recreation and Conservation Authority (MRCA) will serve as the Conservation Easement (CE) Grantee. Likewise, the SMMC is a potential landowner, land manager, and endowment holder for the mitigation areas within NorthLake holdings, with the MRCA holding the CE (the applicant is also exploring other entities that meet the above requirements and as of yet, no decision has been made regarding the long-term management of NorthLake holdings where mitigation would be conducted). The plan provides specific information on how the Lead Agency would enforce the long-term protection and funding of mitigation lands.

2. Identifying Sources of Clay Onsite for Pool Creation

The project biologist will consult with the project's soils/geotechnical consultant to identify area of clay suitable for use in creating pool linings or bottoms to maximize water-holding capacity and thereby ensuring ponding durations sufficient to support WST as discussed in more detail under Section 5 below.

3. Pond Design and Creation Methods

The created ponds will be constructed as relatively deep seasonal ponds that would support ponding depths during average or above average rainfall years (30-42 inches of ponding)[32,33] with the ability to sustain the hydrology for sufficient durations (minimum of 60 days) to support the full WST lifecycle.

The mitigation program has incorporated design measures proven to be successful for relocating amphibian species that breed in seasonal ponds.[34,35] To ensure the created ponds have appropriate

[32] De Weese, J. Vernal pool construction monitoring methods and habitat replacement evaluation. Pp. 217-223 *in* Witham et al. (eds.) Ecology, conservation, and management of vernal pool ecosystems. California Native Plant Society, Sacramento.
[33] Rowe, C. and W. Dunson. 1993. Relationships among abiotic parameters and breeding effort by three amphibians in temporary wetlands of central Pennsylvania. Wetlands 13: 237-246.
[34] Weyrauch, S. and J. Amon. 2002. Relocation of amphibians to created seasonal ponds in southwestern Ohio. 2002. Ecological Restoration 20: 31-36.
[35] Biebighauser, T. 2003. A guide to creating vernal ponds. U.S. Forest Service, Morehead, KY.

hydrology for optimum fitness of WST, i.e., 60 days or longer, the ponds will be located within valleys, specifically on terraces with sufficient watershed that will naturally capture slope runoff to support adequate ponding. The terraces are well-above the flowline of Grasshopper Creek and are not subject to erosion or flooding from the stream. Each pond as determined during the design by the project engineer, exhibits a supporting watershed between seven and ten times larger than the created pond. As needed, berms will be constructed on the downstream or down-gradient perimeter of each pond to further enhance ponding potential. In addition, based on soils at the creation site, depicted on Exhibit 7, which is largely Sorrento loam, 2 – 5 percent slopes and also Castaic-Balcom silty clay loam, a clay layer would be installed reaching a depth of approximately 12 inches below the surface to create an impermeable layer to provide the necessary ponding duration. The clay liner will be a minimum of 12 inches thick and will extend beyond the ultimate perimeter of the created pond by roughly ten feet. The created ponds will exhibit a depth of up to 42 inches at maximum ponding depth.[36] Therefore, the created ponds will equal or exceed the habitat potential of the original breeding ponds by providing a longer and more consistent inundation period.

Grading will be conducted in a manner that will minimize disturbance to the surrounding landscape, native vegetation, and wildlife use of the mitigation site. The areas where the ponds would be created support a predominance of non-native grassland and do not support areas of native scrub or chaparral. Specifically, the areas where the ponds would be created consist of grasslands dominated by rip gut brome (*Bromus diandrus*), slender wild oats (*Avena barbata*) and hare barley (*Hordeum murinum leporinum*) and would most closely match the *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance: Wild oats and annual brome grasslands alliance in the Manual of California Vegetation.[37] Exhibit 8 includes vegetation cover in the areas of the proposed ponds and areas immediately adjacent. A biological monitor will be present on site to ensure that any adjacent native habitats or other sensitive biological resources will not be disturbed during project grading. Pond hydrology will rely entirely on seasonal precipitation and overland run off from the surrounding watershed.

In addition, project design will incorporate construction of low soil mounds adjacent to the ponds to provide easily accessible burrowing and aestivation habitats that will further enhance aestivation areas surrounding the pools. Areas for aestivation are necessary for the life cycle of WST and other amphibians associated with created ponds.[38,39] The mounds will be graded in a manner that does not reduce hydrological input to the pools from the surrounding watershed. Thus, sufficient space between the mounds will be provided to ensure that water is not blocked from entering the pools.

Prior to grading, the perimeter of the ponds will be clearly marked on the surface of the ground according to the appropriate micro-site design and size. A transit or other appropriate surveying instrument will be used to record elevations to 0.10 foot at various locations both inside and outside of the created ponds. Following the excavation and grading of the ponds, the excavated soil will

[36] The depths for Pond 1, Pond 2 and the Cattle Pond are provided in Table 4.
[37] https://vegetation.cnps.org/alliance/535
[38] Gibbons, J. 2003. Terrestrial habitat: A vital component for herpetofauna of isolated wetlands. Wetlands: 23: 630-635.
[39] Ruibal, R. et al. 1969. The terrestrial ecology of the spadefoot toad, *Scaphiopus hammondi*i. Copeia 3: 571-584.

be used to construct WST burrowing habitat in the form of elongate soil mounds that will extend the length of the pond and will be approximately two to three feet in height.

If grading occurs within the nesting bird season, a qualified biologist will conduct a nesting bird survey within three days of grading, and if no active nests are located within 150 feet of the grading boundary, work may proceed. These surveys shall include the areas within 300 feet of the edge of the grading areas.

Following completion of grading, which will relocate the trails to the north as noted above [depicted on Exhibit 5], fencing will be installed to prevent public access and would consist of three-strand post and cable fencing. Signage would also be installed on the fencing to notice the public that the pools support special-status species that are protected under state law.

4. Native Revegetation

Native revegetation of the perimeter of the ponds shall provide species diversity and composition consistent with mixed grassland/sage scrub habitat surrounding the original breeding ponds. All species in the plant palette are native to the site and the soils on the site are suitable for the plant palette. As depicted on Exhibit 7, the areas around the ponds where the small-flowered filaree and paniculate tarplant would be planted consist of a mix of the Sorrento loam and Castaic Balcom clay loam, both of which would be suitable for paniculate tarplant with the California macrophyla occurring on the Castaic Balcom clay loam. Because the original breeding ponds do not exhibit a tree canopy, no tree canopy is proposed for the area around the mitigation pools. It is also important to note that the revegetation program is not required mitigation for impacts to specific vegetation alliances and reference sites are not proposed. Rather, the plant palette and performance standards were selected to ensure that the proposed native habitat would enhance WST foraging and nearby aestivation areas with vegetation components typical of upland areas occupied by WST within the region. The proposed plant palette is not an exact analog for vegetation alliances on the site; rather consist of native scrub and grassland species common on the site and are known to perform well in revegetation efforts.

The revegetation area shall be seeded and planted with container stock and will extend between 15 and 50 feet around the edge of the created ponds (based on site conditions) to provide non-breeding season habitat for WST, with the container stock located near the edge of the planting zone to protect the pools from deep rooted species. The seed palette shall not include any woody riparian trees or large shrubs as they grow deep root systems that may weaken the clay liner (if needed) and cause ponding failure over time should such species colonize the pools. As WST utilizes non-native grasses and duff as habitat, complete removal of non-native grasses shall not be necessary beyond that which occurs during grading needed as a part of this mitigation program and subsequent weeding during the five-year maintenance period. For the 15-to 50-foot revegetation area, the seed mix will be selectively applied around the perimeter of the created ponds in areas of habitat that requires enhancement. Habitat requiring enhancement shall be defined as areas of low or no cover by native species or areas where vegetation was removed during grading. The Project Biologist shall determine these areas of undesirable habitat within the 15- to 50-foot buffer for each pond establishment area prior to seed installation to determine the areas subject to revegetation. Due to variation in seed and container stock availability, seeding rates and quantities as well as container stock may be adjusted at the time of mitigation

implementation under the discretion of the Project Biologist. A sample container stock and seed palette is outlined in Table 4 below. Seed and container stock will be sourced from onsite or from areas of north Los Angeles County. Performance Standards for the revegetation areas around the ponds are provided below and were determined based on milestones to be achieved to meet the final five-year goal of 70-percent cover by native species. As noted, with the approach, it will not be necessary to rely on reference sites in order to provide suitable upland habitat for WST.

a. Monitoring Plan for Grassland and Scrub Revegetation Areas

First-Year Monitoring

Success Standard: A minimum of 30-percent coverage by native species;
100-percent of proposed canopy species present;
50-percent of proposed understory present
No greater than 40-percent coverage by non-native species.

Second-Year Monitoring

Success Standard: A minimum of 40-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 30- percent coverage by non-native species.

Third-Year Monitoring

Success Standard: A minimum of 50-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 20- percent coverage by non-native species.

Fourth-Year Monitoring

Success Standard: A minimum of 60-percent coverage by native species;
100-percent of proposed canopy species present
75-percent of proposed understory present
No greater than 10- percent coverage by non-native species.

Fifth-Year Monitoring

Success Standard: A minimum of 70-percent coverage by native species;
100-percent of proposed canopy species present
85-percent of proposed understory present
No greater than 5- percent coverage by non-native species with zero tolerance for species considered highly invasive by Cal-IPC.

TABLE 5
Sample Container Stock and Seed Palette

Botanic Name	**Common Name**	
Canopy Container Stock (one-gallon containers)		**Plants/Acre**
Artemisia californica	California sagebrush	100
Eriogonum fasciculatum	California buckwheat	100

Salvia leucophylla	Purple sage	50
Salvia mellifera	Black sage	50
	Container Stock Total	**300**
Understory Seed Mix		**Lbs/Acre**
Acmispon glaber	Deerweed	0.5
Corethrogyne filaginifolia	Common sandaster	4.0
Croton setiger	Turkey-mullein	4.5
Deinandra fasciculata	Clustered tarweed	3.0
Eriogonum fasciculatum	California buckwheat	2.0
Festuca microstachys	Small fescue	2.0
Hordeum brachyantherum	Meadow barley	2.0
Stipa pulchra	Purple needlegrass	2.0
Stipa lepida	Foothill needlegrass	0.5
	Total Seed	**20.5**

5. Hydrological Monitoring Program

Following completion of grading of the created pools, they will be monitored during the first rainy season, following construction and must exhibit ponding for a minimum of 60 days during an average or above-average rainfall season before eggs, larvae, and/or metamorphs can be translocated from the impact pools. The rainy season in California generally ranges from October through April. Due to the high variability of rainfall in California, the monitoring period may be shifted from year to year depending on the actual occurrence of rainfall. Hydrological monitoring will occur following the first rainfall event of one inch or greater in a 24-hour period. Visits will be conducted at each pond following storm events of one inch or greater during a 24-hour period. Subsequent visits shall occur on a weekly basis until no ponding is observed (because these systems are dynamic, each pond is treated separately). Air and water temperature, pH, specific conductance, general turbidity, and aquatic invertebrates observed in the ponds will also be sampled at regular intervals. During drought conditions or years where rainfall amounts are below average, hydrology would be augmented through introduction of potable water that would be added to the ponds via water trucks. Where this occurs, the ponds would be filled to the capacity typical of a normal rainfall year to determine whether the ponds are capable sustained ponding for the 60-day minimum period required before translocation can occur.

Permanent stations for photo-documentation will be established during the first monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect the progress of the mitigation effort.

6. Translocation of Western Spadefoot Toad Eggs, Larvae, and/or Metamorphs

The original breeding ponds were last surveyed in 2014 and surveys will be conducted for two years, during average or above average rainfall years, for presence of WST eggs, larvae, and/or metamorphs prior to grading within 1,000 feet of the breeding ponds. During these two survey seasons, data will be collected regarding the number of egg masses, larvae, metamorphs and adults

for use in refining the translocation component of the program. Once the hydrological performance standard has been achieved, translocation of eggs, larvae and metamorphs can occur. In the event WST eggs, larvae, and/or metamorphs are detected once WST ponds are constructed and hydrology performance standards achieved, the translocation program would be conducted such that egg masses, larvae, and/or metamorphs are relocated in a manner that ensures the highest probability of success. This would include even distribution of egg masses, larvae and metamorphs among the three created ponds (given that the area of the created ponds exceeds that of the impacted ponds, even distribution would ensure that overcrowding does not occur in the created pools). Translocation events shall occur for a minimum of two successful breeding cycles to ensure that no further translocation events are warranted. Specifically, translocation efforts over two or more years would ensure that egg masses and larvae from WST that are aestivating in earlier seasons would be captured. The goal of the program is to translocate the vast majority of egg masses, larvae and metamorprhs during the two (or more years) that the translocation is conducted. Egg masses, larvae, and/or metamorphs would be collected from the original breeding ponds using a dip-net, placed into a sterile bucket, and immediately translocated to the created ponds. Equipment used for WST translocation will be sterilized prior to each translocation event to prevent the spread of disease. A drift fence and pit-trap array would be utilized adjacent to the original breeding ponds to capture any potential WST adults to be translocated to the created ponds.

Biological systems are highly dynamic and because the ephemeral/seasonal ponds used for breeding by WST can vary dramatically from year to year or even from rainfall event to rainfall event, the Project Biologist will have discretion as set forth below in implementation of the mitigation program. Emphasis will be placed on monitoring the created ponds in concert with the original breeding ponds and to implement the relocation in a manner that ensures the highest potential for long-term success as described above. Due to the variable nature of winter and spring storm systems, it is possible that rainfall totals from the same storm can vary significantly over a limited area such that ponds that exhibited extensive ponding during previous monitoring may show substantially reduced ponding while other ponds have filled. The Project Biologist will have discretion to make in-field decisions based on expertise and experience to ensure the highest probability of success. An example of such discretion would be in a case where the original breeding ponds are drying down very quickly after eggs are laid or when the larvae are very small. In such an instance, it may be necessary to collect all of the eggs and larvae and relocate them before the pond dries down and the opportunity for relocation of WST eggs and/or larvae is lost. Translocation of WST from the original breeding ponds to the created ponds may occur during the entire mitigation program, provided the original breeding ponds have not been impacted by project development.

Because there is good access to the Stock Pond, if determined necessary by the Project Biologist, potable water could be added as noted above by water truck to extend ponding duration, thereby extending the period wherein collection could occur, which in turn would maximize the number of egg masses, larvae, and metamorphs that would be translocated. Similarly, should the created ponds require augmented hydrology due to low rainfall conditions, such augmentation of the hydrology for the created ponds would occur.

7. Inoculum Collection

A flat-end shovel, or similar instrument will be used to carefully scrape intact areas of the existing ponds prior to grading consisting of about a 3 cm thick of the surface layer biomass from the original breeding ponds. Inoculum will be placed in boxes and relocated to the created ponds that have met the appropriate hydrologic parameters. The inoculum will be evenly spread by hand and then lightly raked into the soil surface of the ponds using the flat end of the rake.

8. Pond Creation Habitat Suitability

The created ponds shall demonstrate the ability to support foraging and breeding habitat prior to any salvage efforts. Following the completion of grading and installation of the clay liner, the ponds shall be artificially filled with water and monitored on a weekly basis to determine if they support ponding periods of 60 days or longer. Alternatively, if pond creation is completed four weeks prior to the first rain event of the year, the ponds shall instead be filled through natural means and monitored on a weekly basis to determine the ponding duration.

These created ponds will be constructed to function as seasonal features, with no connectivity to a permanent water source. Ponding durations of a maximum of five months are expected to occur during only above-average rainfall years, and ponds would remain dry throughout the remainder of the year. Seasonal ponds do not support WST predators, including fish, bullfrogs, and crayfish that require perennial water for survival. Therefore, these created ponds will not support predators of WST egg masses and/or metamorphs.

9. Responsible Parties for Project Implementation

Applicant: Woodridge Capital Partners, LLC
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10. Annual Presence/Absence Surveys

Annual presence/absence surveys for other potential on-site breeding habitat areas shall be conducted at an appropriate time of year as determined by the Project Biologist.

11. Ten-Year Monitoring Period

A ten-year monitoring program, as described in detail below, shall commence following the completion of pond creation and initial WST/Inoculum translocation event.

12. Schedule

Grading of the created ponds and associated watershed will occur outside the rainy season and outside the avian nesting season and thus would occur between August 15 and October 15. Hydrology monitoring to ensure that the ponds hold water for at least 60 days during an average or above-average rainfall year will begin at the start of the rainy season that immediately follows grading of the created ponds. Monitoring of the existing pools for WST egg masses and larvae, will be conducted concurrently with the hydrology monitoring of the created pools. Grading of the ponds to be impacted cannot be initiated until it has been demonstrated that the created pools have successfully achieved the hydrology performance standards and egg masses and/or larvae have been successfully translocated to the creation ponds. Table 5 below provides a conceptual schedule for grading of the mitigation pool with the associated components to ultimately transfer WST larvae and egg masses from impact ponds to created ponds. As described in the Performance Standard subsections below, it will be necessary to meet hydrology performance standards before WST can be translocated and the existing pools can be subject to impacts. Very low or low rainfall years could prevent performance standard achievement for hydrology, which in turn could result in schedule delays.

Table 6: Conceptual Schedule for Pond Creation Milestones

Activity	Timeline
Identify Site and Prepare Grading Plans	Completed
Identify Areas of Clay Soils	Complete before Grading
Grade and Create 1.07 acres of Mitigation WST Ponds	Summer/Fall Year 1
Revegetate Pond Perimeter of Created Ponds	Fall/Winter Year 1
• Monitor Revegetation Area	Year 1 – Spring
• Monitor Revegetation Area	Year 2 – Spring
• Monitor Revegetation Area	Year 3 – Spring
• Monitor Revegetation Area	Year 4 – Spring
• Monitor Revegetation Area	Year 5 – Spring
Initiate Hydrology Monitoring of Created Ponds	Winter/Spring Year 1
Continue Hydrology Monitoring of Created Ponds	Winter/Spring Year 2
Initiate Inoculum Collection from Impact Ponds	Summer/Fall Year 1
Continue Inoculum Collection	Summer/Fall Year 2
Introduce Inoculum to Ponds (Assumes Successful Hydrology)	Summer/Fall Year 2
Continue Inoculum Transfer to Ponds	Summer Year 3
Initiate WST Transfer (Assumes Successful Hydrology)	Winter/Spring Year 3
Initiate WST Transfer (Assumes Successful Hydrology)	Winter/Spring Year 4
Document success of initial first year WST Transfer	Spring Year 4

Document success of second year WST Transfer and successful breeding as discussed below.	Spring Year 5
Grading of Impact Pools to Occur at this Milestone (Fall Year 5)	
• Monitor Pools for WST (Initiate following two seasons of successful transfer)	Year 6 – Spring
• Monitor Pools for WST	Year 7 – Spring
• Monitor Pools for WST	Year 8 – Spring
• Monitor Pools for WST	Year 9 – Spring
• Monitor Pools for WST	Year 10 – Spring
• Monitor Pools for WST	Year 11 – Spring
• Monitor Pools for WST	Year 12 – Spring
• Monitor Pools for WST	Year 13 – Spring
• Monitor Pools for WST	Year 14 – Spring
• Monitor Pools for WST	Year 15 – Spring

VII. PERFORMANCE STANDARDS

Following creation of the ponds, confirmation of hydrology performance standards and translocation of inoculum (and WST, including egg masses, larvae, and adults as available), surveys will be performed each year for ten years to determine habitat suitability and presence of WST. Translocation of WST shall occur for a minimum of two successful breeding cycles to ensure that no further translocation events are warranted. Translocation efforts shall be conducted at an appropriate time of year when WST is most likely to be present. As needed, potable water may be used to augment natural hydrology during lower-than-average rainfall years to maximize establishment of the translocated populations. It is likely that during any five-year period in southern California at least two of those years will lack rainfall patterns and intensity to allow for ponding or ponding of sufficient duration sufficient for successful reproduction of WST, thus the need for augmented water in the created ponds. If the performance standards are not achieved by the end of the monitoring period, monitoring will be continued until performance standards are achieved.

A. Ten-Year Monitoring Program

Monitoring of hydrology and WST will begin during the rainy season (generally occurring between October and April) and will be initiated after the first rainfall event of one inch or greater in a 24-hour period during the first rainfall season following pond creation. Visits will be conducted at each pond following storm events of one inch or greater during a 24-hour period until no ponding is observed (because these systems are dynamic, each pond is treated separately). Once a pond retains water, it will be visited weekly until ponding is no longer observed. The following data will be recorded during each weekly visit: depth of surface water in pond, aerial extent of ponding, qualitative observations of pond utilization by WST (if any), estimates of WST egg masses, larvae, and/or metamorphs populations (if any), presence of emergent vegetation, presence of algae, fairy shrimp, water temperature, and electroconductivity. As noted, hydrology may be augmented using potable water to extend ponding duration (and depth) during lower-than average rainfall years, to maximize reproduction and overall population size. At the end of the monitoring period, the data from the ponds

will be combined and evaluated. In instances where rainfall for any year meets or exceeds the average rainfall +/- 25 percent (15-25 inches), then the following performance standards will be evaluated:

1. Hydrological Monitoring/Performance Standard

As noted above, hydrological monitoring will be conducted prior to translocation of inoculum, WST egg masses, tadpoles/larvae and metamorphs. As noted, the created ponds must hold water for a minimum of 60 days during an average rainfall year prior to translocation activities. Hydrological monitoring will also continue as part of the regular ten-year monitoring program is initiated. During each season following the first rain event of one inch or greater, each created pond will be monitored for ponding, including depth, extent, with duration to be calculated as the season continues. Hydrology augmentation may occur at the direction of the Project Biologist to maximize the potential for success. This will allow for documentation of maximum depth, extent and duration of ponding for each created pond. As noted above, during each monitoring visit, air and water temperature, pH, specific conductance, general turbidity, and aquatic invertebrates observed in the ponds will also be recorded.

***Performance Standard*:** Ponding duration of at least 60 days must be documented to occur during average or above average rainfall years prior to translocation of egg masses, larvae, metamorphs, or adults. Ponding duration of at least 60 days must also be documented during the 10-year monitoring period. At the end of the ten-year monitoring period, this performance standard will have been achieved if ponding duration equals or exceeds ponding duration of 60 days during average or above-average rainfall years. It is important to note that during below-average rainfall years, depending on the severity of drought conditions that the created ponds will not pond for sufficient duration to allow WST to reach maturity. Thus, during the ten-year monitoring period, it is to be expected that some years will not pond for 60 days. Nevertheless, the performance standard for hydrology will be considered achieved as long a ponding for 60 days occurs during average rainfall years. Finally, as noted, hydrology may be augmented at the direction of the Project Biologist, especially once breeding is observed and is threatened by declining water levels in the pools due to lower-than average rainfall. In the event that the Project Biologist determines that additional water should be added to any pond occupied by egg masses or larvae, it will be necessary to ensure protection of the egg masses and larvae by discharging water to the pool(s) in a manner that does not disturb the egg masses or larvae and does not result in the erosion of soil into the pool(s). This could be accomplished through temporary placement of large gravel at the discharge site (at the edge of the pool(s)) underlain by plastic that would allow the water to enter the pool(s) slowly and with no sediment.

2. Monitoring for Breeding WST

During each monitoring visit that detects ponding of at least six inches, the ponds will be surveyed for signs of WST breeding which would be indicated by the presence of WST egg masses and/or WST tadpoles. It is important to note, that following translocation of egg masses and larvae it will be necessary for metamorphs to emerge and reach adulthood for future breeding years. Thus, during the monitoring events following translocation, it will be necessary to document emergence of metamorphs, which will be required to ensure breeding in subsequent years. Site grading of the impacted pools may not occur until successful breeding has been documented in at least two of the three created ponds. Successful breeding would be determined by the presence of egg masses that are not present due to translocation but which occur due to reproduction.

***Performance Standard Prior to Grading*:** Prior to Project grading that removes the impacted doner pools, during an average or above-average rainfall year, at least two of three of the created ponds within the pond complex exhibits emergence of metamorphs in each pond to ensure breeding in subsequent years. As noted, Successful breeding would be determined by the presence of egg masses that are not present due to translocation but which occur due to reproduction. Should this occur during a below-average rainfall year, the condition would be satisfied as it would show that the pools are performing as intended. In any case, data regarding successful breeding will be submitted to CDFW for concurrence that sufficient reproduction has occurred to allow impacts to the pools in the development area.

***Performance Standard Post-Grading*:** Following Project grading that removes the impacted donor pools, during an average or above-average rainfall year, at least two of the three created ponds within the pond complex will exhibits breeding as indicated by the presence of WST egg masses, tadpoles/larvae/ or metamorphs, to confirm establishment of breeding WST for each pond complex created. Should this occur during a below-average rainfall year, the condition would be satisfied as it would show that the pools are performing as intended.

VII. ANNUAL MONITORING REPORT

An annual report will be prepared and submitted by December 31st of each calendar year to the County of Los Angeles and CDFW. The annual report will provide a detailed description of mitigation activities, qualitative and quantitative monitoring data related to performance standards, weather conditions, problems encountered, and any remedial measures. These reports will also include the following:

- List of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year;
- Qualitative monitoring data including site conditions and species observations;
- Copies of monitoring photographs;
- Vicinity map indicating location of WST Mitigation Site; and
- Maps identifying monitoring areas, transects, seeding zones, etc. as appropriate.

VII. CONTINGENCY MEASURES

A. Initiating Procedures

If a performance standard is not met for all or any portion of the mitigation project in any monitoring year, or if the approved success criteria are not met, the Project Biologist will prepare an analysis of the cause(s) of failure and, if determined necessary by CDFW and/or the County of Los Angeles, propose remedial actions for approval. If the mitigation site has not met one or more of the success criteria or performance standards, the responsible party's maintenance and monitoring obligations shall continue until CDFW and the County of Los Angeles gives final approval that the mitigation obligations have been satisfied.

B. Contingency Mitigation

Although this Plan is expected to be successful, two options are possible, including remediation of the existing pools should they not hold water for sufficient duration, which could include re-installation of the clay liner and/or increasing pool depths. The second option would include alternative location(s) that may be used in the event that any of the proposed areas do not achieve success criteria. Should the proposed plan not be successful for some unanticipated reason, there are nearby sites which can be utilized as replacement site(as) such that the mitigation criteria are fulfilled. Such sites would be presented to the County and CDFW for concurrence prior to utilization. BonTerra identified potential WST pond locations at the north end of the Project Site that could accommodate 0.52 acre of WST habitat.[40] Other potential areas include nearby Marple Canyon which GLA previously identified as a location where up to one acre of seasonal pool habitat could be created.

C. Compensation for Temporal Loss

Should contingency mitigation be required, the Project Biologist will implement measures to compensate for temporal loss of the habitat that has failed. As described above, the proposed plan includes creation of three ponds that would account for 1.07 acres within three ponds and should one or more of the ponds fail, in order to address temporal loss, the replacement ratio would be 1.5 to one (1.5:1) for any of the three ponds that failed to meet performance standards, which can be accommodated in the contingency mitigation sites noted above that provide for approximately 1.5 acres ensuring that an approximate 1.5:1 ratio is achieved.

VIII. RATIONALE FOR EXPECTING SUCCESS

As noted in the introductory comments and associated quotations in Section III above, WST has shifted habitat use in portions of California from vernal pools to artificial ponds such as stock ponds and other ponding features of anthropogenic origin, many of which have created WST breeding areas quite by accident. As such, any assertions that it is difficult to create ponds that are suitable for WST breeding are not necessarily accurate. This is not to discount that attempts to create suitable breeding habitat for WST can fail, because some do fail where they are not properly constructed. GLA has been involved in WST habitat creation projects that have been successful and provide an example of one such effort that has been well-studied since the seasonal ponds were created in 2005 and 2006 on Irvine Mesa in an area known as East Orange which is now part of the Orange County Central Coastal NCCP/HCP Reserve. The 15 created pools overall achieved performance standards after six years of monitoring and included breeding WST in eight of the pools as of the 2009/2010 rainfall season.[41] It is important to note that the performance standards included a number of components that were focused on the quality of the created pools and included hydroperiod (length of ponding) as it was recognized that this is clearly the most critical component of WST pond creation. Presence of fairy

[40] BonTerra. September 2017.*DRAFT* Western Spadefoot Relocation Program. NorthLake Specific Plan Residential Development Project Los Angeles County, California

[41] Glenn Lukos Associates. September 23, 2010. East Orange Planned Community (EOPC) 6th Annual Translocation and Monitoring Report for the Western Spadefoot Toad (*Spea hammondii*). Prepared for the Irvine Company.

shrimp, a common food source for WST larvae were an important pool component and these along with the egg masses and larvae were introduced from the impact pools to the created pools. It was understood that pools with the proper characteristics would ultimately support WST. Thus, as noted below, the results of follow-up studies conducted up to seven years following completion of the initial program, showed that WST had expanded to 12 pools within the 15-pool complex as outlined below.

Follow-up studies conducted in 2016 during a drought found WST breeding in 12 of the 14 pools[42] as reported by Baumberger et al. 2020:

> Twelve of the 14 mitigation pools at Irvine Mesa held water for >30 d. During our 2016 surveys, two of the mitigation pools built by Glenn Lukos Associates, Inc. merged (Pools 5 and 9) and we considered them as one pool (Pool 9). We detected *S. hammondii* tadpoles in eight of the Irvine Mesa mitigation pools but documented successful breeding through metamorphosis at only seven of these pools in April 2016 due to desiccation and/or water quality[43]

Thus, even in a drought year the pools exhibited sufficient ponding for breeding, though as is often the case for WST in such years, desiccation resulted in the loss of many tadpoles. The following rainfall season, 2016/2017 was an above-average rainfall year and resulted in optimal ponding durations for the WST. During the 2017 monitoring it was determined that 12 of the pools supported tadpoles or metamorphs with fairy shrimp in all the pools and extensive breeding was present.[44] An important insight comes from these observations: if properly constructed, with sufficient water holding capacity, ponding duration, and food sources, once established, WST will increase in such ponds until a level of equilibrium is achieved (i.e., self-sustaining population), and the pools arrive at their carrying capacity. Thus, it is not necessary to achieve occupancy of all pools in a pool complex in the short term (*e.g.*, five or even ten years) providing the pools exhibit ponding durations needed for the complete reproductive cycle for WST.

In addition to the successful WST translocation efforts summarized above, WST pools have been successfully created in the Santa Clarita Area, specifically at the Former Whittaker-Bermite Facility in the City of Santa Clarita site as reported by Psomas as reported in the final annual monitoring report.[45] Psomas reported the successful translocation of approximately 184 egg masses, 478 tadpoles, and 27 adult western spadefoots were translocated from OU3/Area 14 Primary and OU2/Area 25 Basins to OU2/Areas 28 and 36, OU2/Areas 1 (OU6) and 1A-South, OU3/Area 14 Secondary, and OU5/Area 11 Basins. The egg masses averaged 15 to 30 eggs per mass, and tadpoles were all small (1cm to 3cm) in length.

---

[42] As noted by Baumberger in the excerpt from the 2020 report, Pools 5 and 9 merged and were considered a single pool explaining the difference between 14 or 15 pools that were created.

[43] Baumberger, Katherine L.; Backlin, Adam R.; Gallegos, Elizabeth A.; Hitchcock, Cynthia J.; and Fisher, Robert (2020) "Mitigation Ponds Offer Drought Resiliency for Western Spadefoot (Spea hammondii) Populations," *Bulletin of the Southern California Academy of Sciences*: Vol. 119: Iss. 1. Pp. 5-6.

[44] The Nature Conservancy. 2017. Western Spadefoot (*Spea hammondii*) Breeding Assessment for East Orange, Irvine Mesa, and Shoestring Canyon, Orange County, California, 2017. Unpublished Report.

[45] Results of the Western Spadefoot Pre-Activity Clearance Surveys and Translocation Efforts on the Former Whittaker-Bermite Facility in the City of Santa Clarita, Los Angeles County, California (Streambed Alteration Agreement No. 1600-2010-0366-R5)

IX. PROPOSED MITIGATION MEASURE

The originally approved WST mitigation measure is as follows:

MM 5.2-9 A relocation program for western spadefoot toad shall be conducted prior to construction during the spring at the height of the breeding season for this species (February through May, or as determined by a qualified Biologist monitoring a known location of this species). A detailed methodology for this effort shall be reviewed by the CDFW and the LACDRP prior to implementation of the relocation program. Results of the relocation program shall be provided to the CDFW and the LACDRP.

> • Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the prior appropriate season. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e., 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond [sic] as well as others.
> • The intent of the Relocation Plan is to capture and relocate as many western spadefoot toads as possible. Western spadefoot toads shall be relocated on or off site to an area of suitable habitat, as reviewed by the CDFW and the LACDRP. The relocation site shall be of similar (or better) quality as the habitat within the project impact area where the western spadefoot toads are captured. If no suitable habitat is available for the relocation, suitable habitat shall be created.

Mitigation Measure 5.2-9 is recommended to be modified as follows:

MM 5.2-9 A mitigation program for western spadefoot toad (WST) shall be implemented prior to construction, ground disturbance, or vegetation removal that would impact the WST breeding habitat, or areas within 1,000 feet of WST-occupied ponds within the Project site. The mitigation program would include the components set forth below. A detailed methodology for this effort shall be reviewed by the CDFW and the LACDRP prior to implementation of the mitigation program. Results of the mitigation program shall be provided to the CDFW and the LACDRP.

> • Prior to implementing the Spadefoot Relocation Plan, two focused surveys during average or above-average rainfall years will be conducted within the prior appropriate seasons. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e., 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied ponds as well as those identified in recent surveys.
>
> • Suitable sites for seasonal pond creation, within the Project open space, specifically within other NorthLake owned properties, have been identified and 1.07 acres of seasonal pond habitat will be created. The specific location of the 1.07-acre pool complex is depicted on Exhibit 5 of the NorthLake Castaic, Los Angeles County, California, Western Spadefoot Toad Impact Assessment and Habitat Mitigation and Monitoring Plan July 2022 (Revised March and June 2023) (HMMP). As described in the WST Mitigation Implementation Plan, three based

on current grading plans. The size of the three pools (1.07 acres) exceeds the maximum combined size of potential WST habitat currently at the Project Site (0.95 acres, as shown in Table 4, above). The WST Mitigation Implementation Plan would address the following issues specific to the site or sites:

- Soil Characteristics and whether clay liner will be necessary
- Pool locations and site access routes for construction
- Types of habitat potentially affected by construction and measures to restore damaged subject to temporary impacts
- Watershed size and characteristics
- Grading plan with cross section for each pool to be created
- Specifications for clay liner (if needed) including source of clay and installation methods
- Upland habitat characteristics, including soil suitability for burrowing and vegetative buffer, will also be addressed in the plan

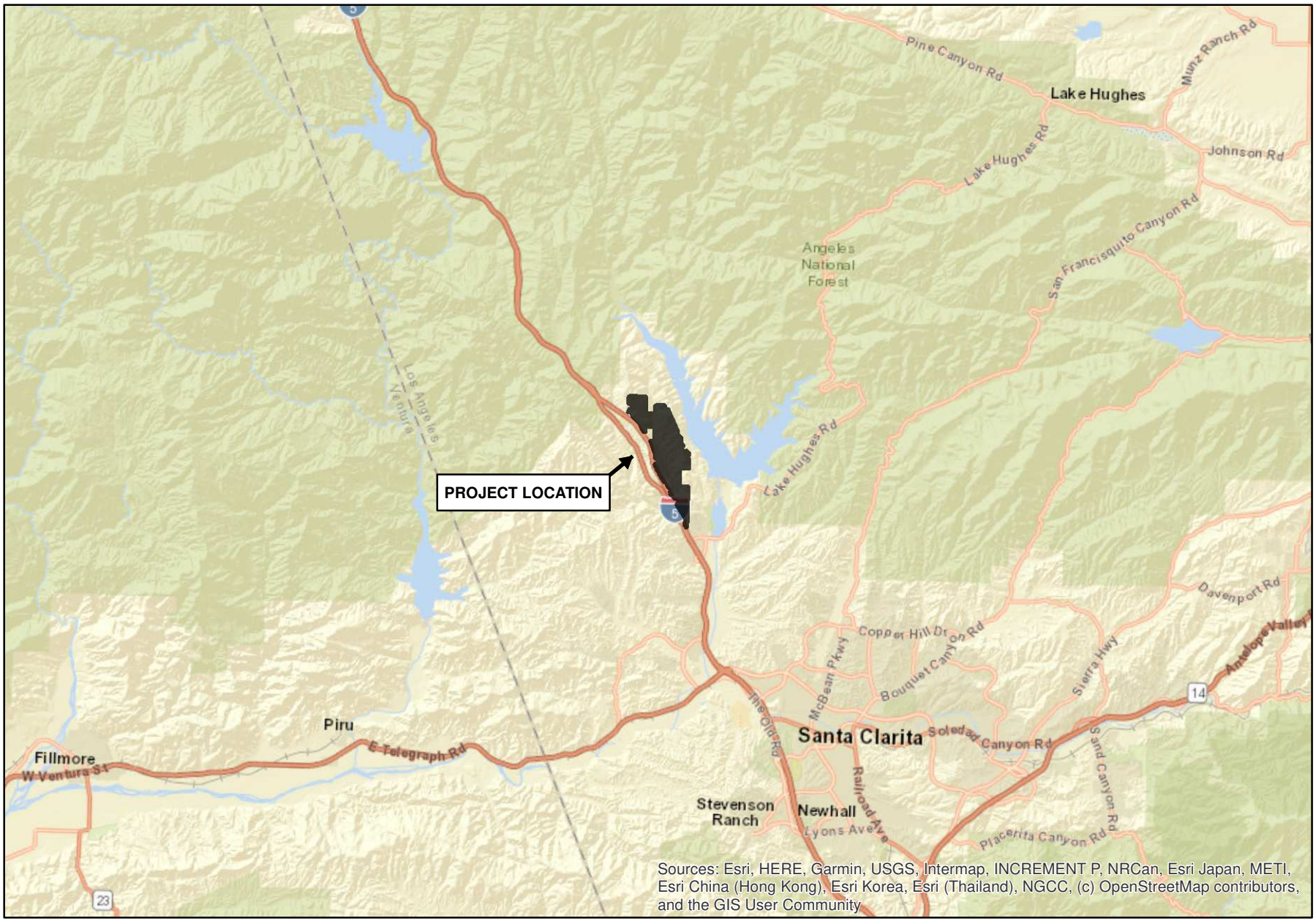
• Following creation of the 1.07-acre pool complex or complexes and prior to grading of the impacted pools, each pool within each complex will be monitored during the rainy season to ensure that the created pools exhibit at least 60 days of ponding during an average or above-average rainfall year.

• Following documentation of adequate ponding for each created pool during an average or above-average rainfall year, and prior to grading of the impacted pools, soil inoculum from the impacted pools will be translocated to the created pools to provide a food source for WST.

• Following documentation of adequate ponding for each created pool during an average or above-average rainfall year, and prior to grading of the impacted pools, WST egg masses, larvae and metamorphs will be translocated to the created pools for at least two wet seasons where WST egg masses, larvae and metamorphs are present in the impact pools and suitable conditions to receive the WST egg masses, larvae and metamorphs are present in the created pools. In addition, data regarding successful breeding will be submitted to CDFW for concurrence that sufficient reproduction has occurred to allow impacts to the pools in the development area.

• During grading of the pools to be impacted, the Project Biologist will be present to rescue any adult WST that would be relocated to the created pool complex.

• Following the two seasons of translocation of WST egg masses, larvae and metamorphs, and successful breeding, the created pools will be monitored for ten years to document the progression of the WST toward the performance standards provided in the WST HMMP prepared for the Project.



Source: ESRI World Street Map

N

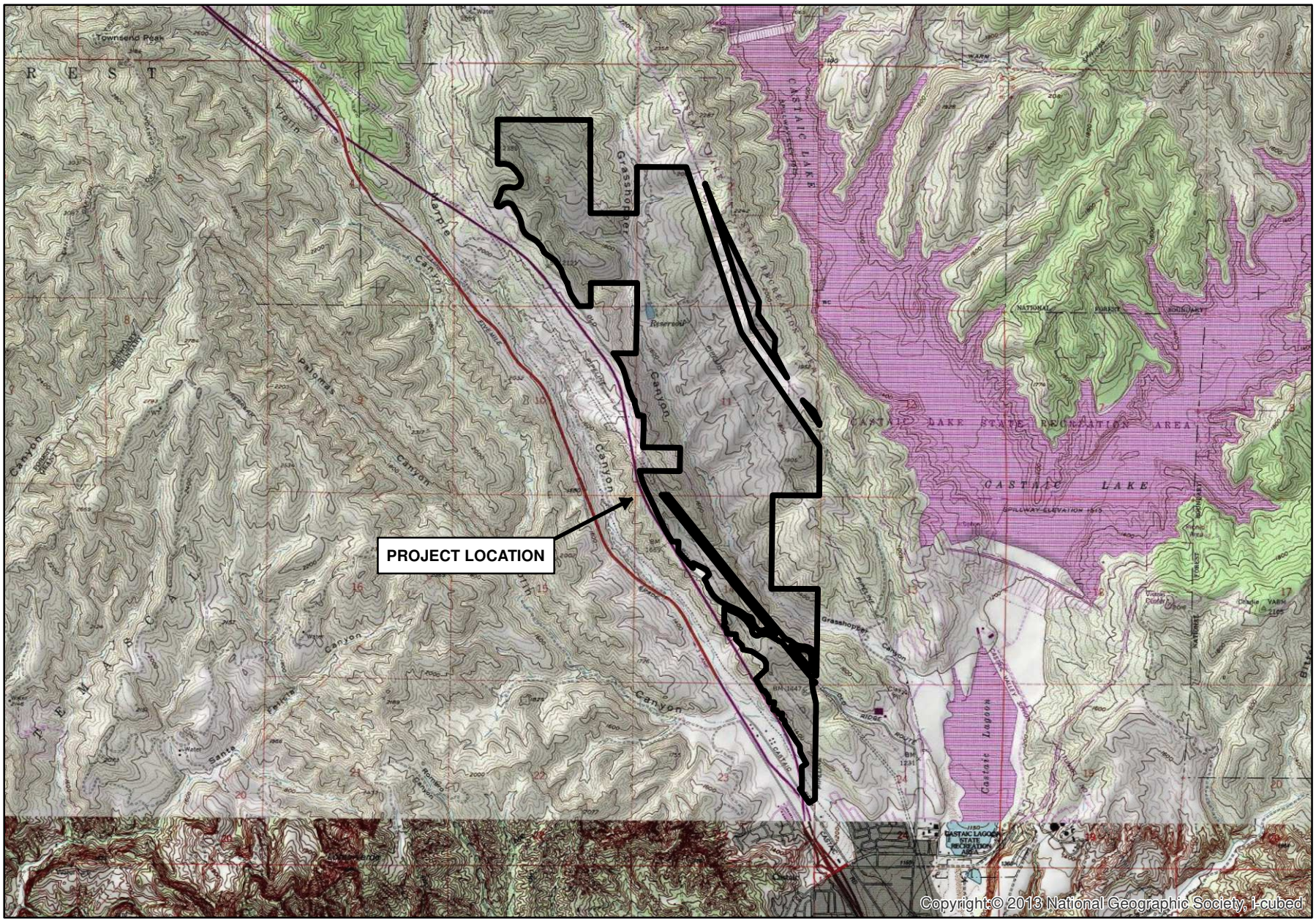
0 2 4 8 Miles

NORTHLAKE SPECIFIC PLAN

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1

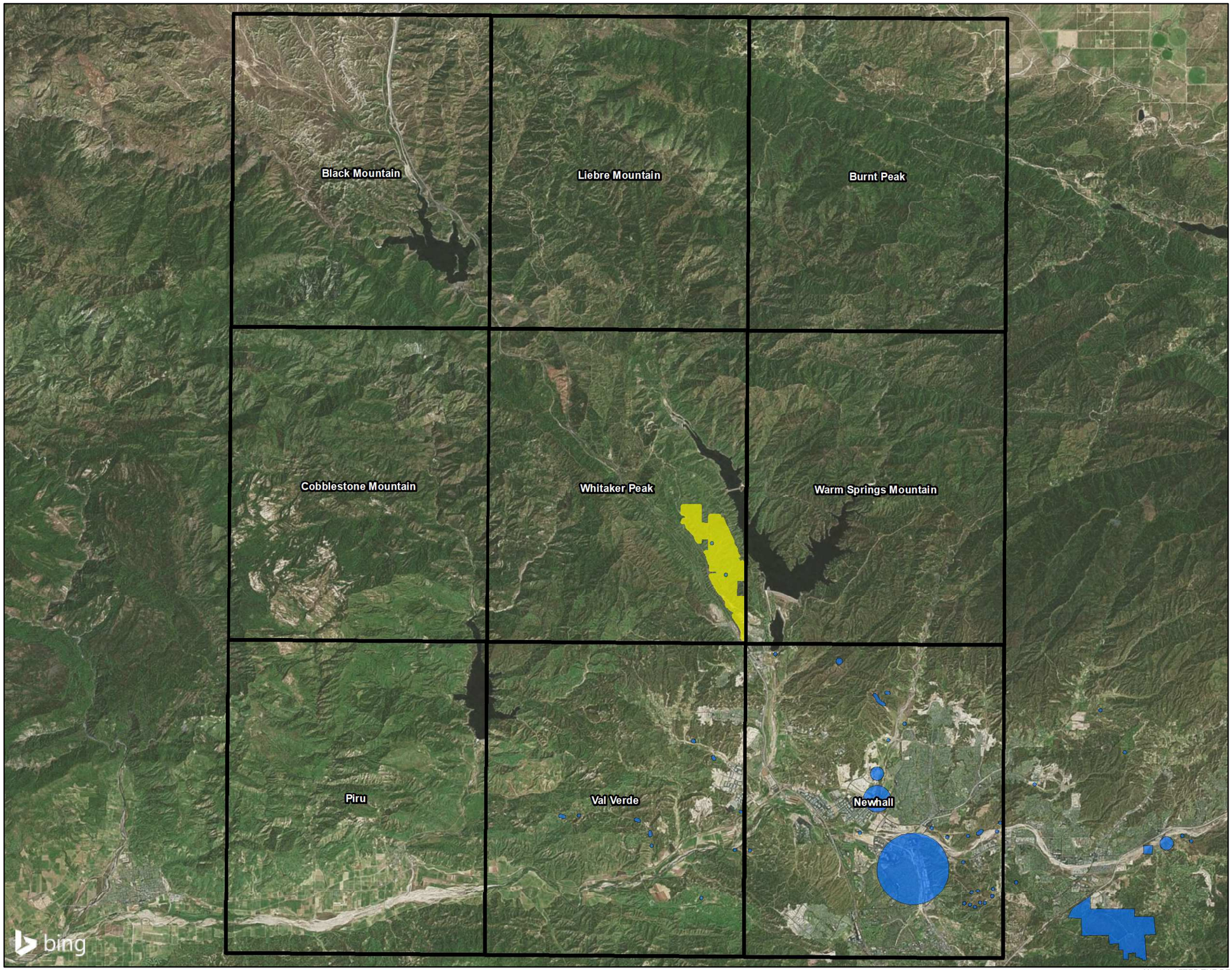


NORTHLAKE SPECIFIC PLAN

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Project Location

USGS Quadrangles

Western Spadefoot CNDDB Observation

N

0 1.5 3 6

Miles

1 inch = 3 miles

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: March 12, 2021

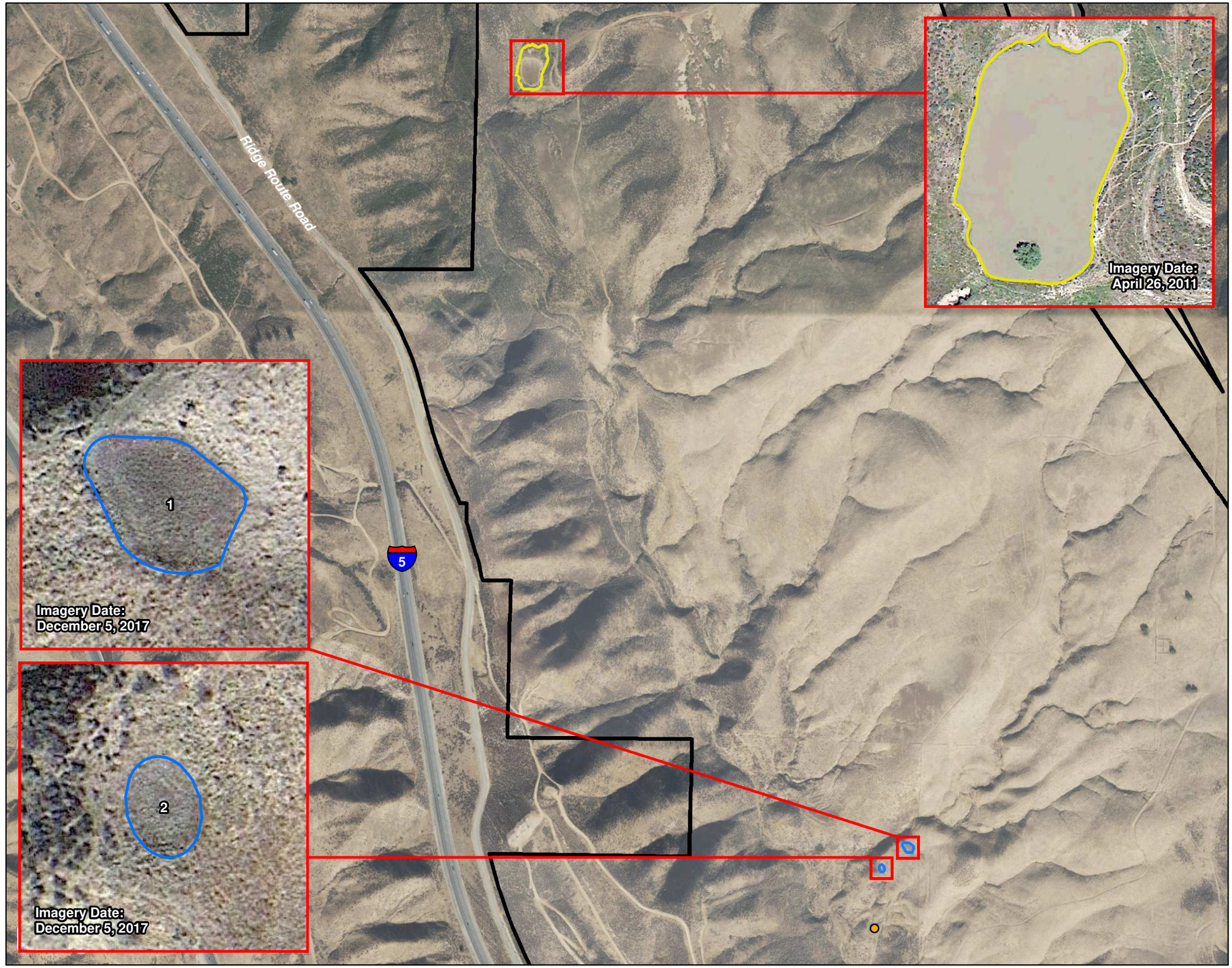
NORTHLAKE SPECIFIC PLAN

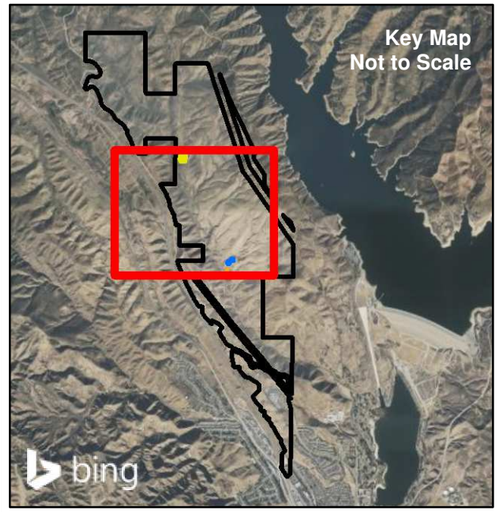
Western Spadefoot CNDDB Map

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\CNDDB_GIS\1115-6_CNDDB_WesternSpadefoot.mxd





Project Location

Stock Pond: 0.80 acre

Seasonal Pond
#1: 0.06 acre
#2: 0.02 acre

Approximate
VP-6 Location

N

0 275 550 1,100
Feet

1 inch = 550 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: May 10, 2022

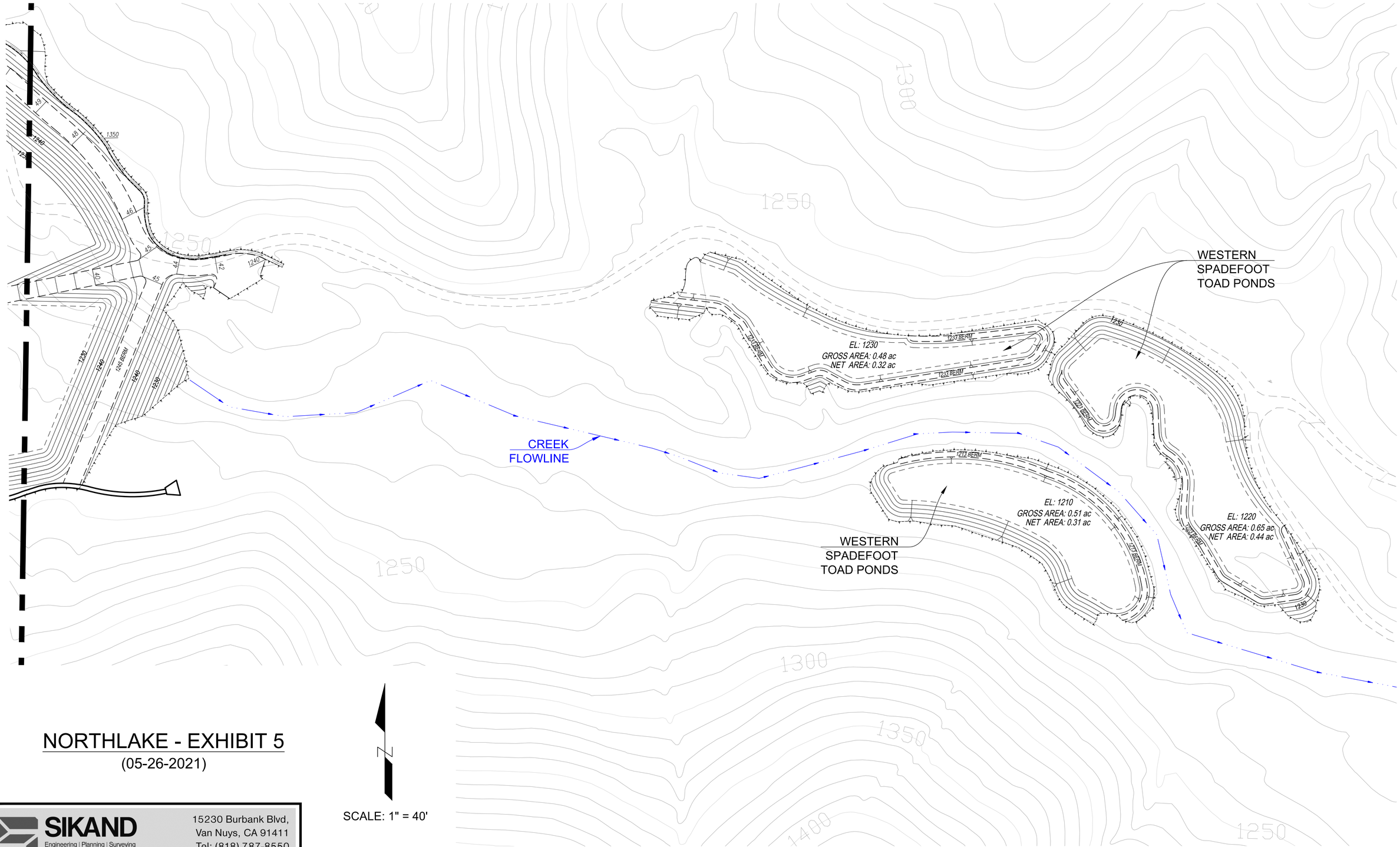
NORTHLAKE SPECIFIC PLAN

Pond Map

GLENN LUKOS ASSOCIATES

Exhibit 4

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NORTHLAKE - EXHIBIT 5

(05-26-2021)

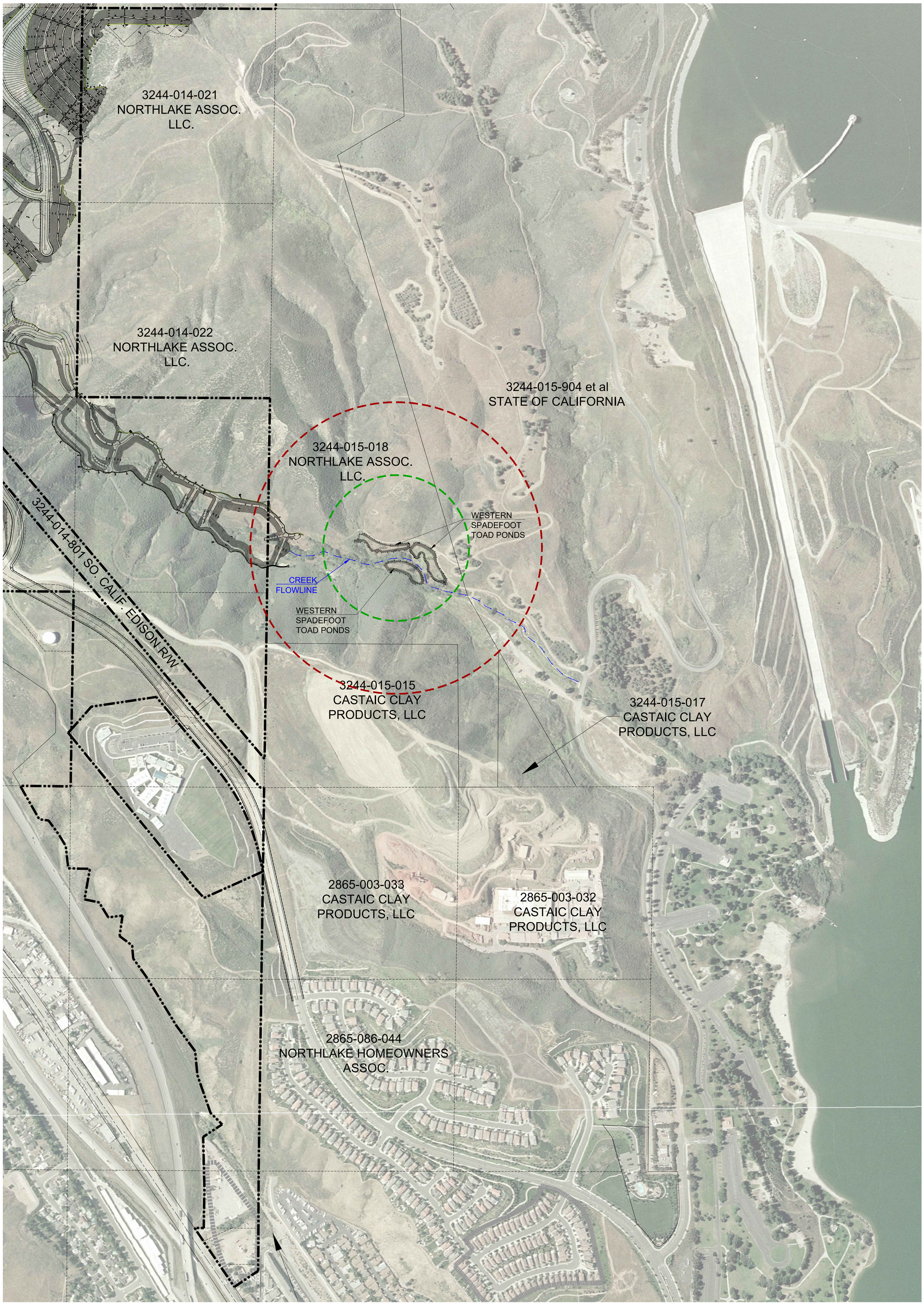
N

SCALE: 1" = 40'

SIKAND
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15230 Burbank Blvd,
Van Nuys, CA 91411
Tel: (818) 787-8550
Fax: (818) 901-7451
info@sikand.com

X:\Civil\3D\5090-033\Exhibits\EXH - Northlake Exhibit 3.dwg



NORTHLAKE - EXHIBIT 6

(05-26-2021)

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info@sikand.com

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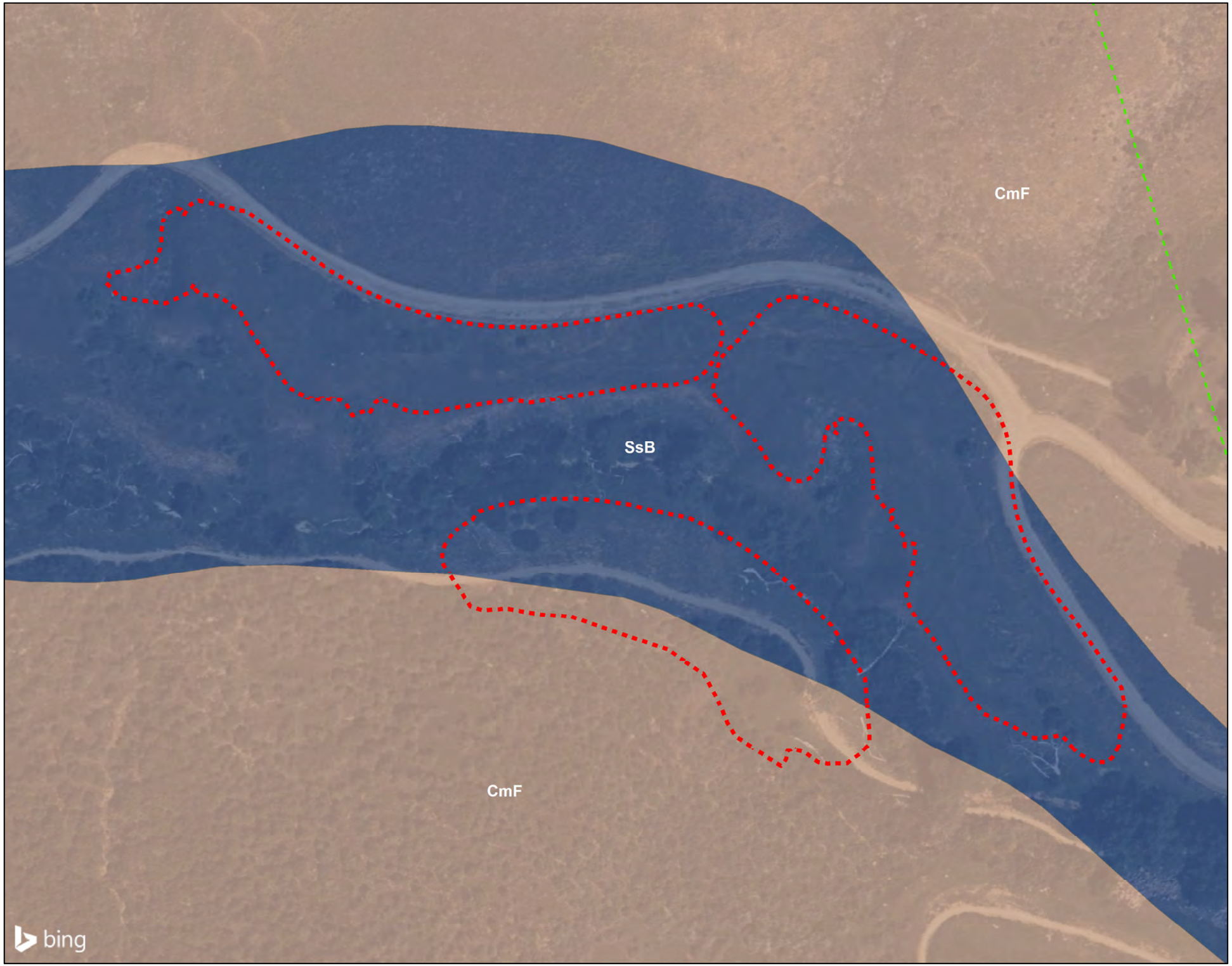
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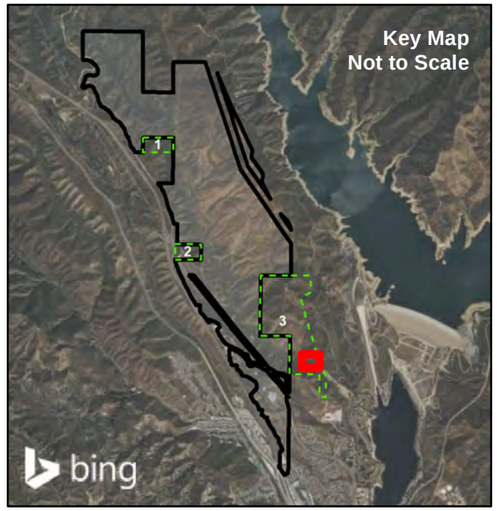
LEGEND:

- - - - - 500' RADIUS

- - - - - 1000' RADIUS

X:\Civil3D\5090-033\Exhibits\EXH - Northlake Exhibit 4.dwg





Project Location

Offsite Area

Basin Limits

CmF — Castaic-Balcom silty clay loams, 30 to 50 percent slopes

SsB — Sorrento loam, 2 to 5 percent slopes

0 25 50 100
Feet

1 inch = 60 feet

N

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: March 9, 2023

NORTHLAKE SPECIFIC PLAN

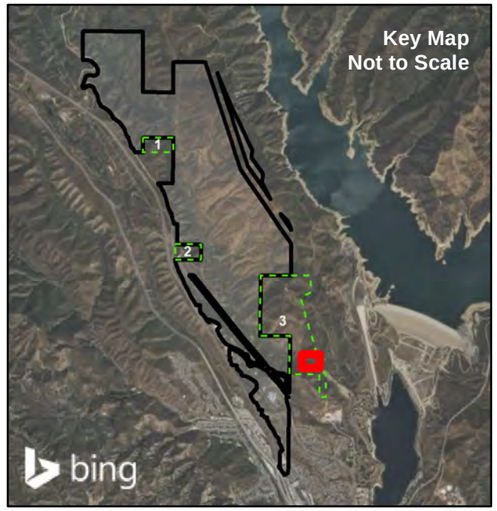
Soils Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 7

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\ImpactsGIS\1115-06_SoilImpacts_OffsiteArea3Basins.mxd





Project Location

Offsite Area

Basin Limits

Coastal Sage Scrub

Grassland

Riparian

Developed

0 30 60 120

Feet

1 inch = 60 feet

N

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: March 9, 2023

NORTHLAKE SPECIFIC PLAN

Vegetation Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\ImpactsGIS\1115-06_VegImpacts_OffsiteArea3Basins.mxd

Key Map
Not to Scale

Pro's Uphill

3

Cutler Canyon Fire Road

Grapevine

Vista Ridge Fire Road

Ridge Route Road

WestRamp Road

Castaic Brick Trail

Castaic Lake

1

2

3

5

bing

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: June 9, 2023

Onsite Project Site

Offsite Project Ownership

Development Footprint

Offsite Easement Limits

Proposed WST Conservation Area (154.70 ac.)

N

0 250 500 1,000
Feet

1 inch = 500 feet

NORTHLAKE SPECIFIC PLAN

WST Conservation Area

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\MitigationGIS\1115-6_ WSTConservationArea.mxd

APPENDIX B-2

SPECIAL-STATUS PLANTS IMPACT ASSESSMENT AND HABITAT MITIGATION AND MONITORING PLAN

DRAFT

NORTHLAKE
CASTAIC, LOS ANGELES COUNTY, CALIFORNIA

SPECIAL-STATUS PLANTS

IMPACT ASSESSMENT

AND

HABITAT MITIGATION AND MONITORING PLAN

July 2022 [Revised October and December 2022, February 2023, and April 2024

Prepared for:

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Telephone: (310) 824-7093

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4c. Southwestern Spiny Rush Establishment Site Close-up with Debris Basins
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I. INTRODUCTION/BACKGROUND

The project involves the phased development of up to 3,150 residential units, 9.2 acres of commercial uses, 13.9 acres of industrial uses, 799.5 acres of parks and open space, a 22.9-acre school site and a 1.4-acre pad for a future fire station (Project). Subsequent to the publication of the Final SEIR, the Regional Planning Commission requested that the Applicant include an affordable housing component in the Project. The Applicant made minor revisions to the Project to include an affordable component. Specifically, the Applicant eliminated 108,283 square feet (SF) of industrial use and 13,197 SF of commercial uses and reallocated 323 units from the Phase 2 area of the Project to the Phase 1 area. The County of Los Angeles Planning Commission approved the Northlake Project [Exhibits 1 and 2] on April 18, 2018 and the Los Angeles County Board of Supervisors approved the Project on April 2, 2019.

On January 11, 2021 the Los Angeles Superior Court ruled (Court Ruling) on the Center For Biological Diversity and Endangered Habitats League v. County Of Los Angeles, et al, and Real Parties in Interest, Northlake Associates, et al, Case No. 19STCPO1610, finding that relative to the five rare or special-status plants that the Supplemental Environmental Impact Report (SEIR) was deficient in failing to adequately delineate and define adequate mitigation measures for the relocation of the rare plants. The ruling on the rare plants is as follows.

ISSUE FOUR: THE MITIGATION MEASURES PROVIDED IN THE SEIR TO PROTECT THE RARE PLANTS ARE NOT SUFFICIENT UNDER CEQA:

Five special status plant species have been identified during surveys to exist at various locations on the Project site. These are the round-leaved filaree, the club-haired mariposa lily and the slender mariposa lily (collectively lilies); the paniculate tarplant, and the southwestern spiny rush. AR 1926-29. As special status plant species, a destruction of their habitat must be mitigated to less than significance. Guidelines 15065(a)(l). The loss of these plants through the site development is to be mitigated by the transplantation of all existing individual plants as well as seeds or bulbs that are found. The FSEIR states:

> *A less than significant impact would be achieved through implementation of MM 5.2 -2, MM 5.2-3 and MM 5.2-11... which require a Riparian Restoration Program be developed and approved by USACE [US Army Corps of Engineers], CDFW, and LACDRP prior to issuance of grading permits, ... AR 8564*

MM 5.2-4 specifies procedures for the lilies. Seeds are to be collected and bulbs excavated for transplantation to a mitigation site and established as a self-sustaining population. A Biological Monitor is to prepare a Mitigation Plan for approval of LACDRP and is to oversee its implementation. AR 8568.

MM 5.2-5 specifies procedures for the round-leaved filaree, paniculate tarplant, and southwestern spiny rush. The Project applicant is to prepare procedures to collect and store the plants and seeds, create an alternate site to include soil preparation, irrigation, methods

to control competing plants at the new site and prepare a list of "County-approved success criteria."

The CDFW challenges the adequacy of the mitigation measures, pointing out that the sites for transplantation are not selected, that the procedures to accomplish transplantation are not specified, and that success criteria are yet to be determined. CDFW believes that the rare plants cannot be transplanted on the site as the available patches after development will be fragmented. The CDFW is likewise dubious about transplantation off-site:

> *The Department has concerns when the DSEIR states it will transplant species off-site as this implies other areas will be subject to impact by this action. This additional impact would then need mitigation as this ecosystem is now being altered. AR 7398.*

CDFW was concerned that the mariposa lilies might not survive transplantation, saying it was unaware of any population created by seeding or translocation having been successful "at demonstrating long-term self-sustaining population."

CDFW expressed dissatisfaction with the generality of the mitigation measures, saying:

> *MM7 [now MM 5.2-4 and -5] does not allow the Department to comment on the appropriateness of the location, technique, success criteria, monitoring methods, density, length of time monitoring is required, or the method proposed for long-term protection and funding. AR 7399.*

The deficiencies identified in the CDFW letter demonstrate that the deferred mitigation measures for transplantation of the rare plants do not satisfy the CEQA standards set forth in Guidelines section 15126.4(a)(l)(B).

The applicant relies on the Glenn Lukos Associates (Bomkamp) letter to supply the evidence that deferred mitigation measures for the relocation of the six plant varieties are guidance enough. AR16015-18. Bomkamp's letter advises that there are various locations where the soil conditions are suitable to re-establish the individual plant varieties, but, beyond that, no information is provided to address the deficiencies identified by the CDFW. Further detail is required for the mitigation measures proposed for the rare plants in order to mitigate the destruction of their habitat to a less than significant threshold.

The mitigation measures for successful relocation of the rare plants found at the Project site do not comply with CEQA requirements.

The purpose of this Special-Status Plants Impact Assessment (Impact Assessment) and Habitat Mitigation and Monitoring Plan (HMMP) is to address the Court Ruling. It includes an updated impact assessment and a comprehensive mitigation and monitoring program that will provide for mitigation of significant impacts to less than significant. This Impact Assessment and HMMP relies in part on the previous work by BonTerra Psomas (BonTerra) as set forth in the DSEIR and October 2017 *Special Status Plant Species Restoration Plan: NorthLake Specific Plan, Los Angeles County,*

California[1] and where applicable incorporates specific methods and approaches proposed by BonTerra; while supplementing the BonTerra plan where appropriate to provide for an HMMP that addresses all aspects of the mitigation required to reduce potentially significant impacts to less than significant.

This HMMP also proposes long-term protection of the mitigation sites addressed in this HMMP through establishment of a Conservation Easement (CE) or easements, as appropriate. The CE would be dedicated to a local land conservancy or other appropriate entity that has been approved to hold and manage mitigation lands pursuant to Assembly Bill 1094 (2012). Assembly Bill 1094 amended Government Code sections 65965-65968. Under Government Code section 65967(c), the lead agency must exercise due diligence in reviewing the qualifications of a governmental entity, special district, or nonprofit organization to effectively manage and steward land, water, or natural resources on mitigation lands it approves.

In addition, this HMMP identifies specific sites(s)/area(s) would be protected and depicts these site(s)/area(s) on accompanying exhibits. The plan specifies what resource(s) would occur/be protected in conserved site(s)/area(s). The Santa Monica Mountains Conservancy (SMMC) will serve as landowner, land manager, and endowment holder for the Marple Canyon spiny rush preservation site. The Mountains Recreation and Conservation Authority (MRCA) will serve as the Conservation Easement (CE) Grantee. Likewise, the SMMC is a potential landowner, land manager, and endowment holder for the mitigation areas within NorthLake holdings, with the MRCA holding the CE (the applicant is also exploring other entities that meet the above requirements and as of yet, no decision has been made regarding the long-term management of NorthLake holdings where mitigation would be conducted). The plan provides specific information on how the Lead Agency would enforce the long-term protection and funding of mitigation lands.

The DSEIR identified significant impacts to five special-status plants including round-leaved filaree (*California macrophylla*), paniculate tarplant (*Deinandra paniculata*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) Slender mariposa lily (*Calochortus clavatus* var. *gracilis*), club-haired mariposa lily (*Calochortus clavatus* var. *clavatus*). Mitigation measures (MMs) were set forth in the DSEIR including MM 5.2-4 for the two varieties of Mariposa lily and MM 5.2-5 for the round-leaved filaree, paniculate tarplant, and southwestern spiny rush. Included in the mitigation measures was preparation of a "Special Status Plant Species Restoration Plan," which was provided by the *Status Plant Species Restoration Plan: NorthLake Specific Plan, Los Angeles County, California* (BonTerra Rare Plant Plan) as part of the FSEIR. Thus, based on updated information and the Court Ruling, the HMMP sets forth mitigation measures for rare plants where the current determination is a potential significant impact.

[1] BonTerra Psomas. October 2017. *Special Status Plant Species Restoration Plan: NorthLake Specific Plan, Los Angeles County, California.* Note: BonTerra merged with Psomas and because BonTerra Psomas. Older documents were prepared by BonTerra before the merger and later project documents were under BonTerra Psomas. This report uses "BonTerra" throughout.

The Impact Assessment below considers the following significance threshold from the CEQA Guidelines Appendix G, IV. Biological Resources: Would the Project

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

II. SPECIES CHARACTERISTICS

Five special-status plant species were detected on the site during various surveys over multiple years. The species accounts address the species detected in 1998 and 2001 as well as by BonTerra in 2014. The Impact Assessment includes important updates, specifically with regard to the California Rare Plant Rank (CRPR) for the round-leaved filaree and the addition of the California Natural Diversity Database (CNDDB) Rarity rankings for southwestern spiny rush, paniculate tarplant, slender mariposa lily, and club-haired mariposa lily to provide a more robust analysis relative to the significance of the impacts.

Round-leaved filaree

Round-leaved filaree is an annual or biennial herbaceous species that occurs in clay soils in grasslands, openings in coastal sage scrub, and cismontane woodland (Allen and Roberts 2013). This species is less than six inches in height and generally blooms between mid-March and early May. Round-leaved filaree was listed with a CRPR of 1B.2 (Rare or endangered in California and elsewhere, fairly endangered in California) in October 2017, when BonTerra prepared the BonTerra Rare Plant Plan[2].

A total of 39 individuals of this species was observed in annual grassland in the central portion of the site in silty-clay soils in 2001, as depicted on Exhibit 3a, and was not observed during botanical surveys conducted in 2014 (BonTerra Psomas 2014). Associated plant species reported in 2001 included salt grass (*Distichlis spicata*), foxtail barley (*Hordeum murinum leporinum*), western plantain (*Plantago erecta*), fascicled tarweed (*Deinandra fasciculata*), and California goldfields (*Lasthenia californica*); however, neither the geographic extent or density of the population were reported and are thus unknown. On April 6 and 14, 2022 the location was visited by GLA biologist Tony Bomkamp to determine whether the occurrence was extant, and the species was not detected. On the April 14 site visit, County of Los Angeles Biologist Joe Decruyenaere was present and assisted in the survey. The site conditions appear to have become degraded and may explain why round-leaved filaree was not detected on either visit.

In November 2017, after completion of BonTerra's *Special Status Plant Species Restoration Plan* the California Native Plant Society removed this species from the "Inventory of Rare and Endangered Plants" changing the status from 1B.2 to "Considered but Rejected" (CBR),[3] with the

[2] Ibid.

[3] The California Rare Plant Rank is derived directly from the California Native Plant Society *Inventory of Rare and Endangered Plants.*

note: "**Too common statewide**"; with the additional comment: "counties that contain small, localized populations under severe threat should track *C. macrophylla* as a species of local concern." Thus, this species no longer has special status under the CRPR (or as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFW) or U.S. Fish and Wildlife Service (USFW) as discussed below in the impact analysis. Nevertheless, the plant is considered locally rare by the County of Los Angeles and is addressed in this plan, should the occurrence be confirmed in preconstruction surveys.

Paniculate tarplant

Paniculate tarplant is an annual herbaceous species that is found in grassland, open chaparral and woodland, and disturbed areas, often in sandy or sandy-clay soil (Baldwin et al 2012). This is an upright species that grows up to 30 inches in height and typically blooms between May and November. Paniculate tarplant has a CRPR of 4.2 (Limited distribution in California, fairly endangered in California). Of note is the fact that paniculate tarplant has a CNDDB Rarity Ranking of S4 ("Apparently secure within California")[4] and CalFlora lists 710 records for this species as discussed below in the impact assessment.

One population of paniculate tarplant comprised of several hundred individual plants was observed during 2014 botanical surveys in the northern-central portion of the Project site, in an opening of sage scrub habitat on a northwest-facing slope [Exhibit 3a]. The 2014 report did not provide the geographic extent or density of the population. This occurrence was confirmed during a site visit on April 14, 2022, at which time the geographic extent was mapped using GPS and the density was observed to be variable ranging from approximately one to five plants per square meter, resulting in population estimate of 600. Associated plant species at this location include California sagebrush (*Artemisia californica*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), and nodding needlegrass (*Stipa cernua*).

Southwestern spiny rush

Southwestern spiny rush is a perennial rhizomatous herb that occurs in alkaline seeps and moist saline soils. This species grows from 20 to 50 inches in height and typically blooms between June and August (Baldwin et al 2012); however, it is detectable throughout the year. Southwestern spiny rush has a CRPR of 4.2 (Limited distribution in California, fairly endangered in California). Like the paniculate tarplant, Southwestern spiny rush has a CNDDB Rarity Ranking of S4[5] ("Apparently secure in California") and CalFlora lists 406 records for this species. Southwestern spiny rush was observed throughout Grasshopper Canyon, and it was estimated by BonTerra that several hundred individual plants exist in the Project development boundary. BonTerra's mapping showed that the majority of Grasshopper Creek was occupied; however, densities were not reported. Approximately 2,000 individuals of this plant were observed throughout the main drainage in Grasshopper Canyon in 2021 by GLA biologists. The

[4] http://www.rareplants.cnps.org/detail/1892.html
[5] http://www.rareplants.cnps.org/detail/939.html

plants were distributed throughout Grasshopper Creek areas depicted on Exhibit 4c. GLA noted that density varies from occasional individuals to dense thickets of nearly 100-percent cover for some localized patches. In general, the spiny rush was limited to the low flow channel and adjacent terraces. The plants were growing in mule fat scrub and mule fat scrub/spiny rush marsh vegetation. The substrate in these areas is sandy riverwash with cobbles and boulders (BonTerra 2014). The plant species generally associated with the individuals includes mule fat (*Baccharis salicifolia*) and sandbar willow (*Salix exigua*).

Slender mariposa lily and club-haired mariposa lily

Slender mariposa lily and club-haired mariposa lily are perennial herbs in the lily family and *Calochortus* genus, which consists of 50 species and/or subspecies that are native to California. Slender mariposa lily has a CRPR of 1B.2 (Rare or endangered in California and elsewhere, fairly endangered in California) and a CNDDB Rarity Ranking of S2S3 ("Imperiled" and "Vulnerable"), and club-haired mariposa lily has a CRPR of 4.3 (Limited distribution in California, not very threatened in California) and a CNDDB Rarity Ranking of S3. CalFlora lists 95 and 117 occurrences respectively. These plants represent varieties of the same species and are known to hybridize with each other. Due to this known hybridization, these two species are often treated as a single species for purposes of impact assessment and mitigation. For portions of the population BonTerra mapped occupied polygons [Exhibit 3b]; however, did not provide specific counts for each polygon so it is not possible to establish densities. GLA has observed this species on multiple sites in northern Los Angeles County and densities vary from very low (< one/square meter) to multiple/square meter. Density for the proposed establishment areas is addressed below.

III. IMPACT ASSESSMENT

Expected impacts to target species are based on plant surveys conducted by BonTerra in 2014, combined with observations from previous surveys in 2001 and 1998. Because plant populations vary year-to-year, the number of individual plants can only be estimated based on the previous surveys. A final determination of the number of plants, requiring mitigation for project impacts will be made during at least two separate pre-construction botanical surveys (performed during separate years). The purpose of the pre-construction surveys will be to quantify the number of plants subject to mitigation within the Project development boundary and to mark plants to facilitate collection of plant material. The following sections provide a summary of expected impacts to the various target plant species as well as an updated determination of the significance of the impacts.

Pre-Construction Surveys

Pre-construction surveys will be conducted by qualified botanists or biologist during the blooming period for each species or when the species is easily identifiable. For example, the spiny rush is identifiable during all times of the year, while the round-leaved filaree, paniculate tarplant, and mariposa lilies have specific blooming periods when surveys will be performed. Specifically, the round-leaved filaree blooms during March, April, and May. Paniculate tarplant blooms from April

to November with peak flowering in July and August. The slender and club-haired Mariposa lilies bloom March through June. Surveys for the round-leaved filaree, paniculate tarplant, and Mariposa lilies will be conducted during peak blooming periods. In order to maximize detection, early season surveys that coincide with the beginning of the blooming period should be performed to ensure that the plants are in vegetative state or in early flowing period. Survey(s) will be conducted in accordance with accepted botanical survey guidelines (CDFW 2018, CNPS 2001, Nelson 1984, USFWS 2000). As discussed in more detail below, mitigation for impacts will be based on the largest number of plants recorded during pre-construction surveys or surveys conducted for the Biological Technical Report by BonTerra.

In evaluating the significance for the proposed impacts, it is important to note that none of the special-status plants are listed by the Federal Endangered Species Act (FESA) as threatened or endangered or under the State of California Endangered Species Act (CESA) as threatened, endangered, or rare. The special-status designation for the five plant species detected on the Project site are, as noted in the descriptions above, originally based on the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants of California*, which has been adopted by the State of California and provides the ranking for the CRPR. The impact analysis prepared by BonTerra for the SEIR was based on the CRPR; however, they did not include the CNDDB Rarity Ranking which ranks plants according to State, National and Global Rarity Rankings as discussed following the discussion of the CNPS/CRPR Ranking of certain plants.

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. The CNPS' Eighth Edition of the *California Native Plant Society's Inventory of Rare and Endangered Plants of California* ("Inventory") separates plants of interest into five ranks. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as threatened and endangered by CDFW. CNPS has developed five categories of rarity that are summarized in Table 1, which in turn form the basis for the CRPR.

Table 1: CNPS Ranks 1, 2, 3, & 4, and Threat Code Extensions

CNPS Rank	Comments
Rank 1A – Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere	Thought to be extinct in California based on a lack of observation or detection for many years.
Rank 1B – Plants Rare, Threatened, or Endangered in California and Elsewhere	Species, which are generally rare throughout their range that are also judged to be vulnerable to other threats such as declining habitat.
Rank 2A – Plants presumed Extirpated in California, But Common Elsewhere	Species that are presumed extinct in California but more common outside of California.

Rank 2B – Plants Rare, Threatened or Endangered in California, But More Common Elsewhere	Species that are rare in California but more common outside of California.
Rank 3 – Plants About Which More Information Is Needed (A Review List)	Species that are thought to be rare or in decline but CNPS lacks the information needed to assign to the appropriate list. In most instances, the extent of surveys for these species is not sufficient to allow CNPS to accurately assess whether these species should be assigned to a specific rank. In addition, many of the Rank 3 species have associated taxonomic problems such that the validity of their current taxonomy is unclear.
Rank 4 – Plants of Limited Distribution (A Watch List)	Species that are currently thought to be limited in distribution or range whose vulnerability or susceptibility to threat is currently low. In some cases, as noted above for Rank 3 species, CNPS lacks survey data to accurately determine status in California. Many species have been placed on Rank 4 in previous editions of the "Inventory" and have been removed as survey data has indicated that the species are more common than previously thought. CNPS recommends that species currently included on this list should be monitored to ensure that future substantial declines are minimized.
Extension	**Comments**
.1 – Seriously endangered in California	Species with over 80% of occurrences threatened and/or have a high degree and immediacy of threat.
.2 – Fairly endangered in California	Species with 20-80% of occurrences threatened.
.3 – Not very endangered in California	Species with <20% of occurrences threatened or with no current threats known.

In considering impacts to List/Rank 4 species, it is important to note that these species often do not trigger a determination of "significant impacts" because as noted in Table 1 above, these "Species that are currently thought to be limited in distribution or range **whose vulnerability or susceptibility to threat is currently low**". Where appropriate, the "Threat Codes" are considered for major impacts; however, the CNPS Inventory includes the following notes regarding the Threat Codes:

Notes:

1. *The above Threat Rank guidelines only represent a starting point in the assessment of threat level. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are also considered in setting the Threat Rank.*
2. *Many of the Threat Ranks have not been reassessed since the time they were first designated after implementation of the Rare Plant Status Review Process, and therefore may not represent the current level of threats associated with a given taxon.*

3. *The Threat Ranks do not designate a change of environmental protections. For instance a CRPR 1B.3 plant has the same environmental protections as a CRPR 1B.1 plant, and it is mandatory that both be fully considered during preparation of environmental documents relating to CEQA.*[6]

As discussed below, three of the plants, southwestern spiny rush (4.2), paniculate tarplant (4.2), and club-haired mariposa lily (4.3), identified on the NorthLake site are List/Rank 4 species and two have a Threat Code of ".2". As noted by CNPS, many of the threat codes have not been reassessed; however, the CNDDB Rarity Rankings provide additional information regarding the rarity and threat of special-status plants as addressed below.

> *The classification scheme that CNHP and The Natural Heritage Network use to track rare species and natural communities is a standardized ranking system that allows the Heritage Network members and cooperators to target the most at risk species and ecosystems for inventory, protection, research, and management. Species and ecosystems are ranked on the Global (G), National (N), and Subnational/State/province (S) levels. The basic ranks used to classify species and ecosystems are:*
>
> *1 = Critically Imperiled (Example: G1 = Globally Ranked Critically Imperiled)*
> *2 = Imperiled (Example: N2 = Nationally Ranked Imperiled)*
> *3 = Vulnerable to Extirpation (Example: S3 = State Ranked Vulnerable to Ext.)*
> *4 = Apparently Secure*
> *5 = Demonstrably Widespread, Abundant, and Secure*[7]

NatureServe, from which the above is derived, defines S4 as follows: "**Apparently Secure** — At a fairly low risk of extinction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors."[8]

Finally, relative to "State Rankings:"

> *The most widely used NatureServe rank in the United States are the State Ranks, which describe the rarity of a species within each state's boundary. These State Ranks begin with the letter "S". Global, National, and State ranks all use a 1-5 ranking system, summarized below:*
>
> *1 = Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences.*[9]

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[6] https://www.cnps.org/rare-plants/cnps-rare-plant-ranks#:~:text=0.2%2DModerately%20threatened%20in%20California,or%20no%20current%20threats%20known)

[7] https://cnhp.colostate.edu/ourdata/help/heritage/

[8] https://help.natureserve.org/biotics/content/record_management/Element_Files/Element_Tracking/ETRACK_Definitions_of_Heritage_Conservation_Status_Ranks.htm

[9] Note that when addressing special-status plants, the term "occurrences" typically represents distinct sub-populations that are separated from other sub-populations across the geographic range. While in some rare instances

2 = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences.
3 = Rare, uncommon or threatened, but not immediately imperiled, typically with 21-100 occurrences.
4 = Not rare and apparently secure, but with cause for long-term concern, usually with more than 100 occurrences.
5 = Demonstrably widespread, abundant, and secure.[10]

Nevertheless, while plants with a CNDDB Rarity Ranking of S4 are considered "Apparently Secure" the California Department of Fish and Wildlife (CDFW) requires at a minimum that species from CRPR List 3 and 4 as well as species with an S4 Rarity Ranking be evaluated relative to significance of specific project impacts. In a recent letter, on an unrelated project in the western part of the City of Los Angeles, CDFW addressed treatment of plants from CRPR Lists 1A, 1B and 2:

CEQA provides protection not only for CESA listed and candidate species but for any species including: SSC that can be shown to meet the criteria for State-listing; and plants designated as 1A, 1B and 2 of the California Native Plant Society Inventory of Rare and Endangered Vascular Plants of California, which consist of plants that, in a majority of cases, would qualify for listing (CEQA Guidelines §§ 15380[d] and 15065 [a]).[11]

The letter also notes that impacts to all special-status species that potentially occur on the Runyon Canyon site should be evaluated in the DEIR and that discussion includes one plant, Plummer's mariposa lily[12], listed as 4.3 on the CRPR and S4 in the CNDDB. Thus, CDFW distinguishes between plants from CRPR Lists 1A, 1B, and 2 and those on the "watch list" (List 4). The treatments below, consider all of these factors in the evaluation of the significant impacts for species on List 4 and with a CNDDB ranking of S4.

In addition, with respect to number of occurrences of populations, the Calflora database was used to provide additional information as to the number of occurrences of the species at issue in this report to further evaluate the State Rankings. Calflora's statewide database is based on information gathered from many sources including the Consortium of California Herbaria, iNaturalist, public agencies, non-profits, scientists, and private individuals. Calflora's research primarily concerns the presentation of already-digitized botanical information, including images, location, and collection information.

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the term can apply to single individuals, in most cases it denotes a distinct group of plants that occur together and are separated from other similar groups.

[10] https://inr.oregonstate.edu/orbic/rare-species/ranking-definitions

[11] California Department of Fish and Wildlife. May 3, 2018. Comments on the Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for the 3003 Runyon Canyon (ENV-2016-4180-EIR) Project, City of Los Angeles, Los Angeles County (SCH# 2018041016).

[12] Plummer's mariposa lily a distinct species of Mariposa lily that was not observed on the Project site during focused surveys and, therefore, not further addressed here. BonTerra Biological Technical Assessment Report, Appendix D to the DSEIR, page 31.

Round-leaved filaree

Round-leaved filaree was observed during 2001 plant surveys, when 39 plants were observed within the Project development boundary. However, this species was not observed during surveys conducted in 2014, indicating that this species may have been extirpated from the Project site. Site visits on April 6 and 14, 2022 to the site location where the species was previously detected in 2001 did not find the population consistent with the finding that the population may have been extirpated. If this species is not detected during pre-construction plant surveys, it will be considered extirpated, and no mitigation will be required.

As noted above, in November 2017, the California Native Plant Society removed this species from the "Inventory of Rare and Endangered Plants" changing the status from 1B.2 to "Considered but Rejected" ("CBR")[13] with the note: "**Too common statewide"**; with the additional comment: "counties that contain small, localized populations under severe threat should track *C. macrophylla* as a species of local concern." This species has over 600 reported occurrences in CalFlora statewide.[14] Thus, this species no longer has special status in California. The round-leaved filaree is not listed on an official, local, or regional plan; nevertheless, there are only a few occurrences in northern Los Angeles County and is considered locally rare.[15] Therefore, impacts to this species, if determined to be present, would be significant under the above significance threshold, Appendix G, Significance Threshold Biology IV(a). Potential impacts to this species, if it is still present on the NorthLake site, are considered significant and mitigation is required if present on the site.

Paniculate tarplant

Paniculate tarplant was observed in 2014 in a single population that consisted of several hundred individual plants, all of which occur in the Project development boundary. The population was detected on April 14, 2022, consistent with the previous observations. As noted, this species is listed as S4 in the CNDDB or "apparently secure within California". Moreover, given (i) the CRPR rank of 4 and the S4 Rarity Ranking, (ii) over 700 reported population occurrences in CalFlora statewide,[16] substantially exceeding the minimum threshold of 100 occurrences for the S4 category, and (iii) that this species is not on any official local or regional plans**;** nevertheless, there are only a few occurrences in northern Los Angeles County and is considered locally rare.[17] Therefore, impacts to this species would be considered significant and would require mitigation with the removal of the Project site population under Appendix G, Significance Threshold Biology IV.(a).

[13] http://www.rareplants.cnps.org/detail/1340.html
[14] https://www.calflora.org/app/taxon?crn=10468
[15] June 08, 2021. Joseph Decruyenaere, Los Angeles County Biologist, Personal Communication regarding status of round-leaved filaree.
[16] https://www.calflora.org/app/taxon?crn=8915
[17] June 08, 2021. Joseph Decruyenaere, Los Angeles County Biologist, Personal Communication regarding status of paniculate tarplant.

Southwestern spiny rush

Southwestern spiny rush was observed throughout Grasshopper Canyon, and it was estimated by BonTerra that several hundred individual plants exist in the Project development boundary. GLA conducted a focused survey and census in 2021 and found approximately 2,000 individuals in Grasshopper Creek distributed throughout Grasshopper Creek, all of which are in the impact limits, as depicted on Exhibit 4c.[18] GLA noted that density varies from occasional individuals to dense thickets of nearly 100-percent cover for localized patches. As noted, this sub-species is listed as S4 in the CNDDB or "apparently secure within California". Moreover, given (i) the CRPR rank of 4 and the S4 Rarity Ranking, (ii) over 400 reported occurrences in CalFlora, statewide[19] substantially exceeding the minimum threshold of 100 occurrences for the S4 category, and (iii) that this species is not on any official local or regional plans**;** nevertheless, there are only a few occurrences in northern Los Angeles County and is considered locally rare.[20] Therefore, impacts to this species would be considered significant with the removal of the Project site population under Appendix G Significance Threshold Biology IV.(a) and would require mitigation as set forth below.

Slender mariposa lily and club-haired mariposa lily

BonTerra reported that approximately 1,709 individuals of slender/club-haired mariposa lily hybrids were observed at 36 locations on the Project site during botanical surveys conducted in 2014; an additional 22 populations contained plants of varying densities, likely representing an additional 1,000 or more individuals. It is estimated that over 3,000 individuals occur on the Project site; however, in the BonTerra Draft Rare Plant Plan, it was clarified that of the approximately 3,000 individuals observed in the Project site, approximately 2,000 individuals are located within the Project development boundary. Given the List 1B status and S2S3 CNDDB Rank for the slender mariposa lily and the S3 Rarity Rank for the club-haired mariposa lily and the CalFlora occurrences (95[21] and 117[22] respectively), impacts to this species would be considered significant before mitigation and with mitigation would be reduced to less-than significant as evaluated below.

Peirson's Morning Glory

Peirson's morning glory was observed throughout the native upland vegetation types, especially in sage scrub-grassland ecotone areas, as well as in disturbed areas along the side of Ridge Route Road. Impacts to this CRPR List 4 taxon, which is still common in northern Los Angeles County (unlike the round-leaved filaree, paniculate tarplant and the southwestern spiny rush) was considered adverse, but less than significant due to the low status of these species and their relative abundance throughout their range and no mitigation was required. However, impacts on this species are expected to be reduced through the implementation of mitigation requirements for

[18] This includes Offsite Areas 1 and 3.
[19] https://www.calflora.org/app/taxon?crn=4433
[20] June 08, 2021. Joseph Decruyenaere, Los Angeles County Biologist, Personal Communication regarding status of southwestern spiny rush.
[21] https://www.calflora.org/app/taxon?crn=1274
[22] https://www.calflora.org/app/taxon?crn=1273

vegetation types and special status plants. These mitigation measures would require preservation or restoration of impacted sage scrub, foothill needlegrass grassland, and California annual grassland/wildflower fields; habitat types in which this species is found. Additionally, restored habitats would include this species as a target for seed mix. These measures combined would lessen any adverse impacts by providing for long-term population sustainment in the region. (SDEIR 5.2-24.) Specifically, Mitigation Measure 5.2-5 in the SEIR included a provision wherein "The harvested seeds of Peirson's morning glory will be included in the seed mixes for the restoration of foothill needlegrass grasslands described in Mitigation Measures 1 and 2." To provide a protocol for such seed collection, this species is included in this Plan.

IV. HABITAT MITIGATION AND MONITORING PLAN (HMMP)

A. Summary of Plan

The following provides a comprehensive detailed program intended to reduce the significant impacts to five special-status plants: round-leaved filaree (CRPR Rank: CBR, Locally Rare), paniculate tarplant (List 4.2, Locally Rare), southwestern spiny rush (List 4.2, Locally Rare), slender mariposa lily (List 1B.2 and S2S3), and the club-haired mariposa lily (List 4.3 and S3), the two mariposa lily species, which as noted by BonTerra, are known to hybridize and, therefore for purposes of this plan are treated together as a single taxon. The mitigation program set forth below incorporates components of the BonTerra Draft Rare Plant Plan and includes additional components based on GLA's experience with various rare plant species including Mariposa lily. Specifically, the components of the Rare Plant HMMP include the following:

- Goals
- Identification of mitigation receptor sites
- Preparation of receptor sites
- Methods for collection of seed for propagation
- Methods for collection of bulbs for translocation
- Methods for installation of bulbs at receptor sites
- Maintenance requirements
- Monitoring methods
- Performance standards
- Contingency measures
- Agency concurrence of completeness

It is important to note that the ecological characteristics, habitat requirements, and sensitivity, are different for the above-referenced species and therefore the associated restoration program for each species is different for the four species (the two subspecies of Mariposa lilies are treated together). The level of detail varies according to the ecological requirements, sensitivity, and the goals for each species. The HMMP components have been tailored for each species and are addressed in Sections IV.B – IV.E, below. It is important to note that for some of the species, not all the above-listed HMMP components are applicable and therefore are not included. For example, only the

Mariposa lilies exhibit bulbs, this character has no application for the other rare plants and is not included.

B. Round-Leaved Filaree

1. Goals

The goal of round-leaved filaree replacement program is to establish a self-sustaining population consisting of the number of individuals detected during pre-construction surveys. As noted, round-leaved filaree was observed during 2001 plant surveys, when 39 plants were observed within the Project development boundary. The 2001 location was mapped as a single point and the geographic extent was not provided. This species was not observed during surveys that were conducted in 2014 or site visits in April 2022, indicating that this species may have been extirpated from the Project Site. If this species is not detected during two years of pre-construction plant surveys, with average or above-average rainfall it will be considered extirpated, and no mitigation will be required. Rainfall is considered average if it is within one quartile (+/- relative to the mean). The average rainfall for northwestern Los Angeles County is 20 inches per year using the Del Valle Weather Station, approximately six miles to the southwest of the Project site. Thus, where seasonal rainfall is at least 15 inches for the season, October 1 and April 15, the rainfall is considered average and suitable for surveys. If the species is detected during pre-construction surveys, the goal of the program would be to replace the existing population, through the methods described below, which includes growing container stock from seed for introduction to a suitable receptor site and through soil salvage. Replacement would be based on the largest number of plants detected during the two years of surveys. While the geographic extent of the population is not known, based on the diminutive size of the plants a population much larger than 39 could be easily accommodated within 0.25 acre.

2. Identification of Receptor Sites

The suitability of receptor sites was determined by the presence of suitable soils, specifically the Castaic-Balcom silty clay loams and Sorrento loams which occurs within various areas of Project open space. Given the small size of the population and the diminutive stature of the plants, the receptor area for this required for this species will cover less than 0.25 acre and can be accommodated at various locations. For purposes of efficiency, areas adjacent to the western spadefoot toad pool creation sites. These areas would be graded for creation of the spadefoot pools (grading is depicted by purple topographic lines on Exhibit 4a); however, following grading the area surrounding the pools would be restored to native habitat and would provide adequate area with suitable soils as depicted on Exhibit 4a. In addition, we have identified a second location of a west-facing slope that consists of the Castaic Balcom silty clay loam and could also be used as receptor site for the round-leaved filaree depicted on Exhibit 4a, should the primary receptor site adjacent to the western spadefoot toad pool sites fail to meet performance standards. As noted, the round-leaved filaree is a diminutive plant, typically less than six inches in diameter. Thus, at a density of one plant per square foot, which would be low density, a site covering approximately 0.25 acre could accommodate 10,890 individuals. Thus, based on counts by BonTerra in 2001, 0.25 acre would be more than sufficient area for the receptor site based on 39 plants being observed

at that time. It should also be noted that the location for round-leaved filaree, based on BonTerra's mapping is a gentle west facing slope, which would be provided by the proposed translocation site adjacent to the spadefoot ponds.

In addition, as noted by BonTerra, "round-leaved filaree receptor site(s)…should consist of (1) grassland areas that are dominated by native grass species of moderate density or (2) openings within sage scrub habitats that have low coverage of shrub species. If a potential receptor site has moderate to dense non-native grass cover, pre-transplantation weed removal combined with ongoing weed control efforts will be necessary to prevent non-native species from displacing round-leaved filaree plants".

3. Preparation of Receptor Sites

The proposed receptor sites are currently vegetated with non-native grasses and forbs including ripgut (*Bromus diandrus*) and summer mustard (*Hirschfeldia incana*). Beginning at least one full year prior to introduction of the container stock and soil blocks (if incorporated as addressed below), a grow-and-kill program will be initiated to reduce the cover by non-native grasses and forbs to levels acceptable for introduction of the round-leaved filaree container stock, which would be less than 20-percent non-native cover by the end of the ten-year monitoring period (see performance standards below for additional discussion of ongoing reduction of non-native cover during the maintenance and monitoring period). Installation of the round-leaved filaree would occur following the second full year of maintenance where the cover of non-native grasses and herbs has been reduced to 30 percent or less. Should non-native cover exceed 30-percent at the end of two years, introduction of the round-leaved filaree would be delayed until year three or when the 30 percent threshold has been achieved.

To increase the likelihood of success and to ensure that the primary translocation site is not adversely affected by weedy competitors, the site would be planted with a mix of native grasses and shrubs typical of native habitat on the site that would provide habitat for the round-leaved filaree. The native plant palette would be planted after one full year of maintenance to suppress weed cover. Table 2 below provides the plant palette for the proposed habitat. The alternative translocation site supports a mix of scrub and non-native grasses and would require weed removal and maintenance should planting occur at this location. The performance standards would apply to both sites. The round-leaved filaree would be translocated following installation of the scrub and grassland palette and as noted above only after non-native weedy cover is at or below 30 percent cover.

TABLE 2
Sample Seed Palette

Botanic Name	Common Name	Lbs/Acre
Acmispon glaber	Deerweed	0.5
Corethrogyne filaginifolia	Common sandaster	4.0

Croton setiger	Turkey-mullein	4.5
Deinandra paniculata	Paniculate tarplant	3.0
Deinandra fasciculata	Clustered tarweed	3.0
Eriogonum fasciculatum	California buckwheat	2.0
Festuca microstachys	Small fescue	2.0
Hordeum brachyantherum	Meadow barley	2.0
Stipa pulchra	Purple needlegrass	2.0
Stipa lepida	Foothill needlegrass	0.5
Total		**23.5**

Monitoring Plan for Grassland and Scrub Revegetation Areas First-Year

First First-Year Monitoring

Success Standard: A minimum of 30-percent coverage by native species;
100-percent of proposed canopy species present;
50-percent of proposed understory present
No greater than 40-percent coverage by non-native species.

Second-Year Monitoring

Success Standard: A minimum of 40-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 30- percent coverage by non-native species.

Third-Year Monitoring

Success Standard: A minimum of 50-percent coverage by native species;
100-percent of proposed canopy species present 60-percent of proposed understory present
No greater than 25- percent coverage by non-native species.

Fourth-Year Monitoring

Success Standard: A minimum of 60-percent coverage by native species;
100-percent of proposed canopy species present
75-percent of proposed understory present
No greater than 20- percent coverage by non-native species.

Fifth-Year Monitoring

Success Standard: A minimum of 70-percent coverage by native species;
100-percent of proposed canopy species present
85-percent of proposed understory present

No greater than 20- percent coverage by non-native species with zero tolerance for species considered highly invasive by Cal-IPC.

Sixth through Tenth-Year Monitoring

Success Standard: A minimum of 80-percent coverage by native species;
100-percent of proposed canopy species present
85-percent of proposed understory present
No greater than 20- percent coverage by non-native species with zero tolerance for species considered highly invasive by Cal-IPC.

4. Methods for Collection of Seed for Propagation

If the round-leaved filaree is detected during pre-construction surveys, seed will be collected during the appropriate timeframe following flowering, at the end of each survey season, which would occur between June and August. Location of plants will be staked and/or flagged and recorded using sub-meter GPS Technology. To ensure that the maximum amount of seed is procured each season, the biological monitor will visit the site every two weeks following the start of the flowering season to collect seed as the fruits ripen. The fruits (mericarp) from each plant would be hand-collected and placed in paper bags for temporary storage in a cool, dry facility. Once collection is complete, the collected material would be transferred to an appropriate seed storage facility that is certified to hold or work with rare plants, for cleaning and storage until ready for reestablishment on the site. Fifty percent of the seed will be preserved for using in contingency sites if needed. If not needed for contingency purposes because the performance standards have been achieved, the contingency seed will be hand-broadcast at the receptor site following successful completion.

During seed collection, soil from the site will also be collected from the area around the existing population for use in the propagation in a native plant propagation facility. The soil will be stored in a cool, dry location until transfer to a facility for propagation.

In conjunction with site preparation, the seed would be transferred to a facility that specializes in native plant propagation (e.g., Tree of Life Nursery) for propagation. The seeds would be germinated in flats with the soil collected from the site and then transferred to "liners" that also contain soil from the area of the population that will be planted as container stock in the receptor site or sites.

In addition to use of container stock, the soil from the impact sites was initially proposed for collection using the soil-block method as described by BonTerra:

> *Collection of blocks of soil is a useful tool for plant translocation as soil in known locations of special status species contains a seed bank for these species as well as any beneficial microorganisms. If a population of round-leaved filaree is identified during pre-construction surveys, soil that contains these plants will be collected and relocated to an appropriate receptor site. Soil will be collected at*

round-leaved filaree populations after seed collection has occurred in approximate two to four square foot blocks to a depth of four to six inches.

This method could be implemented in conjunction with container stock installation and the soil squares would be installed in proximity to the container plants to maximize the potential for replacement of the round-leaved filaree. The number of soil blocks would be determined by the project biologist at the timed of the salvage, based on areal extent and density of the population. Because the site that has been mapped as containing the round-leaved filaree is currently dominated by non-native grasses and forbs, it may be detrimental to move soil blocks due to importation of weeds to the translocation site and based on site conditions observed in spring of 2022 is not recommended due to substantial weed cover (estimated at greater than 75 percent). If this condition remains, it would be determined to be harmful by the Project biologist, and soil block translocation would not occur.

5. Weeding and other Maintenance Requirements

The purpose of this program is to ensure the success of the container stock and soil blocks. Maintenance will occur over the life of the translocation/mitigation project, for a ten-year period. The Project Biologist will monitor all aspects of the round-leaved filaree replacement effort throughout the maintenance period to detect any problems at an early stage. Potential problems could arise from vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation/herbivory.

These maintenance guidelines are specifically tailored for container stock establishment. The maintenance personnel will be fully informed regarding the habitat establishment program to ensure their understanding of the goals of the effort and the maintenance requirements. A Restoration Contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

General Maintenance

The Contractor will perform the following tasks as general maintenance duties:

- Inspection of Receptor Sites
- Weed control
- Trash and debris removal
- Pest control

Inspection of Receptor Sites

After initial planting, the Project Biologist will check the restoration plots bi-monthly during round-leaved filaree growing season which can begin as early as January through July every year.

The Project Biologist shall prepare a written memorandum to the Applicant after each monitoring site visit listing observations, problems, and recommended remedial measures based upon field observations. A copy of this memorandum shall be sent to the Restoration Contractor for implementation. These memorandums shall focus on identified problems including vandalism,

weeding, debris removal, pest control, herbivory etc. The Project Biologist shall be responsible for recommending all remedial measures to be implemented.

Weed Control
Weed control within the receptor sites shall be maintained on a regular basis during the maintenance and monitoring period. Maintenance shall be conducted monthly during the growing season (January-May) of the first year and bi-annually thereafter until the end of the maintenance and monitoring period.

Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Weeds shall be removed by hand or controlled with an appropriate herbicide as determined by a licensed Pest Control Advisor ("PCA"). The Project Biologist will be consulted and approve any herbicide application in advance. Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

All portions of the weed will be removed, including the roots. The Project Biologist shall direct the Restoration Contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from falling into the surrounding soil.

Trash and Debris Removal
The receptor sites shall be well maintained as needed, to deter vandalism and trash dumping. The Restoration Contractor is responsible for avoiding impacts to plantings during trash removal. The Restoration Contractor shall, during daily routine maintenance, manually remove weeds, litter, trash, and debris from the translocation site and dispose of off-site as permitted by law.

Access Control
The receptor sites will be checked regularly during scheduled maintenance visits for evidence of human disturbance, including off-road vehicle use, illegal dumping, vandalism, pedestrian access, and unauthorized brush clearing.

6. Monitoring

Monitoring Methods
The receptor sites will be monitored for ten years following the completion of container stock and soil clump installation. The monitoring program will consist of the observation and evidence of vegetative growth, observation of emergent and flowering round-leaved filaree along with seed production for flowering plants, photo-documentation, and measurements of annual rainfall.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel

and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

The Project Biologist will conduct monitoring surveys quarterly during non-growing season (September – April). During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July) for up to five years to document the growth of the replacement population.

Qualitative surveys, consisting of a general site walkover and habitat characterization, will be completed during each monitoring visit. General observations, such as the growth, flowering and seed production of the round-leaved filaree, as well as pest problems, weed establishment, mortality, and site security, will be noted in each site walkover. The Project Biologist will also note observations on native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss.

Surveying Flowering and Seed Production

All flowering and non-flowering individuals observed within the receptor sites will be counted. As noted above, quantitative surveys may require multiple visits per month as the blooming period may be staggered along several months (i.e., vegetative growth or non-blooming individuals may not be detected until that individual has bloomed). Peak blooming periods may fluctuate year to year due to seasonal conditions, therefore multiple visits will aid in a more accurate count of flowering individuals.

Each flowering individual in the created plots will be tallied and recorded on data sheets. The total yearly population will be calculated each year for the annual monitoring results and will be incorporated into the data on emergent plants to capture the total of emergent plants that do no flower and emergent plants that exhibit flowering.

Photo-Documentation

Permanent stations for photo-documentation will be established prior to or during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring report.

Monitoring Schedule

During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July) for ten years.

Annual Monitoring Reports

At the end of each monitoring period an annual report will be prepared for submittal to County of Los Angeles and CDFW. The report will summarize the information collected during the qualitative and quantitative monitoring. Each report will document the monitoring methods and description of the transplant sites, provide copies of field data, photo-documentation, monitoring results, an analysis of success, and recommendations for the project and or remedial measures if necessary.

Since planting may not occur when planned, monitoring shall be tied to the actual implementation date (e.g., the first annual report shall be delivered on January 1st of the year following the first growing season after planting). These reports will describe the success of the relocation and will discuss the efficacy of the various methods employed to propagate this species. These reports will also include the following:

- a list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year
- a vicinity map indicating location of the mitigation site
- a mitigation site plan, identifying plot locations, photo station locations, etc. as appropriate.
- copies of all monitoring photographs
- and an analysis of all qualitative and quantitative monitoring data

7. Performance Standards

In developing the performance standards for the round-leaved filaree, it is important to consider the primary goal of the plan as set forth above, which is to establish a self-sustaining population of this plant consisting of the number of individuals/population size determined during pre-construction surveys. With replacement of the exiting population, the impacts would be fully mitigated. This requires consideration of the following factors:

- The number of flowering individuals in any given year can vary substantially, based on environmental conditions, such that it is necessary to observe the translocated populations over a period of years to accurately determine survival and overall stability of the population. To this end, this plan proposes a ten-year monitoring term to track emergent plants along with flowering individuals which in combination provides the best and easiest indicators to track that the translocation is succeeding.

- Various threats to the plants must be minimized to ensure survival, germination, and ultimate flowering of recruited individuals, with seed set, leading to future germination/successful reproduction.

- Habitat characteristics including an abundance of non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the variability in the number of flowering individuals from year-to-year, the performance standards will have been achieved during at least three years during the ten-year monitoring program. Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period. Thus, if the following standard

is met in at least three years of the ten-year monitoring period then the program is considered successful.

Year One Through Year Ten (Begins with Installation of Round-Leaved Filaree)

- Flowering of a minimum of 100-percent of the total number of flowering plants originating from container stock, seed bank, and/or soil blocks, shall equal or exceed the number of container stock individuals planted (at least three years of the ten-year monitoring period); and
- Habitat subject to translocation must exhibit same or less cover by non-native grasses; and forbs than during the initial planting (20-percent at year five continuing through year ten).

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the first step will be to introduce hand watering, especially should significant drought occur. Hand watering would be performed during the spring prior to blooming to enhance growth and lead to flowering. Hand watering would be conducted for two years and if it does not result in achievement of performance standards, would require identification of alternative sites.
- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be propagated from the contingency seed supply held at the nursery for the (and maintained for at least ten years). Should the performance standards be achieved, contingency plant materials will be broadcast or installed in the translocation sites, with no additional performance standards for the contingency materials.
- The alternate site will be prepared as outlined for the initial site and modifications incorporated as determined by the project biologist in coordination with CDFW. Once an approach has been determined in coordination with CDFW, the container stock would be propagated from the contingency seed and the plants would be installed at the alternate site and a ten-year program, that included monitoring and maintenance would be initiated as set forth above.

Temporal Loss

If the translocation program fails such that at the end of ten years the site has failed to support round-leaved filaree, there would be a temporal loss that would require additional mitigation to compensate for the temporal loss. The additional mitigation would be performed at a ratio of 1.5:1.

C. Paniculate Tarplant

1. Goals

The goal of paniculate tarplant replacement program is to establish a self-sustaining population of paniculate tarplant based on the largest number of individuals detected during pre-construction surveys or original surveys conducted in support of the previously approved Project, whichever is largest. As noted, paniculate tarplant was observed by BonTerra during 2014 plant surveys, when a single population that consisted of several hundred individual plants was observed in Project development boundary. GLA confirmed the location and approximate number of plants on April 14, 2022 and determined the occupied area to cover about 0.30 acre. Pre-construction surveys would be conducted during two average or above-average rainfall years to determine the number of individuals present, with the goal of replacing the number of individuals detected during the largest of the two years of pre-construction surveys. Rainfall is considered average if it is within one quartile (+/- relative to the mean). The average rainfall for northwestern Los Angeles County is 20 inches per year using the Del Valle Weather Station, approximately six miles to the southwest of the Project site. Thus, where seasonal rainfall is at least 15 inches for the season, October 1 and April 15, the rainfall is considered average and suitable for surveys.

2. Identification of Receptor Sites

The suitability of receptor sites is determined by the presence of suitable soils, specifically the Castaic-Balcom silty clay loams which occurs within various areas of project open space. GLA has extensive experience with the paniculate tarplant on Rancho Mission Viejo in south Orange County where the species is commonly occurring in the tens of thousands in suitable years and occurs across a variety of soil types and within a variety of vegetation alliances including non-native grasslands and disturbed areas. Thus, the selected receptor sites here exhibit high suitability for this opportunistic species. Given the relatively small size of the population (a few hundred individuals), the receptor area for this species will cover 0.50 acre and can be accommodated at various locations. For purposes of efficiency, areas adjacent to the western spadefoot toad pool creation sites would provide adequate area with suitable soils as depicted on Exhibit 4a. Paniculate tarplant is an annual herb that can reach three feet in height with a diameter of up to 18 inches. Densities can be as high as five per square meter.[23] Thus, at a density of one plant per square meter, which would be low density, a site covering approximately 0.30 acre could accommodate approximately 1,200 individuals. Thus, based on counts by BonTerra in 2014 and observations by GLA in April of 2022, 0.30 acre would be more than sufficient area for the receptor site assuming a few hundred individuals, thus the 0.50 acre depicted on Exhibit 4a provides sufficient area.

In addition, as noted for the round-leaved filaree receptor site(s), discussed above, the paniculate tarplant receptor sites will consist of (1) grassland areas that are dominated by native grass species of moderate density or (2) openings within sage scrub habitats that have low coverage of shrub species. If a potential receptor site has moderate to dense non-native grass cover, pre-seeding weed

[23] Bomkamp, Tony. Personal observation of a large regional population in the Orange County Southern Subregion Habitat Conservation Plan Habitat Reserve between 1995 and 2020.

removal combined with ongoing weed control efforts will be implemented. It is important to note that the paniculate tarplant is disturbance adapted and can grow in non-native grasslands and the level of effort of site preparation for the round-leaved filaree discussed above will be more than sufficient for the paniculate tarplant.

3. Preparation of Receptor Sites

The proposed receptor sites are currently vegetated with non-native grasses and forbs including ripgut (*Bromus diandrus*) and summer mustard (*Hirschfeldia incana*). Beginning at least one full year prior to introduction of the paniculate tarplant seed (addressed below), a grow-and-kill program will be initiated to reduce the cover by non-native grasses and forbs to levels acceptable for introduction of the seed, which would be less than 30-percent non-native cover (see performance standards below for additional discussion of ongoing reduction of non-native cover during the maintenance and monitoring period). Installation of the paniculate tarplant would occur following the second full year of maintenance where the cover of non-native grasses and herbs has been reduced to 30 percent or less (ongoing maintenance will ultimately reduce non-native cover to 20 percent). Should non-native cover exceed 30-percent at the end of two years, introduction of the paniculate tarplant would be delayed until year three or when the 30 percent threshold has been achieved.

To increase the likelihood of success and to ensure that the translocation site is not adversely affected by weedy competitors, the site would be planted with a mix of native grasses and shrubs typical of native habitat on the site that would provide habitat for the round-leaved filaree. Table 2 above provides the plant palette for the proposed habitat with the associated performance standards following Table 2 above.

4. Methods for Collection of Seed for Propagation

Where the paniculate tarplant is detected during pre-construction surveys, seed will be collected during the appropriate timeframe following flowering, which would occur between June and August. The overall boundaries of the occupied area will be staked and flagged and recorded using sub-meter GPS Technology. To ensure that the maximum amount of seed is procured, the Biological Monitor will visit the site every two weeks following the start of the flowering season to collect seed as the fruits ripen. The seed from each plant would be hand-collected and placed in paper bags for temporary storage in a cool, dry facility. Once collection is complete, the collected material would be transferred to an appropriate seed storage facility (e.g., California Botanical Garden) for cleaning and storage until ready for hand broadcasting at the receptor site. Fifty-percent of the seed will be preserved for using in contingency sites if needed. If not needed for contingency purposes because the performance standards have been achieved, the contingency seed will be hand-broadcast at the receptor site following successful completion.

While BonTerra proposed collection of soil blocks as part of the paniculate tarplant replacement effort, this is not necessary as this plant can be restored through seed collection hand broadcasting and soil collection will not be implemented. Specifically, the paniculate tarplant is an annual that is highly disturbance adapted and performs well through seeding and thus, the soil block method

is not necessary and may be detrimental due to importation of additional weed seeds in the soil blocks.

5. Weeding and other Maintenance Requirements

The purpose of this program is to ensure the success of the seeded paniculate tarplant over the life of the translocation/mitigation project, for at least a ten-year period. The Project Biologist will monitor all aspects of the paniculate tarplant replacement effort throughout the maintenance period to detect any problems at an early stage. Potential problems could arise from vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation/herbivory.

These maintenance guidelines are specifically tailored for paniculate tarplant establishment. The maintenance personnel will be fully informed regarding the habitat establishment program to ensure their understanding of the goals of the effort and the maintenance requirements. A Restoration Contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

General Maintenance
The Contractor will perform the following tasks as general maintenance duties:

- Inspection of Receptor Sites
- Weed control
- Trash and debris removal
- Pest control

Inspection of Receptor Sites
After initial seeding, the Project Biologist will check the restoration plots bi-monthly during paniculate tarplant growing season which can begin as early as February through July or August every year.

The Project Biologist shall prepare a written memorandum to the Applicant after each monitoring site visit listing observations, problems, and recommended remedial measures based upon field observations. A copy of this memorandum shall be sent to the Restoration Contractor for implementation. These memorandums shall focus on identified problems including vandalism, weeding, debris removal, pest control, herbivory etc. The Project Biologist shall be responsible for recommending all remedial measures to be implemented.

Weed Control
Weed control within the receptor sites shall be maintained on a regular basis during the maintenance and monitoring period. Maintenance shall be conducted monthly during the growing season (January-May) of the first year and bi-annually thereafter until the end of the maintenance and monitoring period.

Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Weeds shall be removed by hand or controlled with an appropriate herbicide as determined by a licensed PCA. The Project Biologist will be consulted and approve any herbicide application in advance. Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

All portions of the weed will be removed, including the roots. The Project Biologist shall direct the Restoration Contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from falling into the surrounding soil.

Trash and Debris Removal

The receptor sites shall be well maintained as needed, to deter vandalism and dumping of trash. The Restoration Contractor is responsible for avoiding impacts to plantings during trash removal activities. The Restoration Contractor shall, during daily routine maintenance, manually remove weeds, litter, trash, and debris from the translocation site and dispose of off-site as permitted by law.

Access Control

The receptor sites will be checked regularly during scheduled maintenance visits for evidence of human disturbance, including off-road vehicle use, illegal dumping, vandalism, pedestrian access, and unauthorized brush clearing.

6. Monitoring

Monitoring Methods

The receptor sites will be monitored for ten years following the completion of seeding. The monitoring program will consist of the observation and evidence of vegetative growth, observation of emergent and flowering paniculate tarplant along with seed production for flowering plants, photo-documentation, and measurements of annual rainfall.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

The Project Biologist will conduct monitoring surveys quarterly during non-growing season (September – April). During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July or August) for ten years to document the growth of the replacement population.
Qualitative surveys, consisting of a general site walkover and habitat characterization, will be

completed during each monitoring visit. General observations, such as the growth, flowering and seed production of the paniculate tarplant, as well as pest problems, weed establishment, mortality, and site security, will be noted in each site walkover. The Project Biologist will also note observations on native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss.

Surveying Flowering and Seed Production

All flowering individuals observed within the receptor sites will be counted. As noted above, quantitative surveys may require multiple visits per month as the blooming period may be staggered along several months (i.e., vegetative growth or non-blooming individuals may not be detected until that individual has bloomed). Peak blooming periods may fluctuate year to year due to seasonal conditions, therefore multiple visits will aid in a more accurate count of flowering individuals.

Each flowering individual in the restoration plots will be tallied and recorded on data sheets. The total yearly population will be calculated each year for the annual monitoring results.

Photo-Documentation

Permanent stations for photo-documentation will be established prior to or during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring report.

Monitoring Schedule

During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July and August) for ten years.

Annual Monitoring Reports

At the end of each monitoring period an annual report will be prepared for submittal to County of Los Angeles and CDFW. The report will summarize the information collected during the qualitative and quantitative monitoring. Each report will document the monitoring methods and description of the transplant sites, provide copies of field data, photo-documentation, monitoring results, an analysis of success, and recommendations for the project and or remedial measures if necessary.

Since seeding may not occur when planned, monitoring shall be tied to the actual implementation date (e.g., the first annual report shall be delivered on January 1st of the year following the first growing season after seeding). These reports will describe the success of the relocation and will discuss the efficacy of the various methods employed to propagate this species. These reports will also include the following:

- a list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year
- a vicinity map indicating location of the mitigation site
- a mitigation site plan, identifying plot locations, photo station locations, etc. as appropriate.

- copies of all monitoring photographs
- and an analysis of all qualitative and quantitative monitoring data

7. Performance Standards

In developing the performance standards for the paniculate tarplant, it is important to consider the primary goal of the plan as set forth above, which is to establish a self-sustaining population of this plant consisting of the number of individuals/population size determined during pre-construction surveys. This requires consideration of the following factors:

- The number of flowering individuals in any given year can vary substantially, based on environmental conditions, such that it is necessary to observe the translocated populations over a period of years to accurately determine survival. To this end, this plan proposes a ten-year monitoring term to track flowering individuals which provides the best and easiest indicators to track that the translocation is succeeding.

- Various threats to the plants must be minimized to ensure survival, and ultimate flowering of seeded individuals leading to future germination/successful reproduction.

- Habitat characteristics including non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the variability of the number of flowering individuals from year-to-year, the performance standards will be considered to have been achieved if during any of three years of the ten-year monitoring period, the target number is achieved. Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period.

Year One Through Year Ten

- Flowering of 100-percent of the total number of flowering plants originating from seed shall equal or exceed the number of container individuals counted during the two-year monitoring period (at least three years of the ten-year monitoring period).
- Habitat subject to translocation must exhibit same or less cover by non-native grasses; and forbs than during the initial planting (30-percent).

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period the first step will be to introduce hand

watering, especially should significant drought occur. Hand watering would be performed during the spring prior to blooming to enhance growth and lead to flowering. Hand watering would be conducted for two years and if it does not result in achievement of performance standards, would require identification of alternative sites.

- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to broadcast seed from the contingency seed supply held at the seed facility (and maintained for at least ten years). Should the performance standards be achieved, contingency seed would be broadcast in the receptor site.
- The alternate site will be prepared as outlined for the initial site and modifications incorporated as determined by the Project Biologist in coordination with CDFW. Once an approach has been determined in coordination with CDFW, the seed would be broadcast at the contingency seed and seeded at the alternate site and a ten-year program, that includes monitoring and maintenance would be initiated as set forth above.

D. Southwestern Spiny Rush

1. Goals

The goal of spiny rush preservation and replacement program is to provide for a self-sustaining population of spiny rush that contributes to the persistence of this species within northern Los Angeles County. The proposed mitigation, for impacts to approximately 2,000 individuals, will include replacement of spiny rush in combination with preservation of approximately 523 individuals of spiny rush detected during surveys by GLA within Marple Canyon on March 7, 2022. As noted, GLA confirmed the approximate number of plants on the NorthLake site during surveys in 2021 wherein GLA biologists counted approximately 2,000 plants in Grasshopper Creek, including the areas designated as Offsite 1 and Offsite 3 on Exhibit 4a. In addition to preservation of approximately 523 individuals within Marple Canyon, replacement of spiny rush will be implemented within a segment of Grasshopper Creek downstream of the project site within lands under the ownership of NorthLake. Based on densities of spiny rush within the NorthLake project site, the offsite segment of Grasshopper Creek could support approximately 200 individuals providing for a combined total of 723 individuals. It should be noted that preservation of the Marple Canyon population includes long-term management by the Santa Monica Mountains Conservancy that will be responsible for the Marple Canyon preservation area.

Given the status and the total number of occurrences in the CNDDB as noted above: "…this sub-species is listed as S4 in the CNDDB or "apparently secure within California". Moreover, given (i) the CRPR rank of 4 and the S4 Rarity Ranking, (ii) over 400 reported occurrences in CalFlora, statewide[24] substantially exceeding the minimum threshold of 100 occurrences for the S4 category…" the combined preservation and establishment within the downstream segment of Grasshopper Creek as depicted on Exhibit 4b, the population within northern Los Angeles County would remain secure and the impacts would be mitigated to less-than-significant through the combination of establishment and preservation.

[24] https://www.calflora.org/app/taxon?crn=4433

2. Identification of Receptor Sites

The suitability of receptor site was determined by the presence of suitable soils within the subject segment of Grasshopper Creek and suitable hydrology due to the presence of upstream debris basins that will provide for surface and subsurface flows to the proposed establishment site. Specifically, the debris basins will provide for slow release of storm flows that will extend the periods of saturated and/or wet soils in the establishment area. This combined with groundwater recharge due to the basins, which will provide subsurface water to the establishment area, will ensure adequate hydrology for the spiny rush. The proposed establishment site is depicted on Exhibit 4b in the context of the overall site with a close-up of the establishment site with debris basins that will be constructed as part of the development depicted on Exhibit 4c.

The receptor site or sites have been shown to exhibit similar soils, associated native species, and topographical features to the impact areas.

3. Preparation of Receptor Sites

The proposed receptor site in Grasshopper Creek, which is below the terraces where the western spadefoot toad pools will be located [see Exhibit 4C that shows the separation], is currently sparsely vegetated with occasional patches of mulefat (*Baccharis salicifolia*) and non-native grasses and forbs. Beginning at least one full year prior to introduction of the spiny rush, a non-native removal program will be initiated to reduce the cover by non-native grasses and forbs to levels acceptable for introduction of the spiny rush, which would be less than 30-percent non-native cover. Where spiny rush occurs within Grasshopper Creek and Marple Creek, it occurs in low densities under areas of willow riparian canopy and where canopy is lacking, it often occurs in dense thickets that exhibit near 100-percent cover. To preserve space for the spiny rush within Grasshopper Creek, and thereby maximize numbers, no canopy or other plantings are proposed for the establishment areas other than riparian species, which recruit naturally.

4. Methods for Collection of Seed for Propagation and Cuttings for Planting

As noted, spiny rush is common within Grasshopper Creek, allowing for the collection of abundant seed during the appropriate phenology, which would occur during July and August. To ensure that the sufficient seed is procured, the Biological Monitor will visit the site every two weeks following the start of the flowering season to collect seed as the fruits ripen. The seed from each plant would be hand-collected and placed in paper bags for temporary storage in a cool, dry facility. Once collection is complete, the collected material would be transferred to an appropriate seed storage and propagation facility (e.g., Tree of Life Nursery or other native plant nursery) for cleaning and storage until ready for initiation of growth of container stock. Fifty-percent of the seed will be preserved for growing additional container stock as needed to replaced dead or dying plants or for use in contingency sites if needed. If not needed for additional container stock or contingency purposes because the performance standards have been achieved, the contingency seed will be hand-broadcast at the receptor site or within Marple Canyon following successful completion.

To augment seed and associated container stock, cuttings from the root balls would be obtained. Cuttings would be obtained during the fall by landscape crews experienced in collecting such cuttings. A minimum of 200 cuttings would be collected from plants within the segment of Grasshopper Creek proposed for impacts and collection would occur within two months of impacts. Following collection, the cuttings would be placed in bucket with a few inches of water and the buckets would be moved to the establishment areas for planting. Cuttings would remain in the buckets for 15 to 45 days prior to transplantation and would be installed by the landscape crews.

5. Weeding and other Maintenance Requirements

The purpose of this program is to ensure the success of the established spiny rush over the life of the translocation/mitigation project, for at least a ten-year period. The Project Biologist will monitor all aspects of the spiny rush replacement effort throughout the maintenance period to detect any problems at an early stage. Potential problems could arise from vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation/herbivory.

These maintenance guidelines are specifically tailored for spiny rush establishment. The maintenance personnel will be fully informed regarding the habitat establishment program to ensure their understanding of the goals of the effort and the maintenance requirements. A Restoration Contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

General Maintenance

The Contractor will perform the following tasks as general maintenance duties:

- Inspection of Receptor Sites
- Weed control
- Trash and debris removal
- Pest control

Inspection of Receptor Sites

After initial planting of container stock, the Project Biologist will check the restoration plots bi-monthly during spiny rush growing season which can begin as early as February through July every year.

The Project Biologist shall prepare a written memorandum to the Applicant after each monitoring site visit listing observations, problems, and recommended remedial measures based upon field observations. A copy of this memorandum shall be sent to the Restoration Contractor for implementation. These memoranda shall focus on identified problems including vandalism, weeding, debris removal, pest control, herbivory etc. The Project Biologist shall be responsible for recommending all remedial measures to be implemented.

Weed Control

Weed control within the receptor sites shall be maintained on a regular basis during the maintenance and monitoring period. Maintenance shall be conducted monthly during the growing

season (January-May) of the first year and bi-annually thereafter until the end of the maintenance and monitoring period.

Weed eradication will minimize competition that could prevent the establishment of native species including spiny rush recruits. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Weeds shall be removed by hand or controlled with an appropriate herbicide as determined by a licensed PCA. The Project Biologist will be consulted and approve any herbicide application in advance. Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

All portions of the weed will be removed, including the roots. The Project Biologist shall direct the Restoration Contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from falling into the surrounding soil.

Trash and Debris Removal
The receptor site shall be well maintained as needed, to deter vandalism and dumping of trash. The Restoration Contractor is responsible for avoiding impacts to plantings during trash removal activities. The Restoration Contractor shall, during daily routine maintenance, manually remove weeds, litter, trash, and debris from the translocation site and dispose of off-site as permitted by law.

Access Control
The receptor site will be checked regularly during scheduled maintenance visits for evidence of human disturbance, including off-road vehicle use, illegal dumping, vandalism, pedestrian access, and unauthorized brush clearing.

6. Monitoring

Monitoring Methods
The receptor site will be monitored for ten years following the completion of planting of container stock. The monitoring program will consist of the observation and evidence of vegetative growth, observation of flowering spiny rush along with seed production for flowering plants, photo-documentation, and measurements of annual rainfall.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

The habitat restoration specialists, biologists, or horticulturists will conduct monitoring surveys quarterly for ten years to document the growth of the replacement population. Qualitative surveys, consisting of a general site walkover and habitat characterization, will be completed during each monitoring visit. General observations, such as mortality or lack of vigor along with the growth, flowering and seed production of the spiny rush, as well as pest problems, weed establishment, and site security, will be noted in each site walkover. The Project Biologist will also note observations on native plant recruitment, including spiny rush, for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss.

Quantifying Established Plants

All spiny rush individuals observed within the receptor site will be counted. As noted above, quantitative surveys will be conducted once per year. Each individual in the restoration plot will be tallied and recorded on data sheets. The total yearly population will be calculated each year for the annual monitoring results.

Photo-Documentation

Permanent stations for photo-documentation will be established prior to or during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring report.

Monitoring Schedule

During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored in a quantitative manner to determine the number of individuals (approximately March through June) each year for ten years.

Annual Monitoring Reports

At the end of each quantitative monitoring period an annual report will be prepared for submittal to County of Los Angeles and CDFW. The report will summarize the information collected during the qualitative and quantitative monitoring. Each report will document the monitoring methods and description of the establishment sites, provide copies of field data, photo-documentation, monitoring results, an analysis of success, and recommendations for the project and or remedial measures if necessary.

The reports will describe the success of the relocation and will discuss the efficacy of the various methods employed to propagate this species. These reports will also include the following:

- a list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year
- a vicinity map indicating location of the mitigation site
- a mitigation site plan, identifying plot locations, photo station locations, etc. as appropriate.
- copies of all monitoring photographs
- and an analysis of all qualitative and quantitative monitoring data

7. Performance Standards

In developing the performance standards for the spiny rush, it is important to consider the primary goal of the plan as set forth above, which is to establish a self-sustaining population of approximately 200 plants. This requires consideration of the following factors:

- There will be loss of some of the planted individuals due to unsuitable micro habitat conditions and it will be necessary to replace container plants that do not survive initial plantings. To this end, this plan proposes a ten-year monitoring term to track survival of planted individuals which provides the best and easiest indicator to track that the establishment is succeeding.

- Various threats to the container plants must be minimized to ensure survival, germination of recruits, and ultimate flowering of planted and recruited individuals, with seed set, leading to future germination/successful reproduction.

- Habitat characteristics including non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the potential loss of planted individuals from year-to-year, the performance standards will be considered to have been achieved if at the end of the ten-year monitoring period, the target number is achieved. Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period.

Year One

- Survival of 80-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Year Two

- Survival of 90-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Year Three through Ten

- Survival of 100-percent of the 200 established individuals.
- Following quantitative monitoring that will occur between March and June, the number of additional container stock to provide for establishment of 200 plants will be determined with planting to following during fall of the same year.

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the ten-year monitoring period, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period the first step will be to introduce watering by means of a water truck, especially should significant drought occur. Watering would be performed throughout the year to promote survival and growth and lead to flowering and reproduction. Watering would be conducted for three years and if it does not result in achievement of performance standards, would require identification of alternative sites.
- If the receptor site is observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to establish container stock (and maintained for at least ten years). Should the performance standards be achieved, contingency seed would be broadcast in the receptor site.
- The alternate site will be prepared as outlined for the initial site and modifications incorporated as determined by the Project Biologist in coordination with CDFW. Once an approach has been determined in coordination with CDFW, the container stock would be established at the alternate site and a ten-year program, that includes monitoring and maintenance would be initiated as set forth above.

Temporal Loss

If the translocation program fails such that at the end of ten years the site has failed to support spiny rush, there would be a temporal loss that would require additional mitigation to compensate for the temporal loss. The additional mitigation of the 200 plants proposed for establishment would be performed at a ratio of 1.5:1.

E. Slender/Club-Haired Mariposa Lily

As reported by BonTerra, the Project will result in a significant impact on the slender and club-haired Mariposa lily (slender/club-haired mariposa lily), which are treated as a single taxon for purposes of this HMMP:

> *Approximately 1,709 individuals of slender/club-haired mariposa lily hybrids were observed at 36 locations on the project site during botanical surveys conducted in 2014; an additional 22 populations contained plants of varying densities, likely representing an additional 1,000 or more individuals. It is estimated that over 3,000 individuals occur on the project site and approximately 2,000 individuals are located within the project development boundary.*[25]

[25] *Special Status Plant Species Restoration Plan: NorthLake Specific Plan, Los Angeles County, California,* p.4.

In a letter dated June 15, 2017, the CDFW submitted a comment letter that included a discussion of the mitigation measures proposed for the slender/club-haired mariposa lilies.[26] The letter was prepared prior to preparation of the BonTerra Draft Rare Plant Plan, which itself was prepared to address many of the comments from CDFW. Nevertheless, to ensure that all CDFW's concerns are addressed, relevant comments are excerpted below:

> *B) Mariposa Lily Impacts. Impacts to club-haired mariposa lily (Calochortus clavatus var. clavatus) and over 3,000 slender mariposa lily (Calochortus clavatus var. gracilis) are proposed in Mitigation Measure 7 (MM7) that states the mitigation site will be located in dedicated open space in the study area or at an off-site mitigation site, and does not contain critical information including; [sic] numbers or densities, specific locations, techniques, or success criteria. The Department considers the loss of over 3,000 rare lilies regionally significant and MM7 does not demonstrate this population will survive long-term. The Department is not aware of any Mariposa lily seeding or translocation projects that have been successful at demonstrating a long-term self-sustaining population. The Department is aware of several large-scale lily seeding/translocation projects required by Los Angeles County in various CEQA documents; however, the Department has not received any evidence to demonstrate these undertakings are successful at securing a secure, self-sustaining population. A number of these projects involved transplanting bulbs into off-site areas already occupied with slender mariposa lily. The methods used in planting the bulbs ended up damaging the receptor site and caused more take of lily that occurred at this location.*
>
> *The Department recommends avoidance of this significant population of a regionally rare species. If avoidance is not feasible, specific information on how impacts will be mitigated are necessary for the Department to make meaningful comments or recommendations as to the biological soundness of any proposal. As stated above, MM7 does not appear to contain mitigation that the Department considers adequate in providing long-term success or survival of this species. MM7 does not allow the Department to comment on the appropriateness of the location, technique, success criteria, monitoring methods, density, length of time monitoring is required, of the method for long-term protection and funding.*
>
> *The Department does not support the use of irrigation, and any monitoring should begin after any irrigation and weed control has been completed as this is considered the installation or preparation phase. Monitoring for rare plants should occur for a minimum of 10 years to allow trends to be analyzed. No negative trend in rare plant individuals (counted separately as flowering, seed set and non-flowering individuals), and no positive trend in non-native plant cover should occur over the 10 years.*

[26] California Department of Fish and Wildlife. June 15, 2017. "Northlake Specific Plan Project (PROJECT) DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (DSEIR) SCH#2015031080.

MM7(f) states 60 percent of the seeds and bulbs collected shall be planted the first year, in an undetermined location. The Department does not concur with planting 60 percent of the collected seed/plants in the first year. Small scale, in situ plots with a few individuals should be conducted first to establish the baseline that these plants will naturally grow and set seed in these locations. Preferably, these growth plots should occur several years before grading impacts, to allow suitable planting areas be identified based on successful seed set. This could take multiple growing seasons and require germination studies. MM7(j) specifies undisclosed donor sites for seed collection. The Department strongly discourages mixing different population alleles into new areas as it compromises the integrity of the entire regional population.

First, as noted above, approximately 3000 slender/club-haired mariposa lilies are estimated to occur within the Project site with approximately 2,000 slender/club-haired mariposa lilies estimated to occur within the Project development/grading limits (Project Impact Area). A final count will be made during the two years of surveys prior to construction, and the number subject to the performance standards will be established during these surveys as described in more detail below. Thus, it will be necessary to ensure that the final total of impacted individuals within the Project Impact Area are adequately mitigated, which in turn will require replacement of sufficient numbers of mariposa lilies within areas of suitable habitat to mitigate the impacts. Establishment of a self-sustaining population or sub-populations that can be shown to persist at the receptor sites is the most critical component of the mitigation program because once the target number of plants are established and are reproducing within suitable habitat, the program can be considered a success. Thus, as set forth below, 1:1 or greater replacement is not necessary; nevertheless, there must be sufficient replacement to ensure that the reestablished population(s) are viable and contribute substantially to the regional population.

It is important to recognize CDFW's concerns that previous efforts to reestablish certain species or varieties of Mariposa lily have allegedly not been successful to date and that it will be necessary to ensure that suitable receptor sites are available and utilized, which is addressed below. In addressing CDFW's concerns the following proposals have been eliminated:

- Bulbs will not be translocated to occupied areas within the proposed mitigation sites based on pre-construction surveys with extant populations of slender or club-haired lilies[27]
- Irrigation by means of hand watering will be used in the translocation sites if determined necessary by the project biologist
- Monitoring will be conducted for 10 years
- Any offsite collection sites for seeds and bulbs that extends more than five miles beyond the Project site will be coordinated with CDFW to ensure genetic integrity

[27] GLA conducted surveys of the proposed translocation sites depicted on Exhibit 5 and found very low densities; only a few small patches within the some translocation sites. The presence of the species is important as it confirms overall suitability of the area for translocation including appropriate soils, aspect, and topography. Translocation would only be performed in areas that do not support extant populations.

1. Identification of Suitable Receptor Sites

The BonTerra Draft Rare Plant Plan identified the habitat occupied by the slender/club-haired mariposa lily hybrids, which informs the requirements of the receptor sites:

> *Slender mariposa lily and club-haired mariposa lily receptor site(s) shall consist of areas with rocky soils that naturally allow only low to moderate cover of native shrubs. Such areas consist of openings in sage scrub habitat, ridgelines, rocky slopes, and grassland areas. If a potential receptor site has moderate to dense non-native grass coverage, pre-transplantation weed removal combined with ongoing weed control efforts will be necessary. Potential receptor sites that contain gophers should be avoided as they are known to eat transplanted lily bulbs. If a receptor site is chosen that contains gophers, protective cages that extend above and below ground shall be installed around groups of transplanted lily bulbs.*[28]

BonTerra also addressed opportunities for relocation or establishment of lily populations on the Project site:

> *Because most of the project site will be graded for project development, few on-site opportunities remain for special status plant restoration. Potential on-site receptor locations were assessed based on existing soils, aspect, and vegetation. A large area of native sage scrub habitat occurs in the northwest corner of the project site (Exhibit 4). This area does not contain clay soils…but does contain gaps in shrub coverage that may provide limited opportunities for mariposa lily transplantation. However, a significant constraint on the use of this area for target species establishment is its potential utilization by the federally Threatened coastal California gnatcatcher (Polioptila californica californica) (gnatcatcher). Nesting activity by this bird species has been observed immediately east of this area, and gnatcatchers could potentially occur in the northwest corner of the site; therefore, maintenance tasks would have to be implemented in a manner that did not adversely impact gnatcatchers. Another potential on-site receptor site is in the southeast corner of the site which does contain some clay soils and provides limited potential for establishment of…mariposa lilies. However, this area was burned in 2013 and as vegetation recovers, overall habitat conditions may become too dense for long-term establishment. High- and medium-density populations of mariposa lilies occur in an area located in the southern-central portion of the site which will not be graded. This area may provide opportunities for the enhancement of these existing target plants through the relocation of mariposa lily bulbs, although it would be very difficult to distinguish between relocated bulbs and those which occur there naturally. All areas that are subject to fuel modification activities are not acceptable for the relocation of salvaged plant materials for the target species, due to the ongoing soil disturbance associated with such activities.*

[28] Ibid., p 7.

Subsequently, BonTerra conducted a more detailed feasibility study for onsite parcels, offsite parcels within the NorthLake ownership as well as offsite properties under other ownership and potentially available as set forth in their Memorandum dated August 24, 2018: *Feasibility Analysis of NorthLake Biological Mitigation Requirements* addressed to John Arvin, NorthLake [attached as Appendix A]. In their feasibility analysis BonTerra identified approximately 300 acres onsite and 450 acres of offsite lands under the NorthLake ownership suitable for translocation. BonTerra also identified an additional 13 offsite properties with up to 20,500 acres of potentially suitable habitat for the translocation of impacted lilies. Densities for different species and varieties of Mariposa lily can vary substantially based on site conditions. For the NorthLake site, BonTerra categorized the slender/club-haired Mariposa lily occurrences as low-, medium-, and high-density but did not quantify these terms. To establish the number of acres needed to accommodate approximately 2,000 mariposa lilies, GLA used a large dataset for the intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) (IML) from southern Orange County associated with the Orange County Southern Subregion Habitat Conservation Plan (SSHCP). The IML within a large subarea of the SSHCP exhibited a density of 205 lilies per acre for occupied habitat. Using this as a surrogate for the slender/club-haired Mariposa lily, it will be necessary to obtain approximately 9.7 acres of suitable habitat to ensure replacement of approximately 2,000 impacted lilies. The analysis of the occupied habitat determined a ratio of approximately 10:1 of area to obtain sufficient areas with suitable conditions. Thus, for 2,000 slender/club-haired Mariposa lilies, it will be necessary to obtain approximately 100 acres of area with suitable soils.

- GLA conducted on review of potential sites within the NorthLake ownership and identified an approximately 167-acre parcel immediately to the east of the NorthLake development area that exhibits suitable soils, native coastal sage scrub habitat suitable for translocation of salvaged slender/club-haired Mariposa lilies. As noted above, based on typical densities, approximately 9.7 acres would be necessary for planting of approximately 2,000 lilies. GLA identified a minimum of 30.19 acres, or about three times the area needed. Exhibit 5 depicts the 30.19-acre area that would receive the translocated Mariposa lilies. During the April 14, 2022 site visit, GLA noted a few individuals of slender/club-haired Mariposa lilies within the proposed mitigation area, which confirms the suitability of the area for this taxon. In order to confirm that the proposed mitigation area was not already at capacity, GLA conducted a more detailed survey on May 2, 2022 and counted a total of 43 lilies within the proposed mitigation, which was expanded during the May 2 site visit to ensure that additional suitable areas were available. Exhibit 5 depicts the location of slender/club-haired Mariposa lilies and the additional receptor sites identified. As noted, the potential receptor sites total 30.19 acres. As noted above, bulbs will not be translocated to occupied areas within the proposed mitigation sites based on pre-construction surveys with extant populations of slender or club-haired lilies[29] To ensure that extant populations are not impacted by installation of bulbs or container plants, all slender/club-haired Mariposa lilies detected during two-year pre-construction surveys in the 30.19-acre observed area will be

[29] GLA conducted surveys of the proposed translocation sites depicted on Exhibit 5 and found very low densities consisting of a few small patches within some translocation sites. The presence of the species, even in low densities is important as it confirms overall suitability of the area for translocation including appropriate soils, aspect, and topography. Translocation would only be performed in areas that do not support extant populations.

flagged and a 25-foot buffer around slender/club-haired Mariposa lilies will be established and demarcated to ensure protection during installation.

2. Collection of Seed and Bulbs

To collect seed and bulbs it is necessary to conduct pre-construction surveys in areas of suitable habitat to mark the locations for plants from which seeds can be collected as well as the location of specific plants for salvage of bulbs. BonTerra included a discussion in the BonTerra Draft Rare Plant Plan:

> *Botanical surveys shall be conducted by the Biological Monitor to mark the locations of plant material that is to be salvaged and relocated as part of this mitigation program. These surveys shall be conducted during at least two separate years, when sufficient rainfall has fallen to maximize the opportunity to observed annual plant species. To determine if sufficient rainfall has occurred for plant surveys to proceed, the California Nevada River Forecast Center website (NOAA 2017) shall be consulted to determine if the current water year is within 80 percent of normal rainfall… As needed, the locations (coordinates) of target plants will be recorded with Global Positioning System (GPS) equipment (single plants, or groups of plants) to facilitate the relocation of target plants. Individual…mariposa lily plants will be marked by colored pin flags to identify their location, so that seeds and bulbs can be collected after these species enter dormancy.*

The number of slender/club-haired mariposa lilies flagged within the impact boundaries during the two years of pre-construction surveys will be used to establish a final impact total. Note that because of the variability of the flowering for this species, it is likely that some plants will be encountered in both years while others are only detected during one or the other years. Thus, the total number of lilies will be based on the actual total of plants where those identified during both years are counted as a single individual, as will be those encountered in only one of the years. Thus, after the second survey, it will be possible to establish a more accurate number of plants to be impacted and subject to this mitigation program. Should the count of lilies during the two-year preconstruction surveys be less than the 2,000 estimated by BonTerra within the Project development area, the number of plants impacted would be 2,000, which would be the largest number determined through the various surveys in the Project Impact Area. Finally, because of the large population on the site and the ease of detection when the plants are flowering, it will not be necessary to rely on reference populations. As noted, surveys will start prior to flowering to monitor phenology to ensure that surveys capture all individuals for purposes of an accurate impact determination.

The BonTerra Draft Rare Plant Plan included details regarding seed and bulb collection, which also included "soil blocks" that would be implemented for areas of high density of the mariposa lilies. Seed and bulb collection would be limited to plants within the Project Impact Area. Plants within areas subject to avoidance would not be utilized for seed collection or bulb salvage.

Seed Collection
Seeds from all of the target species shall be collected by a qualified native seed collector, who shall monitor plant populations to determine when seeds have reached maturity for collection. Seed will be subsequently cleaned and stored in an appropriate facility for later application in receptor sites.

Soil Blocks
Collection of blocks of soil is a useful tool for plant translocation as soil in known locations of special status species contains a seed bank for these species as well as any beneficial microorganisms. If a [dense]population of mariposa lily is identified during pre-construction surveys, soil that contains these plants will be collected and relocated to an appropriate receptor site. Soil will be collected…after seed collection has occurred in approximate two to four square foot blocks to a depth of [eight] to [ten] inches.

Bulb Collection
Bulb retrieval will be performed by the Seed Collector during biological dormancy of the lilies (e.g., prior to winter rains) in late fall to maximize the survivorship of transplanted individuals. Using hand tools, the Seed Collector will excavate small blocks of soil surrounding each flagged lily to a depth of 10 to 14 inches. Individual lily bulbs will be collected from the soil blocks and will be transferred to a native plant nursery for storage until the receptor sites have been prepared for transplantation. Lily bulbs will be stored at the native plant nursery for at least one year so that the bulbs can be allowed to germinate and non-target bulbiferous species can be removed from the collected materials.

Suitable soil from Mariposa lily impact areas will also be salvaged and incorporated into the mitigation plantings. Equipment such as a backhoe, excavator, or front loader may be used to excavate soil from areas where bulbs are salvaged and to transport soil to the receptor plots. Alternately, soil may be stockpiled in areas approved by the Project Biologist and transported to the relocation areas using a wheelbarrow or all-terrain vehicle (ATV), as appropriate and as site access allows. The quantity of soil required will be based upon the number and size of receptor plots and will be directed by the Project Biologist.

3. Installation of Bulbs at Receptor Sites

Installation of the bulbs and container stock (container stock is addressed in Subsection (F) below) to the receptor sites is the most critical and difficult component of the program. Each bulb or clump of bulbs will be flagged, and the number of bulbs represented by each flag will be recorded and the flags will provide the exact location for the translocated bulbs. Similarly, any Mariposa lilies planted as container stock would be flagged and recorded in the same manner. This will allow the Project Biologist to follow each translocated bulb or clumps of bulbs. As described below, each bulb or clump of bulbs will be carefully installed to optimize survival and each bulb will protected to eliminate the potential for herbivory. Specifically, during extreme drought, bulbs are more likely to be eaten by small mammals for their water content (e.g., mice, voles, gophers,

rabbits), thus requiring protection by use of gopher wire and cages extending below ground to protect bulbs from burrowing mammals.

Based on soil and subsoil conditions and as determined by the Project Biologist, a layer of up to 18 inches of soil may be translocated from the Mariposa lily impact areas to the receptor site(s). Surrounding soil and biomass will also be collected during bulb salvage. The soil biomass should remain as consolidated as possible during the excavation process.

Depending on a variety of factors including existing vegetation, steepness of slope, and ease of access, as determined by the Project Biologist, a layer of up to 18-inches of translocated soil, salvaged from the same areas from which Mariposa lily bulbs are obtained, will be placed in each relocation plot covering pre-installed gopher wire, chicken wire, or hardware cloth that will line the excavated holes where the soil clumps would be installed. Following installation of the soil clumps, the area would be covered with gopher wire, chicken wire, or hardware cloth that would extend a minimum of 12 inches beyond the perimeter of the soil clump. For individual bulbs, it will be necessary to install cages, within which the salvaged soil and bulbs would be placed. The cages would be approximately six inches in diameter and bulbs should be placed so that there is at least two inches of soil between the bulb(s) and the cage to prevent burrowing mammals from reaching the bulbs. Soil will not be compacted once placed in plots. Salvaged bulbs, within the cages, may then be planted in the plots by hand as follows: Bulbs must be planted at a depth of approximately two to six inches. Bulbs will be oriented with roots down, stem up, in the soil, which is native to the translocation site or translocated to the site during bulb salvage. The less crowded the bulbs are placed, the more likely they will thrive. Salvage and translocation (soil clumps, individual bulbs and container stock) would occur during late summer and fall and before the rainy season during the dormancy period for the bulbs. Thus, salvage and translocation would occur between August 15 and October 15. Each of these steps will be directed by the Project Biologist.

To minimize potential for large-scale failure of the translocated bulbs and container stock, the salvage and translocation will be phased over a three-year period. Because of the scale of the project, grading will be conducted in phases allowing for phased salvage and translocation. To the extent that the grading phases require salvage of a larger number of slender/club-haired Mariposa lilies that set forth in Table 3 below, bulbs will be stored in a facility certified for storage of rare plant seed and bulbs.

Table 3: Schedule of Bulb Salvage and Translocation

Year	Percent of bulbs salvaged	Percent of bulbs translocated
Year 1	40-percent	40-percent
Year 2	40-percent	40-percent
Year 3	20-percent	20-percent
Total	**100-percent**	**100-percent**

As noted above, during periods of drought, hand-watering would be conducted to maximize survivorship of the bulbs within soil clumps, individual bulbs and container stock. Hand-watering would be conducted during the rainy season to mimic natural rainfall conditions. During each

month, beginning November 1, where rainfall for the month is less than 75-percent of normal for the month, supplemental watering would be conducted to bring the amount of moisture to the monthly average. This would be repeated for December, January, February, March and up to April 15.

4. Propagation of Container Stock

A portion of the seeds collected as described above will be used by a native plant nursery to grow slender/club-haired Mariposa lily container stock for introduction to the receptor sites to supplement the plantings and to use as replacement for failed bulbs as described in the Contingency Section below. A total of 500 container plants would be grown and if not needed for contingency purposes would be incorporated in receptor sites to supplement the original planting as determined appropriate by the Project Biologist. Based on GLA's experience with propagated Mariposa lilies, it takes approximately four to five years for the bulbs to reach sufficient size to produce leaves and flowers in suitable years. Thus, container plants should be held in the containers for at least three to four years before installation with subsequent monitoring of five additional years following planting. Thus, the timeline for propagated Mariposa lilies is up to five years for propagation followed by ten years of monitoring. Thus, should container stock be incorporated, it will extend the monitoring period beyond the ten years that will be needed for the salvaged bulbs and the up to five additional years would be only for container stock if utilized as a component of the mitigation program.

5. Weeding and other Maintenance Requirements

The purpose of this program is to ensure the success of the translocated bulbs. Maintenance will occur over the life of the translocation/mitigation project, for at least a ten-year period. The Project Biologist will monitor all aspects of the transplant effort throughout the maintenance period to detect any problems at an early stage. Potential problems could arise from erosion, vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation/herbivory.

These maintenance guidelines are specifically tailored for native bulb establishment. The maintenance personnel will be fully informed regarding the habitat establishment program to ensure their understanding of the goals of the effort and the maintenance requirements. A Restoration Contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

General Maintenance

The Contractor will perform the following tasks as general maintenance duties:

- Inspection of Receptor Sites
- Weed control
- Repair and maintenance of fencing
- Trash and debris removal
- Pest control

Inspection of Receptor Sites
After initial planting, the Project Biologist will check the restoration plots bi-monthly during slender/club-haired Mariposa lily growing season which can begin as early as November through May every year.

The Project Biologist shall prepare a written memorandum to the Applicant after each monitoring site visit listing observations, problems, and recommended remedial measures based upon field observations. A copy of this memorandum shall be sent to the Restoration Contractor for implementation. These memorandums shall focus on identified problems including vandalism, weeding, debris removal, pest control, herbivory etc. The Project Biologist shall be responsible for recommending all remedial measures to be implemented.

Weed Control
Weed control within the receptor sites shall be maintained on a regular basis during the maintenance and monitoring period. Maintenance shall be conducted monthly during the growing season (November-May) of the first year and bi-annually thereafter until the end of the maintenance and monitoring period.
Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Weeds shall be removed by hand or controlled with an appropriate herbicide as determined by a licensed PCA. The Project Biologist will be consulted and approve any herbicide application in advance. Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

All portions of the weed will be removed, including the roots. The Project Biologist shall direct the Restoration Contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from falling into the surrounding soil.

Trash and Debris Removal
The receptor sites shall be well maintained as needed, to deter vandalism and dumping of trash. The Restoration Contractor is responsible for avoiding impacts to plantings during trash removal activities. The Restoration Contractor shall, during daily routine maintenance, manually remove weeds, litter, trash, and debris from the translocation site and dispose of off-site as permitted by law.

Access Control
The receptor sites will be checked regularly during scheduled maintenance visits for evidence of human disturbance, including off-road vehicle use, illegal dumping, vandalism, pedestrian access, and unauthorized brush clearing.

6. Monitoring

a. Monitoring Methods

The receptor sites will be monitored at least ten years following the completion of bulb receptor. The monitoring program will consist of the observation and evidence of vegetative growth, observation of emergent and flowering slender/club-haired mariposa lily along with seed production for flowering plants, photo-documentation, and measurements of annual rainfall.

Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

The Project Biologist will conduct monitoring surveys quarterly during the non-growing season (September – April). During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July) for up to ten years to document the growth of the transplanted population.

Qualitative surveys, consisting of a general site walkover and habitat characterization, will be completed during each monitoring visit. General observations, such as the growth, flowering and seed production of the slender/club-haired mariposa lily, as well as pest problems, weed establishment, mortality, and site security, will be noted in each site walkover. The Project Biologist will also note observations on wildlife use and native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss.

Counts for Mariposa Lilies in Vegetative State
As noted, depending on site conditions, slender/club-haired mariposa lilies will emerge following early season rains; however, not all emergent plants will flower following emergence. Nevertheless, the emergent plants are part of the population and should be counted. Early season surveys will be conducted to capture the emergent plants, which will be flagged to identify location and numbers. The emergent plants will be compared with the flowering plants and both will be counted for determining the number of total plants (while ensuring that emergent plants that also flower are not double counted).

Surveying Flowering and Seed Production
All flowering individuals observed within the receptor sites will be counted. As noted above, quantitative surveys may require multiple visits per month as the blooming period may be staggered along several months (i.e., vegetative growth or non-blooming individuals may not be detected until that individual has bloomed). Peak blooming periods may fluctuate year to year due to seasonal conditions, therefore multiple visits will aid in a more accurate count of flowering individuals.

Each flowering individual in the created plots will be tallied and recorded on data sheets. The total yearly population will be calculated each year for the annual monitoring results and will be incorporated into the data on emergent plants to capture the total of emergent plants that do no flower and emergent plants that exhibit flowering.

Photo-Documentation
Permanent stations for photo-documentation will be established prior to or during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect material discussed in the annual monitoring report.

b. Monitoring Schedule

The Project Biologist will conduct monitoring surveys quarterly during non-growing season (September–April). During the growing period, or as soon as vegetative growth is observed, the receptor site will be monitored on a bi-weekly basis through seed production (approximately July) at least ten years.

c. Annual Monitoring Reports

At the end of each monitoring period an annual report will be prepared for submittal to County of Los Angeles and CDFW. The report will summarize the information collected during the qualitative and quantitative monitoring. Each report will document the monitoring methods and description of the transplant sites, provide copies of field data, photo-documentation, monitoring results, an analysis of success, and recommendations for the project and or remedial measures if necessary. Since planting may not occur when planned, monitoring shall be tied to the actual implementation date (e.g., the first annual report shall be delivered on January 1st of the year following the first growing season after planting). These reports will describe the success of the relocation and will discuss the efficacy of the various methods employed to propagate this species. These reports will also include the following:

- a list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year
- a vicinity map indicating location of the mitigation site
- a mitigation site plan, identifying plot locations, photo station locations, etc. as appropriate.
- copies of all monitoring photographs
- and an analysis of all qualitative and quantitative monitoring data

7. Performance Standards

The BonTerra Draft Rare Plant Plan included the following performance standard for the slender/club-haired mariposa lilies:

Germination and flowering of at least 70 percent of transplanted bulbs bloom during the first year after transplantation, 60 percent the second year, 50 percent the third year, 40 percent the fourth year, and 30-percent the fifth year.

The rationale for the decreasing percentages is because bulbs are expected to be more active immediately following translocation and that flowering activity will decline in subsequent years. This does not represent a decrease in the number of individual lilies in the population; rather it is the observed response to such events as fire and translocation, which appear to stimulate flowering. This will be followed by an increase as the program nears completion as reproduction results in increases in the number of the slender/club-haired Mariposa lily. Nevertheless, to ensure achievable performance standards, while recognizing the variability in natural systems, certain factors need to be considered to ensure success of the mitigation program.

- The first factor that GLA has observed is that within a given population of Mariposa lilies, many plants emerge to capture sunlight and store energy in early spring but do not necessarily flower if environmental conditions are not suitable. Nevertheless, these are viable plants that contribute to the population and it is appropriate to account for them.

- The number of flowering individuals in any given year can vary substantially, based on environmental conditions, such that it is necessary to observe the translocated populations over a period of years to accurately determine survival. To this end, this plan proposes a ten-year monitoring term to track emergent plants along with flowering individuals which in combination provides the best and easiest indicators to track that the translocation is succeeding.

- Various threats to the translocated bulbs must be minimized to ensure survival, germination, and ultimate flowering of recruited individuals, with seed set, leading to future germination/successful reproduction. Thus, as proposed by BonTerra, where it is suspected that herbivory of the bulbs would cause the loss of the translocated bulbs, wire cages or gopher screens will be installed with the bulbs at the outset.

- Habitat characteristics including non-native grasses and herbaceous weeds are important and require monitoring to determine that specific translocation/receptor sites are exhibiting a positive trajectory.

- Finally, as noted above in the discussion of impacts, BonTerra estimated approximately 2,000 individual slender/club-haired mariposa lilies within the development footprint; however, the initial target for replacement of the slender/club-haired mariposa lilies will be based on actual counts obtained during the two years of pre-construction surveys during which counts, based on marked individual plants (both emergent and flowering) will be used to establish the target number. As noted above, the number of slender/club-haired mariposa lilies flagged within the Project Impact Area boundaries during the two years of pre-construction surveys will be used to establish a final impact total. Note that because of the variability of the flowering for this species, it is likely that some plants will be encountered in both years while others are only detected during one or the other years.

Thus, the total number of lilies will be based on the actual total of plants where those identified during both years are counted as a single individual, as will be those encountered in only one of the years. Thus, after the second survey, it will be possible to establish a more accurate number of plants to be impacted and subject to this mitigation program. Should the count of lilies during the two-year preconstruction surveys be less than the 2,000 estimated by BonTerra within the Project Impact Area, the number of plants considered impacted would be 2,000, which would be the largest number determined through the various surveys. Once the final counts are obtained, the performance standard will be established as 100-percent of the plants identified in the two years of pre-construction surveys as the final performance standard. Successful establishment of 100-percent of the impacted population at year 10 will result in a self-sustaining population (and/or sub-populations) for the slender/club-haired Mariposa lily.

Given these considerations, the performance standards set forth below are to be achieved for the program to be considered successful. Because of the variability of flowering individuals from year-to-year, the performance standards will have been achieved if within any of the ten years, the target number is recorded as either emergent plants or flowering plants (these cannot be added to avoid double counting). Thus, the annual standards provide a guide showing that the program is on a positive trajectory. Should the performance standards be achieved early in the program, monitoring will continue for the full ten years to ensure that there is no degradation of the habitat values during the ten-year period. The performance standards below reflect early response by the bulbs, a plateau in middle years, and then increase in the last years as reproduction begins to take effect. To the extent that propagated container stock is used as discussed above, the monitoring of container plants would also extend for ten years from time of planting and as such, could result in a ten-year monitoring effort for translocated bulbs and a subsequent ten-year monitoring period that would begin with installation of the container plants. Finally, because the salvaged plantings will be phased over a three-year period as described above, the monitoring period would be ten years for each phase or a minimum of 13 years beginning from the start of phase 1. As noted in Table 3 above, under the phased translocation, 40-percent of plants would be translocated in year 1, 40-percent in year 2 and 20-percent in year 3.

Year One

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Two

- Emergence of leaves for of a minimum of 60-percent of the translocated bulbs
- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Three

- Emergence of leaves for of a minimum of 50-percent of the translocated bulbs

- Flowering of a minimum of 30-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Four

- Emergence of leaves for of a minimum of 50-percent of the translocated bulbs
- Flowering of a minimum of 30-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Five

- Emergence of leaves for of a minimum of 60-percent of the translocated bulbs
- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Six

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Seven

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Eight

- Emergence of leaves for of a minimum of 80-percent of the translocated bulbs
- Flowering of a minimum of 60-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Nine

- Emergence of leaves for of a minimum of 90-percent of the translocated bulbs
- Flowering of a minimum of 70-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Ten

- Emergence of leaves for of a minimum of 100-percent of the translocated bulbs
- Flowering of a minimum of 80-percent of the translocated bulbs

- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Contingency Plan

In the event the mitigation program fails to achieve the performance standards discussed above during the phased ten-year monitoring period, which will result in 13 years of monitoring, the Project Applicant will implement the following remedial measures to attempt to achieve the performance standards:

- If any of the receptor sites are observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be stored at a nursery for the first year of the program (and maintained for at least 10 years).
- If the receptor sites appear on track to meet the performance standards, the remaining plant material may be planted after five years at the receptor sites (if space allows) or additional acceptable receptor sites will be identified. This would allow for five years of monitoring of the container stock.
- Seeds and/or bulbs will continue to be harvested from lilies maintained in the nursery and installed in the receptor sites on an as-needed basis to ensure translocation/receptor sites are progressing toward final performance.
- If the receptor sites fail to achieve the performance standard by the tenth year of the program, the monitoring period may be extended yearly if the Biological Monitor determines that the site is continuing to progress and can ultimately achieve the performance standards. Alternatively, if it is determined that a particular receptor site is not able to meet performance standards then additional receptor sites will be identified to make up the difference. Thus, for example, if a receptor site received 500 bulbs, at the 80-percent success criteria it must have 400 emergent plants or 300 flowering plants to be successful. If the site only exhibits 40-percent emergent plants and 30-percent of flowering Mariposa lilies, then the site would be credited with the success achieved and an additional site where the shortfall could be made up.

V. PROPOSED CLUB-HAIRED/SLENDER LILY MITIGATION MEASURE

MM 5.2-4 Mitigation for the club-haired mariposa lily and the slender mariposa lily shall consist of transplantation of lilies to a mitigation site and establishment of a self-sustaining population as set forth in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan,* dated May 2022 (*Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*).[30] The *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* has been subject to review and approval by LACDRP and CDFW. A designated Project Biologist approved

[30] Glenn Lukos Associates. May 2022. *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*.

by the LACDRP and CDFW and shall oversee its implementation. Seeds will be collected from lilies that are located within the impact boundaries and bulbs will be subsequently excavated and stored for later transplantation to the translocation site depicted on Exhibit 5 of the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan*. The Mitigation Program in the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* sets forth of the following activities necessary fully mitigate the significant impacts to the club-haired mariposa lily and the slender mariposa lily:

- A pre-grading survey shall be conducted for two seasons following emergence of leaves and during the peak flowering period (approximately March through June) by the Biological Monitor. The Biological Monitor shall clearly identify each lily location within the impact area with a pin flag for later collection. The pre-grade survey shall also document the approximate coverage of native and non-native plants at each lily population to be impacted.
- Prior to seed collection, the existing lily locations marked during pre-construction surveys shall be monitored every two weeks by Biological Monitor or a qualified Seed Collector to determine when the seeds are ready for collection. The Seed Collector shall collect seeds from the plants within the collection area when the seeds are ripe. The seeds shall be cleaned and stored by a qualified nursery or an institution with appropriate storage facilities.
- Individual lily bulbs shall be excavated and collected following the seed collection and once the bulbs have entered their winter dormancy period (approximately September 1). The bulbs shall be stored by a qualified nursery or institution with appropriate storage facilities and all non-target bulbiferous species shall be discarded.
- A portion of the collected seeds will be used to grow 500 slender/club-haired mariposa lilies for contingency purposes and stored a native plant nursery until needed as determined by the project biologist.
- Receptor site or sites identified by BonTerra in their *Feasibility Analysis of NorthLake Biological Mitigation Requirements* and refined by GLA for the *Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan* shall be located in dedicated open space or the site will be subject to dedication with a Conservation Easement or Easements (CE(s)). The receptor site or sites have been shown to exhibit similar soils, associated native species, and topographical features to the impact areas.
- Receptor sites on lands currently owned by NorthLake will be managed by SMMC or other approved entities as set forth on page 3, above. Prior to commencing the actions set forth in this plan, the applicant shall submit final agreements to CDFW and the County with the acceptable entities that will hold the CE(s) and provide long-term management.

- Performance criteria have been developed in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan,* dated May 2022 and pre-approved by the LACDRP and CDFW. The performance criteria shall address (1) native and non-native plant coverage requirements (mitigation site conditions should be consistent with lily populations in the impact area) and (2) percentage of lilies that exhibit emergent leaves that that bloom each year as follows (because the salvaged plantings will be phased over a three-year period as described above the monitoring period would be ten years for each phase or a minimum of 13 years beginning from the start of phase 1. As noted in Table 3 above, under the phased translocation, 40-percent of plants would be translocated in year 1, 40-percent in year 2 and 20-percent in year 3):

  Year One
  - Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
  - Flowering of a minimum of 50-percent of the translocated bulbs
  - Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
  - No evidence of herbivory

  Year Two
  - Emergence of leaves for of a minimum of 60-percent of the translocated bulbs
  - Flowering of a minimum of 40-percent of the translocated bulbs
  - Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
  - No evidence of herbivory

  Year Three
  - Emergence of leaves for of a minimum of 50-percent of the translocated bulbs
  - Flowering of a minimum of 30-percent of the translocated bulbs
  - Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
  - No evidence of herbivory

  Year Four
  - Emergence of leaves for of a minimum of 50-percent of the translocated bulbs
  - Flowering of a minimum of 30-percent of the translocated bulbs
  - Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
  - No evidence of herbivory

  Year Five
  - Emergence of leaves for of a minimum of 60-percent of the translocated bulbs

- Flowering of a minimum of 40-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Six

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Seven

- Emergence of leaves for of a minimum of 70-percent of the translocated bulbs
- Flowering of a minimum of 50-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Eight

- Emergence of leaves for of a minimum of 80-percent of the translocated bulbs
- Flowering of a minimum of 60-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Nine

- Emergence of leaves for of a minimum of 90-percent of the translocated bulbs
- Flowering of a minimum of 70-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

Year Ten

- Emergence of leaves for of a minimum of 100-percent of the translocated bulbs
- Flowering of a minimum of 70-percent of the translocated bulbs
- Habitat subject to translocation must exhibit same or less cover by non-native grasses and forbs than during the initial plot identification; and
- No evidence of herbivory

The monitoring shall be conducted for ten years (for each phase) from installation of the translocated bulbs or from installation of container plants. As noted, this could result in two separate and unrelated ten-year monitoring efforts, including one that originates with bulb installation and a subsequent

effort that begins with container stock installation. If the performance standards are not being met during the first year, additional measures may be suggested as determined appropriate by the Biological Monitor as set forth in the Contingency Plan set forth in the *NorthLake Castaic, Los Angeles County, California, Special Status Plant Impact Assessment and Habitat Mitigation and Monitoring Plan,* dated May 2022 as set follows:

- If any of the translocation/receptor sites are observed to be failing significantly to achieve the performance standard during the ten-year monitoring period, the Biological Monitor will identify an alternate site(s) in which to install the contingency plant materials that will be stored at a nursery for the first year of the program.
- If the receptor sites appear on track to meet the performance standards, the remaining plant material may be planted at the receptor sites (if space allows) or additional acceptable receptor sites will be identified.
- Seeds and/or bulbs will continue to be harvested from lilies maintained in the nursery and installed in the receptor sites on an as-needed basis to ensure receptor sites are progressing toward final performance.
- If the receptor sites fail to achieve the performance standard by the tenth year of the program, the monitoring period may be extended if the Biological Monitor determines that the site is continuing to progress and can ultimately achieve the performance standards. Alternatively, if it is determined that a particular receptor site is not able to meet performance standards then additional receptor sites will be identified to make up the difference. Thus, for example, if a receptor site received 500 bulbs, at the 80-percent success criteria it must have 400 emergent plants or 300 flowering plants to be successful. It the site only exhibits 40-percent emergent plants and 30-percent of flowering Mariposa lilies, then the site would be credited with the success achieved and an additional site where the shortfall could be made up.
- Potential seed sources from additional donor sites shall also be identified in case it becomes necessary to collect additional seed for use on the site following performance of remedial measures

F. Peirson's Morning Glory Seed Collection

The BonTerra Biological Technical Report dated December 15, 2015 noted the following regarding Peirson's morning glory:

> *Peirson's morning-glory was observed throughout the Project site. Given the spreading nature of the species and high density, an accurate count could not be made; however, the entire Project site likely supports thousands of individuals. Peirson's morning-glory was observed in both sage scrub and grassland vegetation types. Associated species typically include California sagebrush, purple sage, arroyo lupine, blue dicks, black mustard (Brassica nigra), redstem filaree, and red brome.*

For two years prior to start of impacts to areas occupied by the Peirson's morning glory and to obtain seed for use in project grassland establishment, a biologist or seed collector will conduct surveys on the Project site to identify location or locations of Peirson's morning glory. Once locations are detected, areas will be marked using pin flags and will also be recorded using GPS Technology to allow the biologist or seed collector to revisit the locations. For two years, populations of Peirson's morning glory will be visited every two weeks beginning in April and continuing through June or until all available seed is collected. One half pound per acre will be used in the grassland reestablishment plant palette. Thus, the number of pounds to be collected will be determined by the total number of acres of grassland restoration.

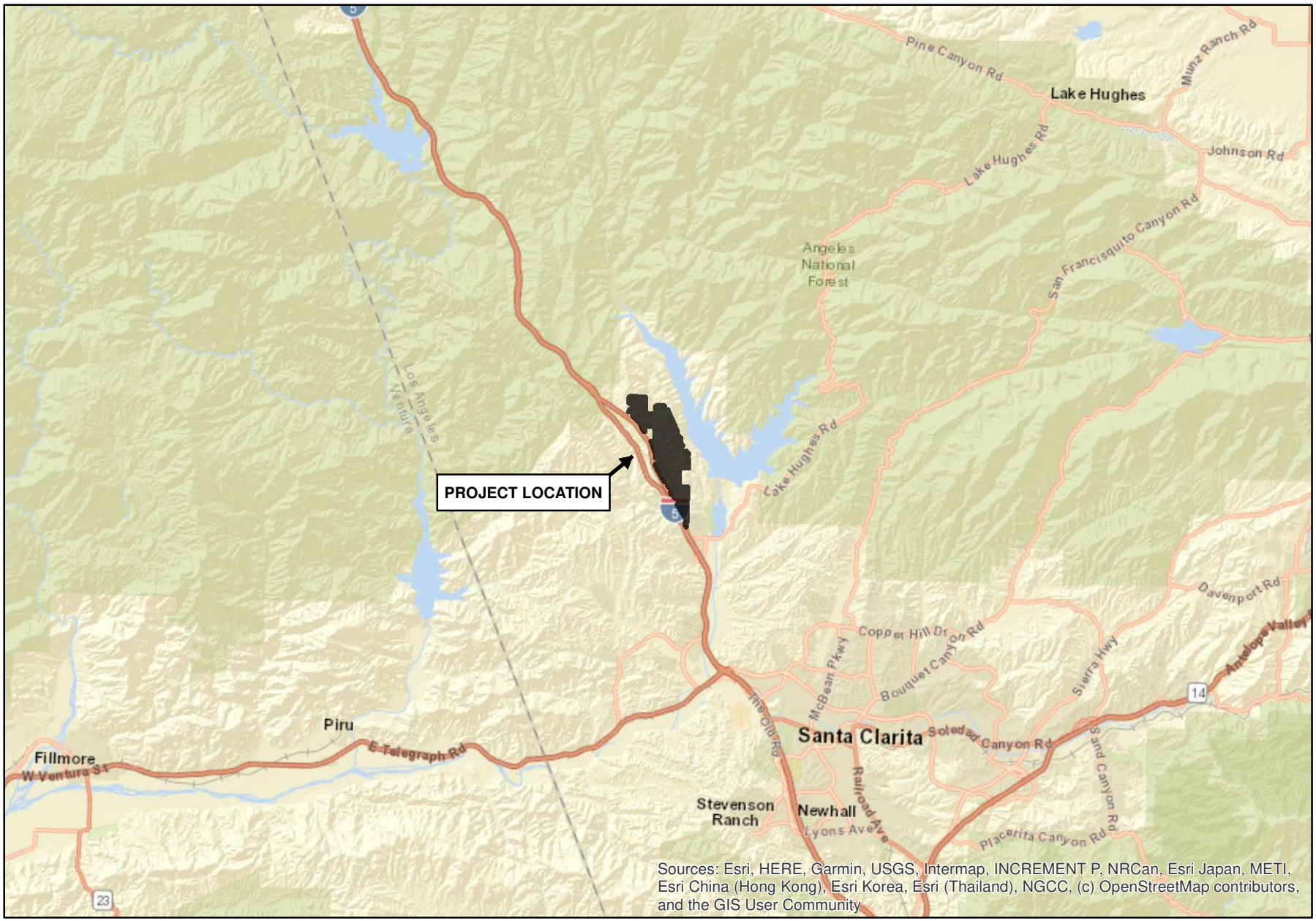
G. Long-Term Conservation

As noted on page 3, the Project will ensure long-term protection of the mitigation sites addressed in this HMMP through establishment of a CE(s), as appropriate. The CE(s) would be dedicated to a local land conservancy or other appropriate entity that has been approved to hold and manage mitigation lands pursuant to Assembly Bill 1094 (2012). Assembly Bill 1094 amended Government Code sections 65965-65968. Under Government Code section 65967(c), the lead agency must exercise due diligence in reviewing the qualifications of a governmental entity, special district, or nonprofit organization to effectively manage and steward land, water, or natural resources on mitigation lands it approves.

In addition, this HMMP identifies specific sites(s)/area(s) where mitigation would occur, which would be protected and depicts these site(s)/area(s) on accompanying exhibits. The SMMC will serve as landowner, land manager, and endowment holder for the Marple Canyon spiny rush preservation site. MRCA will serve as the Conservation Easement (CE) Grantee. Likewise, the SMMC is a potential landowner, land manager, and endowment holder for the mitigation areas within NorthLake holdings with the MRCA holding the CE; however, the applicant is also exploring other entities that meet the above requirements, and to date, no decision has been made regarding the entities that would be responsible for the long-term management of NorthLake holdings where mitigation would be conducted.

Mitigation Measure:

Prior to initiation of ground-disturbance, in anticipation of grading, the Project will provide the County and CDFW proof that a draft C has been submitted to CDFW and that a land manager, conservation easement grantee, and endowment holder for NorthLake lands where mitigation will be conducted, has been selected and such has entered into an agreement or contract to serve as land manager, conservation easement grantee, and endowment holder for NorthLake lands.



Source: ESRI World Street Map

N

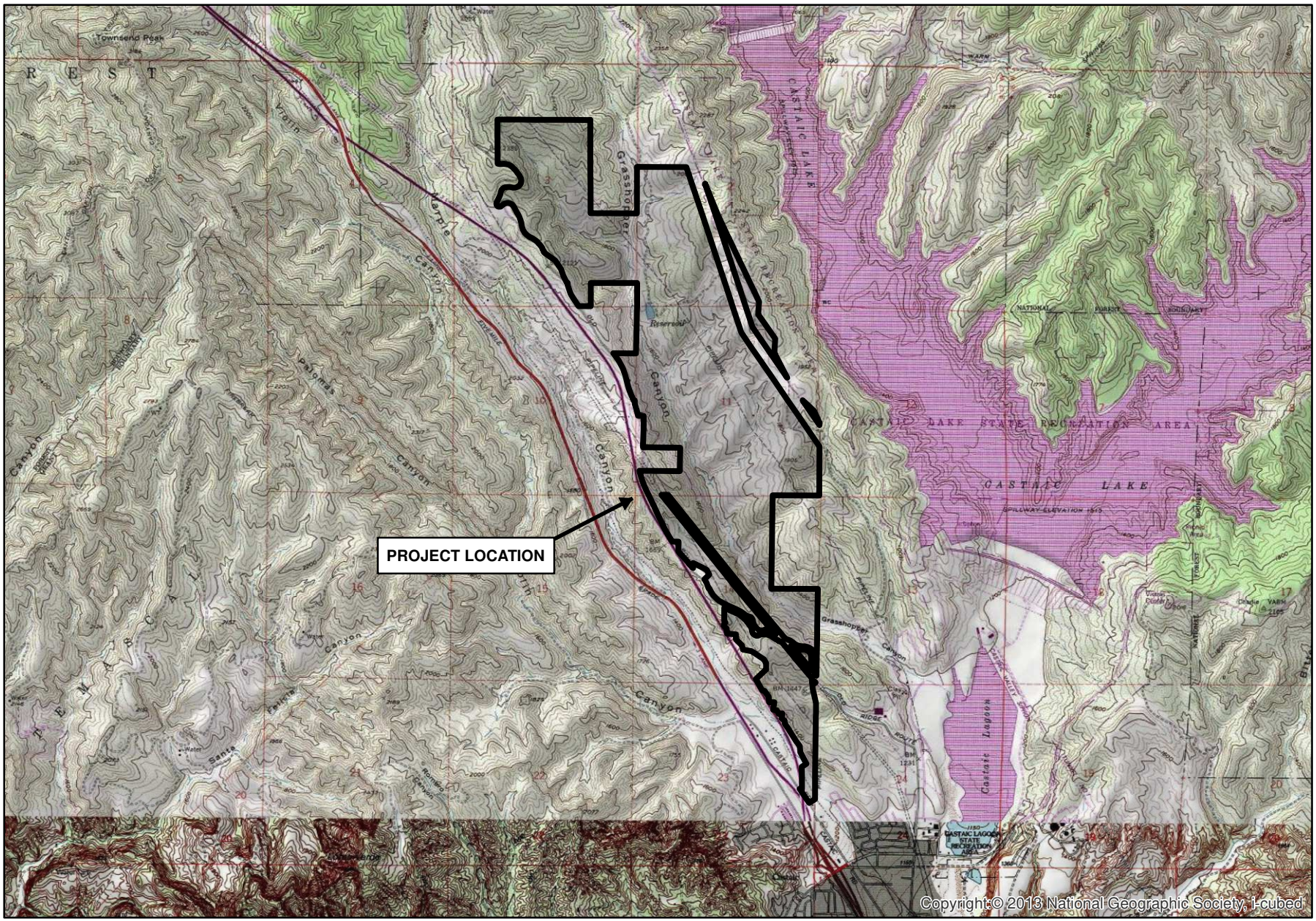
0 2 4 8 Miles

NORTHLAKE SPECIFIC PLAN

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



NORTHLAKE SPECIFIC PLAN

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2

Castaic Lake

1

2

3

5

5

Project Location
Offsite Area
Permanent Impact
Temporary Impact
Proposed Conservation Area
Paniculate Tarplant
Round Leaved Filaree
Southern California Black Walnut

N

0 750 1,500 3,000
Feet

1 inch = 1,500 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 17, 2022

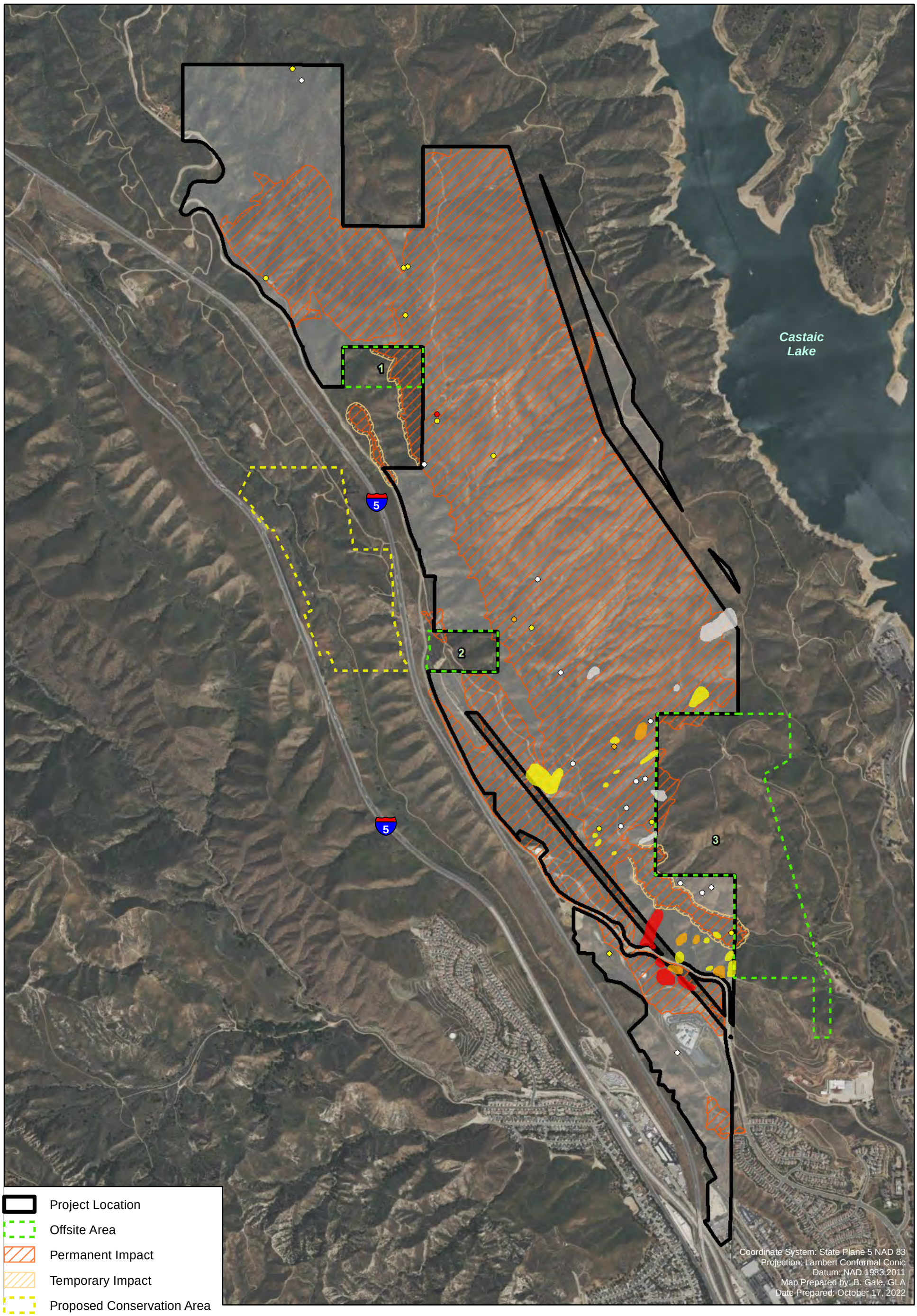
NORTHLAKE SPECIFIC PLAN

Round-Leaved Filaree and Paniculate Tarplant Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 3A

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\RarePlantsGIS\1115-6_RLF-PT_Impacts.mxd



Slender Clubhaired Mariposa Lily Density *

- High
- Medium
- Low
- Unknown

** Source: BonTerra*

N

0 750 1,500 3,000

Feet

1 inch = 1,500 feet

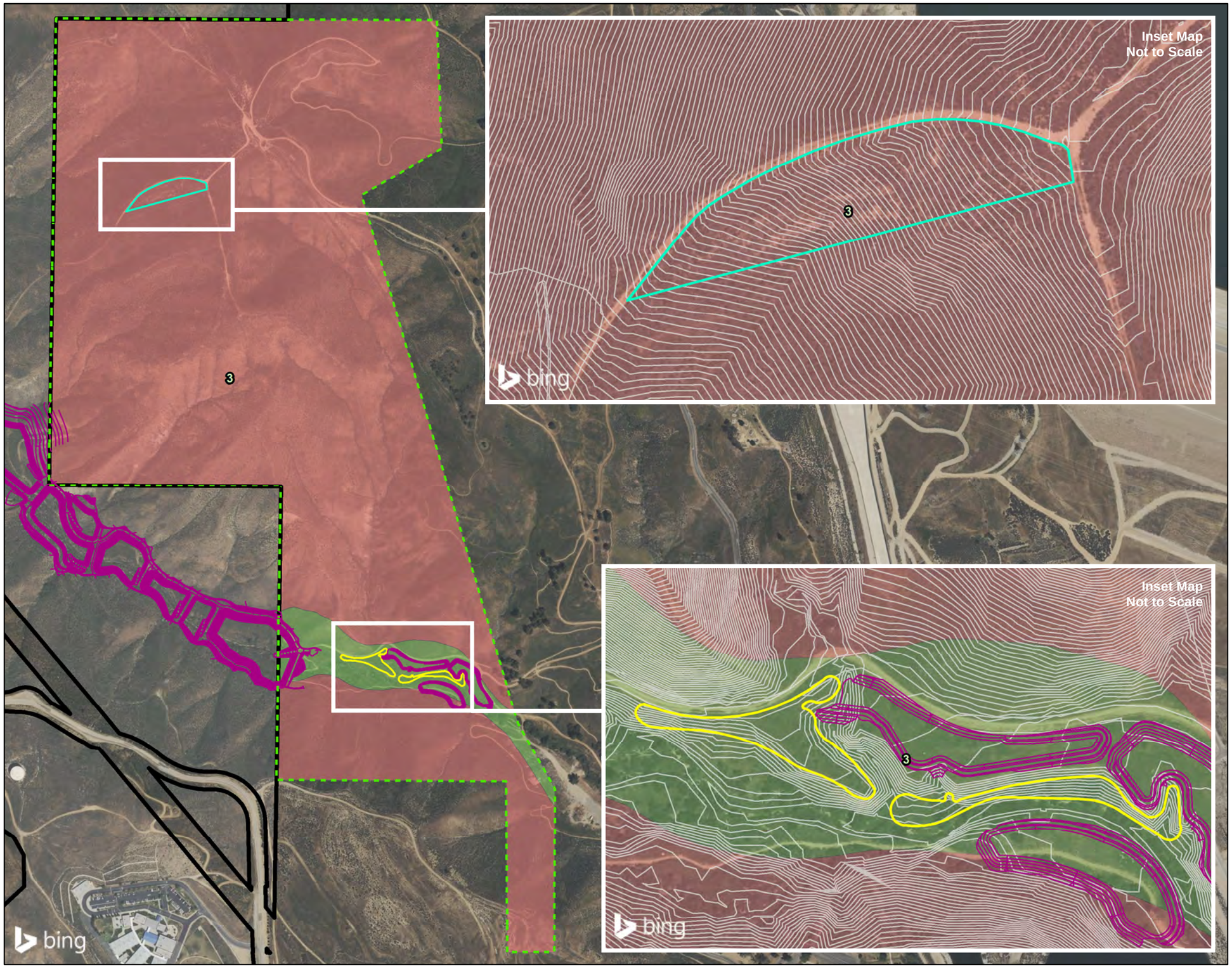
NORTHLAKE SPECIFIC PLAN

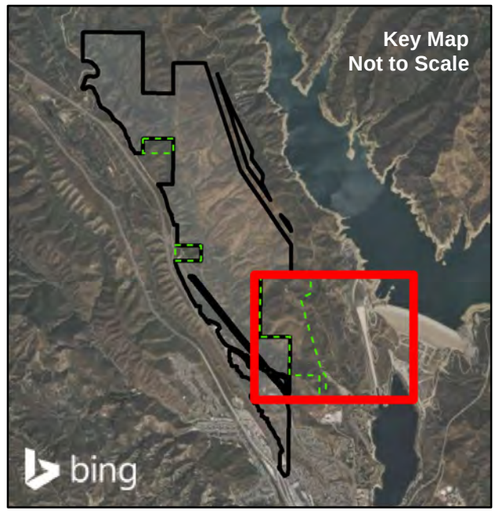
Slender Clubhaired Mariposa Lily Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 3B

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\RarePlantsGIS\1115-6_Lily_Impacts.mxd





Project Location

Offsite Area #3

Existing Topo

Rough Grading Plan

CmF — Castaic-Balcom silty clay loams, 30 to 50 percent slopes

SsB — Sorrento loam, 2 to 5 percent slopes

Round-Leaved Filaree & Paniculate Tarplant Establishment Sites

Primary Establishment Site

Alternative Establishment Site

0 275 550 1,100
Feet

1 inch = 550 feet

N

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 18, 2022

NORTHLAKE SPECIFIC PLAN

Round-Leaved Filaree &
Paniculate Tarplant Establishment Sites

GLENN LUKOS ASSOCIATES

Exhibit 4A

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\MitigationGIS\1115-6_RLF-PT_Establishment.mxd

Castaic Lake

1

2

3

5

Marple Creek

Grasshopper Creek

bing Inset Map - Not to Scale

Project Location

Offsite Area

Permanent Impact

Temporary Impact

Proposed Conservation Area

Spiny Rush (2000 Counted Individuals)

Spiny Rush Conservation (523 Counted Individuals)

Spiny Rush Establishment

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 17, 2022

N

0 750 1,500 3,000

Feet

1 inch = 1,500 feet

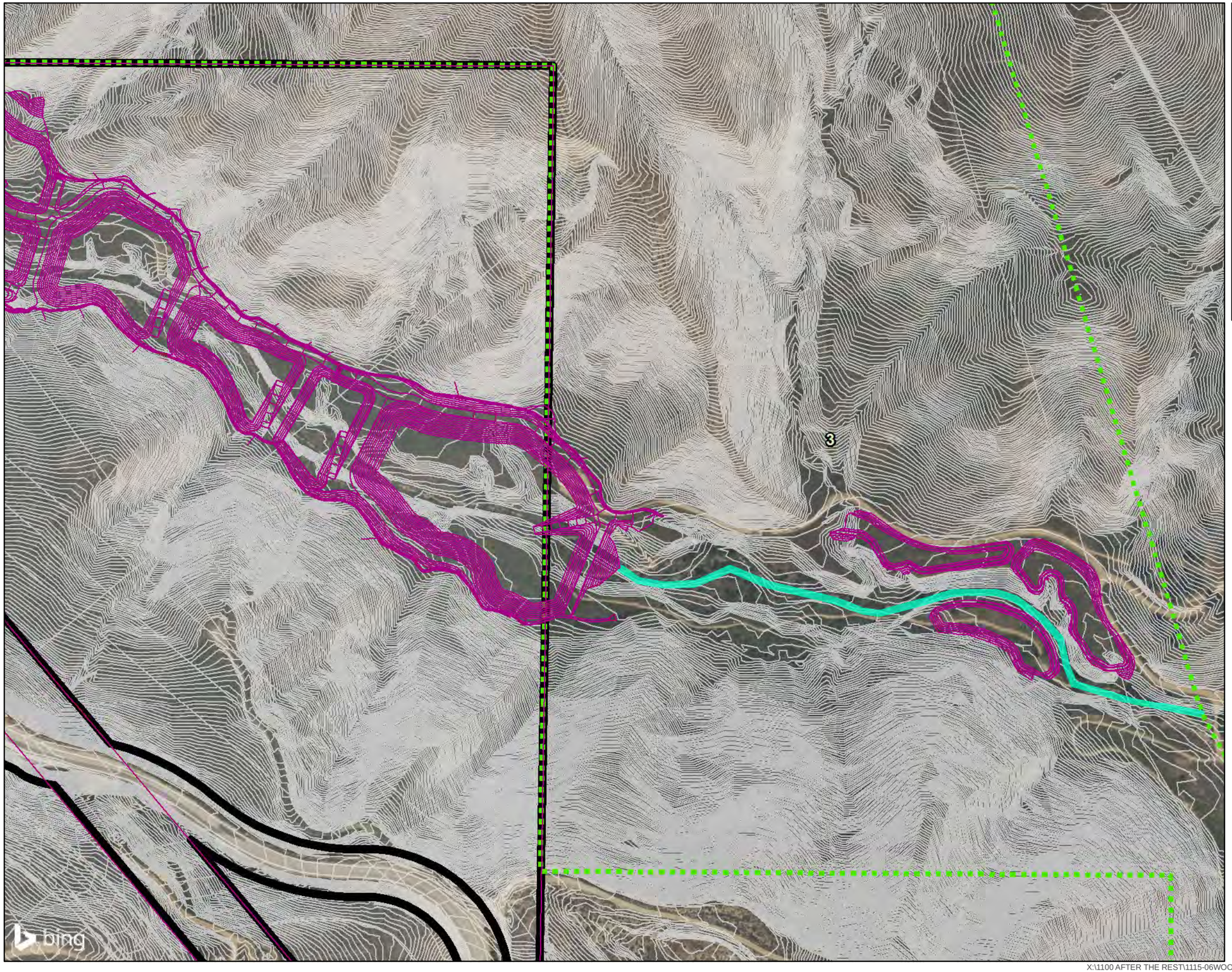
NORTHLAKE SPECIFIC PLAN

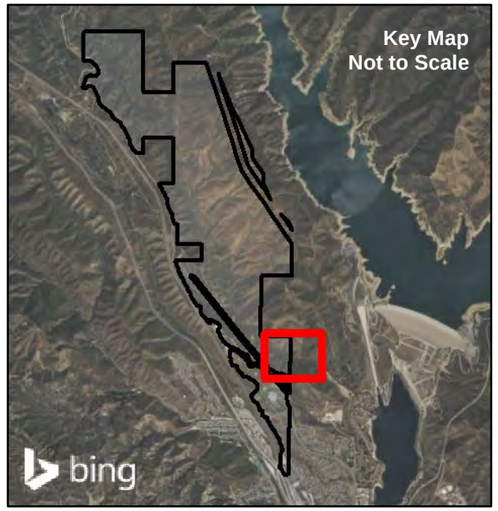
Southwestern Spiny Rush, Impact, Conservation and Establishment Sites

GLENN LUKOS ASSOCIATES

Exhibit 4B

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\RarePlantsGIS\1115-6_SpinyRush_ImpactsConservationEstablishment.mxd





Project Location

Offsite Area

Existing Topo

Rough Grading Plan

Spiny Rush Establishment

N

0 62.5 125 250

Feet

1 inch = 200 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 17, 2022

NORTHLAKE SPECIFIC PLAN

Southwestern Spiny Rush Establishment
Site Close-up with Debris Basins

GLENN LUKOS ASSOCIATES

Exhibit 4C

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\MitigationGIS\1115-6_SpinyRush_Establishment_wDebris Basins.mxd

Key Map
Not to Scale

Castaic Lake

Pro's Uphill

Cutler Canyon Fire Road

Grapevine

Vista Ridge Fire Road

Ridge Route Road

WestRamp Road

Castaic Brick Trail

Project Location

Offsite Area 3 (180.21 ac.)

Rough Grading Plan

Potential Lily (30.19 ac.)

Existing Slender Clubhaired Mariposa Lily

N

0 250 500 1,000

Feet

1 inch = 500 feet

NORTHLAKE SPECIFIC PLAN

Slender Clubhaired Mariposa Lily Receptor Sites

GLENN LUKOS ASSOCIATES

Exhibit 5

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: October 17, 2022

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APPENDIX C-1

NORTHLAKE SPECIFIC PLAN TRANSPORTATION ANALYSIS FOR CEQA

Stantec

Memo

To:	Damon Mamalakis Armbruster Goldsmith & Delvac LLP	From:	Maria Morris and Daryl Zerfass Stantec
Project/File:	2042648800	Date:	November 19, 2024

Reference: Northlake Specific Plan Transportation Analysis for CEQA

Stantec Consulting Services Inc. (Stantec) performed a transportation analysis for the proposed Northlake Specific Plan Development (Project). The Project is located east of the Interstate 5 (I-5) freeway and north of Lake Hughes Road in unincorporated Los Angeles County. This analysis was prepared in accordance with the California Environmental Quality Act (CEQA) and the Los Angeles County Department of Public Works Transportation Impact Analysis Guidelines for CEQA analysis (July 2020, Version 1.1, updated September 2020; "TIA Guidelines"). The purpose of this study is to identify potential significant impacts related to transportation due to the implementation of the proposed Project (as defined below). This analysis evaluates the Project's impact on vehicle miles traveled (VMT), potential conflicts with current transportation planning programs (plans, ordinances, and policies), increased hazards due to the Project's geometric design features, and emergency access.

The previously approved Northlake Traffic Impact Analysis (TIA)[1] is appended to this memorandum for information purposes only, as the approved TIA evaluated project impacts using the level of service (LOS) metric which is no longer the applicable metric for identifying significant impacts under CEQA. The approved TIA represents a conservative, worst-case analysis of the project's effect on LOS and therefore an update is not required.

Project Description

The Northlake Specific Plan (NLSP) was adopted by the Board of Supervisors on June 1, 1992 and includes the development of 2,337 single family residential units, 1,286 multi-family units (for a total of 3,623 units), 169,884 square feet of commercial uses, 545,589 square feet of light industrial uses, an 18-hole golf course, school, parks and open space. In 2019[2], changes to the land use plan were approved (referred to herein as the previously approved Project) and include the development of 1,143 single family residential units, 1,341 multifamily residential units, 345 age qualified single family residential units,

[1] Stantec, 2016

[2] In 2019 the Project was approved by the Los Angeles County Board of Supervisors. Subsequently, due to a superior court ruling, the County rescinded the Project approvals. The Project applicant is currently proposing to recirculate portions of the NLSP SEIR. At the time the previously approved Project traffic analysis was prepared, LOS was the metric used to evaluate transportation impacts. VMT is now the metric used to evaluate a transportation impact per Senate Bill 743. Los Angeles County has updated their Transportation Impact Analysis Guidelines to utilize the VMT metric.

315 affordable mixed-use housing units and 6 market-rate live-work units[3], for a total of 3,150 residential units. The previously approved Project would also construct highway commercial (e.g., retail near the highway), a middle school (as an option), private and public recreational parks, and a fire station.

Table 1 summarizes the NLSP land uses and the previously approved Project land uses. **Figure 1** shows the previously approved Project site plan.

Table 1 Northlake Specific Plan Project Land Use Summary

Category	NLSP			Previously Approved Project			Difference		
	(AC)	(DU)	(SQ. FT.)	(AC)	(DU)	(SQ. FT.)	(AC)	(DU)	(SQ. FT.)
Residential	600.3	3,623	--	362	3,150	--	-238.3	-794	--
Single Family	504.8	2,337	--	235	1,488	--	-269.8	-593	--
Multi-Family	95.5	1,286	--	107	1,341	--	11.5	-201	--
Affordable Mixed-Use / Live-Work***	0	0	--	20	321*	--	10.8	321	--
General Commercial	9.2	--	100,188		--	38,700**		--	-61,488
Highway Commercial	4	--	69,696	2	--	32,175**	2	--	-37,521
Industrial	50.1	--	545,589	0	--	0	-50.1	--	-545,589
School	23.1	--	--	44	--	--	20.9	--	--
Recreation/Park	167	--	--	167	--	--	0	--	--

* For the purposes of the VMT analysis, the affordable mixed-use housing / market-rate live-work units are treated as multi-family units.

** Square footage per Northlake Design Guidebook

*** 315 affordable mixed-use units and 6 market-rate live-work units.

VMT Analysis Methodology

Signed by the Governor in 2013, SB 743 requires the Governor's Office of Planning and Research (OPR) to identify new metrics for the identification of transportation related impacts within CEQA. Regulatory changes to CEQA guidelines that implement SB 743 were approved on December 28, 2018, establishing VMT as a new metric to replace level of service (LOS) for transportation analysis. Within CEQA, a project's effect on vehicle delay shall not constitute a significant transportation impact (Section 15064.3(a)).

Thresholds for determining a project's significant transportation impact shall be pursuant to section 15064.3 of the CEQA Guidelines. OPR released a Technical Advisory that contains recommendations for assessing

[3] For the purposes of the VMT analysis, the affordable mixed-use housing units and 6 market-rate live-work units are treated as multi-family units to provide a worst-case conservative assessment of Project-generated VMT. Since the County's VMT tool does not estimate VMT per capita for affordable mixed-use housing units or market-rate live-work units, the VMT per capita for multi-family units was used for the affordable mixed-use housing units and the market-rate live-work units.

VMT, thresholds of significance, and mitigation measures. OPR and the California Natural Resources Agency (CNRA) have concluded that VMT is the most appropriate metric to evaluate a project's transportation impacts. On July 1, 2020, statewide implementation occurred.

The Los Angeles County Public Works (LACPW) Department published the TIA Guidelines that provides recommendations for assessing VMT for development in unincorporated Los Angeles County. As such, this VMT analysis has been prepared in accordance with the County's guidelines and guidance from County Public Works staff. The previously Approved Project is evaluated as a land use plan and VMT per service population[4] is the metric used for the VMT impact analysis. An increase in the NLSP VMT on a per capita basis would result in a significant impact. This methodology is used because the NLSP was approved prior to SB 743 adoption and Project modifications are being made after SB 743 adoption.

Project-Level VMT Analysis

The County's VMT Tool uses data from the Southern California Association of Government's Regional Transportation Plan/Sustainable Communities Strategy (SCAG RTP/SCS) travel demand forecasting model and was specifically designed to be used to develop project-specific daily residential VMT per capita and daily employment VMT per employee metrics for residential, office, and industrial land use development projects in the unincorporated areas of the County of Los Angeles[5].

The estimated VMT for the NLSP establishes the baseline for the currently proposed Project to be evaluated against for determining a potential significant CEQA transportation impact. This is due to the approval occurring before SB 743 and modifications happening after SB 743. Unlike a brand new project, the previously approved Project does not need to be evaluated against the County baseline, as determined from the County's VMT Tool.

Table 2 summarizes the Project's VMT, service population, and the VMT per service population estimated for the NLSP and for the previously approved Project (VMT calculations are attached). The VMT estimates presented here are intended to compare the allowed uses of the NLSP and the previously approved Project, using VMT per service population as the basis of comparison. Therefore, the same assumptions to calculate the VMT per service population are applied to both the NLSP and the previously approved Project to provide an equal point of comparison. In regard to the on-site commercial, parks, and school, these uses are assumed to primarily serve the Project residents, therefore the VMT associated with these uses is primarily captured in the residential VMT totals, with any additional visitor VMT being generally equivalent between the NLSP and for the previously approved Project. As shown in **Table 2**, the previously approved Project would generate less VMT and have a VMT per service population rate lower than the NLSP. Due to the VMT reduction, the previously approved Project's impacts would be less and the Project would not result in any new or increased significant transportation impacts.

[4] Service population is the sum of the number of residents and the number of employees.
[5] County of Los Angeles VMT Tool User Guide, Los Angeles County Public Works. December 2020.

Table 2 NLSP and Previously Approved Project VMT Summary

Category	NLSP VMT	Previously Approved Project VMT
Single Family Residential	260,013	165,568
Multi-Family Residential	77,860	100,623
Commercial Retail	8,765	3,670
Light Industrial	13,869	--
Recreation/Park	1,320	2,640
School	2,640	2,640
Project VMT	**364,467**	**275,141**
Service Population	**13,485**	**10,705**
VMT per Service Population	**27.0**	**25.7**
See attached VMT and Service Population Calculation Worksheet.		

The VMT estimates presented above use data from a travel demand model and are based on location and land use types only. The travel demand mode data does not consider the unique features of a specific project. For the previously approved Project, there are a number of features that tend to reduce VMT such as constructing a pedestrian network, integrating affordable housing, constructing bicycle trails, and expanding the transit network. VMT reduction ranges from the California Air Pollution Control Officers Association's (CAPCOA) Handbook for Analyzing Greenhous Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity[6] (GHG Handbook) are noted below.

Pedestrian Network: The previously approved Project would promote a high level of walkability by providing access to recreational destinations. Pedestrian facilities in the neighborhood would include multi-use trails, enhanced parkways, and neighborhood pedestrian trails. Neighborhood trails connect homes to the larger network, bringing all community amenities within pedestrian, bicycle, or equestrian access and reducing the need for automobiles[7]. The GHG Handbook's T-18 Provide Pedestrian Network Improvement measure cites up to a 6.4% potential reduction in VMT, however, the previously approved Project is not taking any quantitative credit for this project feature.

Affordable Housing: The previously approved Project includes affordable mixed-use housing units, which represent approximately 10% of the total number of residential units. The GHG Handbook's T-4 Integrate Affordable and Below Market Rate Housing measure cites up to a 28.6% potential reduction in VMT, however, the previously approved Project is not taking any quantitative credit for this project feature.

[6] Handbook for Analyzing Greenhous Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity, California Air Pollution Control Officers Association, December 2021.
[7] Northlake Design Guidebook, April 2018.

Bicycle Trails: The previously approved Project would construct a Class I Bike Path, Class II Bike Lanes, and Class III Bike Route. Per the Northlake Design Guidebook, a Class I Bike Path is planned along Northlake Boulevard and Ridge Route Road south of Northlake Boulevard. Class II bike lanes are planned for Local Collectors "A" and "B" and Fire Access Road. Class III Bike Route is planned along Ridge Route Road north of Northlake Boulevard. The GHG Handbook's T-19A Construct or Improve Bike Facility measure cites up to a 0.08% potential reduction in VMT, however, the previously approved Project is not taking any quantitative credit for this project feature.

Expand Transit Network: The Project would provide a community shuttle and service ("tram") for the Project residents and guests. The tram would service local destinations within the Project Site as well as regional destinations outside the site. The Northlake Design Guidebook provides a conceptual diagram of a well-connected public transit route within the Project site, providing access to local destinations. The GHG Handbook's T-25 Extend Transit Network Coverage or Hours measure cites up to a 4.6% potential reduction in VMT, however, the previously approved Project is not taking any quantitative credit for this project feature.

Cumulative VMT Impact Analysis

The previously approved Project would have a less than significant VMT impact at the Project-level and would, therefore, also have a less-than-significant cumulative VMT impact[8].

Plan Consistency

The previously approved Project does not conflict with the General Plan, any program plan, ordinance, or policy addressing the circulation system. The previously approved Project does not propose to amend or adjust roadway classifications, roadway network, transit routes, or bicycle network under existing conditions and future conditions as identified in the General Plan.

The previously approved Project would enhance the pedestrian experience by constructing multi-use trails, enhanced parkways, and neighborhood pedestrian trails. Neighborhood trails connect homes to the larger network, bringing all community amenities within pedestrian, bicycle, or equestrian access and reducing the need for automobiles. The previously approved Project would also construct a Class I Bike Path, Class II Bike Lanes, and Class III Bike Route. Per the Northlake Design Guidebook, a Class I Bike Path is planned along Northlake Boulevard and Ridge Route Road south of Northlake Boulevard. Class II bike lanes are planned for Local Collectors "A" and "B" and Fire Access Road. Class III Bike Route is planned along Ridge Route Road north of Northlake Boulevard. Lastly, the Project would expand the transit network by creating a route alignment and bus stop locations within the Project site. Therefore, the Project does not conflict with the General Plan, any program plan, ordinance, or policy addressing the circulation system.

[8] "A project that falls below an efficiency-based threshold that is aligned with long-term goals and relevant plans has no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than significant project impact would imply a less than significant cumulative impact, and vice versa." Technical Advisory on Evaluating Transportation Impacts in CEQA, Governors' Office of Planning and Research, December 2018, page 6.

On-site Access

The previously approved Project would involve construction of a new internal circulation system. According to the Santa Clarita Valley Area Plan 2012 EIR, hazards due to roadway design would be evaluated on a project-by-project basis. The previously approved Project would include implementation of the Access and Circulation Plan that provides circulation and design standards for the layout of arterial highways and local collector streets in support of the Northlake land use plan. Because the Northlake Specific Plan, including the Access and Circulation Plan, was evaluated as part of the Northlake 1992 EIR and approved as part of the Specific Plan, no significant impacts are anticipated. Further, all roadway design would comply with applicable design standards and requirements set forth in the Northlake Specific Plan and would be subject to review and approval by the County of Los Angeles Department of Public Works. Therefore, impacts would be less than significant.

Emergency Access

Development of the Project site will not alter or impede emergency response routes or plans set in place by the County. Access during construction will be addressed in the Project's construction traffic management plan.

Emergency vehicles would access the Project site using Ridge Route Road and use the internal street network. North of the Project site, existing Ridge Route Road can be accessed from Templin Highway. Vehicular circulation within the Project site would be accommodated by public and private roadways, which would be constructed consistent with applicable Los Angeles County Department of Public Works design standards for local roads. According to the California Fire Code (2016), fire apparatus access roads need to be no less than 20 feet wide and shall always be unobstructed, which the internal Project streets will meet. Based on the previously approved Project site plan, the internal streets and intersections, including the Project cul-de-sacs, would accommodate a fire truck.

The Project driveways are designed to comply with turning radius requirements for emergency vehicles and will not cause hazardous driving conditions. The Project's detailed design will be completed in compliance with California Fire Code requirements and not impair emergency vehicle access in the vicinity of the Project during construction and in ongoing operation. Compliance with the California Fire and Building Codes will be mandated through the plan check and approval process. This process will also ensure that adequate access for emergency services is provided, and the County's emergency response plan will be upheld during construction. Therefore, the Project's impact on emergency access would be less than significant.

Construction VMT Analysis

Construction of the proposed project would generate temporary VMT associated with construction activities. It is anticipated that construction of the proposed project would be phased based on market demand.

Construction-related VMT would primarily be associated with mass grading including movement of soils within the Project site, delivery of building materials and construction equipment, removal of construction debris, and construction workers commuting to/from the project site. The amount of construction VMT would vary daily depending on the nature of the activity. In general, phased construction of the proposed uses is not anticipated to result in substantial construction related VMT, except possibly for the initial demolition and clearing stages, which would generate the highest number of heavy truck VMT. All grading materials are anticipated to be balanced on the Project site; therefore, the primary source of construction related VMT would occur during the building phases of the Project. Construction traffic is expected to access the Project site from I-5 at Lake Hughes Road, which leads to Ridge Route Road, and which is the most direct and shortest route from the site to the regional freeway system. Construction workers would primarily be from the southern California region. In some cases, specialized workers will be housed temporarily in the local area for the duration of their work activity. The distance construction workers travel to jobsites is a function of the worker's home location and the jobsite location, which is continually changing due to the short-term nature of construction work. Construction related VMT is variable, short-term, and is substantially lower than the project's operational VMT. As such, construction related VMT would be less than significant.

As described in Mitigation Measure 5.11-3, to minimize traffic impacts during construction, a Construction Traffic Management Plan will be prepared and submitted to the County; this plan will describe safe detours, provide temporary traffic-control measures during construction activities, and identify requirements to be met when one or more travel lanes are obstructed during construction. To reduce traffic congestion, the plan would also include, as necessary, appropriate, and practicable, the following activities: implementing temporary traffic controls (e.g., a flag person) during all phases of construction to maintain smooth traffic flow; implementing signage for detours, if needed; assigning dedicated turn lanes for movement of construction trucks and equipment on and off the site; scheduling construction activities that affect traffic flow on the arterial system to off-peak hours; consolidating truck deliveries; rerouting construction trucks away from congested streets or sensitive receptors; and synchronizing signals to improve traffic flow. Conducting construction activities in compliance with the Traffic Management Plan would reduce potential impacts related to construction traffic to less than significant levels.

Conclusion

The purpose of this study is to identify potential significant impacts related to transportation due to the implementation of the proposed Project. The previously approved Project would generate less VMT and a lower VMT per service population rate than the NLSP. Due to the VMT reduction, the previously approved Project's impacts would be less and the previously approved Project would not result in any new or increased significant transportation impacts.

Reference: Northlake Specific Plan Transportation Analysis for CEQA

The previously approved Project's consistency with existing plans was evaluated and the previously approved Project does not conflict with the General Plan, any program plan, ordinance, or policy addressing the circulation system.

The previously approved Project's roadway design would comply with applicable design standards and requirements set forth in the Northlake Specific Plan and subject to review and approval by the County of Los Angeles Department of Public Works, therefore the Project would not increase hazards or incompatible uses.

Emergency access during construction would be maintained through the previously approved Project's construction management plan and on-site roadways would be designed per Fire Code requirements. Therefore, the previously approved Project would not impact emergency access.

Lastly, construction related VMT is variable, short-term, and is substantially lower than the Project's operational VMT. As such, construction related VMT would be less than significant. A construction Traffic Management Plan will be prepared and submitted to the County. Conducting construction activities in compliance with the Traffic Management Plan would reduce potential impacts related to construction traffic to less than significant levels.

Please reach out to us if you have any questions.

Sincerely,

STANTEC CONSULTING SERVICES INC.

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Senior Transportation Planner
Phone: (949) 923-6072
Maria.Morris@stantec.com

Attachment: VMT and Service Population Calculation Worksheet
County of Los Angeles VMT Tool Output Sheets
Figure 1 Project Site Plan
Figure 2 Traffic Analysis Zone Map
Appendix: Land Use Table
Northlake Traffic Impact Analysis

VMT AND SERVICE POPULATION CALCULATION WORKSHEET

Northlake Specific Plan and Previously Approved Project

Land Use Summary

Category	NLSP Amount	NLSP Unit	Previously Approved Project Amount	Previously Approved Project Unit
Single Family Residential	2,337	DU	1,488	DU
Multi Family Residential	1,286	DU	1,341	DU
Affordable Mixed-Use / Live-Work	--	--	321	DU
General Commercial	100.188	TSF	38.7	TSF
Highway Commercial	69.696	TSF	32.175	TSF
Industrial	545.589	TSF	--	--
Recreation/Park	166.9	Acre	167	Acre
School	23.1	Acre	44	Acre

DU = dwelling unit; TSF = thousand square feet

VMT Summary

Category	NLSP VMT	Previously Approved Project VMT
Single Family Residential	260,013	165,568
Multi Family Residential	77,860	100,623
Commercial	8,765	3,670
Light Industrial	13,869	--
Recreation/Park	1,320	2,640
School	2,640	2,640
Total	**364,467**	**275,141**

VMT per Service Population Summary

Metric	NLSP Plan	Previously Approved Project
VMT	364,467	275,141
SP	13,485	10,705
VMT per SP	27.0	25.7

SP = Service Population

NLSP Service Population

Category	Amount (TSF, Acre, Students)	Conversion Factor[1]	Population or Employee
Single Family Residential	2,337	3.85	8,997
Multi Family Residential	1,286	2.79	3,588
Light Industrial	545.589	1.306	418
Commercial	169.884	0.511	332
Recreation (Golf Course)/Park	166.9	na	50[2]
School	1,200	na	100[2]
Service Population			13,485
Residential and Commute VMT			364,467
VMT per Service Population			27.03

[1] Los Angeles County General Plan (DEIR Appendix D Buildout Methodology Figure 1E)

[2] Los Angeles County General Plan (DEIR Appendix D Buildout Methodology Figure 1F)

Previously Approved Project Service Population

Category	Amount (TSF, Acre, Students)	Conversion Factor[1]	Population or Employee
Single Family Residential	1,488	3.85	5,729
Multi Family Residential	1,662	2.79	4,637
Commercial	70.875	0.511	139
Sports Park	26	na[2]	50[2]
Recreation/Park	141	na[2]	50[2]
School	1,200	na[2]	100[2]
Service Population			10,705
Residential and Commute VMT			275,141
VMT per Service Population			25.70

[1] Los Angeles County General Plan (DEIR Appendix D Buildout Methodology Figure 1E)

[2] Los Angeles County General Plan (DEIR Appendix D Buildout Methodology Figure 1F)

NLSP VMT Estimates

Category	Amount (DU)	Persons/ HH[1]	Population	VMT per Capita[2]	Residential VMT
Single Family Residential	2,337	3.85	8,997	28.9	260,013
Multi Family Residential	1,286	2.79	3,588	21.7	77,860
Total Residential	3,623	--	12,585	--	337,873

[1] Los Angeles County General Plan (DEIR Appendix D Buildout Methodology Figure 1E)

[2] County of Los Angeles VMT Tool (See Figure 2 for TAZ Map)

Category	Amount (TSF)	TSF/Emp[1]	Employees	VMT per Employee[2]	Commute VMT
Light Industrial	545.589	1.306	418	33.2	13,869

[1] Los Angeles County General Plan (DEIR Appendix D Buildout Methodology Figure 1E)

[2] County of Los Angeles VMT Tool (See Figure 2 for TAZ Map)

Category	Employees	Employee ADT[1]	Average Trip Length[2] (miles)	Commute VMT	Residential and Commute VMT
Commercial	332	664	13.2	8,765	
Recreation (Golf Course)/Park	50	100	13.2	1,320	
School	100	200	13.2	2,640	
Total VMT					364,467

[1] Assumes 2 trips per employee (home to work and work to home)

[2] Since the County of LA VMT Tool does not calculate VMT per employee for Commerical, Recreation, and School uses, the average trip length was derived by using the General Office VMT per Employee for TAZ 20230100 (Project Location) from the County of LA VMT Tool and assumes 2 trips per employee (26.4 VMT per employee / 2 trips per employee = 13.2 miles).

Previously Approved Project VMT Estimates

Category	Amount (DU)	Persons/ HH[1]	Population	VMT per Capita[2]	Residential VMT
Single Family Residential	1,488	3.85	5,729	28.9	165,568
Multi Family Residential	1,662	2.79	4,637	21.7	100,623
Total Residential	3,150	--	10,366	--	266,191

[1] Los Angeles County General Plan (DEIR Appendix D Buildout Methodology Figure 1E)

[2] County of Los Angeles VMT Tool

Category	Amount (TSF)	TSF/Emp	Employees	VMT per Employee	Commute VMT
Light Industrial	--	--	--	--	--

Category	Employees	Employee ADT[1]	Average Trip Length[2] (miles)	Commute VMT	Residential and Commute VMT
Commercial	139	278	13.2	3,670	
Sports Park	50	100	13.2	1,320	
Recreation/Park	50	100	13.2	1,320	
School	100	200	13.2	2,640	
Total VMT					275,141

[1] Assumes 2 trips per employee (home to work and work to home)

[2] The average trip length was derived by using the General Office VMT per Employee for TAZ 20230100 (Project Location) from the County of LA VMT Tool and assumes 2 trips per employee (26.4 VMT per employee / 2 trips per employee = 13.2 miles).

COUNTY OF LOS ANGELES VMT TOOL

version 1.0

Project Information

Project Name	Analysis Year
Northlake Specific Plan (NLSP)	2022

Parcel Number (TAZ# 20230100)

3244012013, 2865003013, 2865003035, 2865003908, 2865036001, 2865036002, 2865036003,

Project Land Use Information

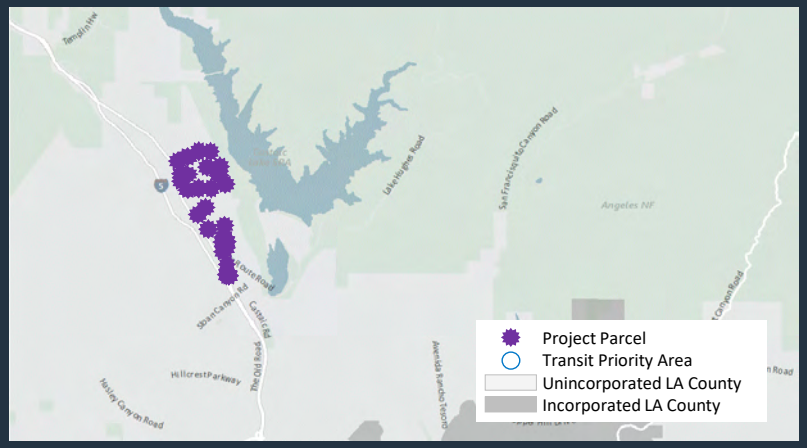
	Values	Unit
Residential - Single-Family Housing	2,337	DU
Residential - Multifamily Housing		DU
Residential - Affordable Housing		DU
Office - General Office		KSF
Office - Medical Office		KSF
Retail - Shopping Center, Restaurant, Services		KSF
Industrial - Warehousing		KSF
Industrial - Light Industrial		KSF
Custom Land Use (ignores all other land use entries)		Daily Trips

Project Daily Trips: 22,061

Screening Criteria for County of Los Angeles

	Value
Is the project screened in a Transit Priority Area?	No
Is the project's residential land uses 100% affordable housing?	N/A
Is the project's local service retail land uses under 50,000 square foot?	N/A
Does the project generate fewer than 110 daily trips? (enter project land use in the section above)	No

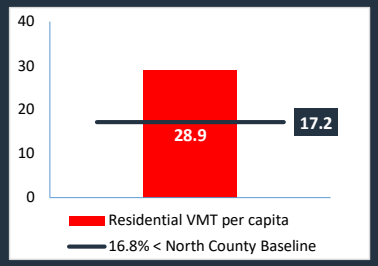
Project Location and VMT Information



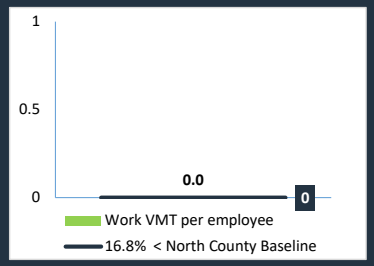
Project Summary Information

North County Residential VMT Baseline (20.7)	16.8%	% Threshold for Screening
North County Work VMT Baseline (15.9)	16.8%	% Threshold for Screening

Residential VMT per capita



Work VMT per employee



The project is not presumed to have a less than significant impact on VMT, therefore a CEQA VMT analysis may be required. Please refer to the Transportation Impact Analysis Guidelines on how to proceed forward.

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COUNTY OF LOS ANGELES VMT TOOL

version 1.0

Project Information

Project Name	Analysis Year
Northlake Specific Plan (NLSP)	2022

Parcel Number (TAZ# 20230100)

3244012013, 2865003013, 2865003035, 2865003908, 2865036001, 2865036002, 2865036003,

Project Land Use Information

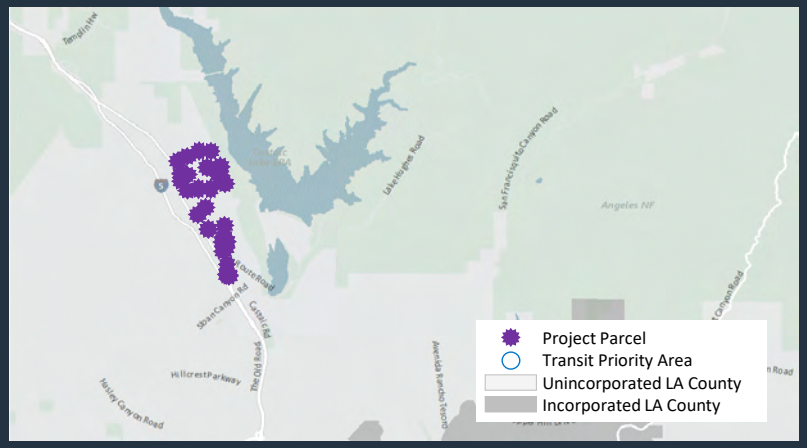
	Values	Unit
Residential - Single-Family Housing		DU
Residential - Multifamily Housing	1,286	DU
Residential - Affordable Housing		DU
Office - General Office		KSF
Office - Medical Office		KSF
Retail - Shopping Center, Restaurant, Services		KSF
Industrial - Warehousing		KSF
Industrial - Light Industrial		KSF
Custom Land Use (ignores all other land use entries)		Daily Trips

Project Daily Trips: 6,996

Screening Criteria for County of Los Angeles

	Value
Is the project screened in a Transit Priority Area?	No
Is the project's residential land uses 100% affordable housing?	N/A
Is the project's local service retail land uses under 50,000 square foot?	N/A
Does the project generate fewer than 110 daily trips? (enter project land use in the section above)	No

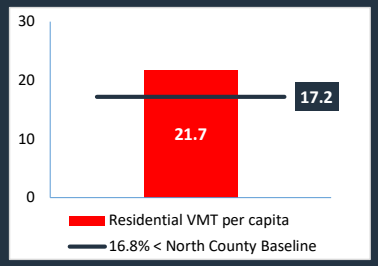
Project Location and VMT Information



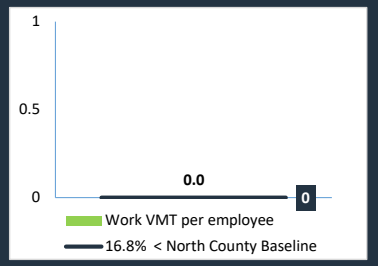
Project Summary Information

North County Residential VMT Baseline (20.7)	16.8%	% Threshold for Screening
North County Work VMT Baseline (15.9)	16.8%	% Threshold for Screening

Residential VMT per capita



Work VMT per employee



The project is not presumed to have a less than significant impact on VMT, therefore a CEQA VMT analysis may be required. Please refer to the Transportation Impact Analysis Guidelines on how to proceed forward.

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COUNTY OF LOS ANGELES VMT TOOL

version 1.0

Project Information

Project Name	Analysis Year
Northlake Specific Plan (NLSP)	2022

Parcel Number (TAZ# 20230100)

3244012013, 2865003013, 2865003035, 2865003908, 2865036001, 2865036002, 2865036003,

Project Land Use Information

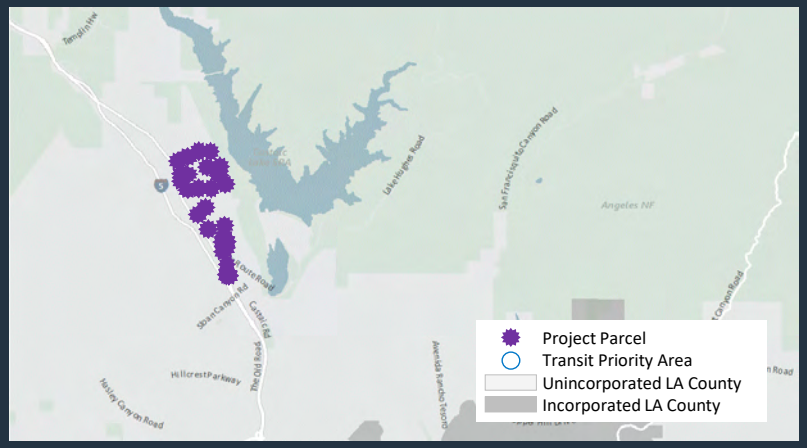
	Values	Unit
Residential - Single-Family Housing		DU
Residential - Multifamily Housing		DU
Residential - Affordable Housing		DU
Office - General Office		KSF
Office - Medical Office		KSF
Retail - Shopping Center, Restaurant, Services		KSF
Industrial - Warehousing		KSF
Industrial - Light Industrial	545.589	KSF
Custom Land Use (ignores all other land use entries)		Daily Trips

Project Daily Trips: 2,706

Screening Criteria for County of Los Angeles

	Value
Is the project screened in a Transit Priority Area?	No
Is the project's residential land uses 100% affordable housing?	N/A
Is the project's local service retail land uses under 50,000 square foot?	N/A
Does the project generate fewer than 110 daily trips? (enter project land use in the section above)	No

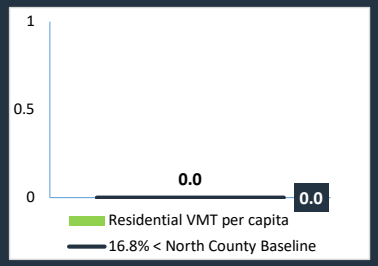
Project Location and VMT Information



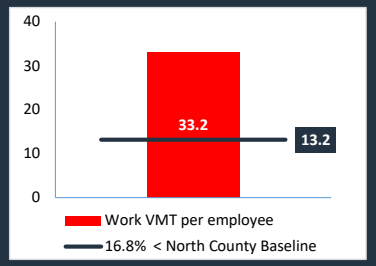
Project Summary Information

North County Residential VMT Baseline (20.7)	16.8%	% Threshold for Screening
North County Work VMT Baseline (15.9)	16.8%	% Threshold for Screening

Residential VMT per capita



Work VMT per employee



The project is not presumed to have a less than significant impact on VMT, therefore a CEQA VMT analysis may be required. Please refer to the Transportation Impact Analysis Guidelines on how to proceed forward.

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COUNTY OF LOS ANGELES VMT TOOL

version 1.0

Project Information

Project Name	Analysis Year
Northlake Specific Plan (Previously Approved Project)	2022

Parcel Number (TAZ# 20230100)

3244012013, 2865003013, 2865003035, 2865003908, 2865036001, 2865036002, 2865036003,

Project Land Use Information

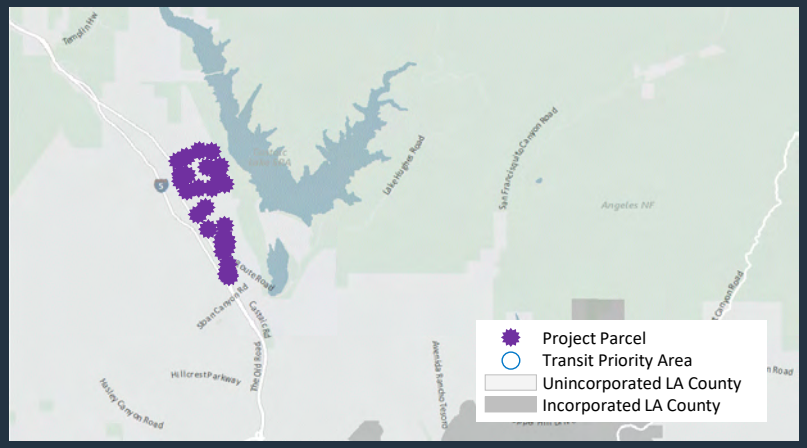
	Values	Unit
Residential - Single-Family Housing	1,488	DU
Residential - Multifamily Housing		DU
Residential - Affordable Housing		DU
Office - General Office		KSF
Office - Medical Office		KSF
Retail - Shopping Center, Restaurant, Services		KSF
Industrial - Warehousing		KSF
Industrial - Light Industrial		KSF
Custom Land Use (ignores all other land use entries)		Daily Trips

Project Daily Trips: 14,047

Screening Criteria for County of Los Angeles

	Value
Is the project screened in a Transit Priority Area?	No
Is the project's residential land uses 100% affordable housing?	N/A
Is the project's local service retail land uses under 50,000 square foot?	N/A
Does the project generate fewer than 110 daily trips? (enter project land use in the section above)	No

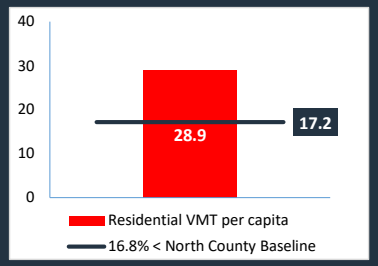
Project Location and VMT Information



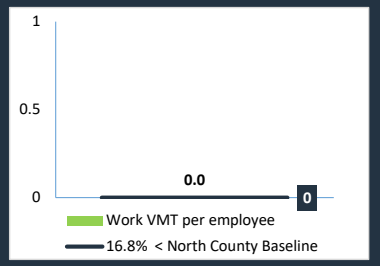
Project Summary Information

North County Residential VMT Baseline (20.7)	16.8%	% Threshold for Screening
North County Work VMT Baseline (15.9)	16.8%	% Threshold for Screening

Residential VMT per capita



Work VMT per employee



The project is not presumed to have a less than significant impact on VMT, therefore a CEQA VMT analysis may be required. Please refer to the Transportation Impact Analysis Guidelines on how to proceed forward.

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COUNTY OF LOS ANGELES VMT TOOL

version 1.0

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Project Name	Analysis Year
Northlake Specific Plan (Previously Approved Project)	2022

Parcel Number (TAZ# 20230100)

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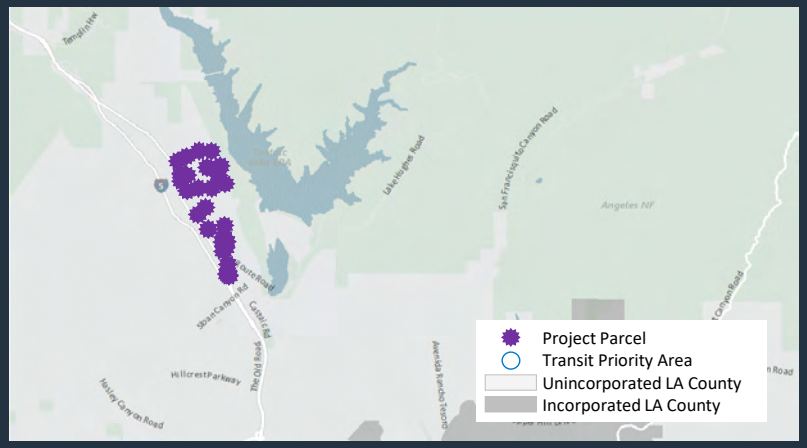
	Values	Unit
Residential - Single-Family Housing		DU
Residential - Multifamily Housing	1,341	DU
Residential - Affordable Housing		DU
Office - General Office		KSF
Office - Medical Office		KSF
Retail - Shopping Center, Restaurant, Services		KSF
Industrial - Warehousing		KSF
Industrial - Light Industrial		KSF
Custom Land Use (ignores all other land use entries)		Daily Trips

Project Daily Trips: 7,295

Screening Criteria for County of Los Angeles

	Value
Is the project screened in a Transit Priority Area?	No
Is the project's residential land uses 100% affordable housing?	N/A
Is the project's local service retail land uses under 50,000 square foot?	N/A
Does the project generate fewer than 110 daily trips? (enter project land use in the section above)	No

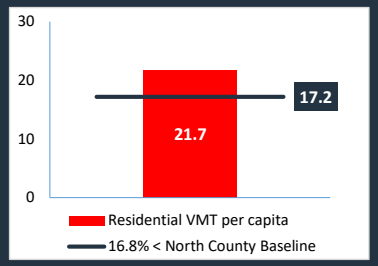
Project Location and VMT Information



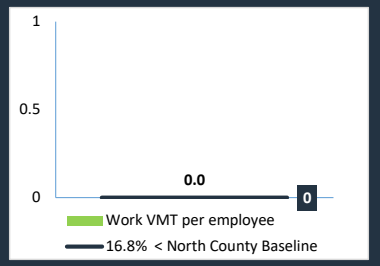
Project Summary Information

North County Residential VMT Baseline (20.7)	16.8%	% Threshold for Screening
North County Work VMT Baseline (15.9)	16.8%	% Threshold for Screening

Residential VMT per capita



Work VMT per employee



The project is not presumed to have a less than significant impact on VMT, therefore a CEQA VMT analysis may be required. Please refer to the Transportation Impact Analysis Guidelines on how to proceed forward.

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COUNTY OF LOS ANGELES VMT TOOL

version 1.0

Project Information

Project Name	Analysis Year
Northlake Specific Plan (Previously Approved Project)	2022

Parcel Number (TAZ# 20230100)

3244012013, 2865003013, 2865003035, 2865003908, 2865036001, 2865036002, 2865036003,

Project Land Use Information

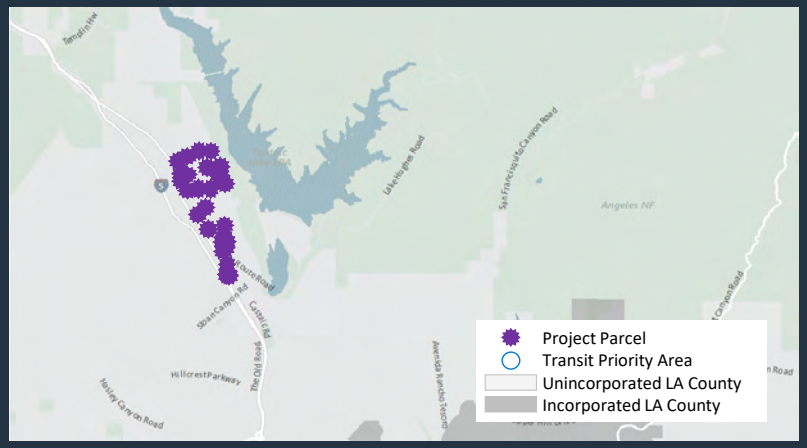
	Values	Unit
Residential - Single-Family Housing	1,488	DU
Residential - Multifamily Housing	1,341	DU
Residential - Affordable Housing	321	DU
Office - General Office		KSF
Office - Medical Office		KSF
Retail - Shopping Center, Restaurant, Services	32.175	KSF
Industrial - Warehousing		KSF
Industrial - Light Industrial		KSF
Custom Land Use (ignores all other land use entries)		Daily Trips

Project Daily Trips: 23,892

Screening Criteria for County of Los Angeles

	Value
Is the project screened in a Transit Priority Area?	No
Is the project's residential land uses 100% affordable housing?	No
Is the project's local service retail land uses under 50,000 square foot?	Yes
Does the project generate fewer than 110 daily trips? (enter project land use in the section above)	No

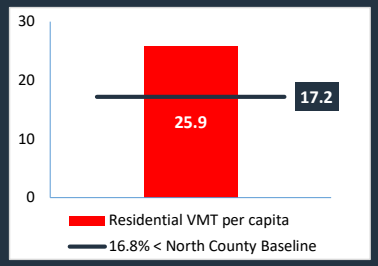
Project Location and VMT Information



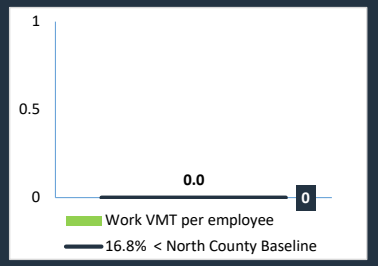
Project Summary Information

North County Residential VMT Baseline (20.7)	16.8%	% Threshold for Screening
North County Work VMT Baseline (15.9)	16.8%	% Threshold for Screening

Residential VMT per capita

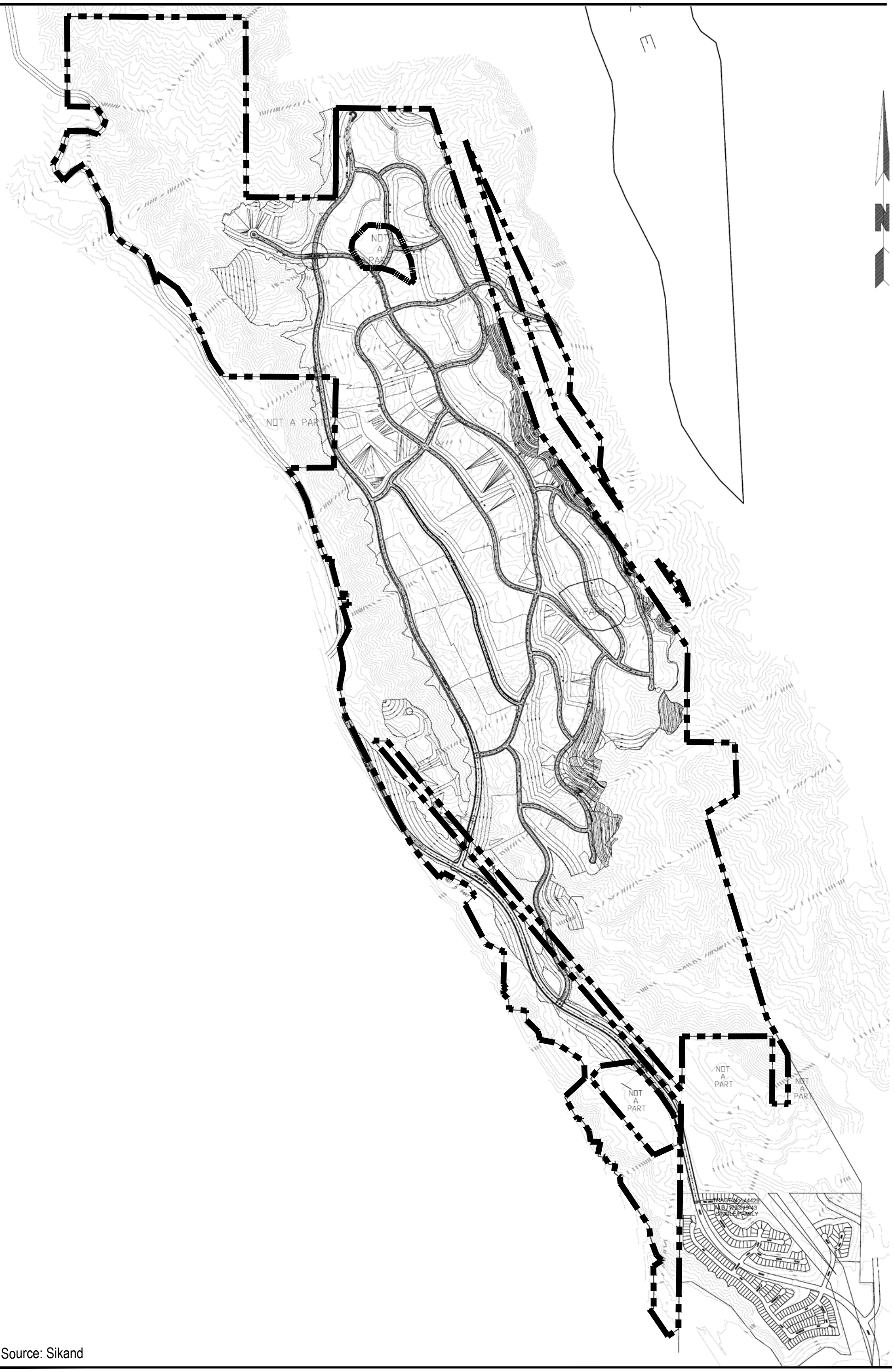


Work VMT per employee



The retail portion of this project is presumed to have a less than significant impact on VMT, therefore a CEQA VMT analysis for the retail portion is not required. The project is not presumed to have a less than significant impact on VMT, therefore a CEQA VMT analysis may be required. Please refer to the Transportation Impact Analysis Guidelines on how to proceed forward.

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Source: Sikand

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Figure 1
Previously Approved Project Site Plan

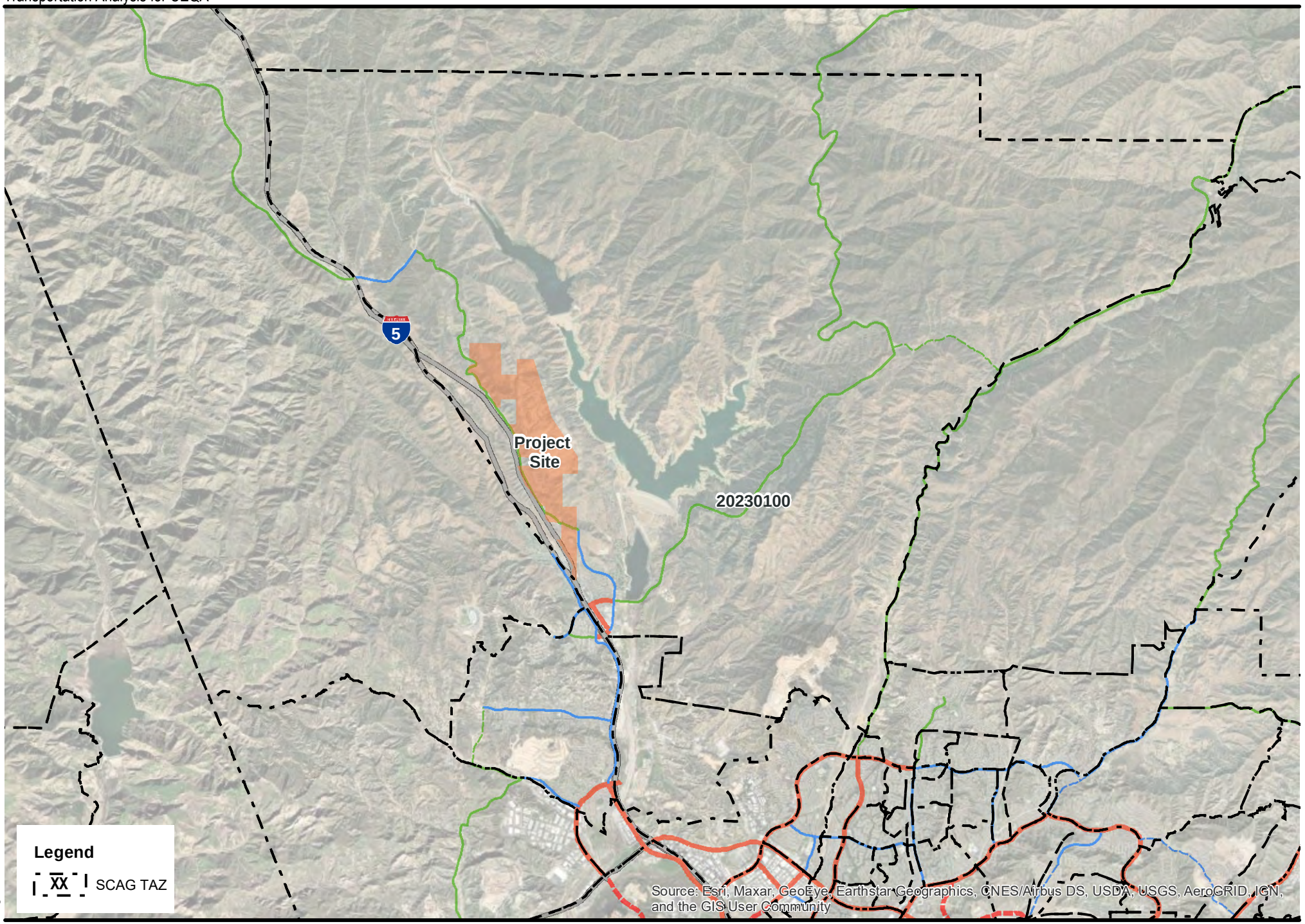


Figure 2

Traffic Analysis Zone (TAZ) Map

Appendix: Land Use Table

		PER APPROVED TM			
		ACREAGES		UNIT COUNT	
Residential		Phase 1	Phase 2	Phase 1	Phase 2
	Single Family	41	145	288	855
	Multi Family	107		1,341	
	Single Family (Age Qualified)	49		345	
Affordable Housing		20		321	
~~Commerical~~ (converted to affordable)					
Commerical Highway		2			
~~Industrial~~ (converted to affordable)					
School		21	23		
Recreation Park					
	Trail	10	2		
	Grasshopper Creek Park	11	6		
	Enhanced Parkway	38	2		
	Ridge Route Park		8		
	Northvalley Paseo		9		
	Northvalley Park		10		
	Sport Park	26			
	Castaic Lagoon Park (WQ Basin)	17			
	Cody Dog Park	1			
	Vista Park		27		
OS - Manufactured Slope		144	161		
OS - Undisturbed		167	161		
Road		84	36		
Public Services					
	Fire Station	1			
Total (ac.)		**739**	**590**	**3,150**	

Northlake Traffic Impact Analysis



Prepared for:
Northlake Associates, LLC

Prepared by:
Stantec Consulting Services Inc.
38 Technology Drive, Suite 100
Irvine, CA 92618

September 6, 2016

Sign-off Sheet

This report, entitled Northlake Traffic Impact Analysis, was produced by the following individuals:

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Stantec Consulting Services Inc.

Stantec

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1.0 INTRODUCTION

This report presents the results of a traffic study carried out to evaluate a proposed development (hereby referred to as Northlake) within the Northlake Specific Plan area in unincorporated Los Angeles County. VTTM 73336 represents a portion of the Northlake development. The purpose of the study is to identify potential significant impacts of the project and will serve as a technical resource for the project's Environmental Impact Report (EIR).

1.1 PROPOSED PROJECT

Figure 1-1 illustrates the general location of the project. The project is located in the Castaic community, east of Interstate (I-5) and northeast of the Lake Hughes Road interchange. A Specific Plan was approved in 1991 for a development consisting of nearly 4,000 residential dwelling units. The buildout of the project as currently proposed, consists of 1,414 single family residential units, 1,341 condominium and townhouse units, 345 senior adult residential units with a combined total of 3,100 residential units. The project also includes non-residential uses estimated to consist of approximately 67,100 square feet of neighborhood commercial, a 304,900 square feet industrial park, a junior high school (approximately 1,200 students), 15 acre Sports Park and a 10 acre developed park.

The site is currently undeveloped, except for the existing Northlake Hills Elementary school just north of the intersection of Ridge Route Road and Pine Crest Place.

The project site plan is shown in Figure 1-2. Access to the project site is via an extension of the existing Ridge Route Road.

Based on established trip rates published by the Institute of Transportation Engineers (ITE) and the County of Los Angeles, at buildout the development will result in approximately 32,600 average daily trips (35,500 daily tripends) given the proposed land uses for the project site. Detailed trip generation and trip distribution data is provided in Chapter 3.0, Project Description. The project is expected to be fully built out over a 10 to 15 year period.

1.2 STUDY AREA

This traffic report addresses the local study area in the nearby Castaic community where project generated traffic could potentially cause a significant impact and the I-5 freeway segments near the project site. The local study area and the freeway segments addressed in this report are presented in Figure 1-3. As shown, the local study area extends south to the Ridge Route Road/Parker Road interchange and westerly to Sloan Canyon Road.

The study area was derived by utilizing a traffic model to distribute project trips to the area's roadways (see Section 1.3.1 for additional discussion of the traffic model used for this analysis)

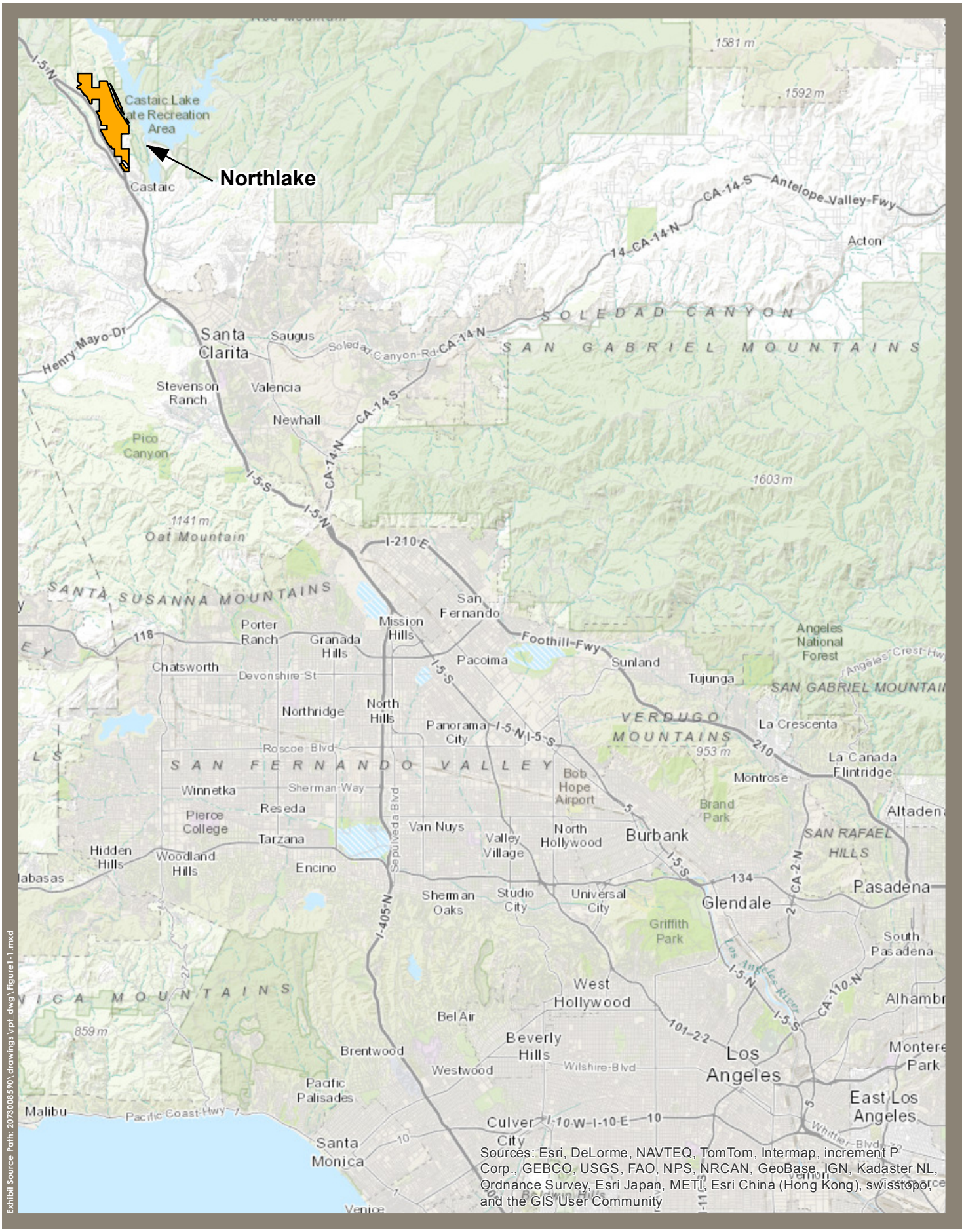


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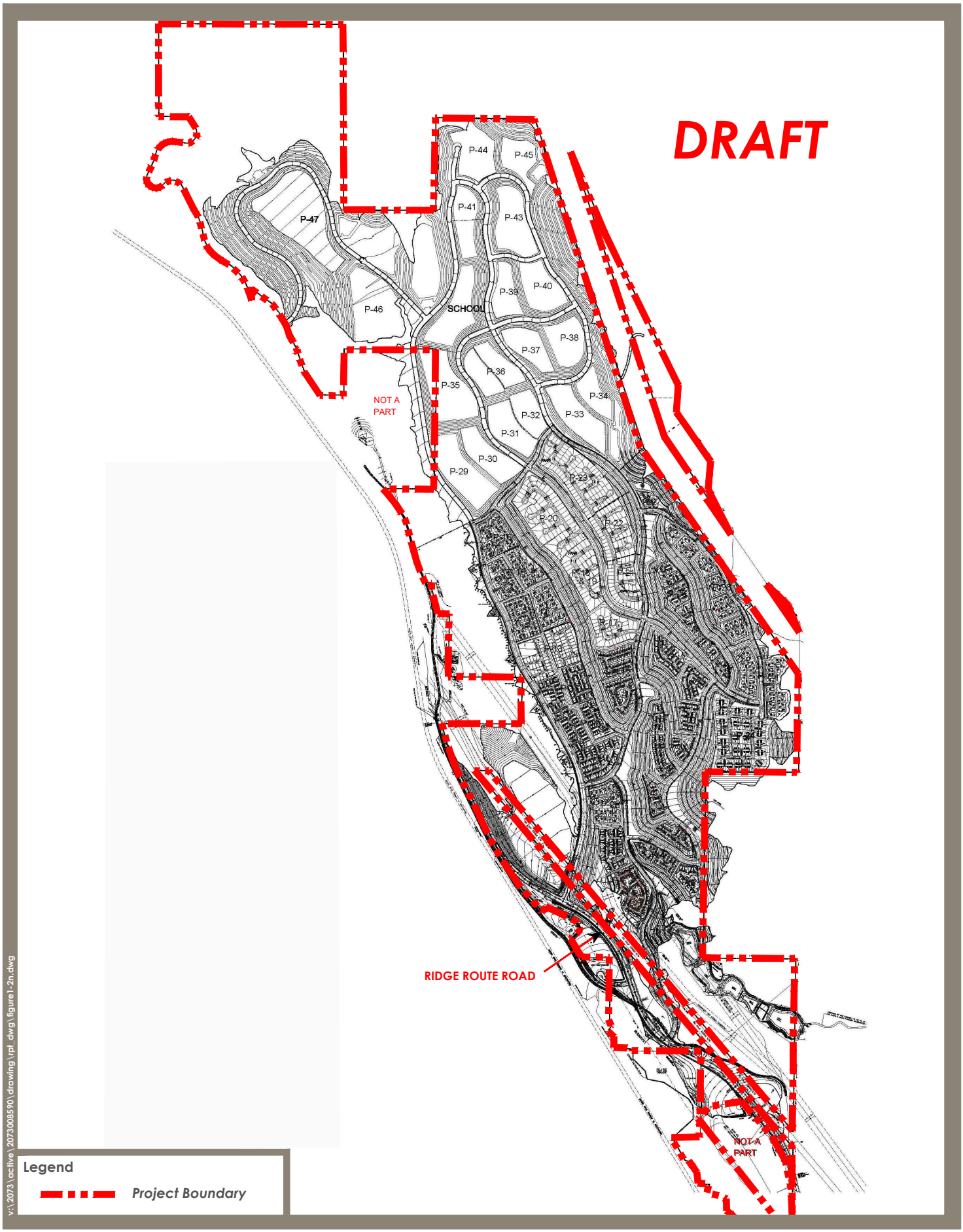
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Figure 1-1

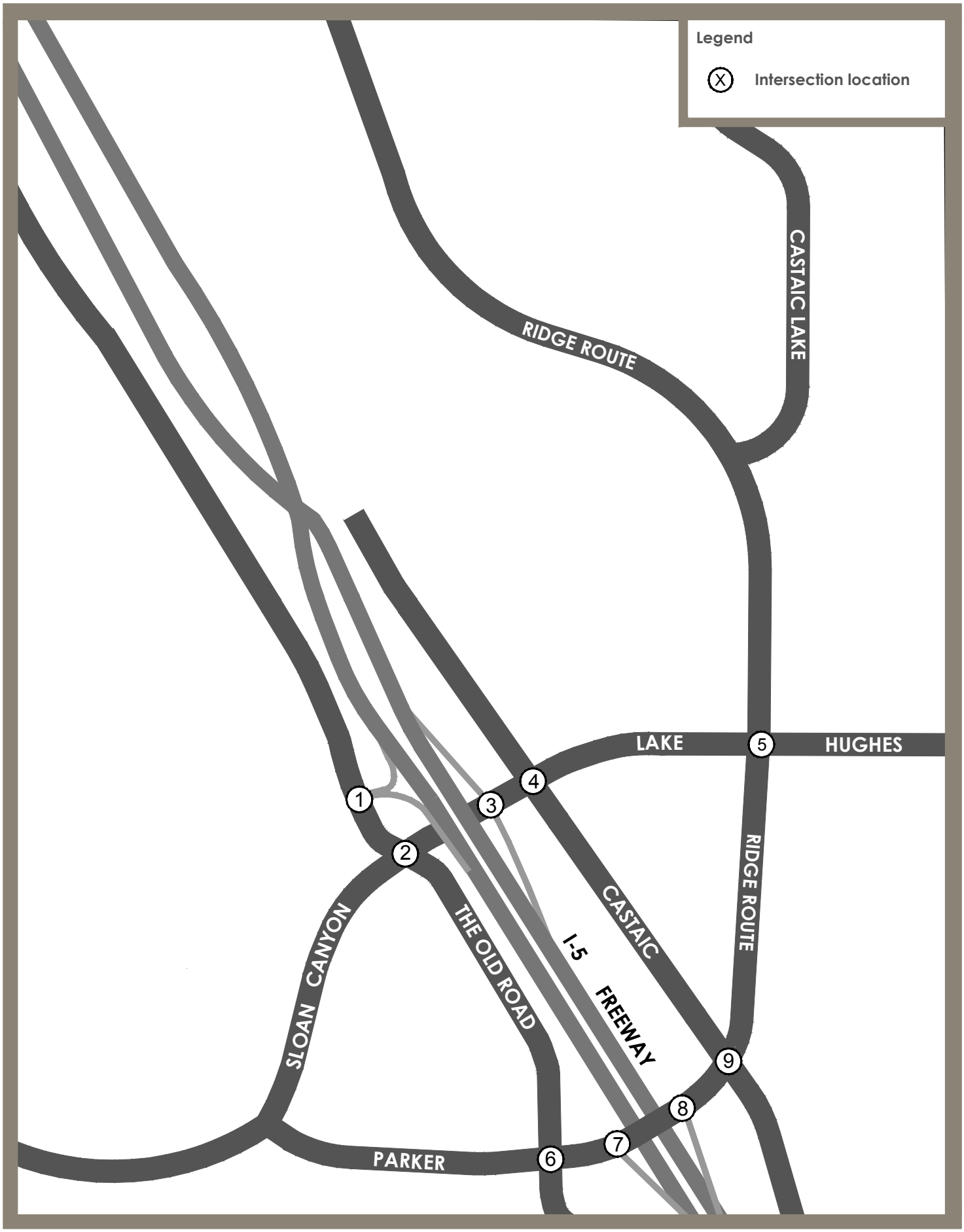
Project Site Location Map

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Figure 1-2
Project Site Plan (Draft)
1.3



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Figure 1-3

Project Local Study Area - Intersection Location Map

1.4

and each major intersection with a discernible volume of project traffic (i.e., daily traffic volumes > 500 ADT) was included in the study area.

1.3 METHODOLOGY

The traffic analysis evaluates the project utilizing the established guidelines of the Los Angeles County Department of Public Works (See Reference 3 in Section 1.6) and current methodologies as direct by County staff. A special plan–to-ground analysis (i.e., existing plus project analysis) is provided as well as cumulative conditions (i.e., Related Projects) analysis. The project is expected to buildout over a 10 to 15 year period, therefore a horizon year of 2028 is utilized for the cumulative setting. The scenarios analyzed are as follows:

1. Existing Conditions
2. Existing Conditions plus Project
3. 2028 Cumulative Conditions/Related Projects with Project
4. 2028 Cumulative Conditions/Related Projects without Project

1.3.1 Project Impact Analysis

The County's traffic study guidelines specify the analysis of the scenarios shown above. The future forecasts were derived using three primary sources. The first is the Santa Clarita Valley Consolidated Traffic Model (SCVCTM), a model has the capability of forecasting the complex interaction of vehicle trips between existing and future land uses. The second is the Northlake Traffic Model (NTM), a fine-grained site-specific traffic model prepared for this traffic study. The third set of data is from the Los Angeles County Department of Regional GIS-NET-3 database, referred to here as "related projects". All three sources are discussed in detail in Section 2.2.

1.4 PERFORMANCE CRITERIA

In traffic impact studies, impact criteria are based on two primary measures. The first is "capacity," which establishes the vehicle carrying ability of a road segment, and the second is "volume". The volume measures is either a traffic count (in the case of existing volumes) or a traffic forecast for a future point in time. The ratio between the volume and the capacity gives a volume/capacity (V/C) ratio, and based on that V/C ratio, a corresponding level of service (LOS) is defined. Traffic LOS is designated "A" through "F" with LOS "A" representing free flow conditions and LOS "F" representing severe traffic congestion. Traffic flow quality for each LOS is described in Table 1-1 for arterial roadways and intersections and Table 1-2 for freeways, these descriptions being taken from the Highway Capacity Manual (HCM).

Table 1-3 summarizes the V/C ranges listed for arterial roads, intersections and freeway segments and are those used by the County of Los Angeles. The V/C ranges listed for freeway segments are based on the V/C and LOS relationships specified in the 2010 Highway Capacity Manual (see Reference 2 in Section 1.6 and referred to as "HCM 2010" in this report) for basic freeway sections with free-flow speeds of 65 miles per hour, and the V/C methodology is specified by the

County's Congestion Management Program (CMP) for the evaluation of CMP freeway monitoring stations.

The V/C is the methodology used in this analysis for the CEQA determination of impacts since it is the methodology specified by the Los Angeles County CMPs.

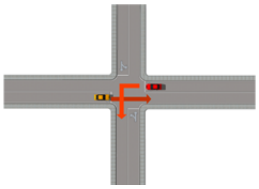
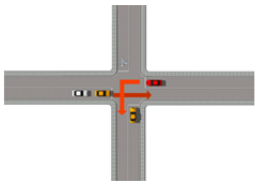
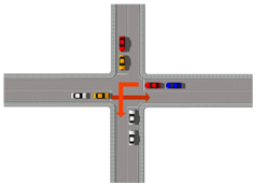
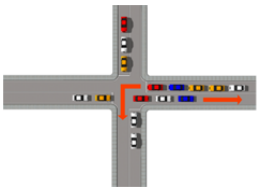
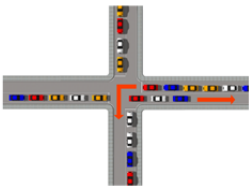
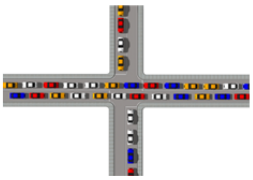
Both the V/C ratio and the LOS are used in identifying significant impacts. Certain LOS values are deemed unacceptable, and increases in the V/C ratio that cause or contribute to the LOS being unacceptable are defined as a significant impact. Note that while the Caltrans guidelines for the preparation of traffic studies (see Reference 4 in Section 1.6) recommend the HCM 2010 method for the evaluation of State highway facilities, those guidelines do not include a threshold of significance criteria for the determination of a significant project impact that is based on the HCM 2010 methodologies. While the Caltrans guidelines do not identify specific impact criteria due to differences between rural and urban areas of the State, as well as differences between the northern, central, and southern regions, the local Caltrans Districts will determine the impact criteria based on the appropriate requirements of that District. As such, the thresholds of significance criteria specified by the local agencies (i.e., Caltrans District 7, County of Los Angeles, and the LA County CMP) are utilized for this analysis.

In establishing V/C based performance criteria, there are certain items that need to be addressed to obtain suitable V/C estimates and relate them to LOS. For instance, while average daily traffic (ADT) is a useful measure to show general levels of traffic on a facility and to provide data for other related aspects such as noise and air quality, highway congestion is largely a peak hour or peak period occurrence and ADT does not reflect peak period conditions very effectively. Because of this, ADT is not used here as the basis for capacity evaluation but instead this evaluation focuses on those parts of the day when such congestion can occur, specifically the AM and PM peak hours.

For the arterial system and freeway system, the peak hour is the accepted time period used for impact evaluation. The analysis of the arterial road system is based on intersection capacity since this is the defining capacity limitation on an arterial highway system. The analysis of the freeway system is based on peak hour volumes by direction.

Levels of service for arterial roadway intersections and for freeway mainline segments are determined based on operating conditions during the AM and PM peak hours. For intersections, the intersection capacity utilization (ICU) methodology is applied, providing a planning level basis for determining V/C and LOS. This methodology sums the V/C ratios for the critical movements of an intersection and is the preferred procedure for intersection analysis by the County of Los Angeles. The ICU methodology is generally compatible with the intersection capacity analysis methodology outlined in the HCM 2010. For freeway segments, the V/C methodology is applied, which also provides a planning level basis for determining capacity utilization and LOS, and which is the methodology specified by the County CMP. The HCM 2010 equates V/C ratios to other performance measures such as speed and density shown in Table 1-4.

Table 1-1 Level of Service Descriptions – Arterial Roadway and Intersections

LOS	Traffic Flow Description	V/C or ICU
A	 Minimal or no vehicle delay.	0.00 – 0.60
B	 Slight delay to vehicles.	0.61 – 0.70
C	 Moderate vehicle delays, traffic flow remains stable.	0.71 – 0.80
D	 More extensive delays at intersections.	0.81 – 0.90
E	 Long queues create lengthy delays.	0.91 – 1.00
F	 Severe delays and congestion.	> 1.00

Sources: HCM 2010, Congestion Management Program of Los Angeles County
V/C = Volume to Capacity ratio
ICU = Intersection Capacity Utilization

Table 1-2 Level of Service Descriptions – Freeways

LOS	Traffic Flow Description		Density (pc/mi/ln)
A		Free-flow conditions. Free-flow speed prevails and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.	≤11
B		Reasonably free-flow operations, and free-flow speed on the freeway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents and point breakdowns are still easily absorbed.	>11 – 18
C		Traffic flow and speeds near the free-flow speed of the freeway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.	>18 – 26
D		Speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.	>26 – 35
E		Operation at capacity. Operations on the freeway at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. The physical and psychological comfort afforded to drivers is poor.	>35 – 45
F		Breakdown, or unstable flow. Breakdown occurs when the ratio of demand to capacity exceeds 1.00. Whenever queues due to a breakdown exist, they have the potential to extend upstream for considerable distances.	>45

Source: HCM 2010
pc/mi/ln = passenger cars per mile per lane

Table 1-3 Volume/Capacity Ratio Level of Services Ranges

LOS	Roadway V/C & Intersection ICU Ranges	Freeway Segment V/C Ranges[1]
A	0.00 – 0.60	0.00 – 0.30
B	0.61 – 0.70	0.31 – 0.50
C	0.71 – 0.80	0.51 – 0.71
D	0.81 – 0.90	0.72 – 0.89
E	0.91 – 1.00	0.90 – 1.00
F	Above 1.00	Above 1.00

Sources: Congestion Management Program of Los Angeles County
HCM 2010

[1]Values based on a free flow speed of 65 mph.

Table 1-4 LOS Criteria for Basic Freeway Segments

	LOS				
Criteria	**A**	**B**	**C**	**D**	**E**
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mi/h)	65.0	65.0	64.6	59.7	52.2
Maximum V/C	0.30	0.50	0.71	0.89	1.00
Maximum service flow rate (pc/h/ln)	710	1,170	1,680	2,090	2,350

Notes:

The exact mathematical relationship between density and V/C has not always been maintained at LOS boundaries because of the use of rounded values. Density is the primary determinant of LOS. The speed criterion is the speed at maximum density for a given LOS.

Values based on a free flow speed of 65 mph.

Source: HCM 2010

The ICU calculation methodology and associated impact criteria for the study area arterial system are summarized in Table 1-5. The County utilizes a variable scale of ICU impact amounts that are based on the pre-project LOS.

The County CMP specifies that LOS E is the acceptable threshold for arterial intersections. Therefore, the CMP analysis presented in Section 4.3 utilizes LOS E as the acceptable threshold for CMP purposes.

The freeway V/C calculation methodology and associated impact criteria for the study area freeway system are summarized in Table 1-6. The County CMP specifies that LOS E or existing LOS, whichever is worse, represents the performance standard for freeway segments, and Caltrans goal is to maintain no worse than LOS E in urban areas.

1.5 DEFINITIONS

Certain terms used throughout this report are defined below to clarify their intended meaning:

ADT	Average Daily Traffic. Generally used to measure the total two-directional traffic volumes passing a given point on a roadway.
CMP	Congestion Management Program. A state mandated program administered by the Los Angeles County Metropolitan Transportation Authority (MTA) that provides a mechanism for coordinating land use and development decisions.
ICU	Intersection Capacity Utilization. A measure of the volume to capacity ratio for an intersection. Typically used to determine the peak hour level of service for a given set of intersection volumes.
LOS	Level of Service. A scale used to evaluate circulation system performance based on intersection ICU values or volume/capacity ratios of arterial segments.
Peak Hour	This refers to the hour during the AM peak period (typically 7 AM - 9 AM) or the PM peak period (typically 3 PM - 6 PM) in which the greatest number of vehicle trips are generated by a given land use or are traveling on a given roadway.
Tripend	A trip generation measure which represents the beginning or endpoint of a trip.
V/C	Volume to Capacity Ratio. This is typically used to describe the percentage of capacity utilized by existing or projected traffic on a segment of an arterial or intersection.
VPH	Vehicles per Hour. Used for roadway volumes (counts or forecasts) and trip generation estimates. Measures the number of vehicles in a one-hour period, typically the AM and PM peak hour.

Table 1-5 Arterial Intersection Performance Criteria

V/C Calculation Methodology

Level of service to be based on peak hour intersection capacity utilization (ICU) values calculated using the following assumptions:

Saturation Flow Rates:

County Methodology:	1,600 vehicles/hour/lane for through lanes, right-turn lanes, and single left-turn lanes 2,880 vehicles/hour/lane for dual left-turn lanes (total of both lanes)
Clearance Interval:	0.10

Significant Impact Thresholds[1]

An intersection is considered to be significantly impacted if the project increases the ICU by an amount equal to or greater than the amounts set forth below:

County Thresholds:	Pre-Project ICU	Project Increment
	0.71 - 0.80 (LOS C)[2]	greater than or equal to 0.04
	0.81 - 0.90 (LOS D)	greater than or equal to 0.02
	0.91 or more (LOS E & F)	greater than or equal to 0.01

[1]Note: For intersections under joint jurisdiction of the County and Caltrans or Caltrans, the analysis utilizes the corresponding threshold of the lead agency (County) or local agency.

[2]Note: The County guidelines do not address situations where pre-project conditions are less than 0.71. In that situation, County staff has interpreted the guidelines to mean that an increase resulting in a with-project condition of 0.75 or more is considered significant. The interpretation is based on the following scenario, which is addressed by the guidelines: 0.71 (pre-project) + 0.04 (project increment) = 0.75 and is a significant impact.

Abbreviations:
V/C – Volume/Capacity Ratio
LOS – Level of Service
ICU – Intersection Capacity Utilization

Table 1-6 Freeway Mainline Performance Criteria

V/C Calculation Methodology

Level of service to be based on peak hour V/C values calculated using the following assumptions for a planning level analysis:

Saturation/Service Flow Rates:

Mainline Mixed-flow/General Purpose Lane:	2,000 vehicles/hour/lane
High Occupancy Vehicle (HOV) or High Occupancy Toll (HOT Lane:	1,600[1] vehicles/hour/lane

Saturation flow rates derived from Caltrans PeMS data and through discussions with Caltrans staff.

[1] For buffered or contiguous HOV facilities, LOS C occurs at approximately 1,650 vph, or less if there is significant bus volume or if there are physical constraints (source: High Occupancy Vehicle Guidelines for Planning, Design and Operations, Caltrans, 2003, Chapter 2, page 4). However, for the purpose of planning studies, Caltrans District 7 has specified a capacity of 1,600 vph based on the desire to maintain an operating condition for the HOV lanes that is better than for general purpose lanes. As such, a V/C ratio of 1.00 in the HOV lane represents a better operating condition than a V/C ratio of 1.00 in the general purpose lanes.

Impact Threshold

A freeway mainline segment is considered to be significantly impacted if each of the following conditions are met:

The segment is forecast to operate deficiently (i.e., worse than LOS E (urban areas) or existing LOS, whichever is worse).

Compared to the V/C in the no-project alternative, the V/C in the with-project alternative increases by greater than or equal to .02 (the impact threshold specified in the CMP).

Abbreviations:

V/C – Volume/Capacity Ratio
PeMS – Performance Monitoring System
LOS – Level of Service
CMP – Congestion Management Program

1.6 REFERENCES

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2.0 TRANSPORTATION SETTING

This chapter describes the transportation setting for the project. Existing conditions are first summarized, followed by the future background setting against which project impacts are evaluated.

2.1 EXISTING CONDITIONS

The following section describes the transportation system serving the local study area. It includes a description of the local study area roadway system, existing traffic volumes and the results of an intersection capacity utilization (ICU) level of service (LOS) analysis, thereby providing a point of reference for describing anticipated future traffic conditions.

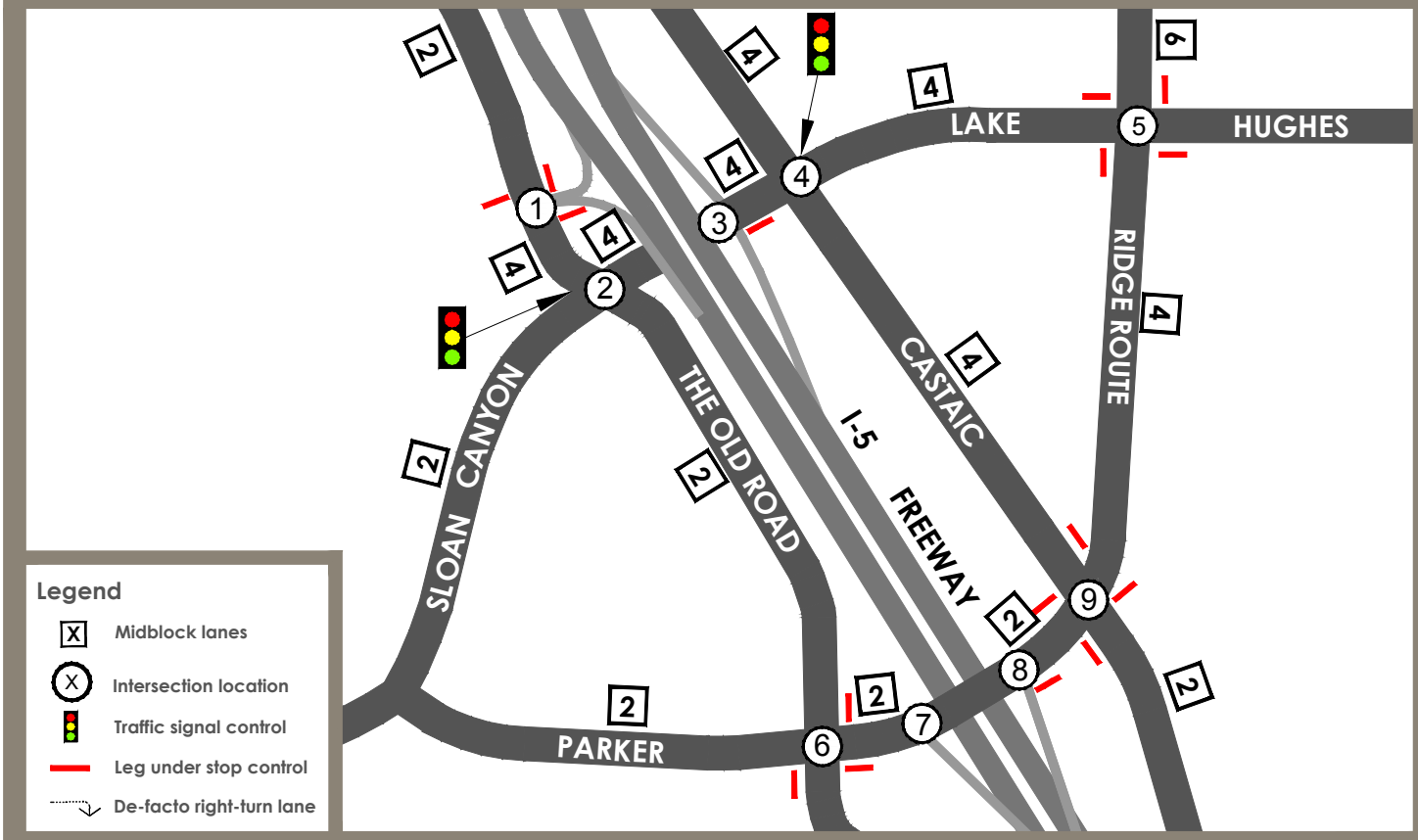
2.1.1 Existing Local Roadway System

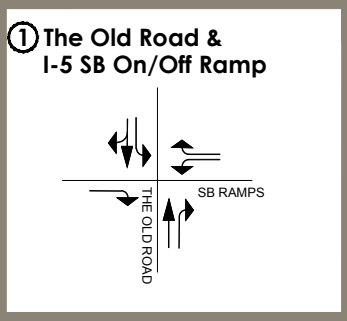
The existing local roadway system in the nearby Castaic community is illustrated in Figure 2-1 in the form of mid-block lanes, intersection lane configurations and intersection control types for the intersections being studied.

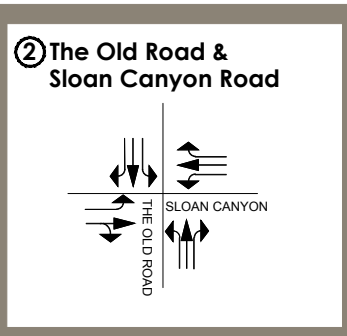
Immediately south of the project site, Ridge Route Road has been constructed with a 64 foot roadway width within 80 feet of right-of-way to just north of Castaic Lake Drive. From just north of Castaic Lake Drive to just south of the park entrance, Ridge Route Road has been constructed with a 94 foot roadway width within 110 feet of right-of-way. From just south of the park entrance to Lake Hughes Road, Ridge Route Road has been constructed with an 84 foot roadway within 100 feet of right-of-way, with a raised median ranging from 4 feet to 14 feet in width. South of Lake Hughes Road, Ridge Route Road consists of two lanes in each direction, with parking, within a 64 foot roadway width.

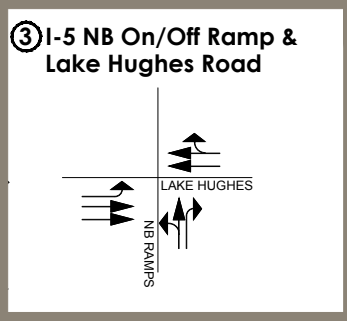
Lake Hughes Road is a major highway currently configured with two lanes in each direction between Ridge Route Road and the I-5 freeway. West of Ridge Route Road, Lake Hughes Road has been constructed with a 90 foot roadway width.

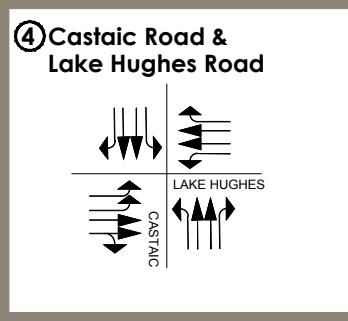
The I-5 freeway provides regional access to the Los Angeles area to the south and to Kern County to the north. It currently consists of four lanes in each direction. In the Castaic area, interchanges exist at Lake Hughes Road and at Parker Road/Ridge Route Road. At the Lake Hughes Road interchange, direct ramps exist for the northbound direction, and hook ramps to and from The Old Road for the southbound direction. At the Parker Road/Ridge Route interchange, ramps exist for movement to and from the south only.

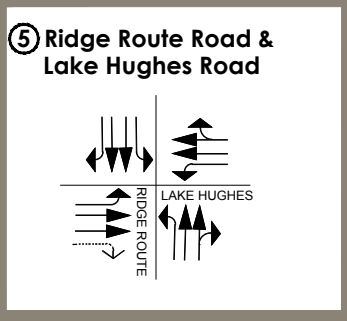


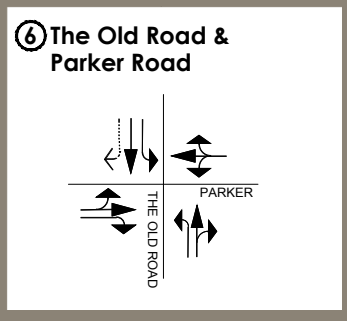


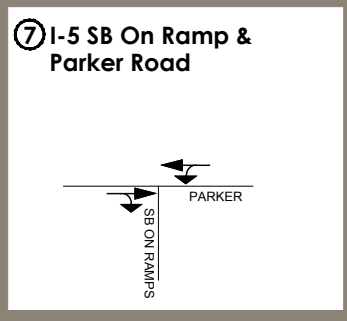


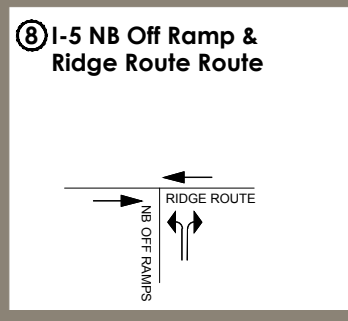


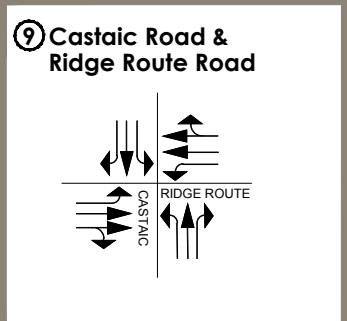












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Figure 2-1

Existing Intersection Lane Configuration, Stop Control and Midblock Lanes

2.2

2.1.2 Existing Traffic Volumes and Levels of Service

An illustration of existing average daily traffic (ADT) volumes is provided in Figure 2-2. Peak hour turning movement volumes for each intersection can be found in Figure 2-3 and Figure 2-4 for the AM peak hour and PM peak hour, respectively. The traffic counts were collected in January of 2015 (count data is provided in Appendix C).

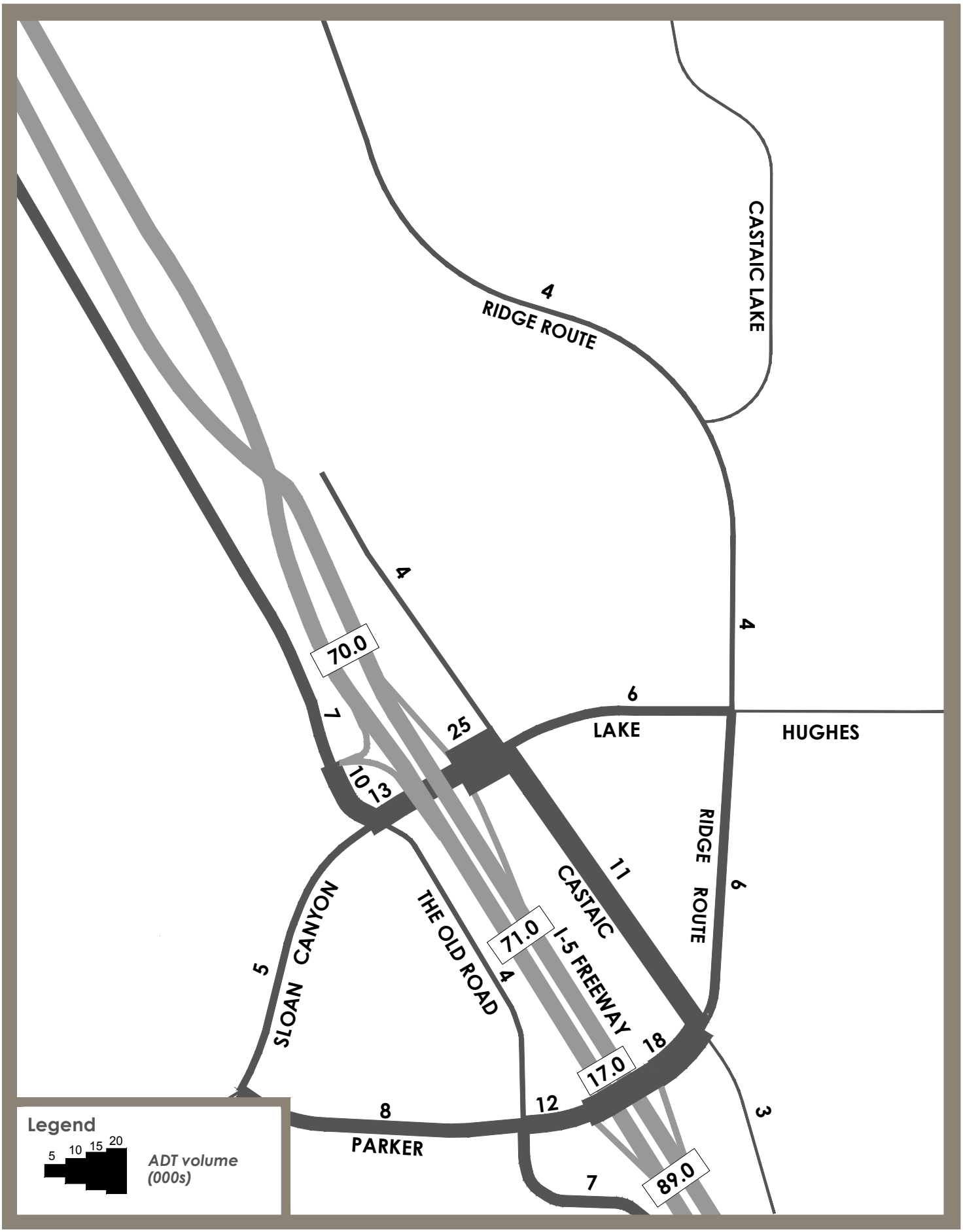
As discussed in the section on performance criteria in Section 1.4, LOS is a concept developed to quantify the degree of comfort afforded to drivers as they travel on a given roadway. The degree of comfort includes such elements as travel time, number of stops, total amount of stopped delay, etc. As defined in the HCM 2010, six grades are used to denote the various LOS. The six are denoted "A" through "F" and a discussion on these was given in Section 1.4.

The results of the ICU and LOS analysis for the intersections near the project site are shown in Table 2-1 (detailed LOS calculation worksheets are provided in Appendix A). As noted in Figure 2-1, most intersections in the study area are not currently controlled by a traffic signal. For those locations, the ICU provides an indication of the level of service based on traffic signal control and provides a benchmark for comparison of future condition with the project.

Table 2-1 ICU and LOS Summary – Existing Conditions

Intersection	Jurisdiction	Signal Control	AM Peak Hour		PM Peak Hour		Count Date
			ICU	LOS	ICU	LOS	
1. The Old Road & I-5 SB Ramps	County/ Caltrans	Stop	0.41	A	0.39	A	1/27/2015
2. The Old Road & Sloan/Lake Hughes	County	Signal	0.34	A	0.36	A	1/22/2015
3. 1-5 NB Ramps & Lake Hughes	County/ Caltrans	Stop (South Leg)	0.31	A	0.41	A	1/27/2015
4. Castaic & Lake Hughes	County	Signal	0.31	A	0.37	A	1/27/2015
5. Ridge Route and Lake Hughes	County	Stop	0.31	A	0.19	A	1/27/2015
6. The Old Road & Parker	County	Stop	0.45	A	0.42	A	1/28/2015
7. I-5 SB On Ramp & Parker	County/ Caltrans	None	0.60	A	0.52	A	1/22/2015
8. I-5 NB Off Ramp & Ridge Route	County/ Caltrans	Stop (South Leg)	0.46	A	0.55	A	1/22/2015
9. Castaic & Ridge Route	County	Stop	0.33	A	0.41	A	1/22/2015
See Table 1-1 for level of service descriptions.							

As can be seen in Table 2-1, all intersections currently operate better than LOS D.

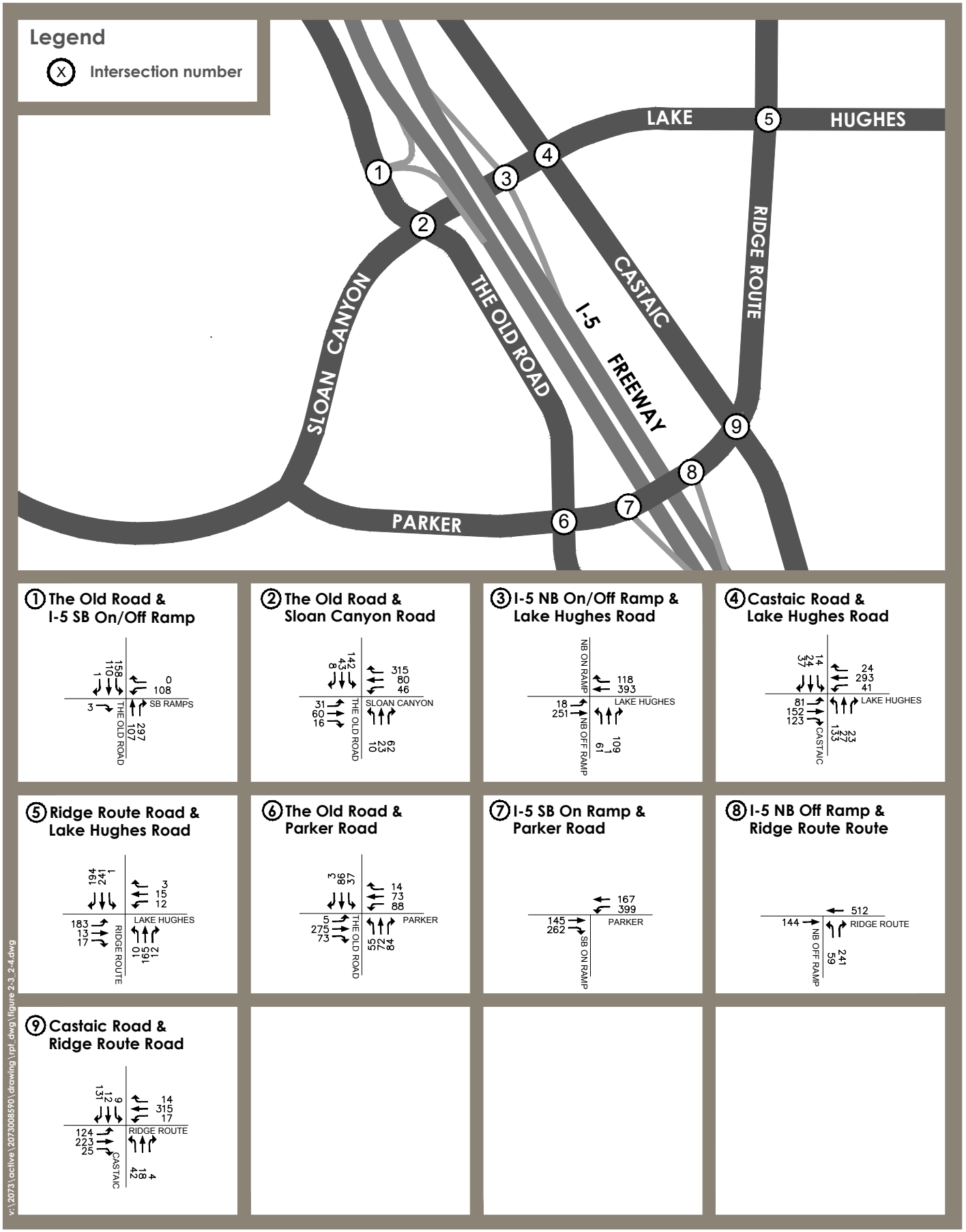


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Figure 2-2

Existing Average Daily Traffic

2.4



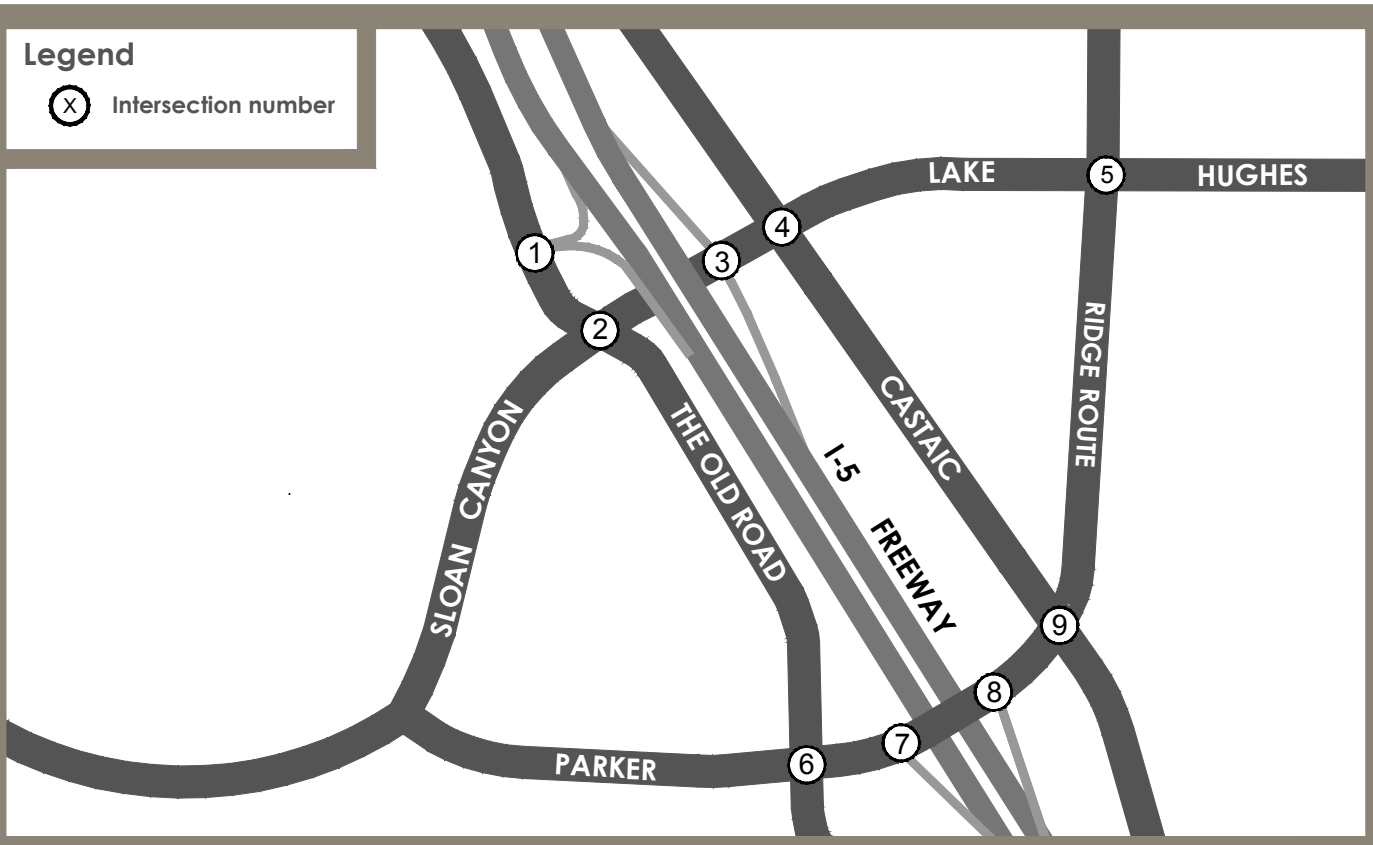
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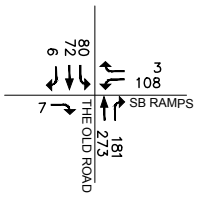
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Figure 2-3

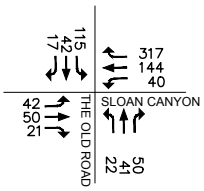
Existing Intersection Turning Lane Movement Volumes
AM Peak Hour
2.5



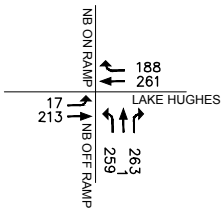
1 The Old Road & I-5 SB On/Off Ramp



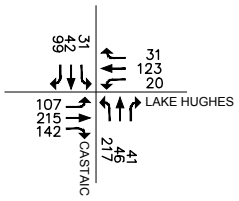
2 The Old Road & Sloan Canyon Road



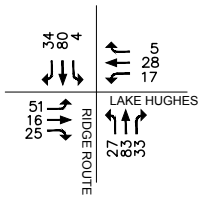
3 I-5 NB On/Off Ramp & Lake Hughes Road



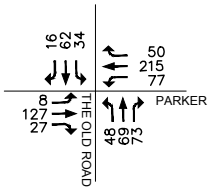
4 Castaic Road & Lake Hughes Road



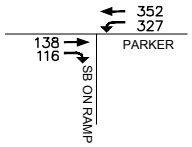
5 Ridge Route Road & Lake Hughes Road



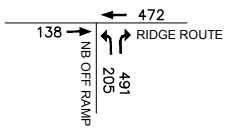
6 The Old Road & Parker Road



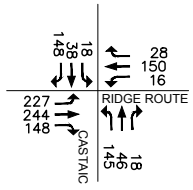
7 I-5 SB On Ramp & Parker Road



8 I-5 NB Off Ramp & Ridge Route Route



9 Castaic Road & Ridge Route Road



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Figure 2-4

Existing Intersection Turning Lane Movement Volumes
PM Peak Hour

2.6

2.1.3 Existing Freeway Traffic Volumes and Levels of Service

The I-5 freeway provides the regional travel in the project area. Freeway traffic volumes for existing (2013) conditions as reported by Caltrans are provided in Table 2-2 for average annual daily traffic (AADT).

Table 2-2 Freeway AADT Volumes – Existing Conditions

No.	Segment	2013 AADT
1	I-5 Between Templin Hwy & Lake Hughes	70,000
2	I-5 Between Lake Hughes & Parker	71,000
3	I-5 Between Parker & Hasley Canyon	89,000
4	I-5 Between Hasley Canyon & SR-126	109,000
5	I-5 Between Calgrove & SR-14	193,000
AADT – Annual Average Daily Traffic		

Peak hour volumes were obtained from the Caltrans Performance Measurement System (PeMS) at select representative locations over the period of one month for 2013 weekday conditions. These peak hour volumes represent the mean (average) weekday volume plus one standard deviation for the weekdays for the month of October, 2013. Peak hour data for several key segments on the I-5 was used to calculative representation K (peak hour volume factor) and D (directional factor) values in the AM and PM peak periods for each segment in order to calculate peak hour volumes by direction. The calculated K and D factors were then applied to 2013 AADT volumes to determine the peak hour volumes.

Table 2-3 Freeway Peak Hour K & D Factors (Sample Locations)

	AM Period			PM Period		
Location	**K**	**D**	**KD**	**K**	**D**	**KD**
I-5 at Templin Highway	3.80%	50.87% (NB)	1.93%	6.57%	51.34% (NB)	3.37%
I-5 at Magic Mountain Parkway	4.61%	55.25% (SB)	2.54%	6.12%	56.34% (SB)	3.45%
Source: PeMS – October 2013 weekday volumes (mean plus one standard deviation)						

Table 2-4 presents the freeway peak hour volumes and corresponding V/C ratios for the study area. As can be seen, no freeway segments are operating over capacity under existing conditions.

Table 2-4 Freeway Peak Hour Volumes and V/C Summary – Existing Conditions

No.	Segment	Lanes	Cap	2013 AM Peak Hour		2013 PM Peak Hour	
				Vol	V/C	Vol	V/C
Northbound							
1	I-5 Between Templin Hwy & Lake Hughes	4M	8,000	1,351	0.169	2,359	0.295
2	I-5 Between Lake Hughes & Parker	4M	8,000	1,463	0.183	1,896	0.237
3	I-5 Between Parker & Hasley Canyon	4M	8,000	1,833	0.229	2,376	0.297
4	I-5 Between Hasley Canyon & SR-126	4M +1A	9,000	2,245	0.249	2,910	0.323
5	I-5 Between Calgrove & SR-14	4M + 1T[C]	9,200	3,976	0.432	5,153	0.560
Southbound							
1	I-5 Between Templin Hwy and Lake Hughes	4M	8,000	1,309	0.164	2,240	0.280
2	I-5 Between Lake Hughes & Parker	4M	8,000	1,803	0.225	2,450	0.306
3	I-5 Between Parker & Hasley Canyon	4M	8,000	2,261	0.283	3,071	0.384
4	I-5 Between Hasley Canyon & SR-126	4M	8,000	2,769	0.346	3,761	0.470
5	I-5 Between Calgrove & SR-14	4M + 2T[C]	10,400	4,902	0.471	6,659	0.640

M = Mixed Flow Lane
Cap = Capacity
Vol = Volumes
See Table 1-6 for lane capacities.

2.1.4 Public Transportation

City of Santa Clarita Transit (SCT) is the primary bus service operator in the Castaic community. SCT provides two fixed route transit lines within close proximity to the project site; Routes 1 and 636.

SCT Route 1 provides service between Castaic and Val Verde to the McBean Regional Transit Center with 11 stops near the project site. Route 1 also stops through the Valencia Commerce Center and Valencia Industrial Center. Route 636 is a supplemental school day service route between West Ranch High School and the Castaic area with 13 stops within the project site.

Future bus transit routes are anticipated to be introduced in the project area in order to provide services for the new Castaic Middle School.

2.1.5 Active Transportation

The County of Los Angeles has a Bicycle Master Plan (BMP). At this time, the BMP does not address facilities in the Castaic community. Consultations with County have indicated that the

existing portion of Ridge Route Road south of Lake Hughes Road has been designated as a proposed Class II facility.

2.2 FUTURE CONDITIONS

The following section describes the long-range buildout conditions. It includes a description of the planned roadway system in the vicinity of the project site and a summary of the anticipated increases in land use.

2.2.1 Future Local Roadway System

Figure 2-5 illustrates the Los Angeles County Highway Master Plan for the Castaic community. On the Highway Master Plan, Ridge Route Road is classified as a secondary highway from Castaic Road to approximately 1.40 miles north of the Lake Hughes Road intersection where Ridge Route Road transitions to a limited secondary highway. Development of the project includes reconstruction of Ridge Route Road from north of Pine Crest Place to Northlake Boulevard to current standards and to the established IEC alignment within the project site. Ridge Route Road north of Northlake Boulevard would remain as a two-lane roadway. Ridge Route Road is classified as a major highway from Castaic Road to The Old Road where it becomes Parker Road, which is classified as a limited secondary highway.

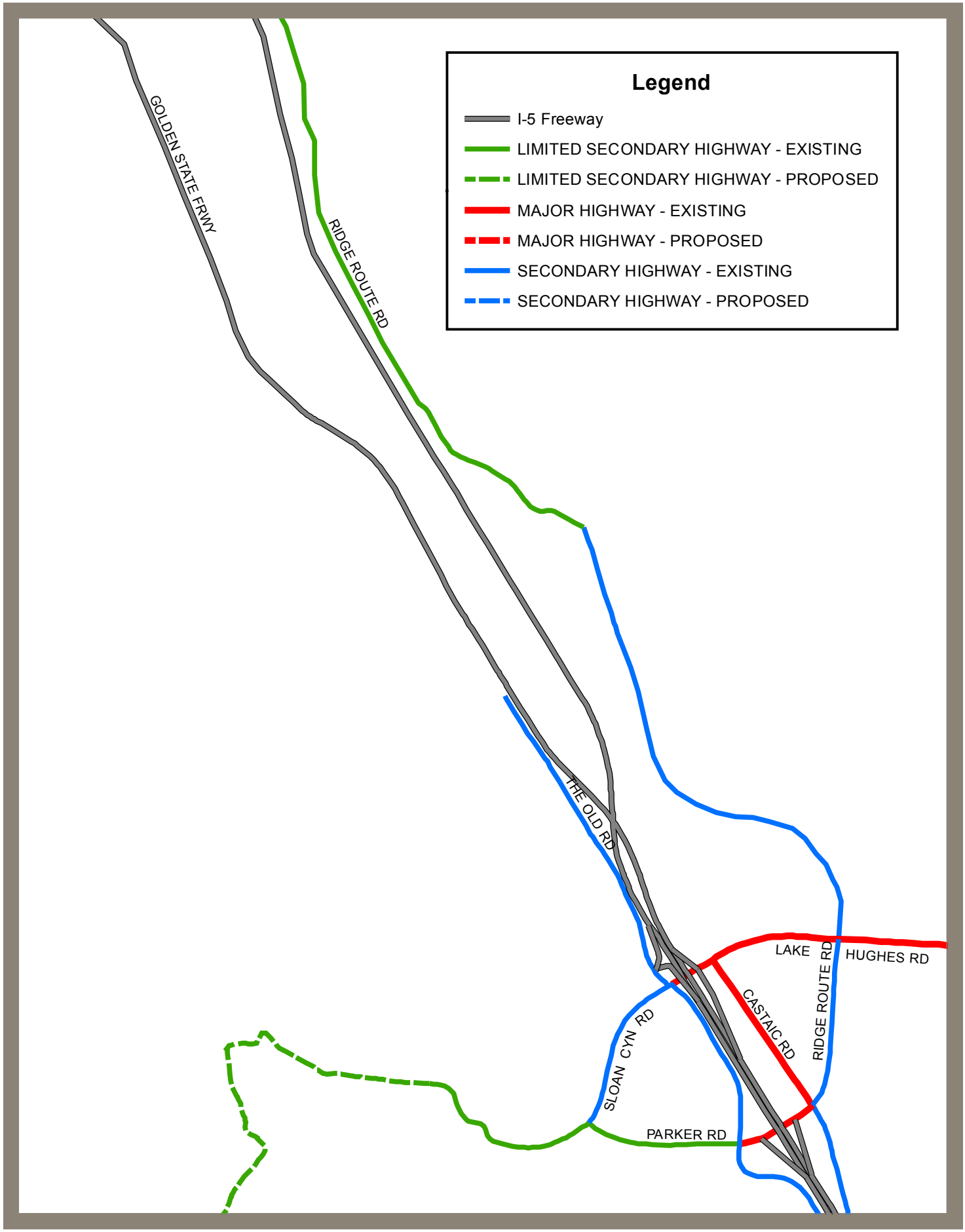
Lake Hughes Road is classified as a major highway from The Old Road to east of Ridge Route Road. Castaic Road from Lake Hughes Road to Ridge Route Road is classified as a major highway. The Old Road is classified as a secondary highway. Most of the roadways are built out.

Also, a complete network of roadways will be constructed within the project site to serve the needs of the project generated traffic.

As part of the project, the extension of Ridge Route Road to Northlake Boulevard would be built to full County standards, which would include the construction of sidewalks on both sides of the roadway, as well as a Class I bike lane/multi-use trail along Ridge Route Road that would continue onto Northlake Boulevard and terminate at E Street. Within the project site, a complete network of streets with sidewalks, multi-use (10 feet) trails and neighborhood pedestrian (6 feet) trails would be constructed and would facilitate movement between the various areas of the site.

2.2.2 Future Land Use

Future forecasts were derived using three primary sources. The first is the Santa Clarita Valley Consolidated Traffic Model (SCVCTM), a model has the capability of forecasting the complex interaction of vehicle trips between existing and future land uses. The SCVCTM has the ability to provide traffic volume forecasts for a long-range setting, which represents buildout conditions, as well as Interim Year forecasts that are based on a defined list of planned, approved, and pending projects (i.e., "related projects"). An Interim Year version of SCVCTM was used to derive



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Figure 2-5

Master Plan of Arterial Highways

2.10

2028 cumulative conditions forecasts. The SCVCTM was developed jointly by the County of Los Angeles Department of Public Works and the City of Santa Clarita

The second source of forecast data is the Northlake Traffic Model (NTM) prepared as part of this traffic study. The NTM is based on traffic modeling techniques used for fine-grained site-specific traffic forecasting. The arterial and freeway access network in the NTM defines the on-site circulation system used in the on-site impact analysis. The traffic forecasts results give traffic volumes on individual links and intersections.

The third set of data used in this report is from the Los Angeles County Department of Regional Planning GIS-NET3 database. The online database tool was used to access information regarding subdivision activity around the project site. A list was compiled, referred to in this report as the "related project" list. Table 2-5 defines a list of planned, approved, pending and inactive projects in and around the Castaic community (Figure 2-6 shows the general location of the projects). The list was incorporated into the interim year of the SCVCTM discussed above.

2.2.3 Future Traffic Volumes

As part of this study effort, the SCVCTM was updated to reflect the specific characteristics of the proposed project. An interim year version of the SCVCTM was used to derive 2028 cumulative conditions. Related projects discussed in the previous section were included in the model's land use database, along with additional growth derived by interpolating between existing and General Plan buildout conditions. 2028 model runs were prepared for conditions with and without the project. These traffic forecasts are presented in the subsequent chapters.

The SCVCTM forecasts the complex interaction of vehicle trips between existing and future land uses. As such, the future condition forecasts reflect the changes in existing travel patterns that occur due to changes in land use (e.g., the introduction of new development). The SCVCTM employs a process in which modeled future volumes are compared to modeled existing condition volumes, and the net change from existing to future is then applied to the actual observed traffic count in a post-processing procedure. Post-processing is applied to each of the intersection's 12 possible turning movements while controlling to the net change at each of the intersection's four legs (both entering and departure volumes). In that regard, the traffic forecasts presented here utilize existing traffic conditions as the foundation and build upon that foundation with the forecast change in volume (both increases and decreases) as derived by the model. As a result of changing traffic patterns, there are instances where specific turning movement volumes may decrease in the future relative to existing volumes.

Similar to the modeled changes between existing and future conditions, the SCVCTM is also used to derive the traffic volume differences between no project and with project conditions. A change in traffic patterns occurs with the introduction of the project's land uses; and the larger the project the more pronounced the changes will be. The effect of new land uses results in modified travel patterns that, in some instances, cause a reduction to specific turning movement volumes under conditions with the project.

Table 2-5 Defined Related Projects Included in the Cumulative Database

No.	Name	Description	Units	Commercial/ Industrial (sf)	Acres	Status
2	TR 42537	West of I-5 in Castaic. Site access via Romero Canyon Road.	95	0	553	Approved
3	Tract 46443	West of the I-5 in Castaic. Site access via Mandolin Canyon Road and Romero Canyon Road.	95	0	160	Recorded
4	TR 47807	West of I-5 in Castaic. Site is located west of Sloan Canyon Road	77	0	197	Approved
5	PM069961	West of I-5 in Castaic. Site access via Gilmour Street.	4	0	81	Pending
6	PM067785	West of I-5 in Castaic. No residences proposed – land division only.	0	0	80	Pending
7	Laro Properties L.P. (TR 52729)	West of I-5 in Castaic. Sloan Canyon Road, north of Hillcrest Parkway, west of Meadowgrass Drive.	33	0	80	Pending
8	TR067278	West of I-5 in Castaic. Site access via Sloan Canyon Road.	23	0	90	Pending
9	PM071059	West of I-5 in Castaic. Site access via Sloan Canyon Road.	3	0	8	Pending
10	PM25852	West of I-5 in Castaic. Site located at Cherry Drive and Church St north of Park Road. Access via Park Road and Cherry Drive.	4	0	1	Approved
11	Mobe Development Corp. TR060611	West of I-5 in Castaic. Site located west of The Old Road near the intersection of The Old Road and Ferguson Drive. Multi-family residences.	18	0	2	Recorded
12	TR060674	West of I-5 in Castaic. Site located west of The Old Drive at the intersection of Church Street and The Old Road.	21	0	2	Recorded
13	Lake View Estates TR53933	West of I-5 in Castaic, approx.. 1/5- mile south of Parker Road. Access to the site via The Old Road. Includes residential lots (10.62 acres), 3 commercial industrial lots (8.16 acres), and 4 open space lots (28.47 acres) and park (0.54 acre).	70	90TSF	47	Pending

(Continued)

Table 2-5 Defined Related Projects Included in the Cumulative Database (Continued)

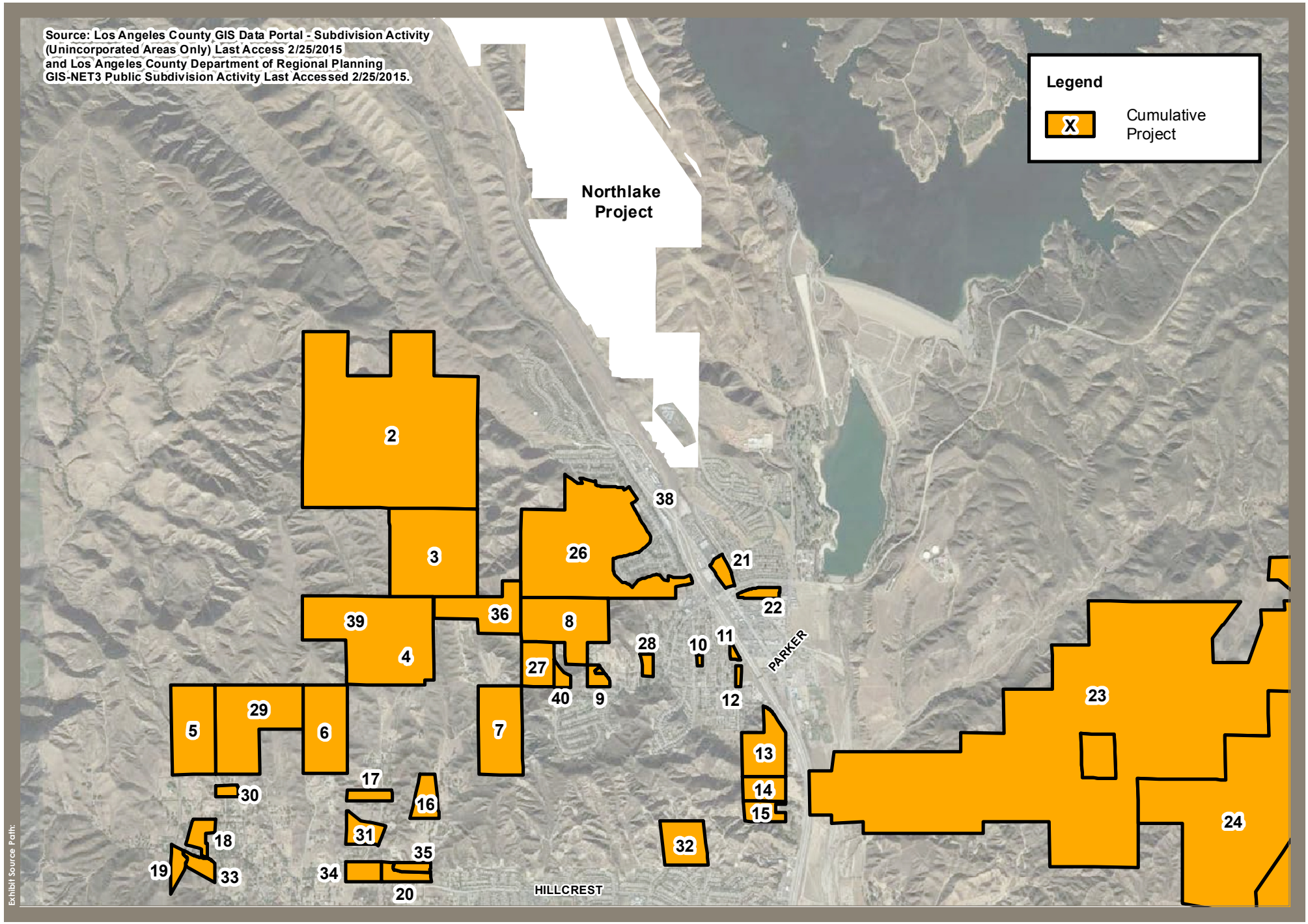
No.	Name	Description	Units	Commercial/ Industrial (sf)	Acres	Status
14	TR46798	West of I-5 in Castaic, south of Parker Road with access via The Old Road.	55	0	22	Approved
15	TR46798	West of I-5 in Castaic, south of Parker Road with access via The Old Road.	0	0	16	Recorded
16	PM191949-2	West of I-5 in Castaic, access to the site via Hillcrest and Sloan Canyon.	4	0	20	Approved
17	PM062852	West of I-5 in Castaic, access to the site via Hillcrest and Romero Canyon Rd.	2	0	10	Pending
18	PM060646	West of I-5 in Castaic, access to the site via Hasley Canyon Road.	4	0	13	Approved
19	PM069664	West of I-5 in Castaic, access to the site via Hasley Canyon Road.	2	0	10	Pending
20	PM070839	West of I-5 in Castaic, located at the westerly terminus of Hillcrest at Sloan Canyon Rd.	4	0	12	Pending
21	PM064825	East of the I-5 in Castaic, north of Lake Hughes Road and east of Castaic Road. Site access via Castaic Road.	0	95.6TSF	9	Recorded
22	TR060024	East of the I-5 in Castaic, just south of Lake Hughes Road. Site access via Lake Hughes Road.	84	0	8	Recorded
23	Tapia Canyon (TR 53822)	East of the I-5 in Castaic, Tapia Canyon Road, west of Tesoro Residential Development. Access to the site currently via Parker Road exit from I-5.	405	0	1430	Pending
24	Tesoro del Valle (TR 51644)	West side of San Francisquito Creek, north of Copperhill Drive. Project includes residential, commercial (6.2-acres), Parks (61.8-acres), an elementary school, recreation center (13.96-acres) and open space. Designed to be built in 4 phases. Phase A is currently built-out. Areas B & C to be built, north of Avenida Rancho Tesoro.	714	40TSF	1262	Recorded
26	Golden Valley Ranch (TR 52535)	West of the I-5 in Castaic at the intersection of Royal Road and Green Hill Drive.	199	0	260	Inactive

(Continued)

Table 2-5 Defined Related Projects Included in the Cumulative Database (Continued)

No.	Name	Description	Units	Commercial/ Industrial (sf)	Acres	Status
27	TR48637	West of I-5 in Castaic. Site access via Sloan Canyon Road.	18	0	30	Inactive
28	TR50070	West of I-5 in Castaic. Site access via Sloan Canyon Road and Vaca Street.	18	0	5	Inactive
29	TR50220	West of I-5 in Castaic. Site access via Hasley Canyon Road and Gilmour Street.	21	0	120	Inactive
30	PM24179	West of I-5 in Castaic. Site access via Hasley Canyon Road and Gilmour Street.	2	0	5	Inactive
31	PM26549	West of I-5 in Castaic. Site is located at 30711 Romero Canyon Road.	3	0	18	Inactive
32	TR067617	West of I-5 in Castaic. Site is located at the northerly terminus of Park Vista Drive 200 feet north of the intersection with Hillcrest Parkway. Detached condominiums with two public facilities on 38-acres.	13	0	0	Inactive
33	TR48465	West of I-5 in Castaic. Site located at the intersection Hasley Canyon Road and Burlwood Drive.	5	0	10	Inactive
34	PM19776	West of the I-5 in Castaic. Site access via Romero Canyon Road.	15	0	22	Inactive
36	TR072680	West of I-5 in Castaic. Site location at Sloan Canyon Road at Canyon Hill Road. Site access via Sloan Canyon Road. Residential units and one public facility lot (	40	0	90	Pending
37	PM20202 (not shown on map)	East of I-5 in Castaic. North of Northlake project site.	3	0	28	Inactive
38	Auto Impound Yard	32170 N. Castaic Road.	0	28.2 GSF	NA	Proposed
39	Castaic High School (currently under construction)	West of I-5 in Castaic. Site located north of Romero Canyon Road/Hasley Canyon Road. Approximately 2,600 students.	0	0	198	Approved
40	Elementary School	West of I-5 in Castaic near Sloan Canyon Road. Approximately 900 students.	0	0	NA	Pending

See Figure 2-6 for location map.
Sources: Los Angeles County GIS Data Portal – Subdivision Activity
Los Angeles County Department of Regional Planning GIS-NET3 Public Subdivision Activity



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Figure 2-6

Related Projects Location Map

2.15

2.2.4 Future Freeway Volumes

Freeway volumes for future year cumulative conditions were derived from two sources; the Supplemental EIR/ER for the HOT lanes prepared by Caltrans (See Reference 6 in Section 1.6) and the Southern California Association of Government's (SCAG) Regional Transportation Model (RTM).

The Supplemental EIR/ER for the HOT lanes study is for an improvement project that replaces the planned HOV lanes with HOT lanes. I-5 traffic volumes from this study were considered and average annual growth rates were derived from those volumes. The Supplemental EIR/ER addressed segments on the I-5 within the Santa Clarita Valley and it presents traffic forecasts for the year 2035.

The second source for deriving future freeway volumes is the SCAG RTM (See Reference 8 in Section 1.6). SCAG is the primary agency responsible for the development and maintenance of the regional travel demand forecasting models for the SCAG region that includes six counties – Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial. Traffic model data, such as an average annual growth rate for the freeway section on the I-5 north of Lake Hughes Road (this segment was not addressed in the Caltrans HOT lanes study) was as obtained from SCAG. The growth rate was then applied to 2013 existing conditions traffic volumes previously discussed in Section 2.1.3.

Table 2-6 summarizes the average annual growth rates assumed in this analysis for 2028 Cumulative Conditions.

Table 2-6 Average Annual Growth Rates for the I-5

Segment	Description	Average Annual Growth Rate 2028	Source:
I-5			
1	Between Templin Hwy & Lake Hughes	3.06%	SCAG
2	Between Lake Hughes & Parker	4.44%	HOT Lane SEIR
3	Between Parker & Hasley Canyon	3.54%	HOT Lane SEIR
4	I-5 Between Hasley Canyon & SR-126	2.45%	HOT Lane SEIR
5	I-5 Between Calgrove & SR-14	1.22%	HOT Lane SEIR

3.0 PROJECT DESCRIPTION

This section describes the project in terms of its transportation characteristics. Trip generation is summarized and the distribution of project trips on the adjoining roadway network is presented.

3.1 PROJECT OVERVIEW

The Northlake Specific Plan was approved in 1992 for a development consisting of approximately 4,000 residential dwelling units. The project as currently proposed consists of approximately 1,414 single family detached dwelling units, 1,341 condominium dwelling units and 345 senior adult attached housing (total of 3,100 dwelling units). In addition to residential dwelling units, the project also includes non-residential uses estimated to consist of approximately 67,100 square feet of neighborhood commercial, approximately 304,900 square feet industrial park, a middle school (approximately 1,200 students), a 15-acre sports park, a 10-acre developed park and a fire station. VTTM 73336 represents a portion of the Northlake Project. The project site plan was presented in Section 1.1 (see Figure 1-2).

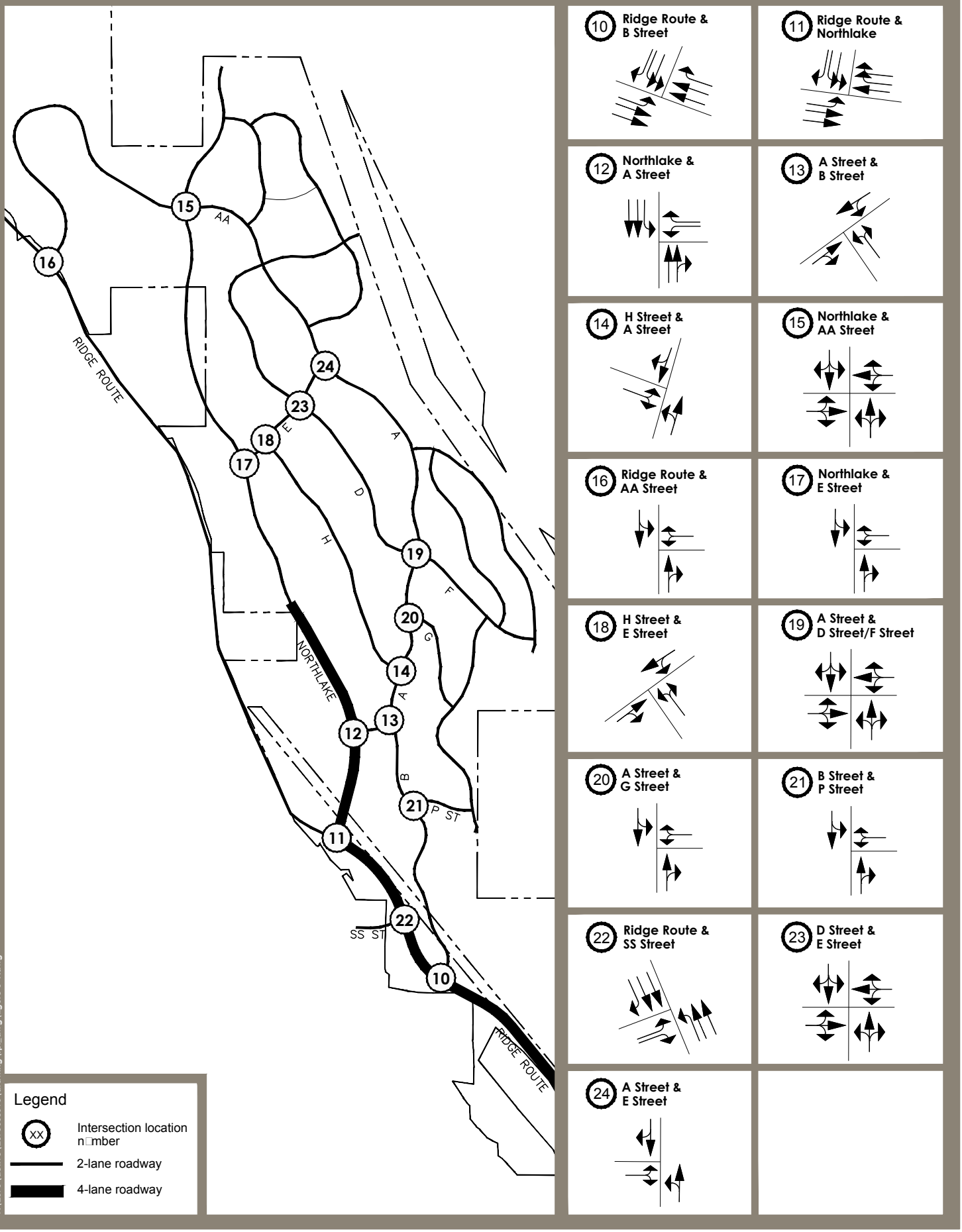
The project site would be accessed via an extension of the existing Ridge Route Road. Since the project area is currently vacant, a complete network of roadways will be constructed within the site to serve the needs of the project generated traffic.

Intersection lane geometry for the project site has been developed based on peak hour turning movement forecasts presented in the subsequent sections, and is illustrated in Figure 3-1.

3.2 PROJECT TRIP GENERATION

The project consists of a variety of land uses as described in the preceding section. For the purpose of the traffic study, these land uses have been categorized based on the land use categories used by the Santa Clarita Valley Consolidated Traffic Model (SCVCTM), the County of Los Angeles Department of Public Works Traffic Impact Analysis Guidelines (see Reference 3 in Section 1.6), and industry standards such as the Institute of Transportation Engineers (ITE) Trip Generation Manual (see Reference 1 in Section 1.6). The specific trip rates used for this analysis are listed in Table 3-1. Note that for the Sports Park land use category, a comparison was made between the Brea Sports Park Traffic Study (see Reference 12 in Section 1.6) and the City of San Diego Trip Generation Manual (see Reference 14 in Section 1.6), Developed Park land use category. It was determined that using the trip rate from the Brea Sports Park Traffic Study would be more conservative than using the trip rate from City of San Diego Trip Generation Manual.

Detailed trip generation estimates based on the trip generation rates referenced above are provided in Table 3-2. As shown, the project is estimated to generate approximately 35,500 average daily tripends, with approximately 2,900 tripends during the AM peak hour, and approximately 3,500 tripends during the PM peak hour.



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Figure 3-1

On-Site Circulation System and Intersection Lane Configurations

3.2

The residential units of the project are forecast to generate approximately 25,400 ADT with approximately 1,850 tripends in the AM peak hour (1,480 outbound) and approximately 2,480 tripends in the PM peak hour (1,570 inbound). The non-residential uses (i.e., neighborhood commercial and industrial) are forecast to generate approximately 8,200 ADT with approximately 370 tripends in the AM peak hour (280 inbound) and 830 tripends in the PM peak hour (500 outbound).

The middle school site will serve students from the Northlake development and from outside the Specific Plan area. The middle school (approximately 1,200 students) is projected to generate approximately 1,940 ADT with approximately 650 tripends in the AM peak hour and approximately 190 tripends in the PM peak hour.

The location of the project and the on-site commercial and institutional uses (i.e., retail, existing Northlake Elementary School and proposed middle school) encourages a degree of local trip making. Table 3-3 shows the estimated ADT and peak hour trips separated by land use and both internal and external trip components.

Overall, around 19 percent of the daily trips generated (as measured by tripends) are estimated to be internal and 81 percent are external trips. The net volume of trips generated by the project is derived by combining the amount of internal trips (two on-site project tripends) with the amount of external trips (one on-site project tripend). As shown in Table 3-4, the project generates a net total of 33,241 trips when taking into account the project's 19 percent internal capture rate.

The internal capture rate was derived by first determining the amount of school traffic that would be captured by the residential uses on-site. A nominal amount of internal capture was assumed during the AM peak hour for the commercial and industrial uses. After deducting these on-site trips from residential uses, the remainder represents the net volume of external (off-site) trips. The same was done for the PM peak hour, but with opposite directionality. This approach produced a conservative estimate of external trips for the model to distribute to the off-site study area.

3.3 PROJECT TRIP DISTRIBUTION

The project is anticipated to buildout in over a period of 10 to 15 years. Traffic patterns for the project in relation the surrounding region were estimated for a year 2028 time frame to understand the relationship between the project and the surrounding region in this long-range buildout context. The distribution of project-generated trips was derived by the SCVCTM.

The SCVCTM is a computerized travel demand model that utilizes a sophisticated trip distribution function to derive the distribution of vehicle trips, and which has previously been calibrated to the existing conditions of the Santa Clarita Valley. Production and attraction trip data is generated by the model based on five separate trip purposes, and trip distribution patterns are then derived by the model. As a final step, the model assigns these trips to the roadway network based on the derived distribution patterns.

Table 3-1 Trip Generation Rates

Category	ITE Code	Units	AM Peak Hour			PM Peak Hour			Average Daily Tripends	Source
			In	Out	Total	In	Out	Total		
1. Single-Family Detached Housing	210	DU	0.19	0.56	0.75	0.63	0.37	1.00	9.52	ITE 9th Edition
2. Condominium/Townhouse	NA	DU	0.06	0.48	0.54	0.47	0.26	0.73	8.00	LAC TIA Guidelines 1997
3. Senior Adult Housing – Attached	252	DU	0.07	0.13	0.20	0.14	0.11	0.25	3.44	ITE 9th Edition
4. Jr High School	522	STU	0.30	0.24	0.54	0.08	0.08	0.16	1.62	ITE 9th Edition
5. Industrial Park	130	TSF	0.67	0.15	0.82	0.18	0.67	0.85	6.83	ITE 9th Edition
6. Shopping Center	820	TSF	1.11	0.72	1.83	3.27	3.53	6.80	78.09	ITE 9th Edition Shopping Center Fitted Curve Equation for 67 TSF.
7. Sports Park	NA	Acre	0.01	0.00	0.01	3.40	4.10	7.50	53.80	Sports Park Case Study[1]
8. Developed Park	NA	Acre	0.00	0.00	0.00	0.03	0.04	0.07	2.60	SCVCTM

DU = Dwelling Unit
TSF = Thousand Square Feet
STU = Student
LAC = Los Angeles County
SCVCTM = Santa Clarita Valley Consolidated Traffic Model
ITE = Institute of Transportation Engineers
[1] – Brea Sports Park Traffic Study, Austin-Foust Associates, Inc. August 29, 2002.

Table 3-2 Land Use and Trip Generation Summary – Northlake

Category	Amount	Units	AM Peak Hour			PM Peak Hour			Average Daily Tripends
			In	Out	Total	In	Out	Total	
1. Single-Family Detached Housing	1,414	DU	269	791	1,060	890	524	1,414	13,462
2. Condominium/Townhouse	1,341	DU	81	643	724	631	348	979	10,728
3. Senior Adult Housing – Attached	345	DU	24	45	69	45	42	87	1,187
4. Jr High School	1,200	STU	360	288	648	96	96	192	1,944
5. Industrial Park	304.9	TSF	204	46	250	55	204	259	2,083
6. Shopping Center	67.1	TSF	75	46	121	219	237	456	5,240
7. Sports Park	15	Acre	0	0	0	51	62	113	807
8. Developed Park	10	Acre	0	0	0	0	0	0	26
Total	-	-	**1,013**	**1,859**	**2,872**	**1,987**	**1,513**	**3,500**	**35,477**

Note: See Table 3-3 for net volume of external trips.

Table 3-3 Internal and External Trip Volumes and Percentages

Description		AM Peak Hour IB	AM Peak Hour OB	PM Peak Hour IB	PM Peak Hour OB	ADT
1. Project Residential		374	1,479	1,566	914	25,403
	ext.%	86%	79%	82%	79%	80%
	int. %	14%	21%	18%	21%	20%
	ext. vol	322	1,168	1,284	722	20,322
	int. vol	52	311	282	192	5,081
2. Project Non-Residential		279	92	325	503	8,130
	ext.%	90%	98%	66%	75%	80%
	int. %	10%	2%	34%	25%	20%
	ext. vol	251	90	214	377	6,504
	int. vol	28	2	111	126	1,626
3. Project Jr High School		360	288	96	96	1,944
	ext.%	70%	95%	95%	70%	80%
	int. %	30%	5%	5%	30%	20%
	ext. vol	252	274	91	67	1,555
	int. vol	108	14	5	29	389
Project Subtotal		**1,013**	**1,859**	**1,987**	**1,513**	**35,477**
4. Existing Elementary School[1]		188	150	53	60	968
	ext.%	5%	75%	93%	5%	40%
	int. %	95%	25%	7%	95%	60%
	ext. vol	9	112	49	3	387
	int. vol	179	38	4	57	581
External		834	1,644	1,638	1,169	28,768
Internal [2]		367	366	402	404	7,677
External %		82%	88%	82%	77%	81%
Internal %		18%	12%	18%	23%	19%

IB – Inbound
OB – Outbound
ADT – Average Daily Traffic
ext – external
int - internal

[1] - The elementary school peak hour and ADT trips shown in this table are in addition to the trips currently being made by existing residents.
[2] – Includes trips to/from the elementary school.

Table 3-4 Project Trip Summary

Total Tripends	External Trips[1]	Internal Trips[2]	Total Trips
35,477	28,768	3,839	32,607
[1]One tripend on-site [2]Two tripends on-site			

Illustrations of the project's trip distribution patterns are provided in Figure 3-2. 19 percent of the project's trip generation remains internal to the project site and the remaining 81 percent are distributed along Ridge Route Road south of the project site. Of those, 3 percent are generated by the adjacent neighborhood (north of the Lake Hughes Road intersection) and the remaining 78 percent are distributed to the Castaic area roadway system. 47 percent are distributed to Lake Hughes Road west of Ridge Route Road, and 31 percent remain on Ridge Route Road south of Lake Hughes Road.

3.4 PROJECT TRAFFIC FORECASTS

The following section presents project only traffic data, first for the on-site roadway system, followed by the local roadway system and then the freeway system. As noted in the previous section, the SCVCTM was used to calculate the distribution of trips to and from the project site. For on-site intersections, the site-specific Northlake Traffic Model was used to forecast future traffic volumes within the project.

3.4.1 On-Site Roadway System

Forecast ADT volumes based on the project for buildout within the project site are illustrated in Figure 3-3. Forecast peak hour turning movement volumes for buildout conditions are illustrated in Figure 3-4 and Figure 3-5 for the AM peak hour and PM peak hour, respectively.

The peak hour traffic volumes referenced above were utilized to derive the intersection lane configurations for the on-site intersections referenced in Figure 3-1. Intersection capacity analysis based on these lanes and the forecast peak hour volumes is summarized in Table 3-5. As shown, each of the on-site project intersections is anticipated to operate at LOS D or better for buildout conditions, with the majority of intersections operating at no worse than LOS B. Detailed LOS calculation worksheets for each intersection are provided in Appendix B.

The Northlake Specific Plan, approved in 1991, showed a need to either widen Ridge Route Road to a 6-lane Major Arterial, or build a secondary access. Due to the decreased dwelling unit total, in comparison to the Specific Plan, the findings of this analysis show that neither the widening of Ridge Route Road to a 6-lane Major Arterial, or build a secondary access is needed.

A traffic signal warrant analysis for on-site intersections is provided in Section 5.1.

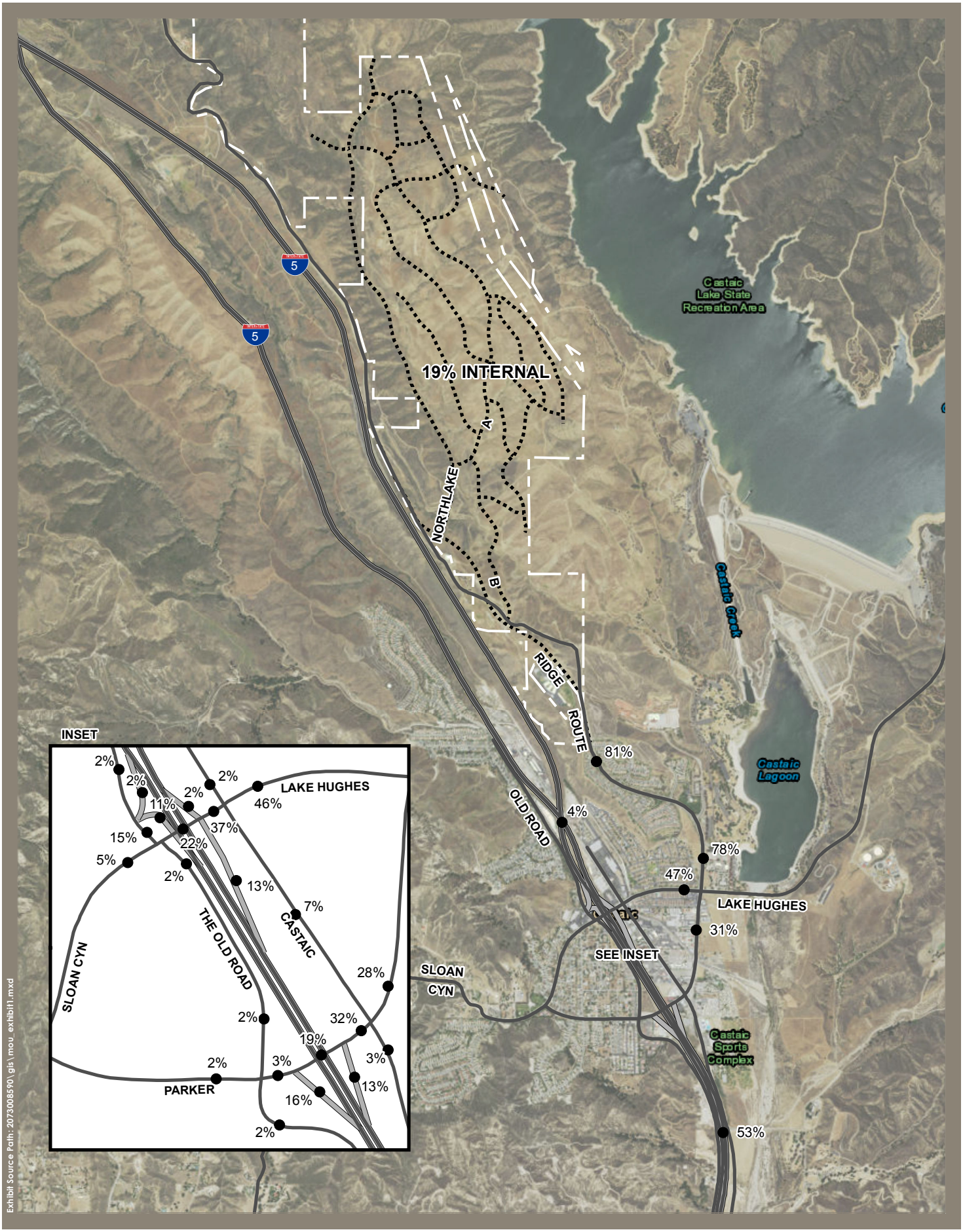


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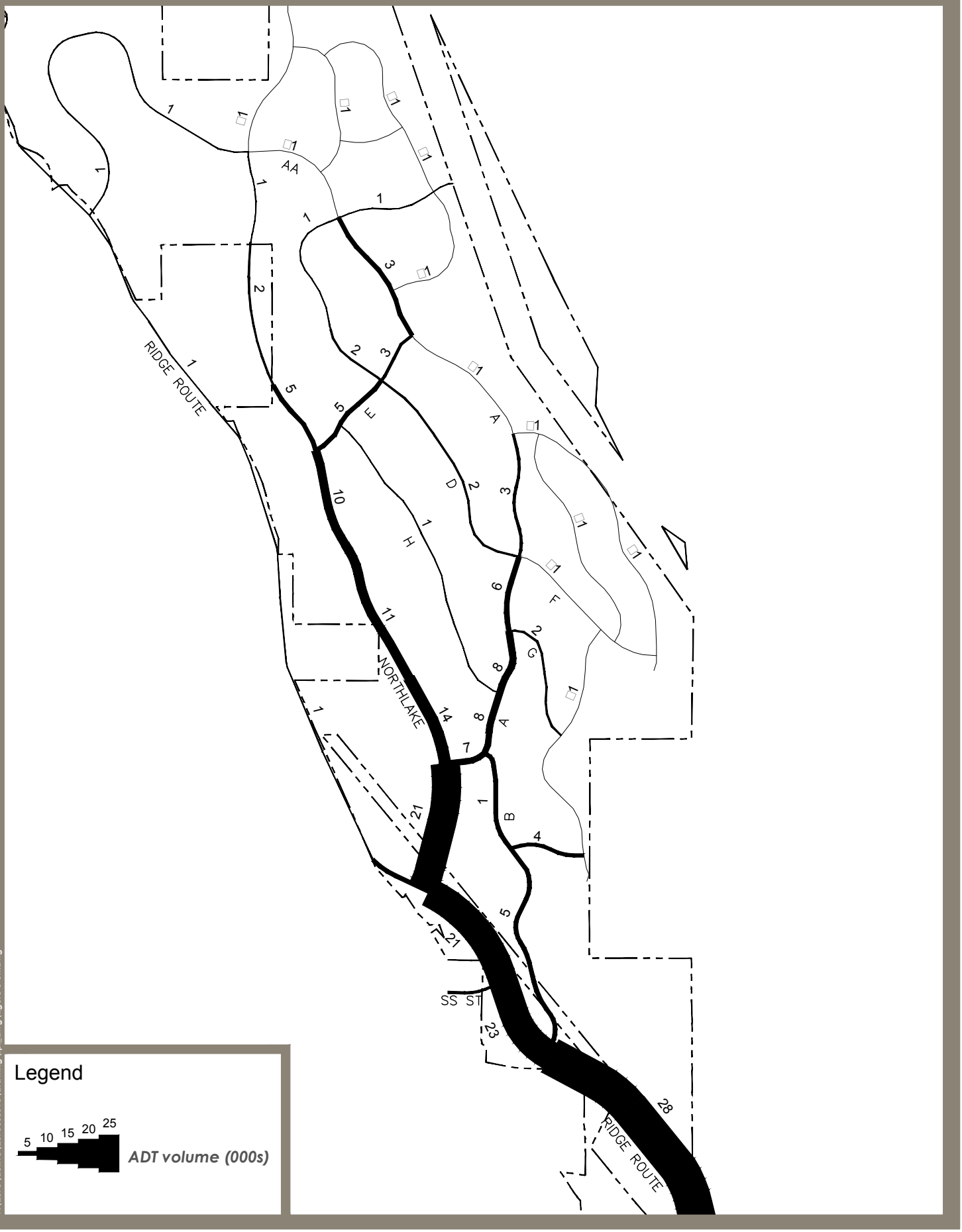
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Figure 3-2

Project Trip Distribution Percentages

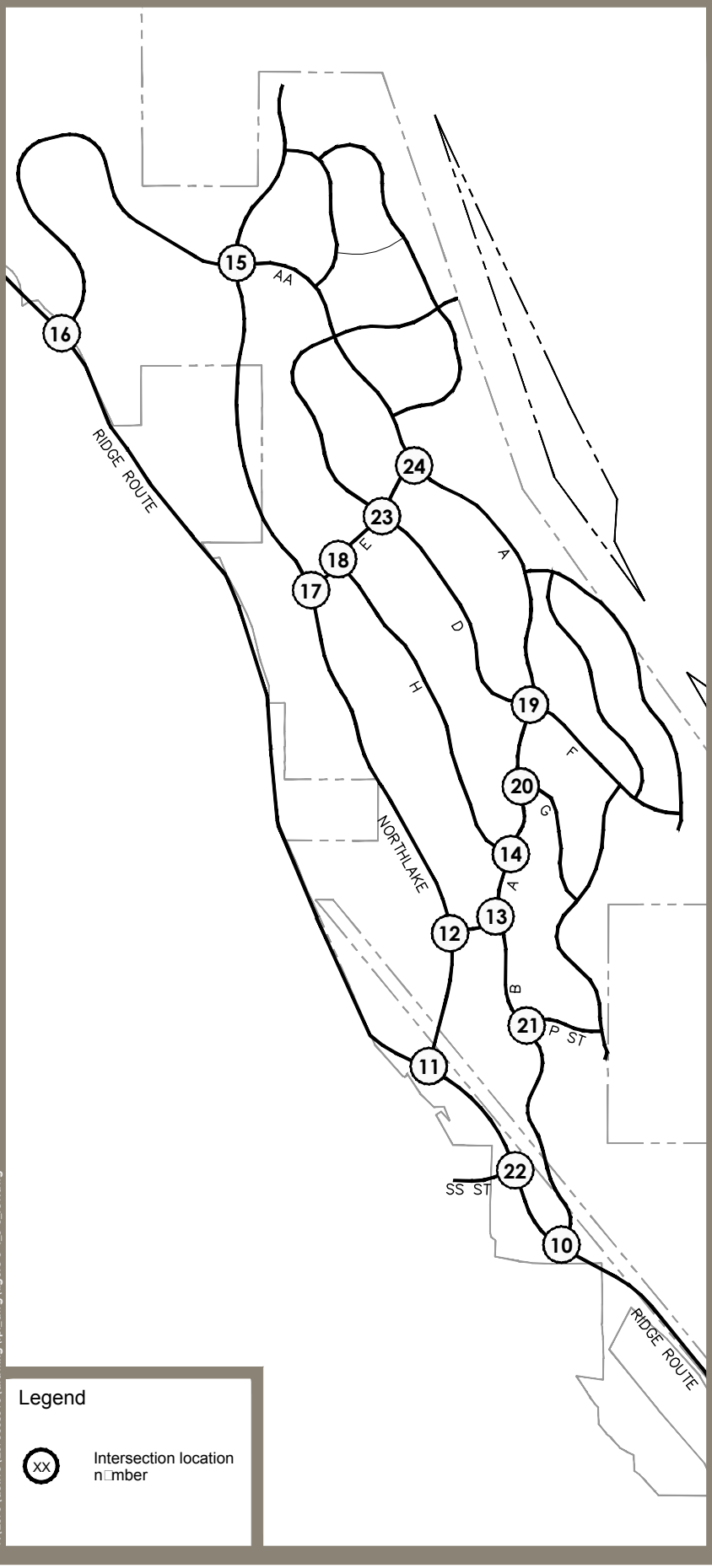
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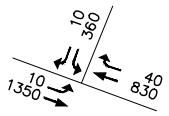
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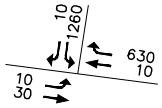
Figure 3-3
On-Site ADT Volumes (000s)
3.8



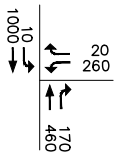
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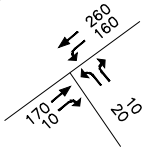
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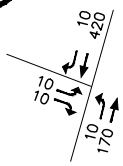
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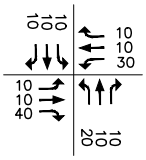
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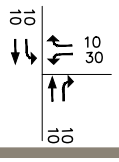
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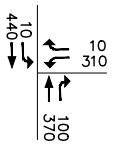
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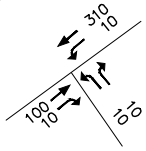
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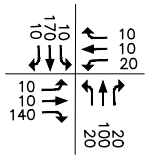
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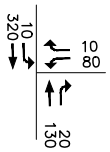
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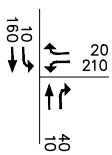
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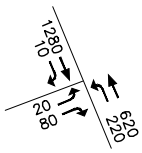
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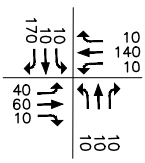
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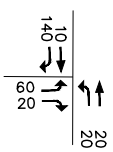
22 Ridge Route & SS Street



23 D Street & E Street



24 A Street & E Street



Legend

XX Intersection location number

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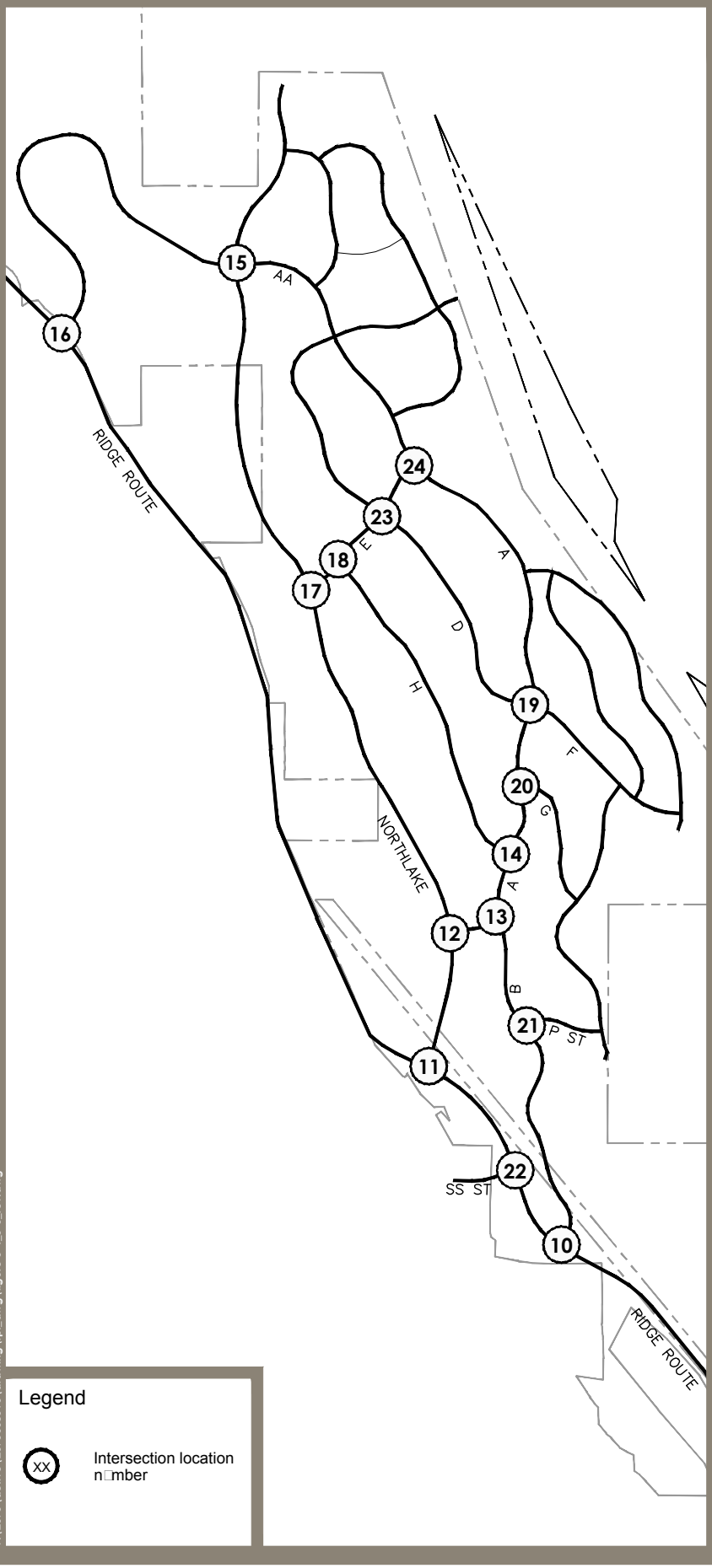
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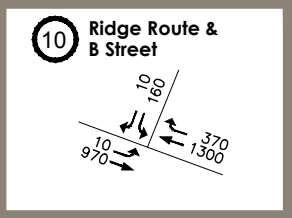
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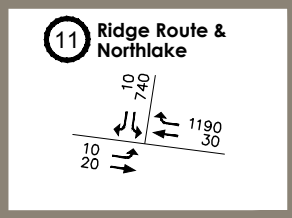
Figure 3-4

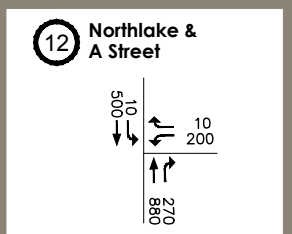
On-Site Intersection Turning Volumes - AM Peak Hour

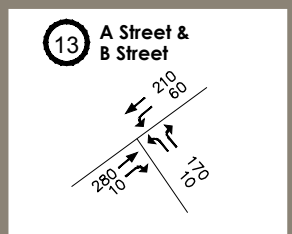
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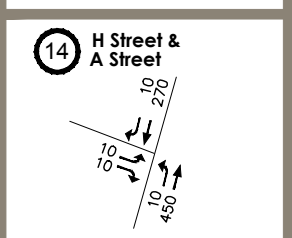


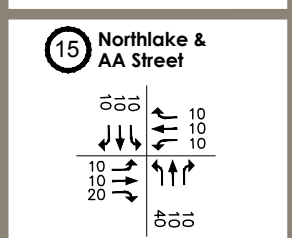


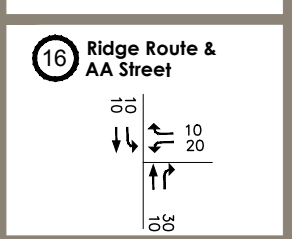


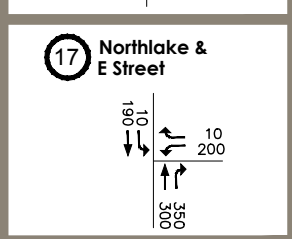


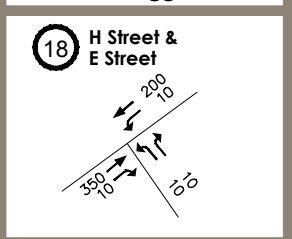


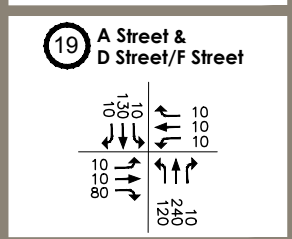


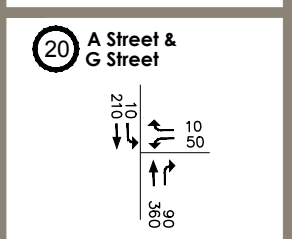


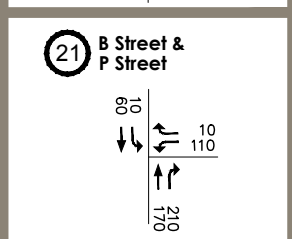


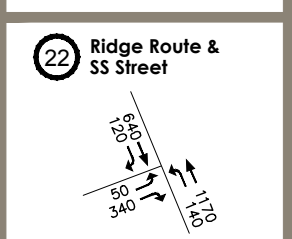


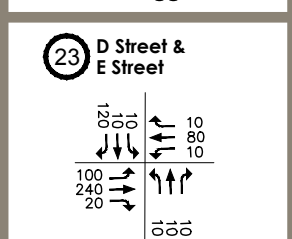


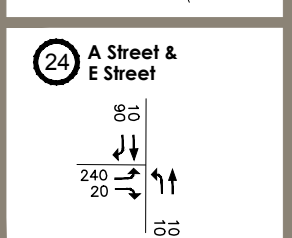












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Figure 3-5

On-Site Intersection Turning Volumes - PM Peak Hour

3.10

Table 3-5 ICU and LOS Summary - Buildout Conditions (On-Site)

Location	AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS
10. Ridge Route & B Street	0.65	B	0.58	A
11. Ridge Route & Northlake	0.56	A	0.39	A
12. Northlake & A Street	0.57	A	0.60	A
13. B Street & A Street	0.38	A	0.43	A
14. H Street & A street	0.39	A	0.40	A
15. Northlake & AA Street	0.20	A	0.19	A
16. Ridge Route & AA Street	0.15	A	0.16	A
17. Northlake & E Street	0.60	A	0.65	B
18. H Street & E Street	0.31	A	0.35	A
19. D Street & A Street	0.34	A	0.41	A
20. G Street & A Street	0.37	A	0.43	A
21. B Street & P Street	0.35	A	0.43	A
22. Ridge Route & SS Street	0.65	B	0.55	A
23. D Street & E Street	0.35	A	0.44	A
24. A Street & E Street	0.25	A	0.33	A

See Table 1-1 for level of service descriptions.
See Figure 3-1 for intersection locations

3.4.2 Off-Site Local Roadway System & Freeway System

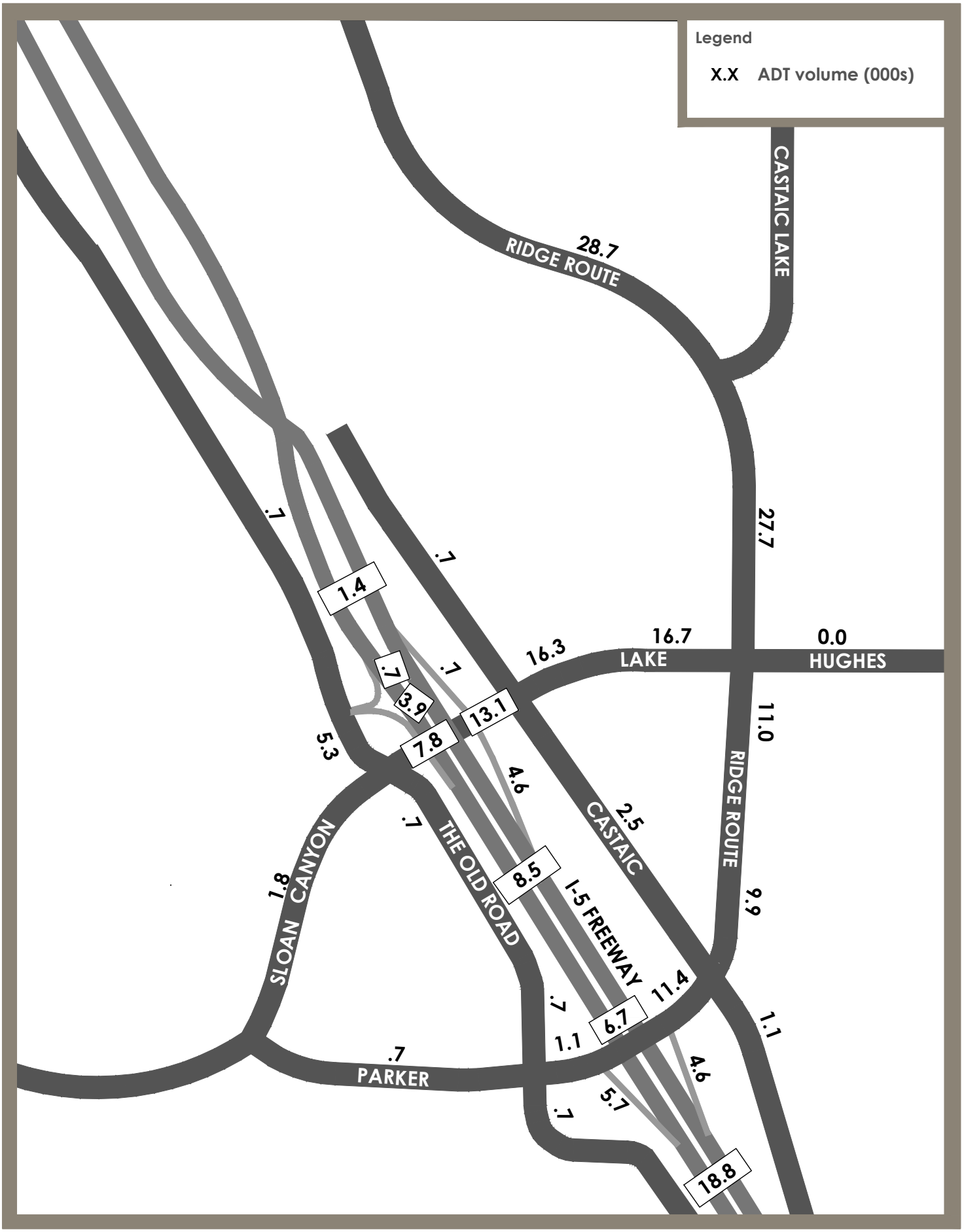
Project generated ADT volumes are provided in Figure 3-6 for the local roadway system and freeway system. This distribution of project trips corresponds to the project's buildout horizon year of 2028 (see previously discussed Figure 3-2 for distribution percentages).

The corresponding project generated peak hour turning movement volumes are provided in Figure 3-7 and Figure 3-8 for the AM peak hour and PM peak hour, respectively.

3.5 ON-SITE BICYCLE FACILITIES

The project would include a network of bicycle facilities, trails and sidewalks to accommodate pedestrians and encourage non-motorized active transportation.

Bicycle facilities would be made available along Ridge Route Road, Northlake Boulevard, A Street and B Street. A Class 1 bike lane is proposed along the west side of Ridge Route Road from Northlake Hills Elementary School to the Ridge Route Road and Northlake Boulevard intersection, where it would continue along Northlake Boulevard. Class II bike lanes are proposed along B Street and A Street. The proposed bicycle facilities are illustrated in Figure 3-9.



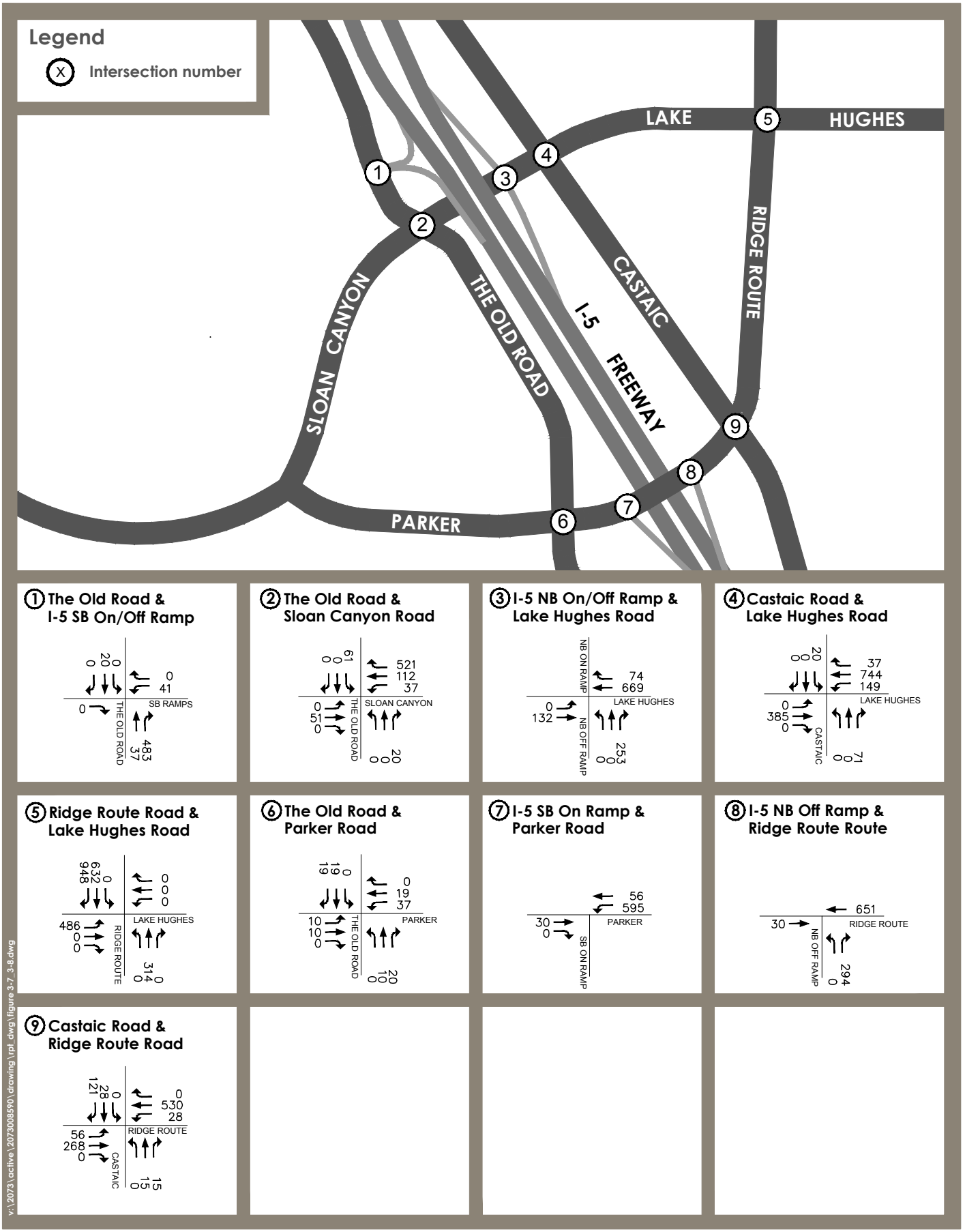
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Figure 3-6

ADT Volumes (000) - Project Only

3.13



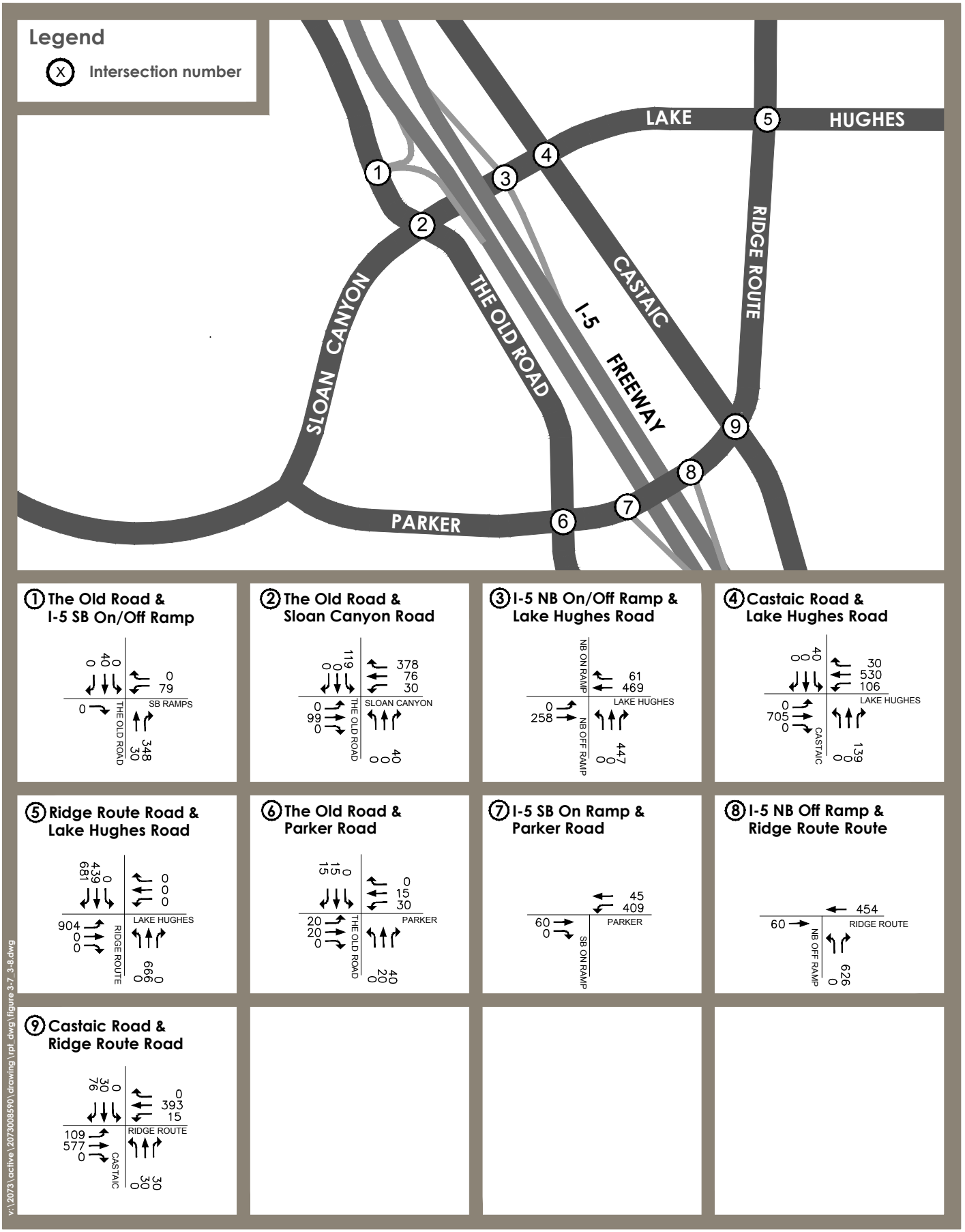
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Figure 3-7

Intersection Turning Lane Movement Volumes
AM Peak Hour - Project Only



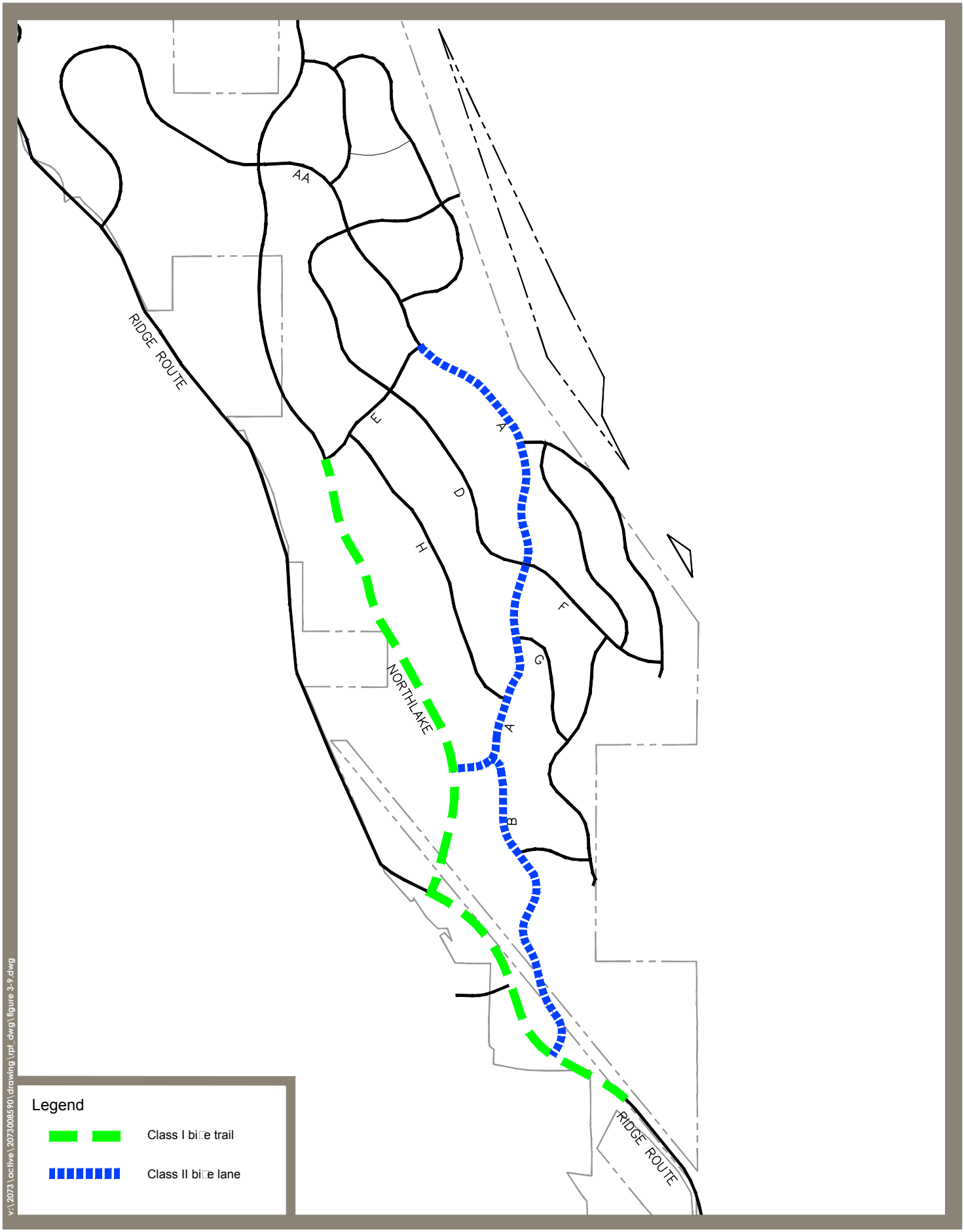
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Figure 3-8

Intersection Turning Lane Movement Volumes
PM Peak Hour - Project Only



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Figure 3-9

Proposed On-Site Bicycle Facilities

4.0 IMPACT ANALYSIS

This chapter addresses the traffic impacts of the proposed project on the surrounding circulation system. Future conditions with project traffic and with traffic from cumulative projects are described in the following sections. Project impacts and cumulative impacts are identified using the criteria outlined in Chapter 1.0.

4.1 EXISTING PLUS PROJECT ANALYSIS

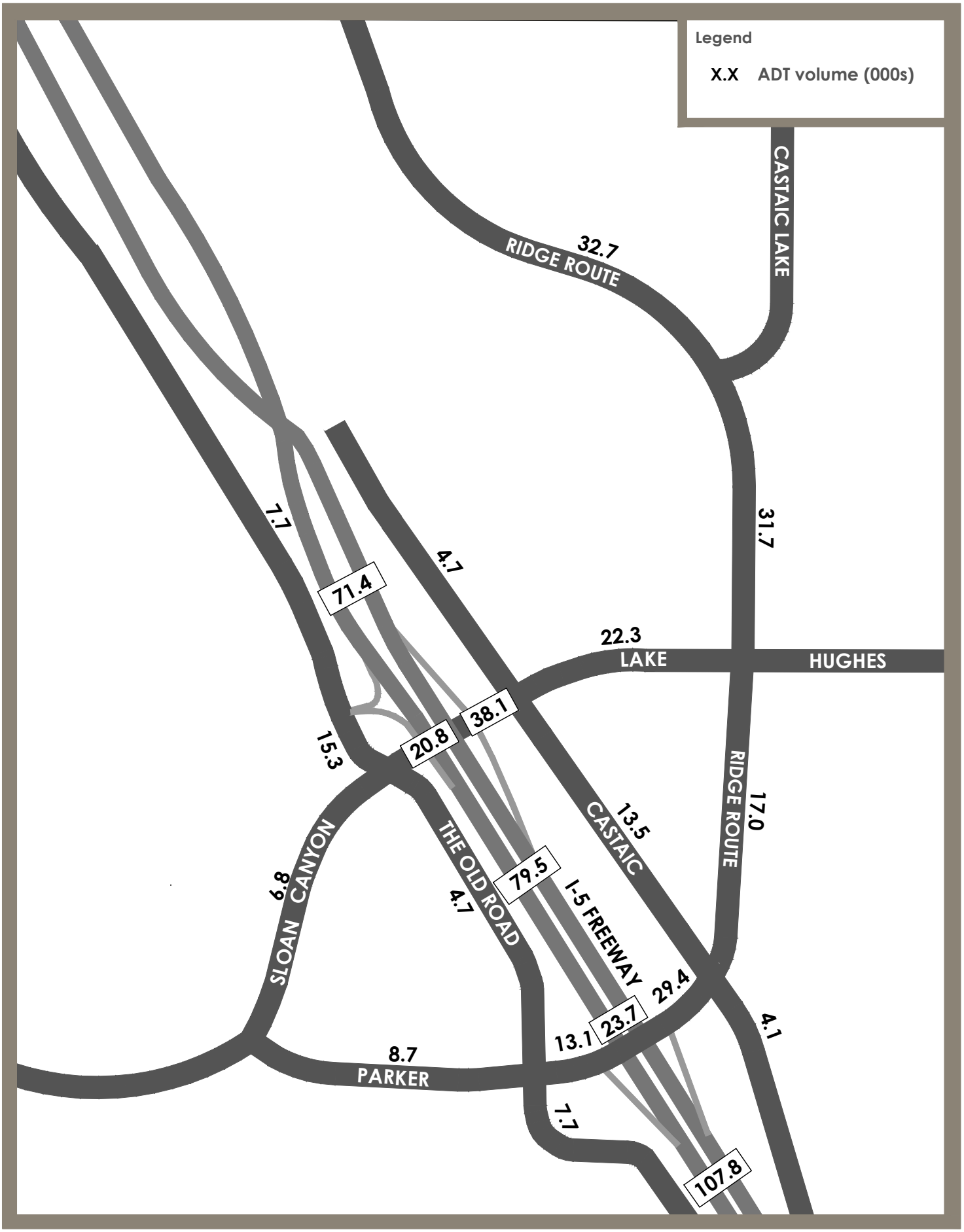
The existing plus project scenario depicts the addition of project generated traffic to existing traffic conditions. ADT forecasts for existing plus project conditions are shown in Figure 4-1. In all cases, the existing roadway system has been used for this analysis as a baseline to determine project impacts.

4.1.1 Existing plus Project Impact Analysis – Local Roadway System

The peak hour intersection data can be found in Figure 4-2 and Figure 4-3 for the AM peak hour and PM peak hour, respectively. Table 4-1 gives the corresponding ICU values and LOS results, which provides a comparison between the existing and with project conditions.

Table 4-1 Existing plus Project ICU and LOS Summary

	Existing				Existing plus Project				Difference	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
4.9Location	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**AM**	**PM**
1. The Old Road & I-5 SB Ramps	0.41	A	0.39	A	0.71	C	0.51	A	0.30	0.12
2. The Old Road & Sloan/Lake Hughes	0.34	A	0.36	A	0.65	B	0.59	B	0.31	0.23
3. 1-5 NB Ramps & Lake Hughes	0.31	A	0.41	A	0.54	A	0.73	C	0.23	0.32
4. Castaic & Lake Hughes	0.31	A	0.37	A	0.54	A	0.66	B	0.23	0.29
5. Ridge Route and Lake Hughes	0.31	A	0.19	A	0.94	E	0.95	E	**0.63**	**0.76**
6. The Old Road & Parker	0.45	A	0.42	A	0.51	A	0.51	A	0.06	0.09
7. I-5 SB On Ramp & Parker	0.60	A	0.52	A	0.99	E	0.81	D	**0.39**	**0.29**
8. I-5 NB Off Ramp & Ridge Route	0.46	A	0.55	A	0.87	D	1.03	F	**0.41**	**0.48**
9. Castaic & Ridge Route	0.33	A	0.41	A	0.59	A	0.62	B	0.26	0.21
Bold denotes a significant impact.										



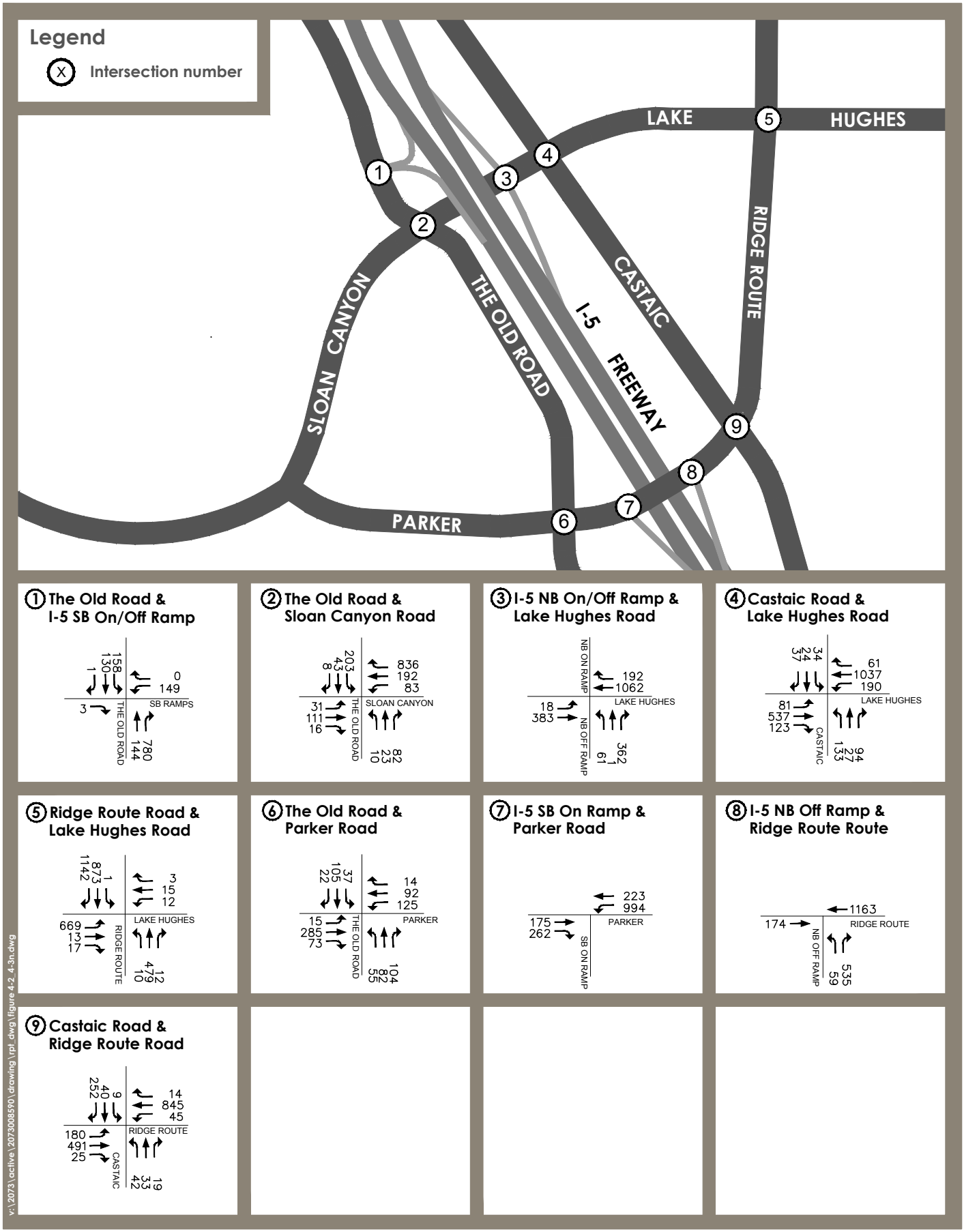
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Figure 4-1

ADT Volumes (000) - Existing plus Project

4.2



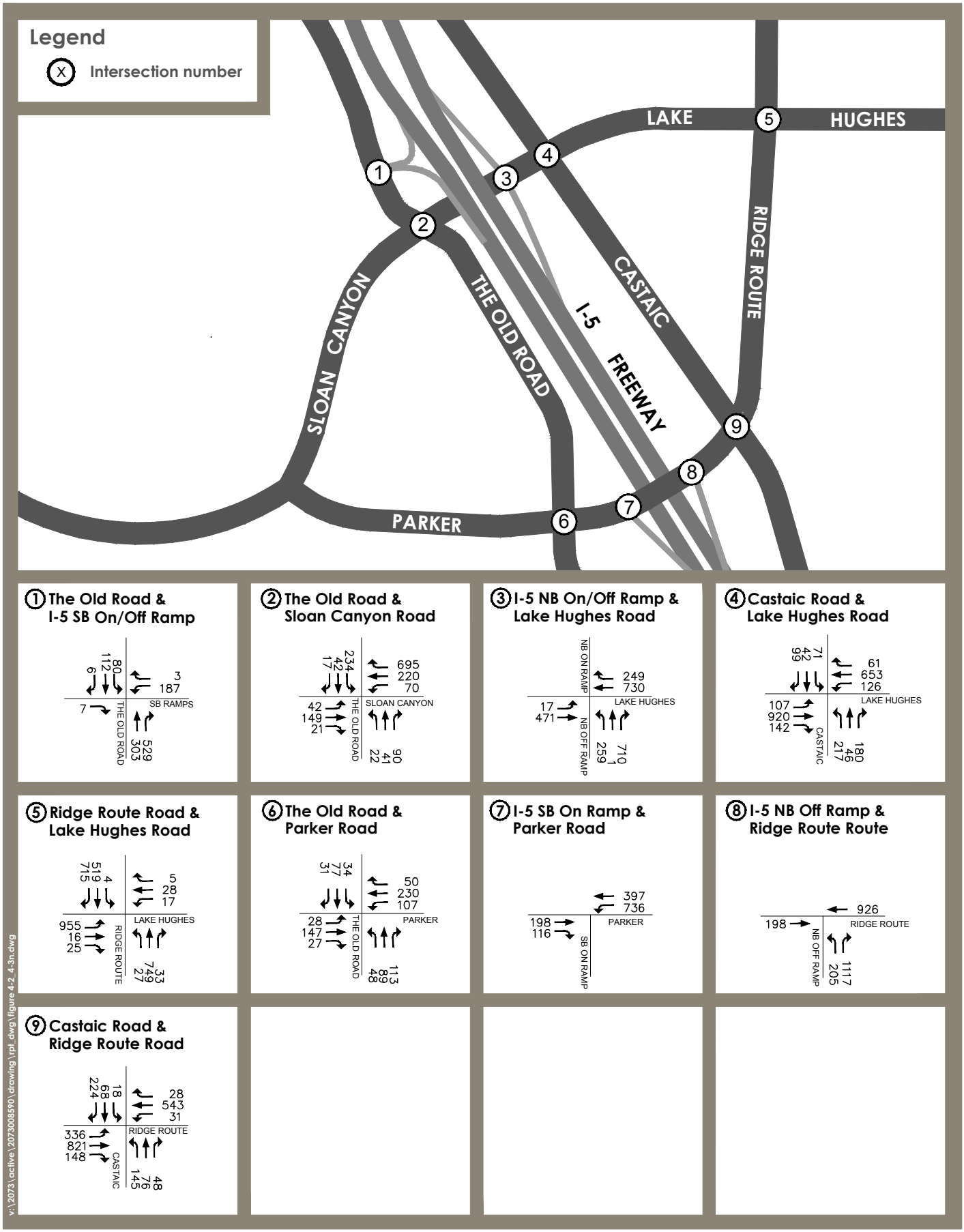
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Figure 4-2

Intersection Turning Lane Movement Volumes
AM Peak Hour - Existing Plus Project
4.3



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Figure 4-3

Intersection Turning Lane Movement Volumes
PM Peak Hour - Existing Plus Project
4.4

Table 4-1 shows that under existing plus project conditions, three intersections are shown to be significantly impacted by the project in either the AM or PM peak hour:

5. Ridge Route Road & Lake Hughes Road (County)
7. I-5 SB On Ramp & Parker Road (County/Caltrans)
8. I-5 NB Off Ramp & Ridge Route Road (County/Caltrans)

4.1.2 Existing plus Project Mitigation – Local Roadway System

The results of the ICU and LOS analysis show that 3 intersections are significantly impacted by the proposed project under existing plus project conditions. Table 4-2 summarizes the potential improvements that mitigate the impacts at these locations and Table 4-3 summarizes the resulting ICUs and LOS with this mitigation.

Table 4-2 Existing plus Project Mitigation Measures for Project Impacts

Location	Jurisdiction	Mitigation
5. Ridge Route and Lake Hughes	County	Install traffic signal and include a southbound right-turn overlap phase. Restripe eastbound approach to include two left-turn lanes, one through lane and one right-turn lane. In the northbound direction, add one right-turn lane. In the westbound direction, add a dedicated right-turn lane.
7. I-5 SB On Ramp & Parker	County/ Caltrans	Reconstruct bridge to 4 lanes. Install Traffic Signal. At intersection add one eastbound right-turn lane and two westbound left-turn lanes.
8. I-5 NB Off Ramp & Ridge Route	County/ Caltrans	Reconstruct bridge to 4 lanes. Install Traffic Signal. At intersection add a second northbound right-turn lane and add a second westbound through lane.

Table 4-3 Existing plus Project ICU and LOS Summary – With Mitigation

	Existing				Existing plus Project with Mitigation				Difference	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
Location	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
5. Ridge Route and Lake Hughes	0.31	A	0.19	A	0.82	D	0.67	B	0.51	0.48
7. I-5 SB On Ramp & Parker	0.60	A	0.52	A	0.61	A	0.48	A	0.01	(0.04)
8. I-5 NB Off Ramp & Ridge Route	0.46	A	0.55	A	0.50	A	0.61	B	0.04	0.06

With the improvements described above, the Ridge Route at Lake Hughes intersection would be mitigated to a desirable LOS D, consistent with the threshold established in the Los Angeles County General Plan and the Santa Clarita Valley Area Plan, One Valley One Vision. However, the intersection would not be fully mitigated to the LOS C threshold utilized in the County's Traffic Impact Analysis Guidelines. Improvements to fully mitigate the intersection to the LOS C threshold were considered, such as a southbound free-right turn lane, however was determined to not be geometrically feasible. Another improvement that was considered to achieve the LOS C threshold was to convert an existing southbound through lane to a shared through/right turn lane. However, the lane conversion would not be desirable when considering the crosswalks and pedestrians.

Mitigation measures for existing plus project conditions would require that the Parker Road interchange be reconstructed in order to accommodate the volume of traffic with the project. The ultimate buildout of the bridge is anticipated to have six lanes, four in the westbound direction and two in the eastbound direction. The ultimate configuration is not needed to mitigate the impacts under existing plus project conditions. Therefore, a phased improvement to the bridge consisting of 4-lanes, three lanes in the westbound direction and one lane in the eastbound direction, would be adequate to mitigate the project's impacts.

4.2 CUMULATIVE CONDITIONS ANALYSIS

Year 2028 cumulative conditions (i.e., with approved, planned, and pending projects reasonably anticipated to be in place within this horizon) have been derived as previously discussed in Section 2.2.3. The 2028 horizon year includes the future roadway system described in Section 2.2.1.

4.2.1 Cumulative Conditions – Local Roadway System

Year 2028 cumulative conditions ADT volumes with the project are provided in Figure 4-4. The corresponding cumulative conditions with project peak hour turning movement volumes are provided in Figure 4-5 and Figure 4-6 for the AM peak hour and PM peak hour, respectively.

4.2.2 Cumulative Conditions Impact Analysis – Local Roadway System

Peak hour ICU values and LOS that correspond with the cumulative conditions with project referenced above can be found in Table 4-4 which provides a comparison between the with project conditions and existing conditions. The criteria used to identify significant impacts are discussed in Section 1.4.

Table 4-4 ICU Summary – Existing and Cumulative Conditions (With Project)

Location	Existing				Cumulative with Project				Increase	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
1. The Old Road & I-5 SB Ramps	0.41	A	0.39	A	0.78	C	0.62	B	**0.37**	0.23
2. The Old Road & Sloan/Lake Hughes	0.34	A	0.36	A	0.73	C	0.73	C	0.39	0.37
3. 1-5 NB Ramps & Lake Hughes	0.31	A	0.41	A	0.66	B	0.77	C	0.35	**0.36**
4. Castaic & Lake Hughes	0.31	A	0.37	A	0.53	A	0.53	A	0.22	0.16
5. Ridge Route and Lake Hughes	0.31	A	0.19	A	0.92	E	1.03	F	**0.61**	**0.84**
6. The Old Road & Parker	0.45	A	0.42	A	0.55	A	0.71	C	0.10	0.29
7. I-5 SB On Ramp & Parker	0.60	A	0.52	A	1.10	F	1.16	F	**0.50**	**0.64**
8. I-5 NB Off Ramp & Ridge Route	0.46	A	0.55	A	1.09	F	1.44	F	**0.63**	**0.89**
9. Castaic & Ridge Route	0.33	A	0.41	A	0.69	B	0.84	D	0.36	**0.43**

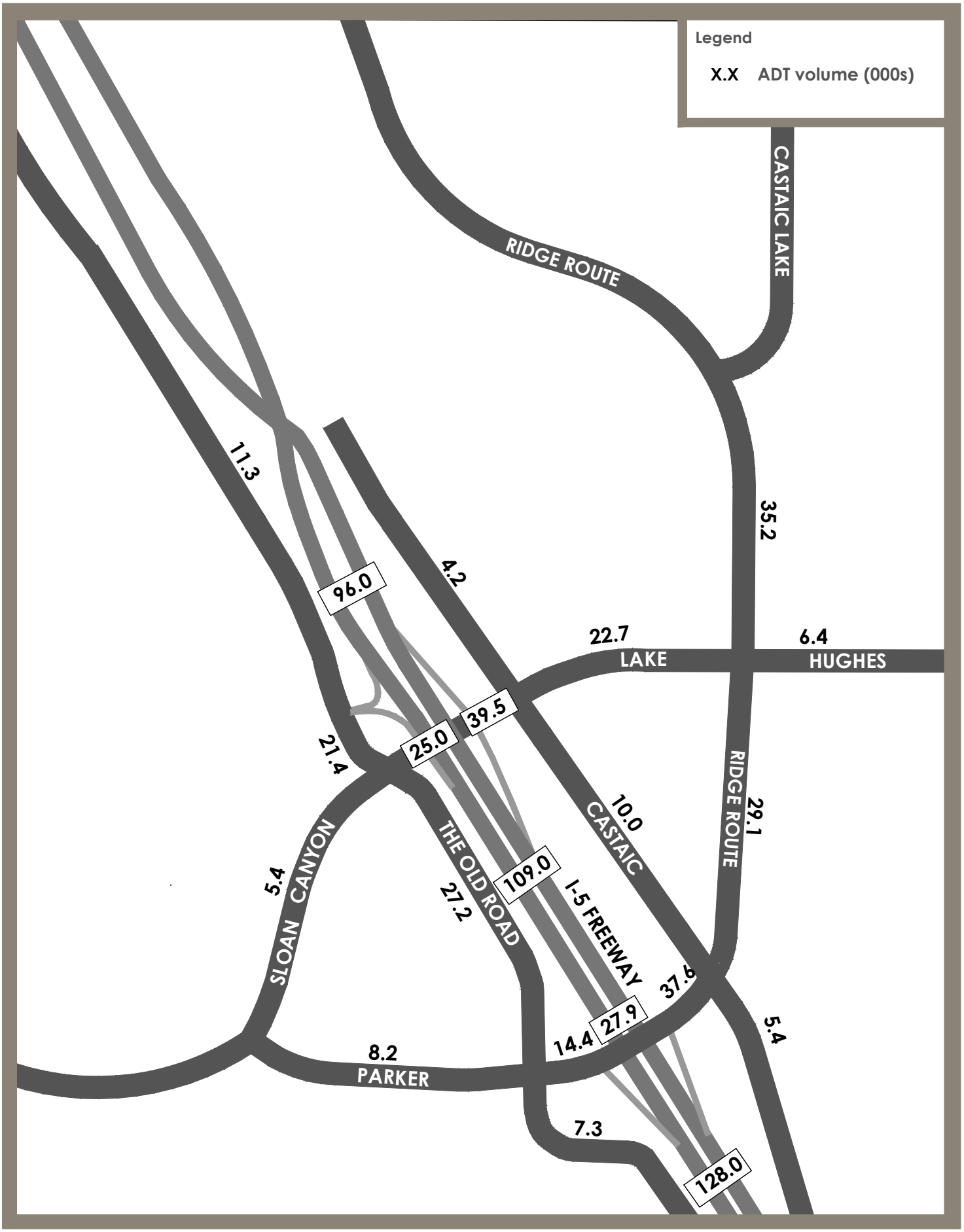
Bold – denotes significant impact (See Table 1-5 for impact criteria)

The table indicates that under cumulative conditions with the project, the following intersections are forecast to be significantly impacted by the project:

1. The Old Road & I-5 SB Ramps (County/Caltrans)
3. I-5 NB Ramps & Lake Hughes Road (County/Caltrans)
5. Ridge Route Road & Lake Hughes Road (County)
7. I-5 SB On Ramp & Parker Road (County/Caltrans)
8. I-5 SB Off Ramps & Ridge Route Road (County/Caltrans)
9. Castaic Road & Ridge Route Road (County)

4.2.3 Cumulative Conditions Mitigation – Local Roadway System

Roadway improvements have been identified to mitigate the project impacts identified in the previous section. Table 4-5 lists the identified mitigation measures to address project impacts in the cumulative conditions with project setting.

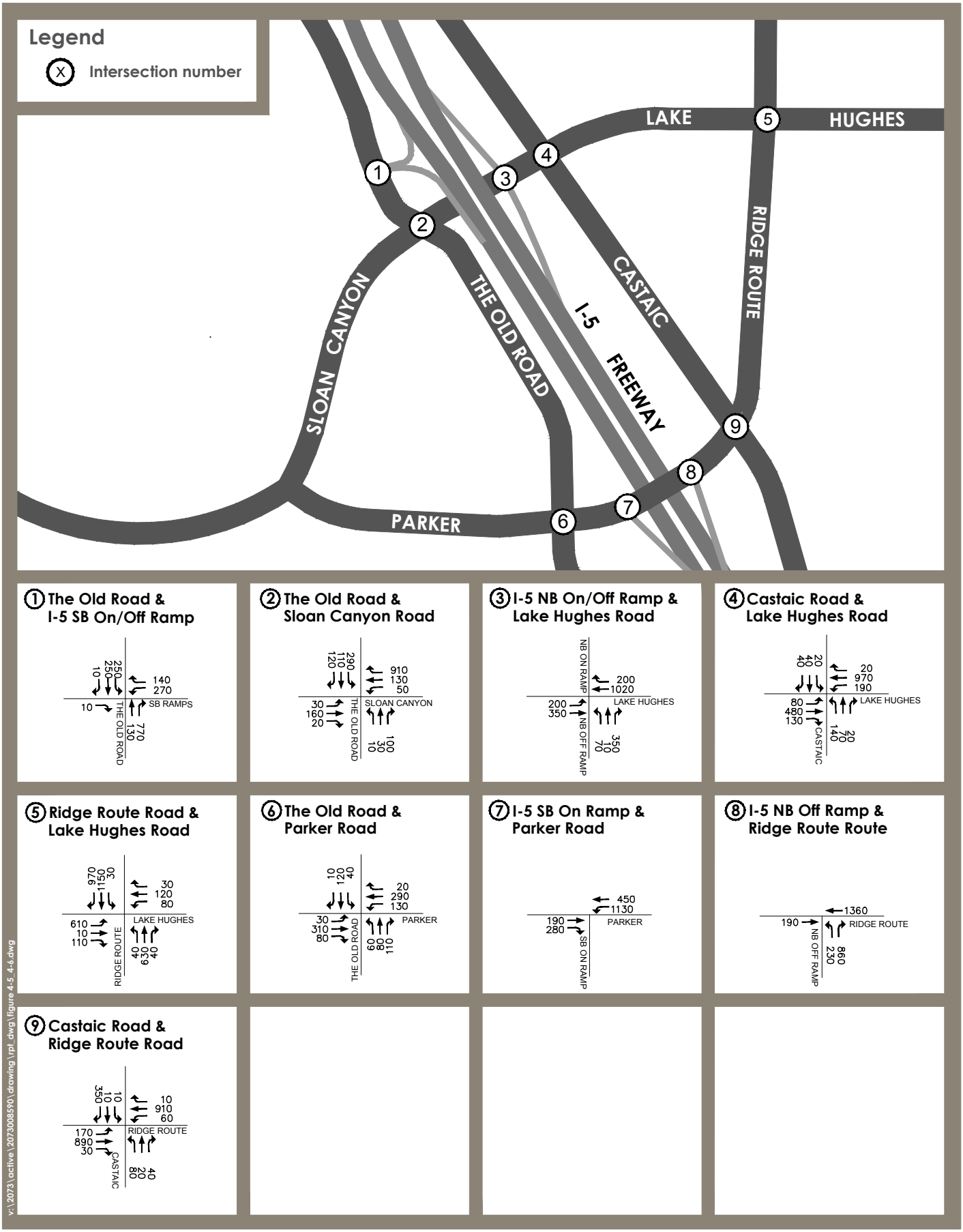


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Figure 4-4

ADT Volumes (000) - 2028 Cumulative Conditions With Project

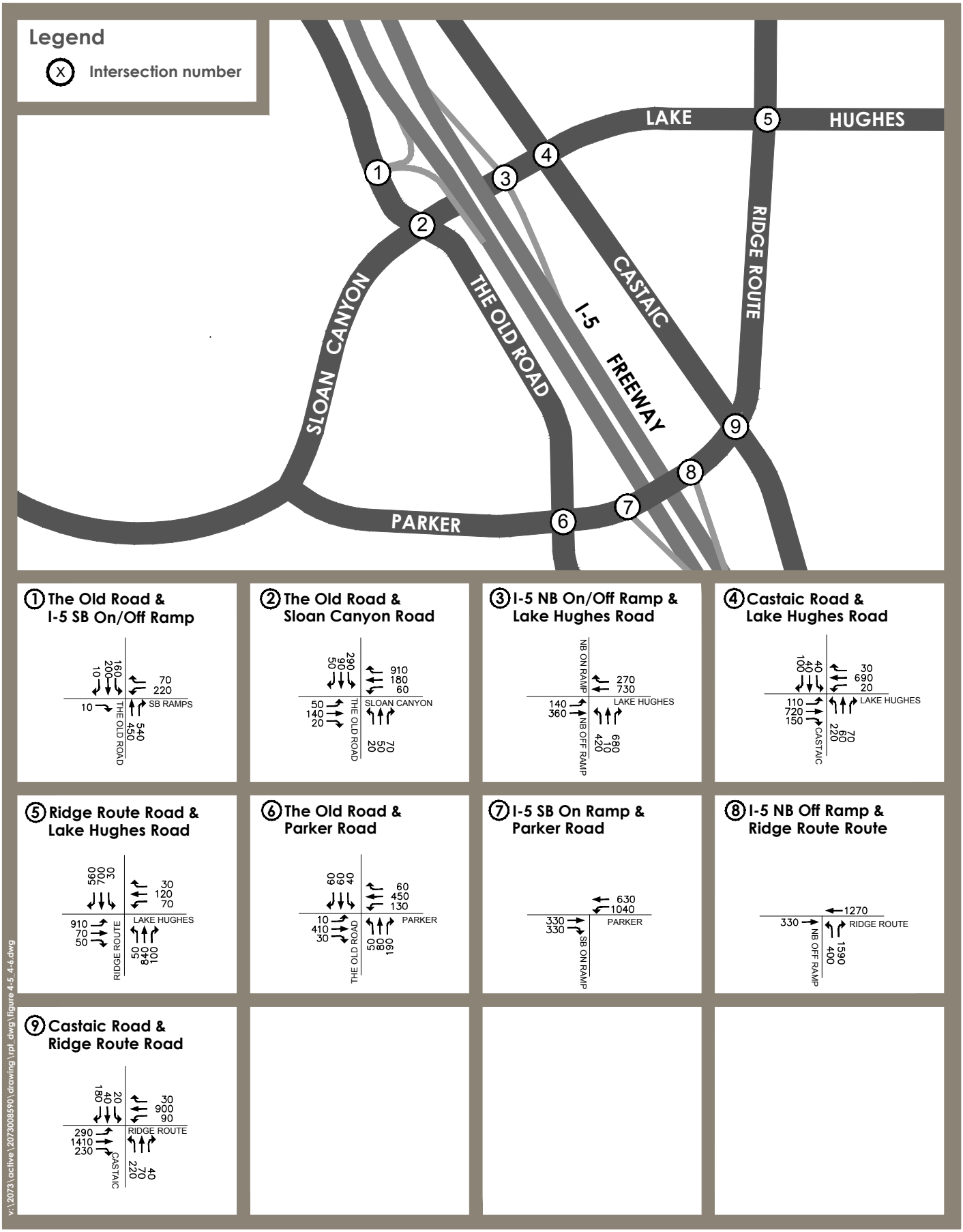


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Figure 4-5

Intersection Turning Lane Movement Volumes
AM Peak Hour - 2028 Cumulative Conditions - With Project
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Figure 4-6

Intersection Turning Lane Movement Volumes
PM Peak Hour - 2028 Cumulative Conditions - With Project

Table 4-5 Off-Site Mitigation Measures for Project Impacts – Cumulative Conditions (With Project)

Location	Juris-diction	Mitigation
1. The Old Road & I-5 SB Ramps	County/ Caltrans	Install traffic signal with a northbound right-turn overlap phasing.
3. 1-5 NB Ramps & Lake Hughes	County/ Caltrans	Install traffic signal. Widen off ramp to add one left-turn lane and restripe center lane to a shared left/through/right turn lane.
5. Ridge Route and Lake Hughes	County	Install traffic signal and include southbound right-turn overlap phasing. Restripe eastbound approach to include two left-turn lanes, one through lane and one right-turn lane. In the northbound direction, add one right-turn lane. In the westbound direction, add a dedicated right-turn lane.
7. I-5 SB On Ramp & Parker	County/ Caltrans	Reconstruct bridge to 4 lanes. Install traffic signal. At intersection add one eastbound right-turn lane and two westbound left-turn lanes.
8. I-5 NB Off Ramp & Ridge Route	County/ Caltrans	Reconstruct bridge to 4 lanes. Install traffic signal. At intersection add a second northbound right-turn lane and add a second and third westbound through lane.
9. Castaic & Ridge Route	County	Install traffic signal. Restripe northbound approach to include two left-turn lanes, one through lane and one right-turn lane. In the eastbound direction, stripe a right-turn lane. Signal modification to include southbound right-turn overlap phasing.

The identified impacts are cumulative impacts and, therefore, the project is responsible for its fair-share of the costs of the identified mitigation measures. Participation in the Castaic Bridge and Major Thoroughfare District will satisfy the project's fair share obligations. Each of the identified improvements would fully mitigate the project's significant impact, as shown in Table 4-6, with the exception of the Ridge Route at Lake Hughes intersection. With the improvements described above, the Ridge Route at Lake Hughes intersection would be mitigated to a desirable LOS C (0.78), better than the LOS D threshold established in the Los Angeles County General Plan and the Santa Clarita Valley Area Plan, One Valley One Vision. However, the intersection would not be fully mitigated to the LOS C (0.74) threshold utilized in the County's Traffic Impact Analysis Guidelines. Improvements to fully mitigate the intersection to the LOS C threshold were considered, such as a southbound free-right turn lane, however was determined to not be geometrically feasible.

Table 4-6 ICU Summary – Existing and Cumulative Conditions (With Project) Mitigation

Location	Existing				Cumulative with Project plus Mitigation				Increase	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
1. The Old Road & I-5 SB Ramps	0.41	A	0.39	A	0.74	C	0.62	B	0.33	0.23
3. 1-5 NB Ramps & Lake Hughes	0.31	A	0.41	A	0.63	B	0.66	B	0.32	0.25
5. Ridge Route and Lake Hughes	0.31	A	0.19	A	0.78	C	0.74	C	0.47	0.55
7. I-5 SB On Ramp & Parker	0.60	A	0.52	A	0.67 (16.7 sec)[1]	B (B)[1]	0.67 (21.1 sec)[1]	B (C)[1]	0.07	0.15
8. I-5 NB Off Ramp & Ridge Route	0.46	A	0.55	A	0.53 (10.1 sec)[1]	A (B)[1]	0.82 (26.1 sec)[1]	D (C)[1]	0.07	0.27[2]
9. Castaic & Ridge Route	0.33	A	0.41	A	0.64	B	0.71	C	0.31	0.30

Bold – denotes significant impact (See Table 1-5 for criteria)
[1] – Values in parentheses indicate average delay (seconds/vehicle) and LOS based 85on HCM delay methodology
[2] – Not a significant impact under Caltrans methodology due to LOS C conditions based on HCM delay calculation (See Appendix E for HCM worksheets).

Table 4-7 provides a comparison between Existing plus Project with mitigation conditions and Cumulative with Project with mitigation conditions. Table 4-7 lists locations where project specific mitigations are required.

Table 4-7 ICU Summary – Existing Plus Project Mitigation and Cumulative Condition (With Project) Mitigation

Location	Existing + Project + Mitigation				Cumulative + Project + Mitigation				Increase	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
5. Ridge Route and Lake Hughes	0.82	D	0.67	B	0.78	C	0.74	C	-0.04	0.07
7. I-5 SB On Ramp & Parker	0.61	B	0.48	A	0.67 (16.7 sec)[1]	B (B)[1]	0.67 (21.1 sec)[1]	B (C)[1]	0.06	0.19
8. I-5 NB Off Ramp & Ridge Route	0.50	A	0.61	B	0.53 (10.1 sec)[1]	A (B)[1]	0.82 (26.1 sec)[1]	D (C)[1]	0.03	0.21[2]

[1] – Values in parentheses indicate average delay (seconds/vehicle) and LOS based on HCM delay methodology
[2] – Not a significant impact under Caltrans methodology due to LOS C conditions based on HCM delay calculation (See Appendix E for HCM worksheets).

As can be seen in the previously referenced Table 4-6 and Table 4-7, the I-5 NB Ramp Off Ramp at Ridge Route Road intersection would operate at a LOS D under cumulative conditions with the project and mitigation using the ICU methodology, but would operate at a low LOS C using the HCM methodology. The acceptable LOS for a Caltrans intersection is LOS D, therefore the intersection would be fully mitigated.

The Ridge Route at Lake Hughes intersection would be mitigated to a desirable LOS C (0.78), better than the LOS D threshold established in the Los Angeles County General Plan and the Santa Clarita Valley Area Plan, One Valley One Vision. However, the intersection would not be fully mitigated to the LOS C (0.74) threshold utilized in the County's Traffic Impact Analysis Guidelines. Improvements to fully mitigate the intersection to the LOS C threshold were considered, such as a southbound free-right turn lane, however was determined to not be geometrically feasible.

4.2.4 Cumulative Conditions (No Project) Impact Analysis – Local Roadway System

To derive cumulative conditions no project ADT volumes, the SCVCTM was run with no land uses in the project traffic zone (except for related projects that fall inside the zone). In this process, trips from non-project zones that would otherwise interact with the project are redistributed to other zones (both internal and cordon zones).

ADT volumes for the local Castaic community for the cumulative condition no project scenario is provided in Figure 4-7. The corresponding no project peak hour turning movement volumes are provided in Figure 4-8 and Figure 4-9 for the AM peak hour and PM peak hour, respectively. Peak hour ICU values and LOS that correspond with the cumulative conditions traffic forecasts referenced above can be found in Table 4-8 which provides a comparison between no project condition and with project conditions.

Table 4-8 ICU Summary – Cumulative Conditions No Project and With Project

	Cumulative No Project				Cumulative with Project				Increase	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
Location	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
1. The Old Road & I-5 SB Ramps	0.50	A	0.58	A	0.78	C	0.62	B	**0.28**	0.04
2. The Old Road & Sloan/Lake Hughes	0.43	A	0.52	A	0.73	C	0.73	C	0.30	0.21
3. 1-5 NB Ramps & Lake Hughes	0.49	A	0.65	B	0.66	B	0.77	C	0.17	**0.12**
4. Castaic & Lake Hughes	0.36	A	0.40	A	0.53	A	0.53	A	0.17	0.13
5. Ridge Route and Lake Hughes	0.40	A	0.25	A	0.92	E	1.03	F	**0.52**	**0.78**
6. The Old Road & Parker	0.52	A	0.68	B	0.55	A	0.71	C	0.03	0.03
7. I-5 SB On Ramp & Parker	0.76	C	0.90	D	1.10	F	1.16	F	**0.34**	**0.26**
8. I-5 NB Off Ramp & Ridge Route	0.73	C	1.00	E	1.09	F	1.44	F	**0.36**	**0.44**
9. Castaic & Ridge Route	0.46	A	0.62	B	0.69	B	0.84	D	0.23	**0.22**

The table indicates that under cumulative conditions, the following intersections are forecast to be significantly impacted by the project:

1. The Old Road & I-5 SB Ramps (County/Caltrans)
3. I-5 NB Ramps & Lake Hughes Road (County/Caltrans)
5. Ridge Route Road & Lake Hughes Road (County)
7. I-5 SB On Ramp & Parker Road (County/Caltrans)
8. I-5 SB Off Ramps & Ridge Route Road (County/Caltrans)
9. Castaic Road & Ridge Route Road (County)

Mitigation that addresses the above impacts is presented in the next section.

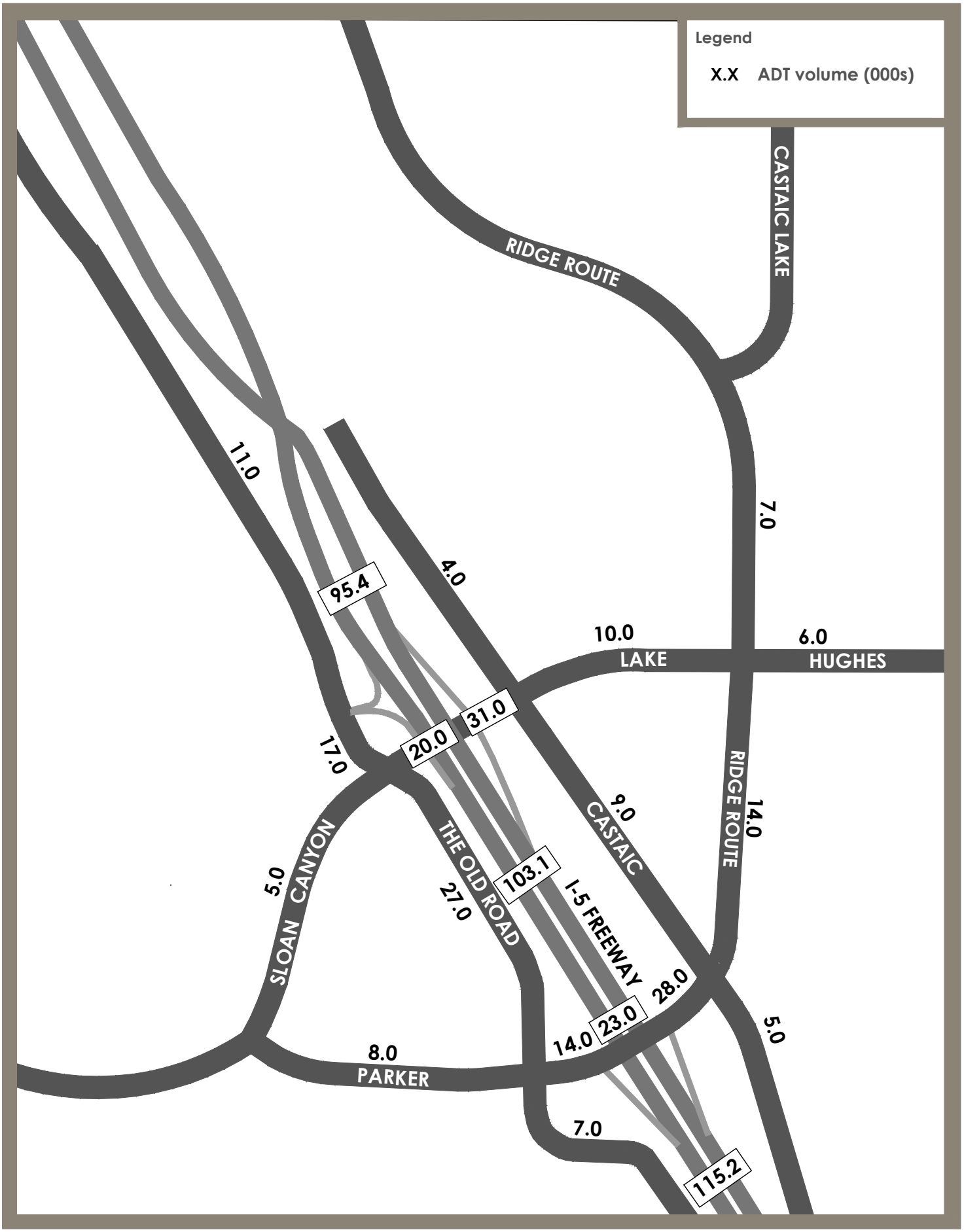
4.2.5 Cumulative Conditions (No Project) Mitigation – Local Roadway System

Roadway improvements have been identified to mitigate the project impacts identified in the previous section. Table 4-9 lists the identified mitigation measures to address project impacts in the cumulative conditions setting.

Table 4-9 Off-Site Mitigation Measures for Project Impacts – Cumulative Conditions (No Project and With Project)

Location	Jurisdiction	Mitigation
1. The Old Road & I-5 SB Ramps	County/ Caltrans	Install traffic signal with a northbound right-turn overlap phasing.
3. 1-5 NB Ramps & Lake Hughes	County/ Caltrans	Install traffic signal. Widen off ramp to add one left-turn lane and restripe center lane to a shared left/through/right turn lane.
5. Ridge Route and Lake Hughes	County	Install traffic signal and include southbound right-turn overlap phasing. Restripe eastbound approach to include two left-turn lanes, one through lane and one right-turn lane. In the northbound direction, add one right-turn lane. In the westbound direction, add a dedicated right-turn lane.
7. I-5 SB On Ramp & Parker	County/ Caltrans	Reconstruct Bridge to 4-lanes. Install traffic signal. Eastbound lane configuration includes one through lane and one dedicated right turn lane. In the westbound direction, two left-turn lanes and one through lane.
8. I-5 NB Off Ramp & Ridge Route	County/ Caltrans	Reconstruct Bridge to 4-lanes. Install traffic signal. Modify intersection to include the following: one northbound left turn lane, two northbound right turn lanes, one eastbound through lane and three westbound through lanes.
9. Castaic & Ridge Route	County	Install traffic signal. Restripe northbound approach to include two left-turn lanes, one through lane and one right-turn lane. In the eastbound direction, stripe a right-turn lane. Signal modification to include southbound right-turn overlap phasing.

The identified impacts are cumulative impacts and, therefore, the project is responsible for its fair-share of the costs of the identified mitigation measures. Participation in the Castaic Bridge and Major Thoroughfare District will satisfy the project's fair share obligations. Each of the

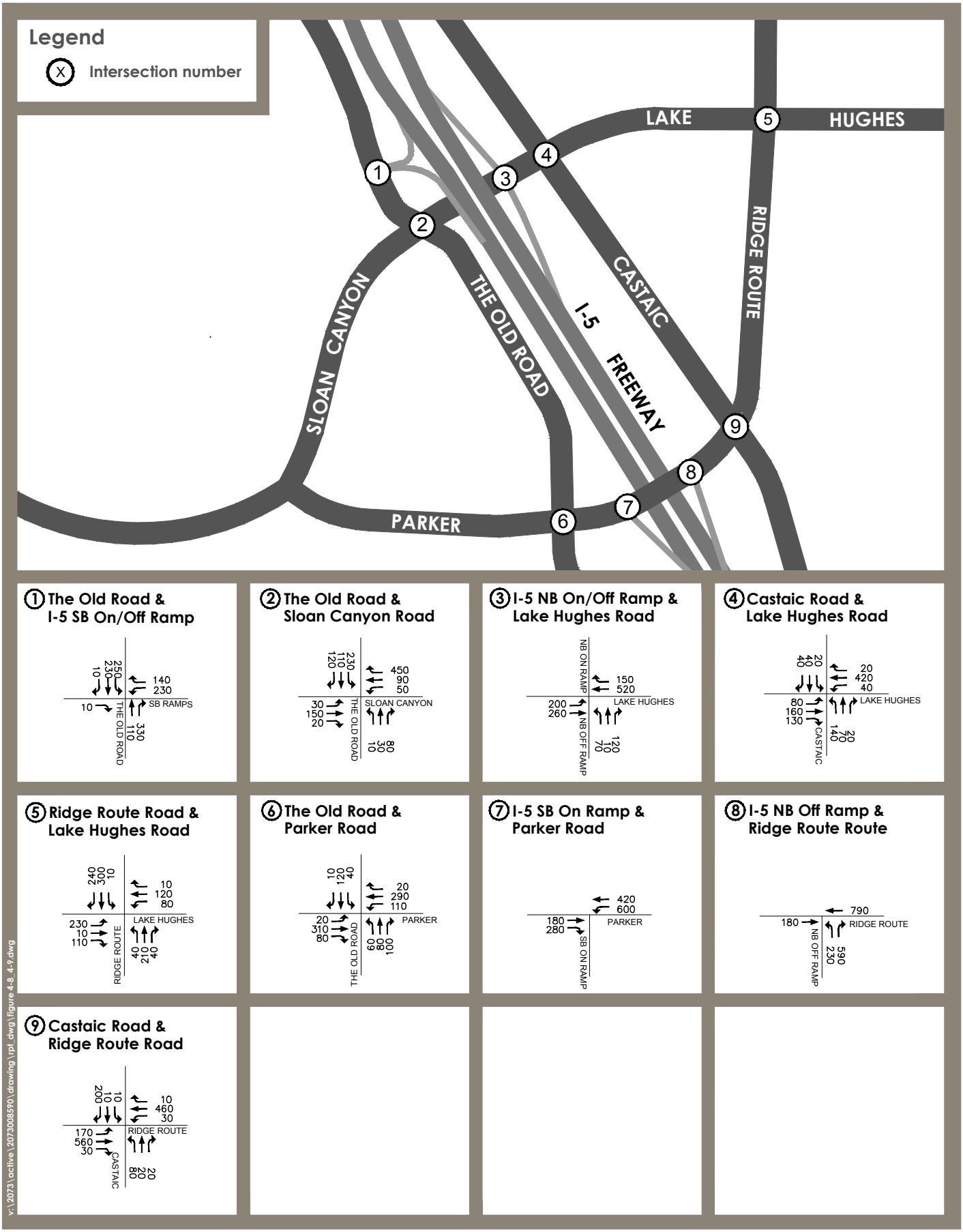


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Figure 4-7

ADT Volumes (000) - 2028 Cumulative Conditions No Project



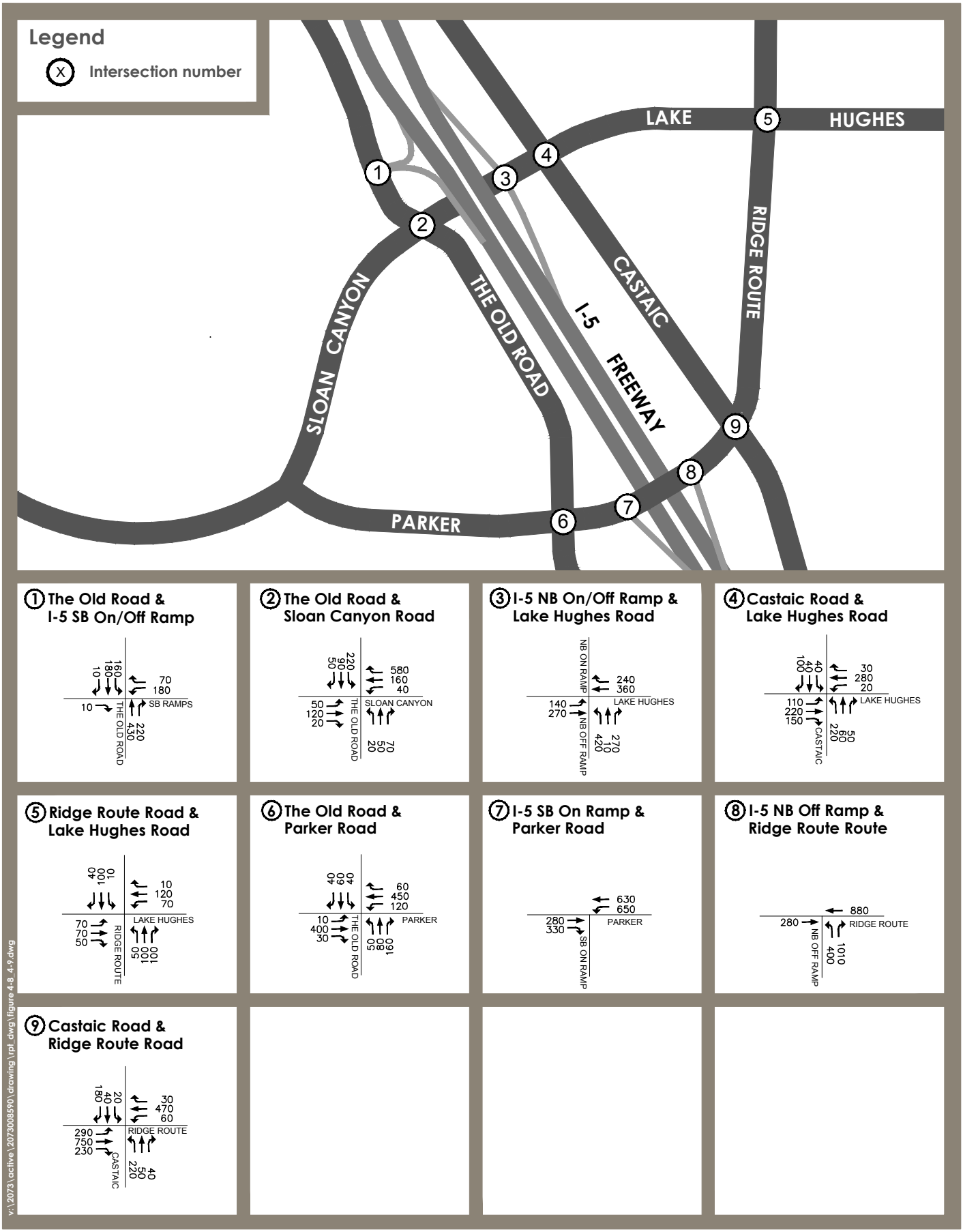
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Figure 4-8

Intersection Turning Lane Movement Volumes
AM Peak Hour - 2028 Cumulative Conditions - No Project



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Figure 4-9

Intersection Turning Lane Movement Volumes
PM Peak Hour - 2028 Cumulative Conditions - No Project

identified improvements would fully mitigate the project's significant impact, as shown in Table 4-10, with the exception of the Ridge Route at Lake Hughes intersection. With the improvements described above, the Ridge Route at Lake Hughes intersection would be mitigated to a desirable LOS C (0.78), better than the LOS D threshold established in the Los Angeles County General Plan and the Santa Clarita Valley Area Plan, One Valley One Vision. However, the intersection would not be fully mitigated to the LOS C (0.74) threshold utilized in the County's Traffic Impact Analysis Guidelines. Improvements to fully mitigate the intersection to the LOS C threshold were considered, such as a southbound free-right turn lane, however was determined to not be geometrically feasible.

Table 4-10 ICU Summary – Cumulative Conditions Mitigation (No Project and With Project)

Location	Cumulative No Project				Cumulative with Project plus Mitigation				Increase	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
1. The Old Road & I-5 SB Ramps	0.50	A	0.58	A	0.74	C	0.62	B	0.24	0.04
3. I-5 NB Ramps & Lake Hughes	0.49	A	0.65	B	0.63	B	0.66	B	0.14	0.01
5. Ridge Route and Lake Hughes	0.40	A	0.25	A	0.78	C	0.74	C	0.38	0.49
7. I-5 SB On Ramp & Parker	0.76	C	0.90	D	0.67	B	0.67	B	(0.09)	(0.23)
8. I-5 NB Ramp & Ridge Route	0.73	C	1.00	E	0.53	A	0.82	D	(0.20)	(0.18)
9. Castaic & Ridge Route	0.46	A	0.62	B	0.64	B	0.71	C	0.18	0.09

4.3 FREEWAY IMPACT ANALYSIS

The following section discusses an impact analysis conducted for the I-5 freeway that provides the regional travel to and from the project area

4.3.1 Existing plus Project Impact Analysis – Freeway System

Project generated traffic was added onto the existing freeway system. Existing AADT freeway volumes with the project trips are shown in Table 4-11.

Table 4-11 Freeway AADT Summary – Existing Plus Project

No.	Segment	Without Project	With Project
1	I-5 Between Templin Hwy & Lake Hughes	70,000	71,000
2	I-5 Between Lake Hughes & Parker	71,000	80,000
3	I-5 Between Parker & Hasley Canyon	89,000	108,000
4	I-5 Between Hasley Canyon & SR-126	109,000	124,000
5	I-5 Between Calgrove & SR-14	193,000	197,000
AADT – Annual Average Daily Traffic			

The AM and PM peak hour freeway volumes for existing plus project conditions are shown in Table 4-13. As can be seen in Table 4-13, the project increment exceeds the 0.02 CMP threshold at the following freeways segments:

- I-5 NB Between Lake Hughes Road & Parker Road (AM & PM)
- I-5 NB Between Parker Road & Hasley Canyon (AM & PM)
- I-5 SB Between Lake Hughes Road & Parker Road (AM & PM)
- I-5 SB Between Parker Road & Hasley Canyon (AM & PM)

However, although the project increment exceeds the 0.02 threshold at the above referenced freeway segments, the other criteria for the project to cause a significant impact is for the freeway segment to operate deficiently (i.e., worse than LOS E). All segments with the project operate at LOS C or better (V/C less than or equal to 0.71). Hence, the project does not cause a significant impact.

4.3.2 Cumulative Conditions Impact Analysis – Freeway System

As previously discussed in Section 2.2.4., future freeway forecasts were derived from multiple sources. Year 2028 cumulative conditions AADT volumes with and without the project are shown in Table 4-12.

Table 4-12 Freeway AADT Summary – 2028 Cumulative Conditions

No.	Segment	Without Project	With Project
1	I-5 Between Templin Hwy & Lake Hughes	95,000	96,000
2	I-5 Between Lake Hughes & Parker Road	103,000	109,000
3	I-5 Between Parker Road & Hasley Canyon	115,000	128,000
4	I-5 Between Hasley Canyon & SR-126	143,000	153,000
5	I-5 Between Calgrove & SR-14	224,000	226,000
AADT – Annual Average Daily Traffic			

Freeway lanes and capacities are shown in Table 4-14, along with directional peak hour volumes and the resulting V/C ratios and project increments.

As can be seen in Table 4-14 while segments on the I-5 freeway from the Lake Hughes interchange to south of Parker Road interchange contain a project increment exceeding 0.02, the freeway segments operate better than an LOS E (V/C less than or equal to 1.00). Therefore, these segments are not considered to be significantly impacted by the project.

Table 4-13 Freeway Peak Hour Volumes and V/C Summary– Existing Plus Project

No.	Segment	Lanes	Cap.	Existing				Existing Plus Project				Project Increment	
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
				Vol.	V/C	Vol.	V/C	Vol.	V/C	Vol.	V/C	AM	PM
Northbound													
1	I-5 Between Templin Hwy & Lake Hughes	4M	8,000	1,351	0.169	2,359	0.295	1,425	0.178	2,420	0.303	0.009	0.008
2	I-5 Between Lake Hughes & Parker	4M	8,000	1,463	0.183	1,896	0.237	1,716	0.214	2,343	0.293	0.031	0.056
3	I-5 Between Parker & Hasley Canyon	4M	8,000	1,833	0.229	2,376	0.297	2,380	0.298	3,449	0.431	0.069	0.134
4	I-5 Between Hasley Canyon & SR-126	4M +1A	9,000	2,245	0.249	2,910	0.323	2,671	0.297	3,746	0.416	0.048	0.093
5	I-5 Between Calgrove & SR-14	4M + 1T[C]	9,200	3,976	0.432	5,153	0.560	4,076	0.443	5,350	0.582	0.011	0.022
Southbound													
1	I-5 Between Templin Hwy & Lake Hughes	4M	8,000	1,309	0.164	2,240	0.280	1,350	0.169	2,319	0.290	0.005	0.010
2	I-5 Between Lake Hughes & Parker	4M	8,000	1,803	0.225	2,450	0.306	2,286	0.286	2,798	0.350	0.061	0.044
3	I-5 Between Parker & Hasley Canyon	4M	8,000	2,261	0.283	3,071	0.384	3,339	0.417	3,828	0.478	0.134	0.094
4	I-5 Between Hasley Canyon & SR-126	4M	8,000	2,769	0.346	3,761	0.470	3,609	0.451	4,351	0.544	0.105	0.074
5	I-5 Between Calgrove & SR-14	4M + 2T[C]	10,400	4,902	0.471	6,659	0.640	5,100	0.490	6,798	0.654	0.019	0.014

M = Mixed Flow Lane
A = Auxiliary Lane
T = Truck Lane
T[C] = Truck Lane (Climbing)
Cap = Capacity
Vol = Volume

See Table 1-6 for lane capacities and significant impact thresholds of significance.

Table 4-14 Freeway Peak Hour Volumes and V/C Summary– 2028 Cumulative Conditions with and without Project

No.	Segment	Lanes	Cap.	Without Project				With Project				Project Increment	
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
				Vol.	V/C	Vol.	V/C	Vol.	V/C	Vol.	V/C	AM	PM
Northbound													
1	I-5 Between Templin Hwy & Lake Hughes	4M	8,000	3,543	0.443	5,403	0.675	3,593	0.449	5,433	0.679	0.006	0.004
2	I-5 Between Lake Hughes & Parker	4M	8,000	3,948	0.493	5,995	0.749	4,178	0.522	6,405	0.801	0.029	0.051
3	I-5 Between Parker & Hasley Canyon	4M + 1H	9,600	4,313	0.449	6,273	0.653	4,813	0.501	7,263	0.757	0.052	0.103
4	I-5 Between Hasley Canyon & SR-126	4M + 1H + 1A	10,600	4,845	0.457	6,796	0.641	5,235	0.494	7,568	0.714	0.037	0.073
5	I-5 Between Calgrove & SR-14	4M + 1H + 1T(C)	10,800	7,791	0.721	9,396	0.870	7,883	0.730	9,578	0.887	0.009	0.017
Southbound													
1	I-5 Between Templin Hwy & Lake Hughes	4M	8,000	5,569	0.696	3,389	0.424	5,609	0.701	3,429	0.429	0.005	0.005
2	I-5 Between Lake Hughes & Parker	4M	8,000	6,087	0.761	3,712	0.464	6,527	0.816	4,032	0.504	0.055	0.040
3	I-5 Between Parker & Hasley Canyon	4M + 1H	9,600	6,467	0.674	3,951	0.412	7,437	0.775	4,661	0.486	0.101	0.074
4	I-5 Between Hasley Canyon & SR-126	4M + 1H	9,600	7,125	0.742	4,459	0.465	7,881	0.821	5,012	0.522	0.079	0.058
5	I-5 Between Calgrove & SR-14	4M + 1H + 2T[C]	12,000	9,976	0.831	7,678	0.640	10,154	0.846	7,808	0.651	0.015	0.011

M = Mixed Flow Lane
H = HOV or HOT Lane
A = Auxiliary Lane
T = Truck Lane
T[C] = Truck Lane (Climbing)

See Table 1-6 for lane capacities and significant impact thresholds of significance.

4.4 CONGESTION MANAGEMENT PROGRAM ANALYSIS

The Los Angeles County Congestion Management Program (CMP) requires that a proposed development address two major subject areas with respect to traffic impacts. These are the project's impacts on the CMP highway system and the project's impacts on the local and regional transit systems.

4.4.1 CMP Highway System

According to the CMP guidelines, the geographical area to be examined in a CMP traffic impact analysis (TIA) consists of the CMP monitoring locations that meet the following criteria:

- CMP intersections where the proposed project will add 50 or more trips during either the AM or PM weekday peak hours (determined based on adjacent street traffic).
- Mainline freeway locations where the project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.

There are no CMP intersections located within the Castaic community, with the nearest two locations being Chiquito Canyon Road/SR-126 (8.5 miles south), Valencia Boulevard/Magic Mountain Parkway (9 miles south) and Railroad Avenue/Lyons Avenue (12 miles south).

The number of trips to and from the proposed Project is forecast to include more than 50 peak hour trips at the Chiquito Canyon Road/SR-126 intersection (70 peak hour trips). The Valencia Boulevard/Magic Mountain Parkway intersection and the Railroad Avenue and Lyons Avenue intersection have less than 50 peak hour trips. Therefore, a CMP analysis of Chiquito Canyon Road/SR-126 intersection is required since the peak hour volume of the project trips exceeds 50.

The intersection LOS methodology specified by the CMP is identical to the methodology utilized by the County of Los Angeles Department of Public Works and this traffic study for County intersections. Table 4-15 summarizes the results of the intersection LOS analysis for the CMP intersection. As shown, the intersection would operate at an unacceptable LOS F before the addition of project traffic. The table shows that the project would not result in a significant impact the intersection and therefore would not require mitigation measures. While the project does not require mitigation measures at this intersection, the "Westside Bridge and Major Thoroughfare Construction Fee District Report" include improvements of the Chiquito Canyon and SR-126 intersection that would improve the intersection LOS from an LOS F to a LOS C in the AM peak hour and LOS D in the PM peak hour.

Table 4-15 ICU Summary - CMP Methodology

Location	AM Peak Hour		PM Peak Hour	
	ICU	LOS	ICU	LOS
110. Chiquito Canyon & SR-126				
- Existing Conditions	0.35	A	0.39	A
- Cumulative Conditions (2028) without Project	1.78	F	1.70	F
- Cumulative Conditions (2028) with Project	1.78	F	1.70	F
- Cumulative Conditions with Phased Plan Improvements[1]	0.78	C	0.82	D
[1] – "Westside Bridge and Major Thoroughfare Construction Fee District Report," Los Angeles County Department of Public Works, February 2011.				

With respect to the mainline freeway, the CMP monitoring locations nearest to the project site are the following:

- I-5 north of SR-126
- I-5 north of SR-14

As shown in Table 4-16, the proposed project is forecast to add 150 or more peak hour trips to both of these monitoring locations. At the segment of I-5 north of the SR-126 the project contributes a maximum of 772 vehicles per hour in the northbound direction and a maximum of 756 vehicles per hour in the southbound direction. At the I-5 segment north of SR-14, the project contributes a maximum of 182 vehicles per hour in the northbound direction and a maximum of 178 vehicles per hour in the southbound direction. The next two closest CMP freeway monitoring locations do not meet the CMP analysis criteria since the maximum number of project trips at those locations is less than 150 vehicles per hour during the peak hour. Freeway segment V/C at these CMP freeway segments are shown in the previously referenced Table 2-10 in Section 4.2.4.

Table 4-16 Freeway Volume Summary – CMP Monitoring Locations

Segment	Peak Hour Project Volumes			
	Northbound		Southbound	
	AM	PM	AM	PM
I-5 between Hasley Cyn & SR-126	**390**	**772**	**756**	**553**
I-5 between Calgrove & SR-14	92	**182**	**178**	130
Bold – exceeds CMP impact analysis criteria of 150 veh/hour				

4.4.2 Local and Regional Transit Systems

Another component of the CMP transportation impact analysis is a review of transit impacts; public transit in the Santa Clarita Valley includes both bus and commuter rail service. The CMP review is to include evidence that transit operators received the Notice of Preparation, identification of existing transit services near the project, estimation of the number of project trips assigned to transit, information on facilities and/or programs that will encourage public transit use, and an analysis of project impacts on transit service.

With respect to the Notice of Preparation, the project's environmental documentation will include evidence that the applicable transit operators (i.e., City of Santa Clarita Transit, Metro, and Metrolink) received the Notice of Preparation. Section 2.1.3 provides a summary of the existing transit services in the vicinity of the Project Site.

As to the estimated number of project transit trips, buildout of the project is forecast to generate approximately 35,477 ADT. To estimate the number of project trips that would use public transit, the number of project vehicle trips is multiplied by an occupancy factor (1.4), which is provided in the CMP, to determine total person trips. The number of person trips is then multiplied by the applicable MTA factor (3.5%), which is also provided in the CMP, to determine the number of transit trips generated by the project (presuming that SCT extends the existing transit routes into the site). Based on this calculation, the project would generate approximately 1,700 daily transit trips, as shown in Table 4-17.

Table 4-17 Transit Trip Summary

	Time Period		
	Daily	**AM Peak Hour**	**PM Peak Hour**
Vehicle Trips	35,477	2,870	3,500
Person Trips[1]	49,668	4,018	4,900
Factor to Transit Trips	3.5%	3.5%	3.5%
Total Transit Trips	1,738	141	172
[1]Person Trips = Vehicle Trips x 1.4 Sources: Congestion Management Program for Los Angeles County, 2002, 2004, and 2010.			

With respect to the project's impacts on transit service, while the County does not have LOS standards applicable to future development such as the proposed project, the demand for transit service that would result from the project (approximately 140 to 170 peak hour trips as shown in the previously referenced (Table 4-17), has the potential to impact transit services.

The project would facilitate the use of public transit by providing areas designated for bus stops in accordance with County standards and transit provider requirements. It is anticipated that, over time, the local bus service will expand as additional development occurs within the valley. Meanwhile, the current transit arrangement is anticipated to continue to serve local residents of the area, connecting residential areas with employment and commercial centers.

With respect to commuter rail, Metrolink, governed by the Southern California Regional Rail Authority (SCRAA), provides commuter rail service between the Antelope Valley and Downtown Los Angeles, and also links Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego counties with transfer service between the bus and rail systems. The Metrolink station closest to the project site is located along Soledad Canyon Road east of Bouquet Canyon Road in the City of Santa Clarita. A second Metrolink station is located along Railroad Avenue just south of Lyons Canyon Road. Long-range plans include a potential Metrolink extension along the SR-126 corridor

4.5 PHASING ANALYSIS

This section presents the findings of a phasing analysis conducted for the project. The project is anticipated to be constructed in phases; the first phase includes VTTM 73336 and the second phase would be full buildout.

For purposes of the phasing analysis, various amounts of project development were tested. One scenario analyzed the following amounts of project development:

- 325 Single Family Residential Units
- 1,300 Multi-Family Residential Units
- 400 Multi-Family Residential Units

Note that the amount of project development listed above would accommodate VTTM 73336 as currently proposed. The following table summarizes the LOS based on the aforementioned amount of development:

Table 4-18 ICU and LOS Summary – Existing plus Project Phase I

	Existing				Existing plus Phase 1				Difference	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
Location	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
1. The Old Road & I-5 SB Ramps	0.41	A	0.39	A	0.64	B	0.42	A	0.23	0.03
2. The Old Rd & Sloan/Lake Hughes	0.34	A	0.36	A	0.57	A	0.45	A	0.23	0.09
3. 1-5 NB Ramps & Lake Hughes	0.31	A	0.41	A	0.47	A	0.62	B	0.16	0.21
4. Castaic & Lake Hughes	0.31	A	0.37	A	0.47	A	0.55	A	0.16	0.18
5. Ridge Route and Lake Hughes	0.32	A	0.19	A	0.66	B	0.62	B	0.34	0.43
6. The Old Road & Parker	0.45	A	0.42	A	0.47	A	0.47	A	0.03	0.05
7. I-5 SB On Ramp & Parker	0.60	A	0.52	A	0.72	C	0.64	B	0.12	0.12
8. I-5 NB Off Ramp & Ridge Route	0.46	A	0.55	A	0.59	A	0.72	C	0.13	0.17
9. Castaic & Ridge Route	0.33	A	0.41	A	0.42	A	0.50	A	0.09	0.09

As shown in the above table, with this first phase of development, most intersections within the study area continue to operate at LOS B or better. The locations closest to being impacted are the on and off-ramp intersections at Ridge Route/Parker Road, which are forecast to operate at LOS C with a peak hour ICU of 0.72, but would not be significantly impacted by the first phase of development based on the County's significant impact criteria.

5.0 TRAFFIC SIGNAL WARRANT ANALYSIS

The following sections presents the results of traffic signal warrant analyses conducted for intersections within the project site (referred to here as on-site) as well as intersections in the local study area (referred to here as off-site).

5.1 ON-SITE TRAFFIC SIGNAL WARRANT ANALYSIS

A traffic signal warrant analysis was conducted for on-site intersections.

Traffic signal warrants are based on peak hour volumes as adopted by the Federal Highway Administration and Caltrans. For purposes of this analysis, on-site intersections along Ridge Route Road would have a speed limit greater than 40 mph. Therefore, the signal warrant analysis for intersections along Ridge Route Road would be based on the plotted data contained in the graph shown in Figure 5-1, which are for intersections where the posted speed on the major street is greater than 40 mph. Additionally, the southerly portion of Northlake Boulevard from Ridge Route Road to south of "E" Street would have a speed limit greater than 40 mph and therefore would also use the plotted data contained in the graph shown in Figure 5-1.

The remaining on-site roadways (not addressed above) would have speeds lower than 40 mph; therefore, the signal warrant analysis for the remaining on-site intersections is based on the plotted data contained in the graph shown in Figure 5-2, which are for intersections where the posted speed on the major street is lower than 40 mph.

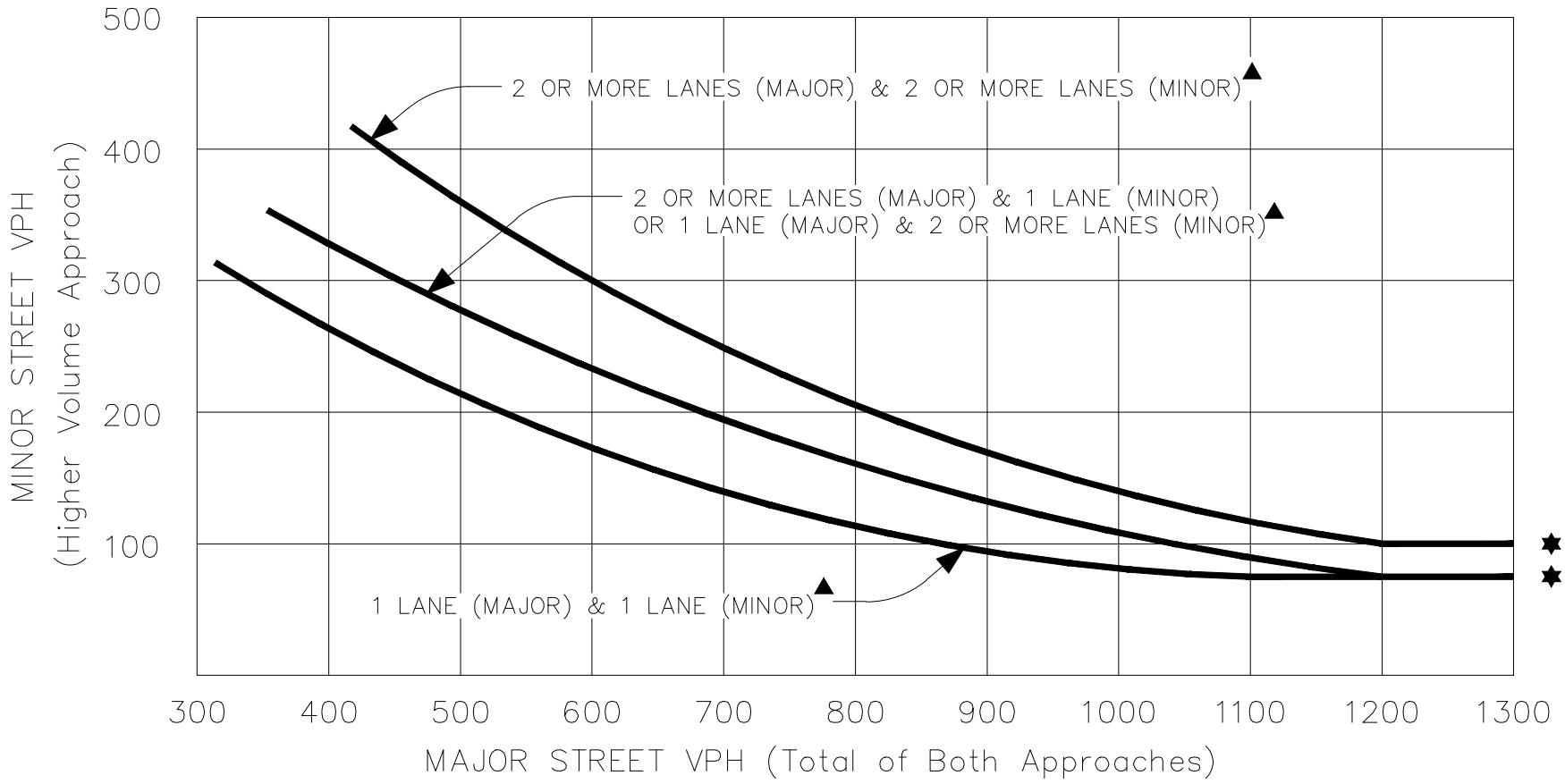
The results of the traffic signal warrant analysis for the on-site intersections are shown in Table 5-1.

As shown in Table 5-1 the following intersections warrant signalization:

10. Ridge Route Road at B Street
11. Ridge Route Road at Northlake Boulevard
12. Northlake Boulevard at A Street
17. Northlake Boulevard at E Street
22. Ridge Route at SS Street

5.2 OFF-SITE TRAFFIC SIGNAL WARRANT ANALYSIS

A traffic signal warrant analysis was conducted for intersections within the local study area for Existing Conditions plus Phase I of the Project and for 2028 Cumulative Conditions that includes full buildout of the Project.



○ AM peak hour Major Street Volume, Minor Street Volume

● PM peak hour Major Street Volume, Minor Street Volume

▲ Note: These curves are recommended for use in community less than 10,000 population or above 40 MPH on Major Street.

★ Note: 100 VPH applies as the lower threshold volume for a minor–street approach with two or more lanes, and 75 VPH applies as the lower threshold volume for a minor–street approach with one lane.

Source: MUTCD – Figure 4C–4

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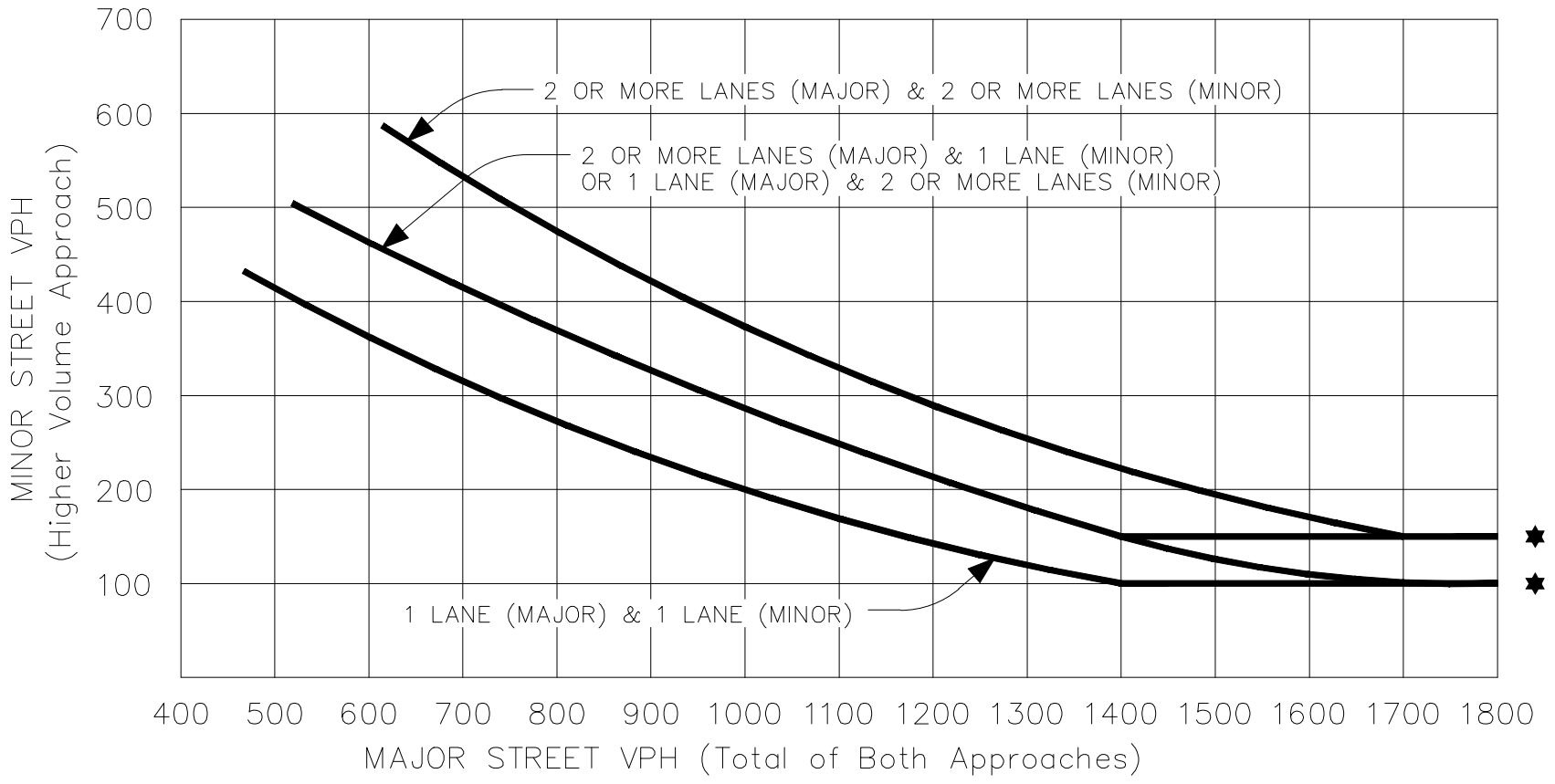
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Figure 5-1

Peak Hour Volume Signal Warrant - Higher Speeds

5.2



★ 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 approach with one lane.

Source: MUTCD – Figure 4C–3

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Figure 5-2

Peak Hour Volume Signal Warrant - Lower Speeds

5.3

Table 5-1 Signal Warrant Summary – On-Site

Intersection	Criteria	Direction	AM Peak Hour	PM Peak Hour
10. Ridge Route & B Street	Higher speed			
Major Approach	(Figure 5-1)	SB	1,360	980
		NB	870	1,670
		Total	2,230	2,650
Minor Approach		WB	370	170
		EB	0	0
		Total	370	170
Satisfies Warrant			Yes	Yes
11. Ridge Route & Northlake	Higher speed			
Major Approach	(Figure 5-1)	WB	1,270	750
		EB	0	0
		Total	1,270	750
Minor Approach		SB	40	30
		NB	640	1,220
		Total	680	1,250
Satisfies Warrant			Yes	Yes
12. Northlake & A Street	Higher Speed			
Major Approach	(Figure 5-1)	SB	1,020	520
		NB	640	1,180
		Total	1,660	1,700
Minor Approach		WB	290	220
		EB	30	70
		Total	320	290
Satisfies Warrant			Yes	Yes
13. A Street & B Street	Lower speed			
Major Approach	(Figure 5-2)	WB	420	270
		EB	180	290
		Total	600	560
Minor Approach		SB	0	0
		NB	30	180
		Total	30	180
Satisfies Warrant			No	No
14. H Street & A Street	Lower speed			
Major Approach	(Figure 5-2)	WB	430	280
		EB	180	460
		Total	610	740
Minor Approach		SB	20	20
		NB	0	0
		Total	20	20
Satisfies Warrant			No	No
15. Northlake & AA Street	Lower speed			
Major Approach	(Figure 5-2)	WB	50	30
		EB	60	40
		Total	110	70
Minor Approach		SB	30	30
		NB	40	60
		Total	70	90
Satisfies Warrant			No	No

Table 5-1 Signal Warrant Summary – On-Site (Continued)

Intersection	Criteria	Direction	AM Peak Hour	PM Peak Hour
17. Northlake & E St	Higher speed			
Major Approach	(Figure 5-1)	SB	450	200
		NB	470	650
		Total	920	850
Minor Approach		WB	320	210
		EB	0	0
		Total	320	210
Satisfies Warrant			Yes	Yes
18. H St & E St	Lower speed			
Major Approach	(Figure 5-2)	WB	320	210
		EB	110	360
		Total	430	570
Minor Approach		SB	0	0
		NB	20	20
		Total	20	20
Satisfies Warrant			No	No
19. D St & A St	Lower speed			
Major Approach	(Figure 5-2)	SB	190	150
		NB	140	370
		Total	330	520
Minor Approach		WB	40	30
		EB	160	100
		Total	200	130
Satisfies Warrant			No	No
20. G St & A St	Lower speed			
Major Approach	(Figure 5-2)	SB	330	220
		NB	150	450
		Total	480	670
Minor Approach		WB	90	60
		EB	0	0
		Total	90	60
Satisfies Warrant			No	No
21. B St & P St	Lower speed			
Major Approach	(Figure 5-2)	SB	170	70
		NB	50	380
		Total	220	450
Minor Approach		WB	230	120
		EB	0	0
		Total	230	120
Satisfies Warrant			No	No
22. Ridge Route & SS St	Higher speed			
Major Approach	(Figure 5-1)	SB	1,290	760
		NB	840	1,310
		Total	2,130	2,070
Minor Approach		WB	0	0
		EB	100	390
		Total	100	390
Satisfies Warrant			Yes	Yes

Table 5-1 Signal Warrant Summary – On-Site (Continued)

Intersection	Criteria	Direction	AM Peak Hour	PM Peak Hour
23. D St & E St	Lower speed			
Major Approach	(Figure 5-2)	WB	160	100
		EB	110	360
		Total	270	460
Minor Approach		SB	190	140
		NB	30	30
		Total	220	170
Satisfies Warrant			No	No
24. A St & E St	Lower speed			
Major Approach	(Figure 5-2)	WB	0	0
		EB	80	260
		Total	80	260
Minor Approach		SB	150	100
		NB	40	20
		Total	190	120
Satisfies Warrant			No	No

For purposes of this traffic signal warrant analysis, Table 5-2 lists the speed limits assumed. The results of the traffic signal warrant analysis for 2028 Cumulative Conditions are summarized in Table 5-3 and the traffic signal warrant analysis for Existing plus Phase I of the Project are summarized in Table 5-4.

Per the request of the County, three additional off-site intersections were included in the signal warrant analysis; Ridge Route at Shadow Lake intersection, Ridge Route at Elk Ridge intersection, and Ridge Route at Castaic Lake intersection (labeled intersection 10 – 12 in Table 5-3, respectively).

Table 5-2 Speed Limits – Local Study Area

Roadway Description	Speed (mph)
Ridge Route Road north of Lake Hughes Road	40
Ridge Route Road south of Lake Hughes Road to I-5 Freeway	35
Lake Hughes Road	35
Castaic Road	35
Sloan Canyon Road	40
The Old Road north of I-5 SB Ramps	55
The Old Road from I-5 SB Ramps to Parker Road	45
Parker Road	40
Based on current posted speed limits	

Based on the results of the signal warrant analysis, 9 intersections would warrant a signal for 2028 Cumulative Conditions and 5 intersections would warrant a signal for Existing plus Phase I of the Project (see Table 5-5 for list of intersections). The traffic signals should be installed only when warranted by actual traffic counts.

Table 5-3 2028 Cumulative Conditions With Project Signal Warrant Summary – Off-Site

Intersection	Criteria	Direction	AM Peak Hour	PM Peak Hour
1. The Old Road & I-5 SB Ramps	Higher speed			
Major Approach	(Figure 5-1)	SB	510	370
		NB	900	990
		Total	1,410	1,360
Minor Approach		WB	410	290
		EB	10	10
		Total	420	300
Satisfies Warrant			Yes	Yes
3. I-5 NB Ramps & Lake Hughes	Lower speed			
Major Approach	(Figure 5-2)	WB	1,220	1,000
		EB	550	500
		Total	1,770	1,500
Minor Approach		SB	0	0
		NB	430	1,110
		Total	430	1,110
Satisfies Warrant			Yes	Yes
5. Ridge Route & Lake Hughes	Lower speed			
Major Approach	(Figure 5-2)	SB	2,150	1,300
		NB	710	990
		Total	2,860	2,290
Minor Approach		WB	230	220
		EB	730	1,030
		Total	960	1,250
Satisfies Warrant			Yes	Yes
6. The Old Road & Parker	Higher speed			
Major Approach	(Figure 5-1)	WB	440	640
		EB	420	450
		Total	860	1,090
Minor Approach		SB	170	160
		NB	250	320
		Total	420	480
Satisfies Warrant			Yes	Yes
7. I-5 SB Ramps & Parker	Lower speed			
Major Approach	(Figure 5-2)	WBL	1,130	1,040
Minor Approach		EBT	190	330
Satisfies Warrant		Total	Yes	Yes
8. I-5 NB Ramps & Ridge Route	Lower speed			
Major Approach	(Figure 5-2)	SB	0	0
		NB	1,090	1,990
		Total	1,090	1,990
Minor Approach		WB	1,360	1,270
		EB	190	330
		Total	1,550	1,600
Satisfies Warrant			Yes	Yes

(Continued)

Table 5-3 2028 Cumulative Conditions With Project Signal Warrant Summary – Off-Site (Continued)

Intersection	Criteria	Direction	AM Peak Hour	PM Peak Hour
9. Castaic & Ridge Route	Lower speed			
Major Approach	(Figure 5-2)	WB	1,130	1,020
		EB	1,090	1,930
		Total	2,220	2,950
Minor Approach		SB	220	240
		NB	140	330
		Total	360	570
Satisfies Warrant			Yes	Yes
10. Ridge Route & Shadow Lake	Lower speed			
Major Approach	(Figure 5-2)	SB	1,990	1,190
		NB	1,220	1,720
		Total	3,210	2,910
Minor Approach		WB	70	50
		EB	100	50
		Total	170	100
Satisfies Warrant			Yes	No
11. Ridge Route & Elk Ridge	Lower speed			
Major Approach	(Figure 5-2)	SB	2,050	1,230
		NB	1,240	1,770
		Total	3,290	3,000
Minor Approach		WB	50	30
		EB	110	60
		Total	160	90
Satisfies Warrant			Yes	No
12. Ridge Route & Castaic Lake	Lower speed			
Major Approach	(Figure 5-2)	SB	2,130	1,260
		NB	1,260	1,780
		Total	3,390	3,040
Minor Approach		WB	30	40
		EB	0	0
		Total	30	40
Satisfies Warrant			No	No

Table 5-4 Existing Plus Phase I Signal Warrant Summary – Off-Site

Intersection	Criteria	Direction	AM Peak Hour	PM Peak Hour
1. The Old Road & I-5 SB Ramps	Higher speed			
Major Approach	(Figure 5-1)	SB	272	179
		NB	792	605
		Total	1,064	784
Minor Approach		WB	114	153
		EB	3	7
		Total	117	160
Satisfies Warrant			Yes	No
3. I-5 NB Ramps & Lake Hughes	Lower speed			
Major Approach	(Figure 5-2)	WB	1,012	663
		EB	288	367
		Total	1,300	1,030
Minor Approach		SB	0	0
		NB	218	865
		Total	218	865
Satisfies Warrant			No	Yes
5. Ridge Route & Lake Hughes	Lower speed			
Major Approach	(Figure 5-2)	SB	1,239	568
		NB	220	379
		Total	1,459	947
Minor Approach		WB	30	50
		EB	294	676
		Total	324	726
Satisfies Warrant			Yes	Yes
6. The Old Road & Parker	Higher speed			
Major Approach	(Figure 5-1)	WB	206	360
		EB	355	184
		Total	561	544
Minor Approach		SB	146	124
		NB	215	222
		Total	361	346
Satisfies Warrant			Yes	Yes
7. I-5 SB Ramps & Parker	Lower speed			
Major Approach	(Figure 5-2)	WBL	578	494
Minor Approach		EBT	149	170
Satisfies Warrant		Total	No	No
8. I-5 NB Ramps & Ridge Route	Lower speed			
Major Approach	(Figure 5-2)	SB	0	0
		NB	330	911
		Total	330	911
Minor Approach		WB	721	657
		EB	148	170
		Total	869	827
Satisfies Warrant			No	Yes

(Continued)

Table 5-4 Existing Plus Phase I Signal Warrant Summary – Off-Site (Continued)

Intersection	Criteria	Direction	AM Peak Hour	PM Peak Hour
9. Castaic & Ridge Route	Lower speed			
Major Approach	(Figure 5-2)	WB	514	356
		EB	406	865
		Total	920	1,221
Minor Approach		SB	224	245
		NB	68	241
		Total	292	486
Satisfies Warrant			No	No
10. Ridge Route & Shadow Lake	Lower speed			
Major Approach	(Figure 5-2)	SB	1,167	474
		NB	462	910
		Total	1,629	1,384
Minor Approach		WB	41	26
		EB	56	22
		Total	97	48
Satisfies Warrant			No	No
11. Ridge Route & Elk Ridge	Lower speed			
Major Approach	(Figure 5-2)	SB	1,192	527
		NB	478	949
		Total	1,670	1,476
Minor Approach		WB	17	5
		EB	76	33
		Total	93	38
Satisfies Warrant			No	No
12. Ridge Route & Castaic Lake	Lower speed			
Major Approach	(Figure 5-2)	SB	1,273	540
		NB	497	975
		Total	1,770	1,515
Minor Approach		WB	12	17
		EB	0	0
		Total	12	17
Satisfies Warrant			No	No

Table 5-5 Signal Warrant Analysis Summary

Location	Jurisdiction	Existing Plus Phase I[1]	2028 Cumulative Conditions With Full Buildout[1]
Off-Site			
1. The Old Road & I-5 SB Ramps	Caltrans/County	Yes (AM)	Yes (AM/PM)
3. I-5 NB Ramps & Lake Hughes	Caltrans/County	Yes (PM)	Yes (AM/PM)
5. Ridge Route & Lake Hughes	County	Yes (AM/PM)	Yes (AM/PM)
6. The Old Road & Parker	County	Yes (AM/PM)	Yes (AM/PM)
7. I-5 SB Ramps & Parker	Caltrans/County	No	Yes (AM/PM)
8. I-5 NB Ramps & Ridge Route	Caltrans/County	Yes (PM)	Yes (AM/PM)
9. Castaic & Ridge Route	County	No	Yes (AM/PM)
10. Ridge Route & Shadow Lake	County	No	Yes (AM)
11. Ridge Route & Elk Ridge	County	No	Yes (AM)
12. Ridge Route & Castaic Lake	County	No	No
On-Site			
10. Ridge Route & B Street	County	No	Yes (AM/PM)
11. Ridge Route & Northlake	County	Yes	Yes (AM/PM)
12. Northlake at A Street	County	No	Yes (AM/PM)
17. Northlake at E Street	County	No	Yes (AM/PM)
22. Ridge Route at SS Street	County	No	Yes (AM/PM)

[1] Traffic signals should be installed when warranted based on actual traffic counts.

Appendix A ICU WORKSHEET OFF SITE

Peak hour intersection volume/capacity ratios are calculated by means of intersection capacity utilization (ICU) values. ICU calculations were performed for the intersections shown in Figure A-1.

The procedure is based on the critical movement methodology, and shows the amount of capacity utilized by each critical move. A "de-facto" right-turn lane is used in the ICU calculation for cases where a curb lane is wide enough to separately serve both through and right-turn traffic (typically with a width of 19 feet from curb to outside of through-lane with parking prohibited during peak periods). Such lanes are treated the same as striped right-turn lanes during the ICU calculations, but they are denoted on the ICU calculation worksheets using the letter "d" in place of a numerical entry for right-turn lanes.

The methodology also incorporates a check for right-turn capacity utilization. Both right-turn-on-green (RTOG) and right-turn-on-red (RTOR) capacity availability are calculated and checked against the total right-turn capacity need. If insufficient capacity is available, then an adjustment is made to the total capacity utilization value. The following example shows how this adjustment is made.

Example of Right-turn Capacity Utilization For Northbound Right

1. Right-Turn-On-Green (RTOG)

If NBT is critical move, then:
RTOG = V/C (NBT)
Otherwise,
RTOG = V/C (NBL) + V/C (SBT) - V/C (SBL)

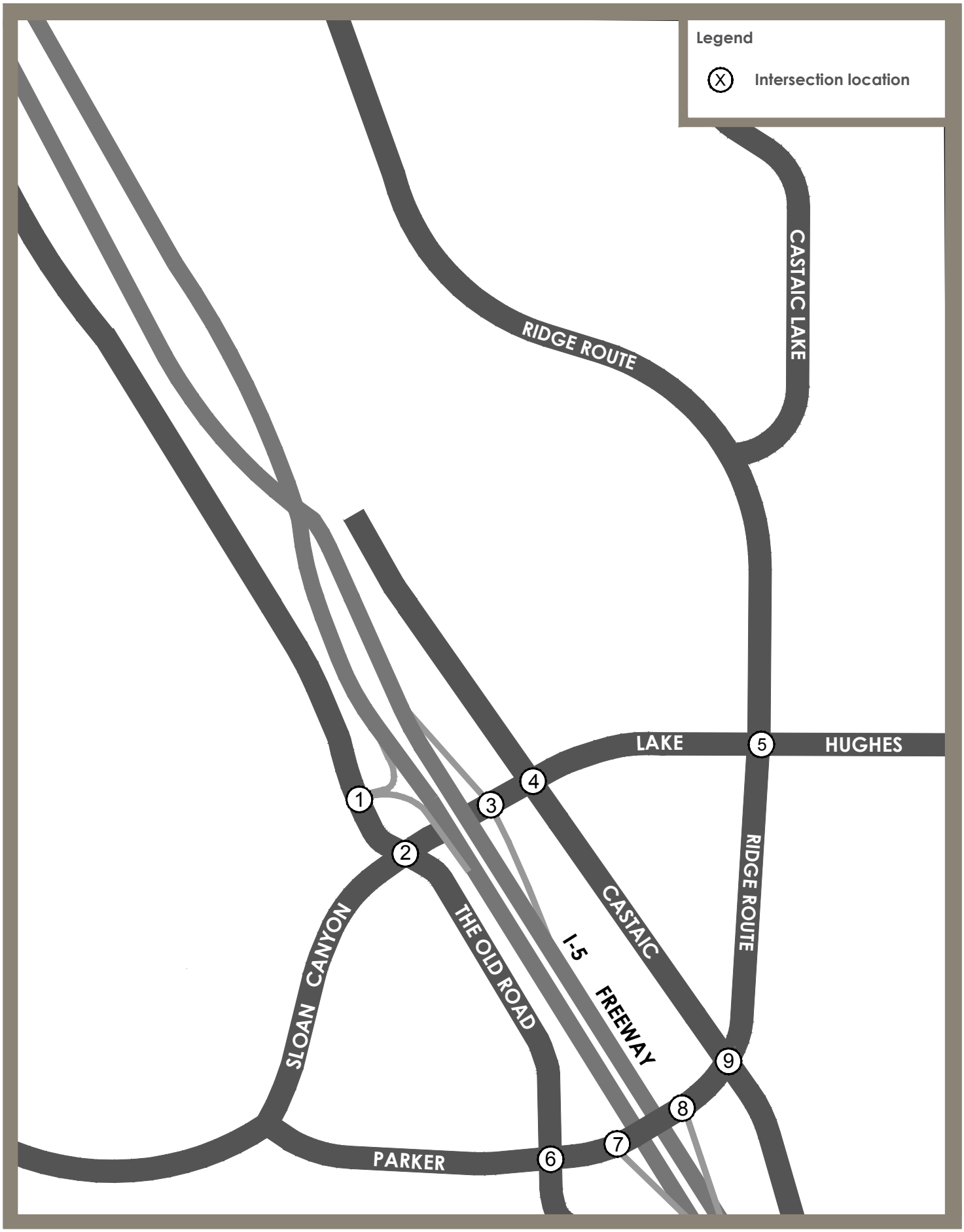
2. Right-Turn-On-Red (RTOR)

If WBL is critical move, then:
RTOR = V/C (WBL)
Otherwise,
RTOR = V/C (EBL) + V/C (WBT) - V/C (EBT)

3. Right-Turn Overlap Adjustment

If the northbound right is assumed to overlap with the adjacent westbound left, adjustments to the RTOG and RTOR values are made as follows:

RTOG = RTOG + V/C (WBL)
RTOR = RTOR - V/C (WBL)



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Figure A-1

Project Local Study Area - Intersection Location Map

A.2

4. Total Right-Turn Capacity (RTC) Availability For NBR

RTC = RTOG + factor x RTOR
Where factor = RTOR saturation flow factor (typically 75%)

5. Right-turn Adjustment for ICU Calculation

Right-turn adjustment is then as follows: Additional ICU = V/C (NBR) - RTC

A zero or negative value indicates that adequate capacity is available and no adjustment is necessary. A positive value indicates that the available RTOR and RTOG capacity does not adequately accommodate the right-turn V/C, therefore the right-turn is essentially considered to be a critical movement. In such cases, the right-turn adjustment is noted on the ICU worksheet and it is included in the total capacity utilization value. When it is determined that a right-turn adjustment is required for more than one right-turn movement, the word "multi" is printed on the worksheet instead of an actual right-turn movement reference, and the right-turn adjustments are cumulatively added to the total capacity utilization value. In such cases, further operational evaluation is typically carried out to determine if under actual operational conditions, the critical right-turns would operate simultaneously, and therefore a right-turn adjustment credit should be applied.

Shared Lane V/C Methodology

For intersection approaches where shared usage of a lane is permitted by more than one turn movement (e.g., left/through, through/right, left/through/right), the individual turn volumes are evaluated to determine whether dedication of the shared lane is warranted to any one given turn movement. The following example demonstrates how this evaluation is carried out:

Example of Shared Lane Utilization for Shared Left/Through Lane

1. Average Lane Volume (ALV)

$$ALV = \frac{\text{Left-Turn Volume + Through Volume}}{\text{Total Left + Through Approach Lanes (including shared lane)}}.$$

2. ALV for Each Approach

$$ALV\ (Left) = \frac{\text{Left-Turn Volume}}{\text{Left Approach Lanes (including shared lane)}}.$$

$$ALV\ (Through) = \frac{\text{Through Volume}}{\text{Through Approach Lanes (including shared lane)}}.$$

3. Lane Dedication is Warranted

If ALV (Left) is greater than ALV then full dedication of the shared lane to the left-turn approach is warranted. Left-turn and through V/C ratios for this case are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (including shared lane)}}$$

$$\text{V/C (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Capacity (excluding shared lane)}}$$

Similarly, if ALV (Through) is greater than ALV then full dedication to the through approach is warranted, and left-turn and through V/C ratios are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (excluding shared lane)}}$$

$$\text{V/C (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Capacity (including shared lane)}}$$

4. Lane Dedication is Not Warranted

If ALV (Left) and ALV (Through) are both less than ALV, the left/through lane is assumed to be truly shared and each left, left/through or through approach lane carries an evenly distributed volume of traffic equal to ALV. A combined left/through V/C ratio is calculated as follows:

$$\text{V/C (Left/Through)} = \frac{\text{Left-Turn Volume + Through Volume}}{\text{Total Left + Through Approach Capacity (including shared lane)}}$$

This V/C (Left/Through) ratio is assigned as the V/C (Through) ratio for the critical movement analysis and ICU summary listing.

If split phasing has not been designated for this approach, the relative proportion of V/C (Through) that is attributed to the left-turn volume is estimated as follows:

If approach has more than one left-turn (including shared lane), then:

$$\text{V/C (Left)} = \text{V/C (Through)}$$

If approach has only one left-turn lane (shared lane), then:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Single Approach Lane Capacity}}$$

If this left-turn movement is determined to be a critical movement, the V/C (Left) value is posted in brackets on the ICU summary printout.

These same steps are carried out for shared through/right lanes. If full dedication of a shared through/right lane to the right-turn movement is warranted, the right-turn V/C value calculated in step three is checked against the RTOR and RTOG capacity availability if the option to include right-turns in the V/C ratio calculations is selected. If the V/C value that is determined using the shared lane methodology described here is reduced due to RTOR and RTOG capacity availability, the V/C value for the through/right lanes is posted in brackets.

When an approach contains more than one shared lane (e.g., left/through and through/right), steps one and two listed above are carried out for the three turn movements combined. Step four is carried out if dedication is not warranted for either of the shared lanes. If dedication of one of the shared lanes is warranted to one movement or another, step three is carried out for the two movements involved, and then steps one through four are repeated for the two movements involved in the other shared lane.

1. Old Road & I-5 SB On/Off Ramps

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	107	.07*	273	.17*
NBR	1	1600	297	.19	181	.11
SBL	1	1600	158	.10*	80	.05*
SBT	1	1600	110	.07	72	.05
SBR	0	0	1		6	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	1	1600	3	.00	7	.00
WBL	1	1600	108	.07*	108	.07*
WBT	0	0	0		0	
WBR	1	1600	0	.00	3	.00
Right Turn Adjustment			NBR	.07*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.41**		**.39**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	144	.09*	303	.19*
NBR	1	1600	780	.49	529	.33
SBL	1	1600	158	.10*	80	.05*
SBT	1	1600	130	.08	112	.07
SBR	0	0	1		6	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	1	1600	3	.00	7	.00
WBL	1	1600	149	.09*	187	.12*
WBT	0	0	0		0	
WBR	1	1600	0	.00	3	.00
Right Turn Adjustment			NBR	.33*	NBR	.05*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.71**		**.51**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	128	.08*	285	.18*
NBR	1	1600	664	.42	320	.20
SBL	1	1600	158	.10*	80	.05*
SBT	1	1600	113	.07	93	.06
SBR	0	0	1		6	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	1	1600	3	.00	7	.00
WBL	1	1600	114	.07*	150	.09*
WBT	0	0	0		0	
WBR	1	1600	0	.00	3	.00
Right Turn Adjustment			NBR	.29*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.64**		**.42**

1. Sloan/Old Road & I-5 SB Ramps

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	110	.07*	430	.27*
NBR	1	1600	330	.21	220	.14
SBL	1	1600	250	.16*	160	.10*
SBT	1	1600	230	.15	180	.12
SBR	0	0	10		10	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	1	1600	10	.01	10	.01
WBL	1	1600	230	.14*	180	.11*
WBT	0	0	0		0	
WBR	1	1600	140	.09	70	.04
Right Turn Adjustment			NBR	.03*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.58**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	130	.08*	450	.28*
NBR	1	1600	770	.48	540	.34
SBL	1	1600	250	.16*	160	.10*
SBT	1	1600	250	.16	200	.13
SBR	0	0	10		10	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	1	1600	10	.01	10	.01
WBL	1	1600	270	.17*	220	.14*
WBT	0	0	0		0	
WBR	1	1600	140	.09	70	.04
Right Turn Adjustment			NBR	.27*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.78**		**.62**

2028 With Project + Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	130	.08*	450	.28*
NBR	1	1600	770	.48	540	.34
SBL	1	1600	250	.16*	160	.10*
SBT	1	1600	250	.16	200	.13
SBR	0	0	10		10	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	1	1600	10	.01	10	.01
WBL	1	1600	270	.17*	220	.14*
WBT	0	0	0		0	
WBR	1	1600	140	.09	70	.04
Right Turn Adjustment			NBR	.23*		
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for NBR						
TOTAL CAPACITY UTILIZATION				**.74**		**.62**

2. Old Road & Sloan/Lake Hughes

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	22	.01
NBT	1	1600	23	.01*	41	.03*
NBR	1	1600	62	.04	50	.03
SBL	1	1600	142	.09*	115	.07*
SBT	1	1600	43	.03	42	.03
SBR	1	1600	8	.01	17	.01
EBL	1	1600	31	.02	42	.03*
EBT	1	1600	60	.05*	50	.04
EBR	0	0	16		21	
WBL	1	1600	46	.03*	40	.03
WBT	1	1600	80	.05	144	.09*
WBR	1	1600	315	.20	317	.20
Right Turn Adjustment			Multi	.06*	WBR	.04*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION **.34** **.36**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	22	.01
NBT	1	1600	23	.01*	41	.03*
NBR	1	1600	82	.05	90	.06
SBL	1	1600	203	.13*	234	.15*
SBT	1	1600	43	.03	42	.03
SBR	1	1600	8	.01	17	.01
EBL	1	1600	31	.02*	42	.03*
EBT	1	1600	111	.08	149	.11
EBR	0	0	16		21	
WBL	1	1600	83	.05	70	.04
WBT	1	1600	192	.12*	220	.14*
WBR	1	1600	836	.52	695	.43
Right Turn Adjustment			WBR	.27*	WBR	.14*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION **.65** **.59**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	22	.01
NBT	1	1600	23	.01*	41	.03*
NBR	1	1600	65	.04	71	.04
SBL	1	1600	151	.09*	178	.11*
SBT	1	1600	43	.03	42	.03
SBR	1	1600	8	.01	17	.01
EBL	1	1600	31	.02*	42	.03*
EBT	1	1600	67	.05	103	.08
EBR	0	0	16		21	
WBL	1	1600	67	.04	52	.03
WBT	1	1600	131	.08*	173	.11*
WBR	1	1600	703	.44	467	.29
Right Turn Adjustment			WBR	.27*	WBR	.07*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION **.57** **.45**

2. Old Road & Sloan/Lake Hughes

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	20	.01
NBT	1	1600	30	.02*	50	.03*
NBR	1	1600	80	.05	70	.04
SBL	1	1600	230	.14*	220	.14*
SBT	1	1600	110	.07	90	.06
SBR	1	1600	120	.08	50	.03
EBL	1	1600	30	.02	50	.03*
EBT	1	1600	150	.11*	120	.09
EBR	0	0	20		20	
WBL	1	1600	50	.03*	40	.03
WBT	1	1600	90	.06	160	.10*
WBR	1	1600	450	.28	580	.36
Right Turn Adjustment		Multi	.03*	WBR	.12*	
Clearance Interval			.10*		.10*	

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION **.43** **.52**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	20	.01
NBT	1	1600	30	.02*	50	.03*
NBR	1	1600	100	.06	70	.04
SBL	1	1600	290	.18*	290	.18*
SBT	1	1600	110	.07	90	.06
SBR	1	1600	120	.08	50	.03
EBL	1	1600	30	.02	50	.03
EBT	1	1600	160	.11*	140	.10*
EBR	0	0	20		20	
WBL	1	1600	50	.03*	60	.04*
WBT	1	1600	130	.08	180	.11
WBR	1	1600	910	.57	910	.57
Right Turn Adjustment		Multi	.29*	WBR	.28*	
Clearance Interval			.10*		.10*	

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION **.73** **.73**

3. I-5 NB On/Off Ramps & Lake Hughes

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	61	{.04}*	259	{.16}*
NBT	1	1600	1	.04	1	.16
NBR	1	1600	109	.07	263	.16
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1600	18	.01*	17	.01*
EBT	2	3200	251	.08	213	.07
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	393	.16*	261	.14*
WBR	0	0	118		188	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.31** **.41**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	61	{.04}*	259	{.16}*
NBT	1	1600	1	.04	1	.16
NBR	1	1600	362	.23	710	.44
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1600	18	.01*	17	.01*
EBT	2	3200	383	.12	471	.15
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	1062	.39*	730	.31*
WBR	0	0	192		249	
Right Turn Adjustment					NBR	.15*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.54** **.73**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	61	{.04}*	259	{.16}*
NBT	1	1600	1	.04	1	.16
NBR	1	1600	156	.10	605	.38
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1600	18	.01*	17	.01*
EBT	2	3200	270	.08	350	.11
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	853	.32*	452	.21*
WBR	0	0	159		211	
Right Turn Adjustment					NBR	.14*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.47** **.62**

3. I-5 NB Ramps & Lake Hughes

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	70		420	
NBT	1	1600	10	.05*	10	.27*
NBR	1	1600	120	.08	270	.17
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1600	200	.13*	140	.09*
EBT	2	3200	260	.08	270	.08
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	520	.21*	360	.19*
WBR	0	0	150		240	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.49** **.65**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	70		420	
NBT	1	1600	10	.05*	10	.27*
NBR	1	1600	350	.22	680	.43
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1600	200	.13*	140	.09*
EBT	2	3200	350	.11	360	.11
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	1020	.38*	730	.31*
WBR	0	0	200		270	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.66** **.77**

2028 With Project + Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		70	.02*	420	{.16}*
NBT	0	4800	10		10	{.16}
NBR	1.5		350		680	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1600	200	.13*	140	.09*
EBT	2	3200	350	.11	360	.11
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	1020	.38*	730	.31*
WBR	0	0	200		270	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.63** **.66**

4. Castaic & Lake Hughes

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	133	.08*	217	.14*
NBT	2	3200	27	.01	46	.01
NBR	1	1600	23	.01	41	.03
SBL	1	1600	14	.01	31	.02
SBT	2	3200	24	.01*	42	.01*
SBR	1	1600	37	.02	99	.06
EBL	2	2880	81	.03*	107	.04
EBT	2	3200	152	.09	215	.11*
EBR	0	0	123		142	
WBL	1	1600	41	.03	20	.01*
WBT	2	3200	293	.09*	123	.04
WBR	1	1600	24	.02	31	.02
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.31**		**.37**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	133	.08*	217	.14*
NBT	2	3200	27	.01	46	.01
NBR	1	1600	94	.06	180	.11
SBL	1	1600	34	.02	71	.04
SBT	2	3200	24	.01*	42	.01*
SBR	1	1600	37	.02	99	.06
EBL	2	2880	81	.03*	107	.04
EBT	2	3200	537	.21	920	.33*
EBR	0	0	123		142	
WBL	1	1600	190	.12	126	.08*
WBT	2	3200	1037	.32*	653	.20
WBR	1	1600	61	.04	61	.04
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.66**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	133	.08*	217	.14*
NBT	2	3200	27	.01	46	.01
NBR	1	1600	33	.02	115	.07
SBL	1	1600	17	.01	52	.03
SBT	2	3200	24	.01*	42	.01*
SBR	1	1600	37	.02	99	.06
EBL	2	2880	81	.03*	107	.04
EBT	2	3200	218	.11	694	.26*
EBR	0	0	123		142	
WBL	1	1600	113	.07	60	.04*
WBT	2	3200	794	.25*	337	.11
WBR	1	1600	45	.03	43	.03
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.55**

4. Castaic & Lake Hughes

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	140	.09*	220	.14*
NBT	2	3200	70	.02	60	.02
NBR	1	1600	20	.01	50	.03
SBL	1	1600	20	.01	40	.03
SBT	2	3200	40	.01*	40	.01*
SBR	1	1600	40	.03	100	.06
EBL	2	2880	80	.03*	110	.04*
EBT	2	3200	160	.09	220	.12
EBR	0	0	130		150	
WBL	1	1600	40	.03	20	.01
WBT	2	3200	420	.13*	280	.09*
WBR	1	1600	20	.01	30	.02
Right Turn Adjustment					SBR	.02*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.36**		**.40**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	140	.09*	220	.14*
NBT	2	3200	70	.02	60	.02
NBR	1	1600	20	.01	70	.04
SBL	1	1600	20	.01	40	.03
SBT	2	3200	40	.01*	40	.01*
SBR	1	1600	40	.03	100	.06
EBL	2	2880	80	.03*	110	.04
EBT	2	3200	480	.19	720	.27*
EBR	0	0	130		150	
WBL	1	1600	190	.12	20	.01*
WBT	2	3200	970	.30*	690	.22
WBR	1	1600	20	.01	30	.02
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.53**

5. Ridge Route & Lake Hughes

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01*	27	.02*
NBT	2	3200	165	.06	83	.04
NBR	0	0	12		33	
SBL	1	1600	1	.00	4	.00
SBT	2	3200	241	.08*	80	.03*
SBR	1	1600	194	.12	34	.02
EBL	1	1600	183	.11*	51	.03*
EBT	2	3200	13	.00	16	.01
EBR	d	1600	17	.01	25	.02
WBL	1	1600	12	.01	17	.01
WBT	2	3200	15	.01*	28	.01*
WBR	0	0	3		5	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.31** **.19**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01*	27	.02
NBT	2	3200	479	.15	749	.24*
NBR	0	0	12		33	
SBL	1	1600	1	.00	4	.00
SBT	2	3200	873	.27*	519	.16
SBR	1	1600	1142	.71	715	.45
EBL	1	1600	669	.42*	955	.60*
EBT	2	3200	13	.00	16	.01
EBR	d	1600	17	.01	25	.02
WBL	1	1600	12	.01	17	.01
WBT	2	3200	15	.01*	28	.01*
WBR	0	0	3		5	
Right Turn Adjustment			SBR	.13*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.94** **.95**

Existing plus Project with Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01*	27	.02
NBT	2	3200	479	.15	749	.23*
NBR	1	1600	12	.01	33	.02
SBL	1	1600	1	.00	4	.00
SBT	2	3200	873	.27*	519	.16
SBR	1	1600	1142	.71	715	.45
EBL	2	2880	669	.23*	955	.33*
EBT	1	1600	13	.01	16	.01
EBR	1	1600	17	.01	25	.02
WBL	1	1600	12	.01	17	.01
WBT	2	3200	15	.00*	28	.01*
WBR	1	1600	3	.00	5	.00
Right Turn Adjustment			SBR	.21*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION **.82** **.67**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01*	27	.02
NBT	2	3200	198	.07	319	.11*
NBR	0	0	12		33	
SBL	1	1600	1	.00	4	.00
SBT	2	3200	440	.14*	259	.08
SBR	1	1600	798	.50	305	.19
EBL	1	1600	264	.17*	635	.40*
EBT	2	3200	13	.00	16	.01
EBR	d	1600	17	.01	25	.02
WBL	1	1600	12	.01	17	.01
WBT	2	3200	15	.01*	28	.01*
WBR	0	0	3		5	
Right Turn Adjustment			SBR	.23*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.66** **.62**

5. Ridge Route & Lake Hughes

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	40	.03*	50	.03
NBT	2	3200	210	.08	100	.06*
NBR	0	0	40		100	
SBL	1	1600	10	.01	10	.01*
SBT	2	3200	300	.09*	100	.03
SBR	1	1600	240	.15	40	.03
EBL	1	1600	230	.14*	70	.04*
EBT	2	3200	10	.00	70	.02
EBR	d	1600	110	.07	50	.03
WBL	1	1600	80	.05	70	.04
WBT	2	3200	120	.04*	120	.04*
WBR	0	0	10		10	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.40**		**.25**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	40	.03*	50	.03
NBT	2	3200	630	.21	840	.29*
NBR	0	0	40		100	
SBL	1	1600	30	.02	30	.02*
SBT	2	3200	1150	.36*	700	.22
SBR	1	1600	970	.61	560	.35
EBL	1	1600	610	.38*	910	.57*
EBT	2	3200	10	.00	70	.02
EBR	d	1600	110	.07	50	.03
WBL	1	1600	80	.05	70	.04
WBT	2	3200	120	.05*	120	.05*
WBR	0	0	30		30	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.92**		**1.03**

2028 With Project + Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	40	.03*	50	.03
NBT	2	3200	630	.20	840	.26*
NBR	1	1600	40	.03	100	.06
SBL	1	1600	30	.02	30	.02*
SBT	2	3200	1150	.36*	700	.22
SBR	1	1600	970	.61	560	.35
EBL	2	2880	610	.21*	910	.32*
EBT	1	1600	10	.01	70	.04
EBR	1	1600	110	.07	50	.03
WBL	1	1600	80	.05	70	.04
WBT	2	3200	120	.04*	120	.04*
WBR	1	1600	30	.02	30	.02
Right Turn Adjustment			SBR	.04*		
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for SBR						
TOTAL CAPACITY UTILIZATION				**.78**		**.74**

6. Old Road & Parker

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	55	.03	48	.03
NBT	1	1600	72	.10*	69	.09*
NBR	0	0	84		73	
SBL	1	1600	37	.02*	34	.02*
SBT	1	1600	86	.05	62	.04
SBR	d	1600	3	.00	16	.01
EBL	0	0	5		8	
EBT	1	1600	275	.18*	127	.08
EBR	1	1600	73	.05	27	.02
WBL	0	0	88	{.05}*	77	
WBT	1	1600	73	.11	215	.21*
WBR	0	0	14		50	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.45**		**.42**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	55	.03	48	.03
NBT	1	1600	82	.12*	89	.13*
NBR	0	0	104		113	
SBL	1	1600	37	.02*	34	.02*
SBT	1	1600	105	.07	77	.05
SBR	d	1600	22	.01	31	.02
EBL	0	0	15		28	{.02}*
EBT	1	1600	285	.19*	147	.11
EBR	1	1600	73	.05	27	.02
WBL	0	0	125	{.08}*	107	
WBT	1	1600	92	.14	230	.24*
WBR	0	0	14		50	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.51**		**.51**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	55	.03	48	.03
NBT	1	1600	73	.10*	80	.11*
NBR	0	0	87		94	
SBL	1	1600	37	.02*	34	.02*
SBT	1	1600	96	.06	68	.04
SBR	d	1600	13	.01	22	.01
EBL	0	0	6		19	{.01}*
EBT	1	1600	276	.18*	138	.10
EBR	1	1600	73	.05	27	.02
WBL	0	0	109	{.07}*	89	
WBT	1	1600	83	.13	221	.23*
WBR	0	0	14		50	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.47**

6. Old Road & Parker

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	60	.04	50	.03
NBT	1	1600	80	.11*	80	.15*
NBR	0	0	100		160	
SBL	1	1600	40	.03*	40	.03*
SBT	1	1600	120	.08	60	.04
SBR	d	1600	10	.01	40	.03
EBL	0	0	20		10	{.01}*
EBT	1	1600	310	.21*	400	.26
EBR	1	1600	80	.05	30	.02
WBL	0	0	110	{.07}*	120	
WBT	1	1600	290	.26	450	.39*
WBR	0	0	20		60	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.52**		**.68**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	60	.04	50	.03
NBT	1	1600	80	.12*	80	.17*
NBR	0	0	110		190	
SBL	1	1600	40	.03*	40	.03*
SBT	1	1600	120	.08	60	.04
SBR	d	1600	10	.01	60	.04
EBL	0	0	30	{.02}*	10	{.01}*
EBT	1	1600	310	.21	410	.26
EBR	1	1600	80	.05	30	.02
WBL	0	0	130		130	
WBT	1	1600	290	.28*	450	.40*
WBR	0	0	20		60	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.55**		**.71**

7. I-5 SB On Ramp & Parker

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	145	.25*	138	.16
EBR	0	0	262		116	
WBL	0	0	399	{.25}*	327	
WBT	1	1600	167	.35	352	.42*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.60** **.52**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	175	.27*	198	.20
EBR	0	0	262		116	
WBL	0	0	994	{.62}*	736	
WBT	1	1600	223	.76	397	.71*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.99** **.81**

Existing plus Project with Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	175	.11*	198	.12*
EBR	1	1600	262	.16	116	.07
WBL	2	2880	994	.35*	736	.26*
WBT	1	1600	223	.14	397	.25
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.05*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.61** **.48**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	149	.26*	170	.18
EBR	0	0	262		116	
WBL	0	0	578	{.36}*	494	
WBT	1	1600	198	.49	369	.54*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.72** **.64**

7. I-5 SB Ramp & Parker

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	180	.29*	280	.38
EBR	0	0	280		330	
WBL	0	0	600	{.37}*	650	
WBT	1	1600	420	.64	630	.80*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.76** **.90**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	190	.29*	330	.41*
EBR	0	0	280		330	
WBL	0	0	1130	{.71}*	1040	{.65}*
WBT	1	1600	450	.99	630	1.04
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **1.10** **1.16**

2028 With Project + Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	190	.12*	330	.21*
EBR	1	1600	280	.18	330	.21
WBL	2	2880	1130	.39*	1040	.36*
WBT	1	1600	450	.28	630	.39
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.06*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.67** **.67**

8. I-5 NB Ramps & Ridge Route

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	59	.04*	205	.13*
NBT	0	0	0		0	
NBR	1	1600	241	.15	491	.31
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	144	.09	138	.09
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	512	.32*	472	.29*
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.03*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.46**		**.55**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	59	.04*	205	.13*
NBT	0	0	0		0	
NBR	1	1600	535	.33	1117	.70
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	174	.11	198	.12
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	1163	.73*	926	.58*
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.22*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.87**		**1.03**

Existing plus Project with Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	59	.04*	205	.13*
NBT	0	0	0		0	
NBR	2	3200	535	.17	1117	.35
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	174	.11	198	.12
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	1163	.36*	926	.29*
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.09*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.61**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	59	.04*	205	.13*
NBT	0	0	0		0	
NBR	1	1600	271	.17	706	.44
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	148	.09	170	.11
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	721	.45*	657	.41*
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.08*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.59**		**.72**

8. I-5 NB Ramp & Ridge Route

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	230	.14*	400	.25*
NBT	0	0	0		0	
NBR	1	1600	590	.37	1010	.63
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	180	.11	280	.18
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	790	.49*	880	.55*
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.10*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.73**		**1.00**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	230	.14*	400	.25*
NBT	0	0	0		0	
NBR	1	1600	860	.54	1590	.99
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	190	.12	330	.21
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	1360	.85*	1270	.79*
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.30*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**1.09**		**1.44**

2028 With Project + Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	230	.14*	400	.25*
NBT	0	0	0		0	
NBR	2	3200	860	.27	1590	.50
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	190	.12	330	.21
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	4800	1360	.28*	1270	.26*
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.01*	NBR	.21*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.82**

9. Castaic & Ridge Route

Existing (2015)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	42	.03*	145	.09*
NBT	1	1600	18	.01	46	.03
NBR	1	1600	4	.00	18	.01
SBL	1	1600	9	.01	18	.01
SBT	1	1600	12	.01*	38	.02*
SBR	1	1600	131	.08	148	.09
EBL	1	1600	124	.08*	227	.14*
EBT	2	3200	223	.08	244	.12
EBR	0	0	25		148	
WBL	1	1600	17	.01	16	.01
WBT	2	3200	315	.10*	150	.06*
WBR	0	0	14		28	
Right Turn Adjustment			SBR	.01*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.33**		**.41**

Existing plus Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	42	.03*	145	.09*
NBT	1	1600	33	.02	76	.05
NBR	1	1600	19	.01	48	.03
SBL	1	1600	9	.01	18	.01
SBT	1	1600	40	.03*	68	.04*
SBR	1	1600	252	.16	224	.14
EBL	1	1600	180	.11*	336	.21*
EBT	2	3200	491	.16	821	.30
EBR	0	0	25		148	
WBL	1	1600	45	.03	31	.02
WBT	2	3200	845	.27*	543	.18*
WBR	0	0	14		28	
Right Turn Adjustment			SBR	.05*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.59**		**.62**

Existing plus Project Phase 1

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	42	.03*	145	.09*
NBT	1	1600	20	.01	62	.04
NBR	1	1600	6	.00	34	.02
SBL	1	1600	9	.01	18	.01
SBT	1	1600	27	.02*	47	.03*
SBR	1	1600	188	.12	180	.11
EBL	1	1600	132	.08*	285	.18*
EBT	2	3200	249	.09	432	.18
EBR	0	0	25		148	
WBL	1	1600	32	.02	25	.02
WBT	2	3200	468	.15*	303	.10*
WBR	0	0	14		28	
Right Turn Adjustment			SBR	.04*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.42**		**.50**

9. Castaic & Ridge Route

2028 No Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	80	.05*	220	.14*
NBT	1	1600	20	.01	50	.03
NBR	1	1600	20	.01	40	.03
SBL	1	1600	10	.01	20	.01
SBT	1	1600	10	.01*	40	.03*
SBR	1	1600	200	.13	180	.11
EBL	1	1600	170	.11*	290	.18
EBT	2	3200	560	.18	750	.31*
EBR	0	0	30		230	
WBL	1	1600	30	.02	60	.04*
WBT	2	3200	460	.15*	470	.16
WBR	0	0	10		30	
Right Turn Adjustment			SBR	.04*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.46**		**.62**

2028 With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	80	.05*	220	.14*
NBT	1	1600	20	.01	70	.04
NBR	1	1600	40	.03	40	.03
SBL	1	1600	10	.01	20	.01
SBT	1	1600	10	.01*	40	.03*
SBR	1	1600	350	.22	180	.11
EBL	1	1600	170	.11*	290	.18
EBT	2	3200	890	.29	1410	.51*
EBR	0	0	30		230	
WBL	1	1600	60	.04	90	.06*
WBT	2	3200	910	.29*	900	.29
WBR	0	0	10		30	
Right Turn Adjustment			SBR	.13*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.69**		**.84**

2028 With Project + Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	80	.03*	220	.08*
NBT	1	1600	20	.01	70	.04
NBR	1	1600	40	.03	40	.03
SBL	1	1600	10	.01	20	.01
SBT	1	1600	10	.01*	40	.03*
SBR	1	1600	350	.22	180	.11
EBL	1	1600	170	.11*	290	.18
EBT	2	3200	890	.28	1410	.44*
EBR	1	1600	30	.02	230	.14
WBL	1	1600	60	.04	90	.06*
WBT	2	3200	910	.29*	900	.29
WBR	0	0	10		30	
Right Turn Adjustment			SBR	.10*		
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for SBR						
TOTAL CAPACITY UTILIZATION				**.64**		**.71**

Appendix B ICU WORKSHEET ON SITE

10. Ridge Route & B st

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3200	830	.26	1300	.41*
NBR	1	1600	40	.03	370	.23
SBL	1	1600	10	.01	10	.01*
SBT	2	3200	1350	.42*	970	.30
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	360	.13*	160	.06*
WBT	0	0	0		0	
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.65** **.58**

11. Ridge Route & Northlake

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	10	.01*	30	.02*
NBR	2(f)		630		1190	
SBL	1	1600	10	.01*	10	.01*
SBT	2	3200	30	.01	20	.01
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	1260	.44*	740	.26*
WBT	0	0	0		0	
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.56** **.39**

12. Northlake & A St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3200	460	.20	880	.36*
NBR	0	0	170		270	
SBL	1	1600	10	.01	10	.01*
SBT	2	3200	1000	.31*	500	.16
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	260	.16*	200	.13*
WBT	0	0	0		0	
WBR	1	1600	20	.01	10	.01
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.57** **.60**

13. B st & A St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	20		10	
NBT	1	1600	0	.02*	0	.11*
NBR	0	0	10		170	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	170	.11	280	.18*
EBR	0	0	10		10	
WBL	0	0	160		60	{.04}*
WBT	1	1600	260	.26*	210	.17
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.38** **.43**

14. H St & A St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	10		10	
SBT	1	1600	0	.01*	0	.01*
SBR	0	0	10		10	
EBL	0	0	10	{.01}*	10	
EBT	1	1600	170	.11	450	.29*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	420	.27*	270	.18
WBR	0	0	10		10	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.39**		**.40**

15. Northlake & AA St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	20		40	
NBT	1	1600	10	.03*	10	.04*
NBR	0	0	10		10	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1600	10	.02	10	.02
SBR	0	0	10		10	
EBL	0	0	10		10	
EBT	1	1600	10	.04*	10	.03*
EBR	0	0	40		20	
WBL	0	0	30	{.02}*	10	{.01}*
WBT	1	1600	10	.03	10	.02
WBR	0	0	10		10	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.20**		**.19**

16. Ridge Route & AA St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	10	.01*	10	.03*
NBR	0	0	10		30	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1600	10	.01	10	.01
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	30		20	
WBT	1	1600	0	.03*	0	.02*
WBR	0	0	10		10	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.15**		**.16**

17. Northlake & E St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	370	.29*	300	.41*
NBR	0	0	100		350	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1600	440	.28	190	.13
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	310		200	
WBT	1	1600	0	.20*	0	.13*
WBR	0	0	10		10	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.60**		**.65**

18. H St & E St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10	{.01}*	10	{.01}*
NBT	1	1600	0	.01	0	.01
NBR	0	0	10		10	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	100	.07	350	.23*
EBR	0	0	10		10	
WBL	0	0	10		10	{.01}*
WBT	1	1600	310	.20*	200	.13
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.31**		**.35**

19. A St & D St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	20	{.01}*	120	
NBT	1	1600	100	.09	240	.23*
NBR	0	0	20		10	
SBL	0	0	10		10	{.01}*
SBT	1	1600	170	.12*	130	.09
SBR	0	0	10		10	
EBL	0	0	10		10	
EBT	1	1600	10	.10*	10	.06*
EBR	0	0	140		80	
WBL	0	0	20	{.01}*	10	{.01}*
WBT	1	1600	10	.03	10	.02
WBR	0	0	10		10	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.34**		**.41**

20. A St & G St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	130	.09	360	.28*
NBR	0	0	20		90	
SBL	0	0	10		10	{.01}*
SBT	1	1600	320	.21*	210	.14
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	80		50	
WBT	1	1600	0	.06*	0	.04*
WBR	0	0	10		10	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.37**		**.43**

21. B St & P St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	10	.03	170	.24*
NBR	0	0	40		210	
SBL	0	0	10		10	{.01}*
SBT	1	1600	160	.11*	60	.04
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	210		110	
WBT	1	1600	0	.14*	0	.08*
WBR	0	0	20		10	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.35**		**.43**

22. Ridge Route & SS St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	220	.14*	140	.09
NBT	2	3200	620	.19	1170	.37*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	2	3200	1280	.40*	640	.20
SBR	1	1600	10	.01	120	.08
EBL	1	1600	20	.01*	50	.03*
EBT	0	0	0		0	
EBR	1	1600	80	.05	340	.21
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment					EBR	.05*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.65** **.55**

23. D St & E St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10	{.01}*	10	{.01}*
NBT	1	1600	10	.02	10	.02
NBR	0	0	10		10	
SBL	0	0	10		10	
SBT	1	1600	10	.12*	10	.09*
SBR	0	0	170		120	
EBL	0	0	40	{.02}*	100	
EBT	1	1600	60	.07	240	.23*
EBR	0	0	10		20	
WBL	0	0	10		10	{.01}*
WBT	1	1600	140	.10*	80	.06
WBR	0	0	10		10	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.35** **.44**

24. A St & E St

On-Site (Buildout)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	20	{.01}*	10	{.01}*
NBT	1	1600	20	.03	10	.01
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	1	1600	10	.09*	10	.06*
SBR	0	0	140		90	
EBL	0	0	60		240	
EBT	1	1600	0	.05*	0	.16*
EBR	0	0	20		20	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION **.25** **.33**

Appendix C TRAFFIC COUNT WORKSHEETS

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: THE OLD ROAD
E-W Direction: I-5 SB RAMPS

File Name : h1501003
Site Code : 00000000
Start Date : 1/27/2015
Page No : 1

Groups Printed- Turning Movements

	THE OLD ROAD Southbound			I-5 SB RAMPS Westbound			THE OLD ROAD Northbound			DRIVEWAY Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	26	42	3	0	23	53	18	0	0	0	0	165
07:15	0	18	44	0	0	28	74	11	0	0	0	0	175
07:30	0	31	52	0	0	25	73	22	0	1	0	0	204
07:45	1	37	35	0	0	27	84	38	0	2	0	0	224
Total	1	112	173	3	0	103	284	89	0	3	0	0	768
08:00	0	24	27	0	0	28	66	36	0	0	0	0	181
08:15	2	13	40	0	0	22	49	30	0	0	0	0	156
08:30	0	23	31	0	0	29	42	19	0	1	0	0	145
08:45	0	9	23	0	0	21	41	19	0	0	0	0	113
Total	2	69	121	0	0	100	198	104	0	1	0	0	595
16:00	0	13	9	1	0	38	40	43	0	0	0	0	144
16:15	1	5	11	0	0	32	34	61	0	1	1	0	146
16:30	1	19	20	0	0	23	39	60	0	0	0	0	162
16:45	2	21	24	0	0	30	46	71	0	0	0	0	194
Total	4	58	64	1	0	123	159	235	0	1	1	0	646
17:00	0	11	20	1	0	19	46	78	0	1	0	0	176
17:15	3	23	10	1	0	28	45	60	0	3	0	0	173
17:30	1	17	26	1	0	31	44	64	0	3	0	0	187
17:45	0	19	19	0	0	26	33	72	0	2	0	0	171
Total	4	70	75	3	0	104	168	274	0	9	0	0	707
Grand Total	11	309	433	7	0	430	809	702	0	14	1	0	2716
Apprch %	1.5	41	57.5	1.6	0	98.4	53.5	46.5	0	93.3	6.7	0	
Total %	0.4	11.4	15.9	0.3	0	15.8	29.8	25.8	0	0.5	0	0	

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : RIDGE ROUTE ROAD
Segment : N/O CASTAIC LAKE
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	3	9	18	116	2	5	16	88	5	14	34	204
12:15	1		17		0		18		1		35	
12:30	4		35		2		16		6		51	
12:45	1		46		1		38		2		84	
01:00	2	8	60	269	0	1	24	289	2	9	84	558
01:15	2		79		0		17		2		96	
01:30	1		81		1		150		2		231	
01:45	3		49		0		98		3		147	
02:00	0	1	32	118	1	3	36	129	1	4	68	247
02:15	0		23		1		29		1		52	
02:30	1		31		1		20		2		51	
02:45	0		32		0		44		0		76	
03:00	2	3	26	113	1	9	36	127	3	12	62	240
03:15	0		30		1		33		1		63	
03:30	0		19		2		30		2		49	
03:45	1		38		5		28		6		66	
04:00	0	1	35	114	3	18	23	107	3	19	58	221
04:15	0		25		4		34		4		59	
04:30	1		24		5		17		6		41	
04:45	0		30		6		33		6		63	
05:00	1	8	35	143	6	52	20	76	7	60	55	219
05:15	1		34		12		16		13		50	
05:30	0		38		18		15		18		53	
05:45	6		36		16		25		22		61	
06:00	6	30	35	125	23	103	15	53	29	133	50	178
06:15	4		35		21		18		25		53	
06:30	10		34		32		8		42		42	
06:45	10		21		27		12		37		33	
07:00	26	352	28	94	29	397	9	30	55	749	37	124
07:15	50		25		62		9		112		34	
07:30	139		19		128		3		267		22	
07:45	137		22		178		9		315		31	
08:00	33	97	23	65	61	152	10	36	94	249	33	101
08:15	28		14		32		6		60		20	
08:30	19		18		38		9		57		27	
08:45	17		10		21		11		38		21	
09:00	19	70	22	57	30	71	4	19	49	141	26	76
09:15	14		11		8		6		22		17	
09:30	19		14		15		4		34		18	
09:45	18		10		18		5		36		15	
10:00	12	59	11	27	28	81	4	12	40	140	15	39
10:15	7		6		13		5		20		11	
10:30	15		5		22		2		37		7	
10:45	25		5		18		1		43		6	
11:00	22	101	3	11	25	114	3	9	47	215	6	20
11:15	34		1		39		1		73		2	
11:30	18		5		32		4		50		9	
11:45	27		2		18		1		45		3	
Totals	739		1,252		1,006		975		1,745		2,227	
Split%	42.3		56.2		57.7		43.8					
Day Totals		1,991				1,981				3,972		
Day Splits		50.1				49.9						
Peak Hour	07:15		01:00		07:15		01:30		07:15		01:00	
Volume	359		269		429		313		788		558	
Factor	0.65		0.83		0.60		0.52		0.63		0.60	

* Data File : D1501039

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location: : RIDGE ROUTE ROAD
Segment: : N/O LAKE HUGHES ROAD
Client: : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	4	12	22	126	3	7	21	103	7	19	43	229
12:15	1		23		0		22		1		45	
12:30	3		34		2		20		5		54	
12:45	4		47		2		40		6		87	
01:00	2	7	65	295	1	3	36	307	3	10	101	602
01:15	2		88		0		23		2		111	
01:30	1		78		2		106		3		184	
01:45	2		64		0		142		2		206	
02:00	1	2	34	125	0	3	52	151	1	5	86	276
02:15	0		20		1		29		1		49	
02:30	1		32		2		26		3		58	
02:45	0		39		0		44		0		83	
03:00	2	3	29	126	0	7	46	144	2	10	75	270
03:15	0		31		2		34		2		65	
03:30	0		21		2		39		2		60	
03:45	1		45		3		25		4		70	
04:00	0	2	35	123	5	17	26	125	5	19	61	248
04:15	0		29		2		38		2		67	
04:30	2		24		4		29		6		53	
04:45	0		35		6		32		6		67	
05:00	1	26	37	148	7	54	21	81	8	80	58	229
05:15	6		35		11		18		17		53	
05:30	6		38		20		24		26		62	
05:45	13		38		16		18		29		56	
06:00	14	62	35	128	21	108	21	82	35	170	56	210
06:15	15		35		27		26		42		61	
06:30	16		34		32		21		48		55	
06:45	17		24		28		14		45		38	
07:00	28	367	26	91	26	354	15	51	54	721	41	142
07:15	54		26		52		16		106		42	
07:30	131		18		116		8		247		26	
07:45	154		21		160		12		314		33	
08:00	37	112	24	70	124	219	4	29	161	331	28	99
08:15	31		14		35		9		66		23	
08:30	24		18		30		9		54		27	
08:45	20		14		30		7		50		21	
09:00	25	85	20	61	27	81	5	27	52	166	25	88
09:15	17		16		20		10		37		26	
09:30	20		12		13		2		33		14	
09:45	23		13		21		10		44		23	
10:00	20	69	12	33	26	95	10	30	46	164	22	63
10:15	10		7		22		14		32		21	
10:30	17		8		23		6		40		14	
10:45	22		6		24		0		46		6	
11:00	32	121	3	12	22	132	1	8	54	253	4	20
11:15	34		2		32		0		66		2	
11:30	22		5		50		4		72		9	
11:45	33		2		28		3		61		5	
Totals	868		1,338		1,080		1,138		1,948		2,476	
Split%	44.6		54.0		55.4		46.0					
Day Totals		2,206				2,218				4,424		
Day Splits		49.9				50.1						
Peak Hour	07:15		01:00		07:15		01:30		07:15		01:00	
Volume	376		295		452		329		828		602	
Factor	0.61		0.84		0.71		0.58		0.66		0.73	

Data File : D1501040

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : RIDGE ROUTE ROAD
Segment : N/O CASTAIC
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	SB				NB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	3	9	34	144	8	26	26	146	11	35	60	290
12:15	2		31		4		42		6		73	
12:30	1		35		7		44		8		79	
12:45	3		44		7		34		10		78	
01:00	2	3	41	177	3	10	43	209	5	13	84	386
01:15	0		32		2		65		2		97	
01:30	1		44		2		51		3		95	
01:45	0		60		3		50		3		110	
02:00	2	14	52	195	1	9	44	165	3	23	96	360
02:15	8		52		2		37		10		89	
02:30	3		55		1		32		4		87	
02:45	1		36		5		52		6		88	
03:00	4	20	60	182	3	14	43	186	7	34	103	368
03:15	1		34		3		44		4		78	
03:30	6		52		6		46		12		98	
03:45	9		36		2		53		11		89	
04:00	6	47	41	185	3	18	63	219	9	65	104	404
04:15	7		50		1		39		8		89	
04:30	12		38		8		55		20		93	
04:45	22		56		6		62		28		118	
05:00	25	134	45	158	0	32	60	223	25	166	105	381
05:15	25		40		5		54		30		94	
05:30	42		37		10		55		52		92	
05:45	42		36		17		54		59		90	
06:00	36	184	41	153	24	88	48	193	60	272	89	346
06:15	40		34		24		49		64		83	
06:30	51		40		18		52		69		92	
06:45	57		38		22		44		79		82	
07:00	54	322	30	96	28	181	41	149	82	503	71	245
07:15	70		30		29		38		99		68	
07:30	102		18		58		28		160		46	
07:45	96		18		66		42		162		60	
08:00	94	237	17	76	28	122	46	138	122	359	63	214
08:15	58		21		30		26		88		47	
08:30	43		22		26		40		69		62	
08:45	42		16		38		26		80		42	
09:00	42	140	5	42	26	91	34	120	68	231	39	162
09:15	31		18		16		38		47		56	
09:30	35		7		25		24		60		31	
09:45	32		12		24		24		56		36	
10:00	36	137	7	31	30	127	29	71	66	264	36	102
10:15	35		14		27		12		62		26	
10:30	42		5		36		19		78		24	
10:45	24		5		34		11		58		16	
11:00	27	161	4	16	28	128	11	41	55	289	15	57
11:15	40		5		33		7		73		12	
11:30	51		4		31		9		82		13	
11:45	43		3		36		14		79		17	
Totals	1,408		1,455		846		1,860		2,254		3,315	
Split%	62.5		43.9		37.5		56.1					
Day Totals		2,863				2,706				5,569		
Day Splits		51.4				48.6						
Peak Hour	07:15		01:45		07:30		04:30		07:15		04:30	
Volume	362		219		182		231		543		410	
Factor	0.89		0.91		0.69		0.93		0.84		0.87	

Data File : D1501041

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location: : RIDGE ROUTE ROAD
Segment: : E/O I-5 NB RAMPS
Client: : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	WB				EB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	20	83	112	480	40	157	140	648	60	240	252	1,128
12:15	27		130		33		166		60		296	
12:30	12		124		40		164		52		288	
12:45	24		114		44		178		68		292	
01:00	12	53	106	456	24	112	170	711	36	165	276	1,167
01:15	9		104		39		196		48		300	
01:30	16		118		29		171		45		289	
01:45	16		128		20		174		36		302	
02:00	22	74	130	518	25	99	180	726	47	173	310	1,244
02:15	26		150		27		194		53		344	
02:30	18		126		28		164		46		290	
02:45	8		112		19		188		27		300	
03:00	18	137	143	526	20	126	212	765	38	263	355	1,291
03:15	44		130		36		188		80		318	
03:30	31		141		34		177		65		318	
03:45	44		112		36		188		80		300	
04:00	38	187	107	415	50	170	175	780	88	357	282	1,195
04:15	25		120		36		207		61		327	
04:30	58		87		48		182		106		269	
04:45	66		101		36		216		102		317	
05:00	62	280	150	501	38	235	224	769	100	515	374	1,270
05:15	71		126		56		189		127		315	
05:30	74		103		68		186		142		289	
05:45	73		122		73		170		146		292	
06:00	96	388	144	494	112	339	138	542	208	727	282	1,036
06:15	92		108		64		138		156		246	
06:30	96		122		86		154		182		276	
06:45	104		120		77		112		181		232	
07:00	96	564	84	316	90	494	143	531	186	1,058	227	847
07:15	136		82		101		146		237		228	
07:30	168		78		144		112		312		190	
07:45	164		72		159		130		323		202	
08:00	134	431	106	301	103	432	155	446	237	863	261	747
08:15	102		84		107		113		209		197	
08:30	90		62		92		83		182		145	
08:45	105		49		130		95		235		144	
09:00	94	402	66	226	105	407	106	362	199	809	172	588
09:15	98		54		78		92		176		146	
09:30	116		44		126		91		242		135	
09:45	94		62		98		73		192		135	
10:00	94	351	34	156	98	518	66	240	192	869	100	396
10:15	74		41		122		64		196		105	
10:30	101		50		148		72		249		122	
10:45	82		31		150		38		232		69	
11:00	94	448	39	116	130	548	43	166	224	996	82	282
11:15	116		27		118		36		234		63	
11:30	104		23		152		42		256		65	
11:45	134		27		148		45		282		72	
Totals	3,398		4,505		3,637		6,686		7,035		11,191	
Split%	48.3		40.3		51.7		59.7					
Day Totals		7,903				10,323				18,226		
Day Splits		43.4				56.6						
Peak Hour	07:15		01:45		10:15		04:15		07:15		04:45	
Volume	602		534		550		829		1,109		1,295	
Factor	0.90		0.89		0.92		0.93		0.86		0.87	

Data File : D1501042

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location: : RIDGE ROUTE ROAD
Segment: : BETWEEN I-5 RAMPS
Client: : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	12	32	72	292	38	151	148	671	50	183	220	963
12:15	8		80		61		196		69		276	
12:30	4		75		26		185		30		260	
12:45	8		65		26		142		34		207	
01:00	10	27	62	280	16	90	140	607	26	117	202	887
01:15	8		48		16		141		24		189	
01:30	6		96		21		150		27		246	
01:45	3		74		37		176		40		250	
02:00	4	7	90	356	38	129	186	683	42	136	276	1,039
02:15	1		70		45		184		46		254	
02:30	1		94		32		157		33		251	
02:45	1		102		14		156		15		258	
03:00	10	27	100	363	31	229	178	753	41	256	278	1,116
03:15	6		79		74		191		80		270	
03:30	7		86		54		214		61		300	
03:45	4		98		70		170		74		268	
04:00	8	27	92	460	67	297	154	668	75	324	246	1,128
04:15	1		126		35		206		36		332	
04:30	9		106		102		154		111		260	
04:45	9		136		93		154		102		290	
05:00	5	60	114	427	96	400	247	847	101	460	361	1,274
05:15	6		125		104		230		110		355	
05:30	19		92		92		164		111		256	
05:45	30		96		108		206		138		302	
06:00	32	124	74	334	127	502	239	757	159	626	313	1,091
06:15	40		84		119		160		159		244	
06:30	32		94		130		186		162		280	
06:45	20		82		126		172		146		254	
07:00	33	242	88	284	140	853	156	538	173	1,095	244	822
07:15	34		74		212		132		246		206	
07:30	94		68		217		128		311		196	
07:45	81		54		284		122		365		176	
08:00	71	253	44	224	182	587	162	451	253	840	206	675
08:15	72		59		139		109		211		168	
08:30	52		56		117		89		169		145	
08:45	58		65		149		91		207		156	
09:00	70	203	46	179	126	552	101	365	196	755	147	544
09:15	48		44		132		90		180		134	
09:30	38		50		160		72		198		122	
09:45	47		39		134		102		181		141	
10:00	56	225	32	126	156	499	52	243	212	724	84	369
10:15	45		34		90		64		135		98	
10:30	65		28		142		76		207		104	
10:45	59		32		111		51		170		83	
11:00	64	229	18	68	132	657	58	180	196	886	76	248
11:15	56		14		168		46		224		60	
11:30	63		23		161		36		224		59	
11:45	46		13		196		40		242		53	
Totals	1,456		3,393		4,946		6,763		6,402		10,156	
Split%	22.7		33.4		77.3		66.6					
Day Totals		4,849				11,709				16,558		
Day Splits		29.3				70.7						
Peak Hour	07:30		04:15		07:15		05:00		07:15		05:00	
Volume	318		482		895		847		1,175		1,274	
Factor	0.85		0.89		0.79		0.86		0.80		0.88	

Data File : D1501043

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : SLOAN CANYON ROAD
Segment : E/O THE OLD ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	23	54	76	320	18	42	146	627	41	96	222	947
12:15	12		87		16		179		28		266	
12:30	10		79		4		152		14		231	
12:45	9		78		4		150		13		228	
01:00	16	66	72	298	2	28	128	612	18	94	200	910
01:15	20		58		12		114		32		172	
01:30	12		86		12		185		24		271	
01:45	18		82		2		185		20		267	
02:00	14	58	70	309	10	46	121	502	24	104	191	811
02:15	14		49		10		122		24		171	
02:30	6		82		9		116		15		198	
02:45	24		108		17		143		41		251	
03:00	32	114	60	273	7	51	129	568	39	165	189	841
03:15	17		65		13		157		30		222	
03:30	36		72		20		144		56		216	
03:45	29		76		11		138		40		214	
04:00	17	111	68	295	12	101	158	518	29	212	226	813
04:15	32		78		34		120		66		198	
04:30	28		64		28		134		56		198	
04:45	34		85		27		106		61		191	
05:00	24	155	77	334	36	240	120	557	60	395	197	891
05:15	48		100		49		132		97		232	
05:30	40		78		69		150		109		228	
05:45	43		79		86		155		129		234	
06:00	40	163	64	288	70	378	148	497	110	541	212	785
06:15	43		70		94		111		137		181	
06:30	28		82		112		126		140		208	
06:45	52		72		102		112		154		184	
07:00	78	351	48	194	109	653	122	386	187	1,004	170	580
07:15	74		60		132		95		206		155	
07:30	104		46		200		84		304		130	
07:45	95		40		212		85		307		125	
08:00	85	301	62	199	174	494	68	238	259	795	130	437
08:15	68		47		116		60		184		107	
08:30	86		48		122		44		208		92	
08:45	62		42		82		66		144		108	
09:00	54	265	51	161	91	417	62	222	145	682	113	383
09:15	68		26		113		50		181		76	
09:30	63		40		101		56		164		96	
09:45	80		44		112		54		192		98	
10:00	67	254	24	145	104	461	32	130	171	715	56	275
10:15	58		24		109		32		167		56	
10:30	74		41		120		36		194		77	
10:45	55		56		128		30		183		86	
11:00	81	285	18	83	106	467	42	102	187	752	60	185
11:15	71		24		101		26		172		50	
11:30	53		19		116		22		169		41	
11:45	80		22		144		12		224		34	
Totals	2,177		2,899		3,378		4,959		5,555		7,858	
Split%	39.2		36.9		60.8		63.1					
Day Totals		5,076				8,337				13,413		
Day Splits		37.8				62.2						
Peak Hour	07:15		04:45		07:15		12:00		07:15		12:00	
Volume	358		340		718		627		1,076		947	
Factor	0.86		0.85		0.85		0.88		0.88		0.89	

* Data File : D1501044

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : LAKE HUGHES ROAD
Segment : W/O CASTAIC ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15

Interval	EB				WB				Combined				Day: Wednesday
Begin	AM		PM		AM		PM		AM		PM		
12:00	58	142	182	776	38	250	188	905	96	392	370	1,681	
12:15	33		206		71		208		104		414		
12:30	21		168		39		279		60		447		
12:45	30		220		102		230		132		450		
01:00	24	115	168	701	22	166	188	1,022	46	281	356	1,723	
01:15	32		136		57		236		89		372		
01:30	23		210		61		307		84		517		
01:45	36		187		26		291		62		478		
02:00	36	118	170	732	52	207	229	991	88	325	399	1,723	
02:15	21		160		48		259		69		419		
02:30	20		162		52		260		72		422		
02:45	41		240		55		243		96		483		
03:00	58	196	134	667	17	181	228	992	75	377	362	1,659	
03:15	38		185		26		274		64		459		
03:30	53		174		64		282		117		456		
03:45	47		174		74		208		121		382		
04:00	32	194	214	818	56	276	210	924	88	470	424	1,742	
04:15	47		173		72		194		119		367		
04:30	54		223		82		260		136		483		
04:45	61		208		66		260		127		468		
05:00	56	334	196	892	66	441	292	958	122	775	488	1,850	
05:15	106		260		113		232		219		492		
05:30	88		216		142		216		230		432		
05:45	84		220		120		218		204		438		
06:00	78	323	173	743	99	508	218	718	177	831	391	1,461	
06:15	66		206		143		180		209		386		
06:30	81		198		118		168		199		366		
06:45	98		166		148		152		246		318		
07:00	136	647	124	486	126	653	146	578	262	1,300	270	1,064	
07:15	134		152		159		142		293		294		
07:30	195		98		162		152		357		250		
07:45	182		112		206		138		388		250		
08:00	164	572	120	455	152	503	115	494	316	1,075	235	949	
08:15	148		122		141		116		289		238		
08:30	138		109		119		141		257		250		
08:45	122		104		91		122		213		226		
09:00	144	556	112	370	162	635	104	422	306	1,191	216	792	
09:15	125		82		158		98		283		180		
09:30	109		94		160		106		269		200		
09:45	178		82		155		114		333		196		
10:00	125	559	73	310	128	678	94	329	253	1,237	167	639	
10:15	143		66		146		77		289		143		
10:30	158		73		190		70		348		143		
10:45	133		98		214		88		347		186		
11:00	162	656	48	200	172	807	58	239	334	1,463	106	439	
11:15	157		52		166		57		323		109		
11:30	169		46		233		68		402		114		
11:45	168		54		236		56		404		110		
Totals	4,412		7,150		5,305		8,572		9,717		15,722		
Split%	45.4		45.5		54.6		54.5						
Day Totals		11,562				13,877				25,439			
Day Splits		45.4				54.6							
Peak Hour	07:30		05:00		11:00		01:30		11:00		04:30		
Volume	689		892		807		1,086		1,463		1,931		
Factor	0.88		0.86		0.85		0.88		0.91		0.98		

* Data File : D1501045

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : LAKE HUGHES ROAD
Segment : E/O CASTAIC ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15

Interval	EB				WB				Combined				Day: Wednesday
Begin	AM		PM		AM		PM		AM		PM		
12:00	7	23	40	184	6	15	46	166	13	38	86	350	
12:15	5		43		3		50		8		93		
12:30	3		44		3		34		6		78		
12:45	8		57		3		36		11		93		
01:00	2	10	57	221	8	19	36	269	10	29	93	490	
01:15	4		41		5		40		9		81		
01:30	2		64		4		102		6		166		
01:45	2		59		2		91		4		150		
02:00	10	26	44	207	8	22	45	171	18	48	89	378	
02:15	3		35		1		30		4		65		
02:30	9		57		8		40		17		97		
02:45	4		71		5		56		9		127		
03:00	2	12	43	205	2	25	36	172	4	37	79	377	
03:15	5		51		8		40		13		91		
03:30	1		45		8		58		9		103		
03:45	4		66		7		38		11		104		
04:00	1	19	67	259	4	53	42	159	5	72	109	418	
04:15	8		58		14		31		22		89		
04:30	1		66		13		46		14		112		
04:45	9		68		22		40		31		108		
05:00	4	44	65	286	11	103	41	164	15	147	106	450	
05:15	14		85		28		44		42		129		
05:30	18		68		38		37		56		105		
05:45	8		68		26		42		34		110		
06:00	14	63	61	224	50	192	33	131	64	255	94	355	
06:15	14		64		46		36		60		100		
06:30	14		47		52		32		66		79		
06:45	21		52		44		30		65		82		
07:00	38	220	50	157	58	332	24	104	96	552	74	261	
07:15	46		42		60		34		106		76		
07:30	66		27		98		16		164		43		
07:45	70		38		116		30		186		68		
08:00	54	142	38	142	75	204	23	73	129	346	61	215	
08:15	30		28		40		18		70		46		
08:30	36		43		52		16		88		59		
08:45	22		33		37		16		59		49		
09:00	20	90	28	108	38	133	10	53	58	223	38	161	
09:15	28		31		39		18		67		49		
09:30	22		29		18		18		40		47		
09:45	20		20		38		7		58		27		
10:00	21	101	19	70	36	144	16	39	57	245	35	109	
10:15	22		16		34		9		56		25		
10:30	32		14		32		7		64		21		
10:45	26		21		42		7		68		28		
11:00	42	169	14	34	32	172	6	26	74	341	20	60	
11:15	42		4		41		4		83		8		
11:30	31		7		51		7		82		14		
11:45	54		9		48		9		102		18		
Totals	919		2,097		1,414		1,527		2,333		3,624		
Split%	39.4		57.9		60.6		42.1						
Day Totals		3,016				2,941				5,957			
Day Splits		50.6				49.4							
Peak Hour	07:15		04:45		07:15		01:15		07:15		01:00		
Volume	236		286		349		278		585		490		
Factor	0.84		0.84		0.75		0.68		0.79		0.74		

Data File : D1501046

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : THE OLD ROAD
Segment : N/O SLOAN CANYON
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	14	36	90	377	28	81	54	259	42	117	144	636
12:15	14		105		18		65		32		170	
12:30	4		100		19		82		23		182	
12:45	4		82		16		58		20		140	
01:00	7	23	82	378	16	70	56	252	23	93	138	630
01:15	8		74		20		55		28		129	
01:30	7		126		10		77		17		203	
01:45	1		96		24		64		25		160	
02:00	6	28	80	377	14	63	62	236	20	91	142	613
02:15	6		74		19		54		25		128	
02:30	6		93		10		49		16		142	
02:45	10		130		20		71		30		201	
03:00	8	42	98	402	32	107	56	229	40	149	154	631
03:15	8		92		15		55		23		147	
03:30	14		120		38		60		52		180	
03:45	12		92		22		58		34		150	
04:00	8	86	112	436	12	100	46	246	20	186	158	682
04:15	30		92		30		76		60		168	
04:30	24		120		30		58		54		178	
04:45	24		112		28		66		52		178	
05:00	20	160	122	454	28	159	74	294	48	319	196	748
05:15	27		122		52		99		79		221	
05:30	49		122		41		61		90		183	
05:45	64		88		38		60		102		148	
06:00	36	240	111	384	41	177	57	262	77	417	168	646
06:15	52		97		44		68		96		165	
06:30	85		90		38		80		123		170	
06:45	67		86		54		57		121		143	
07:00	74	402	66	281	82	325	43	171	156	727	109	452
07:15	96		80		78		58		174		138	
07:30	126		74		90		36		216		110	
07:45	106		61		75		34		181		95	
08:00	94	310	40	173	74	268	56	202	168	578	96	375
08:15	78		52		58		58		136		110	
08:30	79		28		76		56		155		84	
08:45	59		53		60		32		119		85	
09:00	62	273	58	186	68	277	44	151	130	550	102	337
09:15	67		40		48		29		115		69	
09:30	70		50		91		40		161		90	
09:45	74		38		70		38		144		76	
10:00	78	291	34	111	44	222	21	139	122	513	55	250
10:15	70		34		70		30		140		64	
10:30	59		21		58		38		117		59	
10:45	84		22		50		50		134		72	
11:00	66	295	23	64	50	243	22	102	116	538	45	166
11:15	74		14		79		32		153		46	
11:30	69		17		60		22		129		39	
11:45	86		10		54		26		140		36	
Totals	2,186		3,623		2,092		2,543		4,278		6,166	
Split%	51.1		58.8		48.9		41.2					
Day Totals		5,809				4,635				10,444		
Day Splits		55.6				44.4						
Peak Hour	07:15		04:45		07:00		04:45		07:15		04:45	
Volume	422		478		325		300		739		778	
Factor	0.84		0.98		0.90		0.76		0.86		0.88	

Data File : D1501047

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : PARKER ROAD
Segment : W/O I-5 SB RAMPS
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15

Interval	EB				WB				Combined				Day: Wednesday
Begin	AM		PM		AM		PM		AM		PM		
12:00	2	16	56	223	8	30	52	233	10	46	108	456	
12:15	6		57		11		66		17		123		
12:30	2		61		6		64		8		125		
12:45	6		49		5		51		11		100		
01:00	4	12	56	222	7	14	50	231	11	26	106	453	
01:15	4		54		3		52		7		106		
01:30	3		58		1		50		4		108		
01:45	1		54		3		79		4		133		
02:00	2	18	59	271	1	12	65	262	3	30	124	533	
02:15	6		61		3		68		9		129		
02:30	2		66		4		61		6		127		
02:45	8		85		4		68		12		153		
03:00	4	21	66	237	4	25	52	276	8	46	118	513	
03:15	6		51		3		84		9		135		
03:30	4		52		6		64		10		116		
03:45	7		68		12		76		19		144		
04:00	19	71	59	230	1	10	63	300	20	81	122	530	
04:15	12		60		0		84		12		144		
04:30	16		46		3		72		19		118		
04:45	24		65		6		81		30		146		
05:00	34	171	70	252	1	35	80	350	35	206	150	602	
05:15	32		55		7		111		39		166		
05:30	40		60		12		82		52		142		
05:45	65		67		15		77		80		144		
06:00	49	246	46	187	15	71	78	328	64	317	124	515	
06:15	50		55		24		92		74		147		
06:30	82		45		16		80		98		125		
06:45	65		41		16		78		81		119		
07:00	87	423	44	127	18	117	68	240	105	540	112	367	
07:15	90		32		24		60		114		92		
07:30	125		25		30		60		155		85		
07:45	121		26		45		52		166		78		
08:00	66	294	28	100	66	170	45	175	132	464	73	275	
08:15	96		28		43		40		139		68		
08:30	68		16		33		48		101		64		
08:45	64		28		28		42		92		70		
09:00	60	201	19	70	32	129	36	145	92	330	55	215	
09:15	34		18		32		35		66		53		
09:30	53		18		26		38		79		56		
09:45	54		15		39		36		93		51		
10:00	47	197	13	50	34	130	30	100	81	327	43	150	
10:15	49		11		30		23		79		34		
10:30	44		14		38		32		82		46		
10:45	57		12		28		15		85		27		
11:00	56	227	7	26	42	182	15	56	98	409	22	82	
11:15	54		6		42		15		96		21		
11:30	68		7		50		16		118		23		
11:45	49		6		48		10		97		16		
Totals	1,897		1,995		925		2,696		2,822		4,691		
Split%	67.2		42.5		32.8		57.5						
Day Totals		3,892				3,621				7,513			
Day Splits		51.8				48.2							
Peak Hour	07:00		02:15		07:45		04:45		07:30		04:45		
Volume	423		278		187		354		592		604		
Factor	0.85		0.82		0.71		0.80		0.89		0.91		

Data File : D1501048

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : CASTAIC ROAD
Segment : N/O LAKE HUGHES ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	SB				NB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	3	11	30	150	11	20	46	175	14	31	76	325
12:15	2		32		4		46		6		78	
12:30	2		46		4		38		6		84	
12:45	4		42		1		45		5		87	
01:00	0	4	39	135	0	19	36	175	0	23	75	310
01:15	0		28		7		38		7		66	
01:30	1		38		4		60		5		98	
01:45	3		30		8		41		11		71	
02:00	4	16	32	140	4	8	66	172	8	24	98	312
02:15	2		38		0		37		2		75	
02:30	1		36		2		36		3		72	
02:45	9		34		2		33		11		67	
03:00	2	15	24	133	4	17	50	184	6	32	74	317
03:15	2		44		4		48		6		92	
03:30	5		31		4		50		9		81	
03:45	6		34		5		36		11		70	
04:00	5	22	26	129	4	11	36	153	9	33	62	282
04:15	4		38		1		34		5		72	
04:30	8		33		2		37		10		70	
04:45	5		32		4		46		9		78	
05:00	4	28	28	129	2	29	44	154	6	57	72	283
05:15	11		40		12		38		23		78	
05:30	6		34		7		38		13		72	
05:45	7		27		8		34		15		61	
06:00	4	18	34	101	13	37	39	133	17	55	73	234
06:15	4		24		9		32		13		56	
06:30	6		21		1		30		7		51	
06:45	4		22		14		32		18		54	
07:00	10	49	30	78	8	45	27	127	18	94	57	205
07:15	12		10		12		42		24		52	
07:30	16		20		12		30		28		50	
07:45	11		18		13		28		24		46	
08:00	8	40	9	48	23	76	30	114	31	116	39	162
08:15	12		12		16		44		28		56	
08:30	8		18		15		22		23		40	
08:45	12		9		22		18		34		27	
09:00	12	85	11	29	17	98	12	50	29	183	23	79
09:15	29		4		24		14		53		18	
09:30	25		8		21		8		46		16	
09:45	19		6		36		16		55		22	
10:00	14	84	10	45	26	111	8	51	40	195	18	96
10:15	21		14		25		21		46		35	
10:30	29		7		34		4		63		11	
10:45	20		14		26		18		46		32	
11:00	38	133	6	9	37	145	4	18	75	278	10	27
11:15	24		2		32		5		56		7	
11:30	33		1		42		7		75		8	
11:45	38		0		34		2		72		2	
Totals	505		1,126		616		1,506		1,121		2,632	
Split%	45.0		42.8		55.0		57.2					
Day Totals		1,631				2,122				3,753		
Day Splits		43.5				56.5						
Peak Hour	11:00		12:15		11:00		01:15		11:00		01:30	
Volume	133		159		145		205		278		342	
Factor	0.88		0.86		0.86		0.78		0.93		0.87	

Data File : D1501049

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : CASTAIC ROAD
Segment : S/O LAKE HUGHES ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	SB				NB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	30	82	64	270	30	135	101	431	60	217	165	701
12:15	18		83		36		90		54		173	
12:30	20		60		22		144		42		204	
12:45	14		63		47		96		61		159	
01:00	18	73	62	241	16	99	108	482	34	172	170	723
01:15	19		44		31		121		50		165	
01:30	14		69		30		149		44		218	
01:45	22		66		22		104		44		170	
02:00	15	53	63	231	26	103	151	533	41	156	214	764
02:15	12		48		24		132		36		180	
02:30	5		54		25		138		30		192	
02:45	21		66		28		112		49		178	
03:00	37	110	46	217	18	101	138	511	55	211	184	728
03:15	20		50		21		123		41		173	
03:30	35		56		26		150		61		206	
03:45	18		65		36		100		54		165	
04:00	14	112	53	238	28	133	94	459	42	245	147	697
04:15	22		56		33		83		55		139	
04:30	43		56		38		132		81		188	
04:45	33		73		34		150		67		223	
05:00	30	151	51	254	30	193	163	472	60	344	214	726
05:15	44		69		52		76		96		145	
05:30	40		60		59		106		99		166	
05:45	37		74		52		127		89		201	
06:00	41	129	46	256	46	212	118	373	87	341	164	629
06:15	20		68		56		99		76		167	
06:30	36		80		52		79		88		159	
06:45	32		62		58		77		90		139	
07:00	60	214	45	185	48	224	94	332	108	438	139	517
07:15	49		58		64		71		113		129	
07:30	57		40		52		85		109		125	
07:45	48		42		60		82		108		124	
08:00	38	209	56	214	66	238	76	318	104	447	132	532
08:15	51		60		66		84		117		144	
08:30	64		44		54		92		118		136	
08:45	56		54		52		66		108		120	
09:00	63	221	54	160	80	288	75	266	143	509	129	426
09:15	40		23		66		58		106		81	
09:30	60		32		78		67		138		99	
09:45	58		51		64		66		122		117	
10:00	46	214	32	147	74	325	53	206	120	539	85	353
10:15	59		26		57		55		116		81	
10:30	61		36		98		34		159		70	
10:45	48		53		96		64		144		117	
11:00	48	244	24	86	80	381	38	141	128	625	62	227
11:15	64		29		75		26		139		55	
11:30	56		6		112		46		168		52	
11:45	76		27		114		31		190		58	
Totals	1,812		2,499		2,432		4,524		4,244		7,023	
Split%	42.7		35.6		57.3		64.4					
Day Totals		4,311				6,956				11,267		
Day Splits		38.3				61.7						
Peak Hour	11:00		12:00		11:00		01:30		11:00		01:30	
Volume	244		270		381		536		625		782	
Factor	0.80		0.81		0.84		0.89		0.82		0.90	

Data File : D1501050

Printed : 2/3/2015

Transportation Studies, Inc.

2640 Walnut Avenue, Suite H
Tustin, CA. 92780

Location : CASTAIC ROAD
Segment : S/O RIDGE ROUTE ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 01/28/15
Day: Wednesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	3	6	23	124	1	6	30	107	4	12	53	231
12:15	1		40		2		36		3		76	
12:30	0		29		1		16		1		45	
12:45	2		32		2		25		4		57	
01:00	0	4	22	108	4	8	20	99	4	12	42	207
01:15	4		34		2		27		6		61	
01:30	0		30		2		20		2		50	
01:45	0		22		0		32		0		54	
02:00	1	3	32	138	1	2	36	99	2	5	68	237
02:15	0		60		0		26		0		86	
02:30	0		26		1		18		1		44	
02:45	2		20		0		19		2		39	
03:00	3	4	36	165	4	4	24	134	7	8	60	299
03:15	0		38		0		42		0		80	
03:30	0		66		0		30		0		96	
03:45	1		25		0		38		1		63	
04:00	0	5	44	132	1	10	36	151	1	15	80	283
04:15	3		27		1		32		4		59	
04:30	0		34		4		32		4		66	
04:45	2		27		4		51		6		78	
05:00	3	22	50	180	6	39	50	177	9	61	100	357
05:15	3		42		8		50		11		92	
05:30	2		30		15		36		17		66	
05:45	14		58		10		41		24		99	
06:00	8	34	59	175	18	58	19	89	26	92	78	264
06:15	10		40		11		21		21		61	
06:30	4		38		11		23		15		61	
06:45	12		38		18		26		30		64	
07:00	10	42	20	79	24	70	21	80	34	112	41	159
07:15	10		22		20		26		30		48	
07:30	12		16		14		17		26		33	
07:45	10		21		12		16		22		37	
08:00	7	54	54	115	18	101	16	58	25	155	70	173
08:15	5		30		18		18		23		48	
08:30	28		23		27		16		55		39	
08:45	14		8		38		8		52		16	
09:00	23	62	5	46	18	74	7	24	41	136	12	70
09:15	14		16		22		4		36		20	
09:30	12		10		12		5		24		15	
09:45	13		15		22		8		35		23	
10:00	15	68	6	12	24	81	2	10	39	149	8	22
10:15	13		2		24		4		37		6	
10:30	18		3		13		3		31		6	
10:45	22		1		20		1		42		2	
11:00	22	102	1	13	21	83	2	6	43	185	3	19
11:15	20		6		30		2		50		8	
11:30	17		3		18		2		35		5	
11:45	43		3		14		0		57		3	
Totals	406		1,287		536		1,034		942		2,321	
Split%	43.1		55.5		56.9		44.5					
Day Totals		1,693				1,570				3,263		
Day Splits		51.9				48.1						
Peak Hour	11:00		05:45		08:30		04:45		11:00		05:00	
Volume	102		195		105		187		185		357	
Factor	0.59		0.83		0.69		0.92		0.81		0.89	

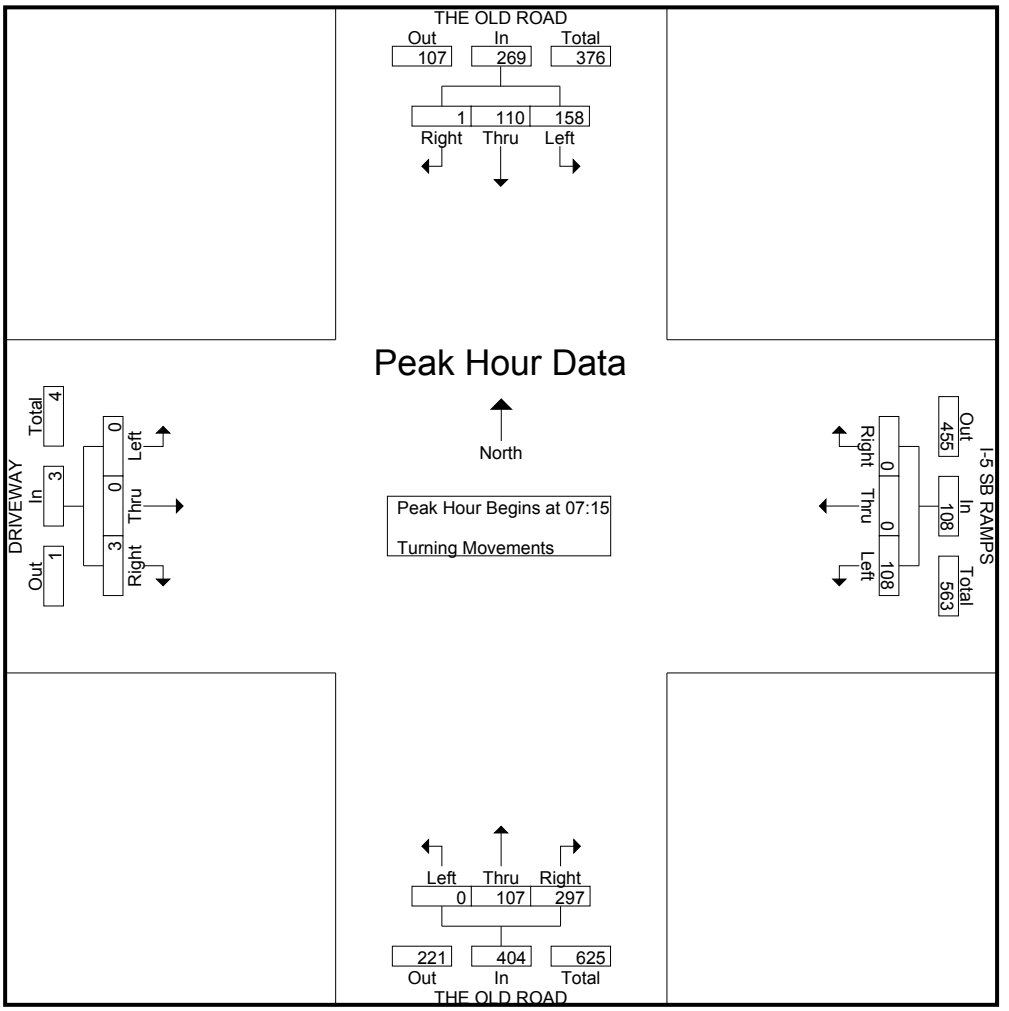
Data File : D1501051

Printed : 2/3/2015

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : h1501003
Site Code : 00000000
Start Date : 1/27/2015
Page No : 2

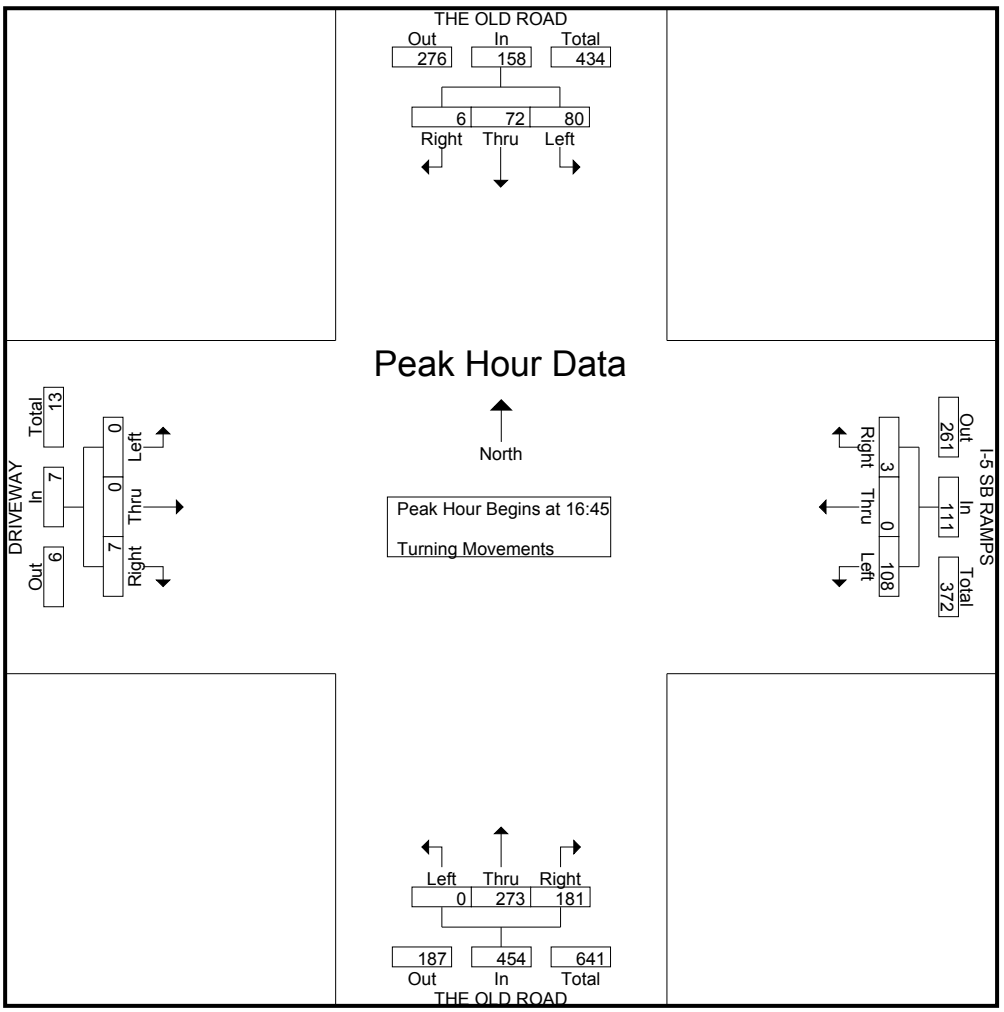
	THE OLD ROAD Southbound				I-5 SB RAMPS Westbound				THE OLD ROAD Northbound				DRIVEWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	18	44	62	0	0	**28**	**28**	74	11	0	85	0	0	0	0	175
07:30	0	31	**52**	**83**	0	0	25	25	73	22	0	95	1	0	0	1	204
07:45	**1**	**37**	35	73	0	0	27	27	**84**	**38**	0	**122**	**2**	0	0	**2**	**224**
08:00	0	24	27	51	0	0	28	28	66	36	0	102	0	0	0	0	181
Total Volume	1	110	158	269	0	0	108	108	297	107	0	404	3	0	0	3	784
% App. Total	0.4	40.9	58.7		0	0	100		73.5	26.5	0		100	0	0		
PHF	.250	.743	.760	.810	.000	.000	.964	.964	.884	.704	.000	.828	.375	.000	.000	.375	.875



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : h1501003
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	THE OLD ROAD Southbound				I-5 SB RAMPS Westbound				THE OLD ROAD Northbound				DRIVEWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	2	21	24	**47**	0	0	30	30	**46**	71	0	117	0	0	0	0	**194**
17:00	0	11	20	31	**1**	0	19	20	46	**78**	0	**124**	1	0	0	1	176
17:15	**3**	**23**	10	36	1	0	28	29	45	60	0	105	**3**	0	0	**3**	173
17:30	1	17	**26**	44	1	0	**31**	**32**	44	64	0	108	3	0	0	3	187
Total Volume	6	72	80	158	3	0	108	111	181	273	0	454	7	0	0	7	730
% App. Total	3.8	45.6	50.6		2.7	0	97.3		39.9	60.1	0		100	0	0		
PHF	.500	.783	.769	.840	.750	.000	.871	.867	.984	.875	.000	.915	.583	.000	.000	.583	.941



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: THE OLD ROAD
E-W Direction: LAKE HUGHES / SLOAN

File Name : h1501004
Site Code : 00000000
Start Date : 1/22/2015
Page No : 1

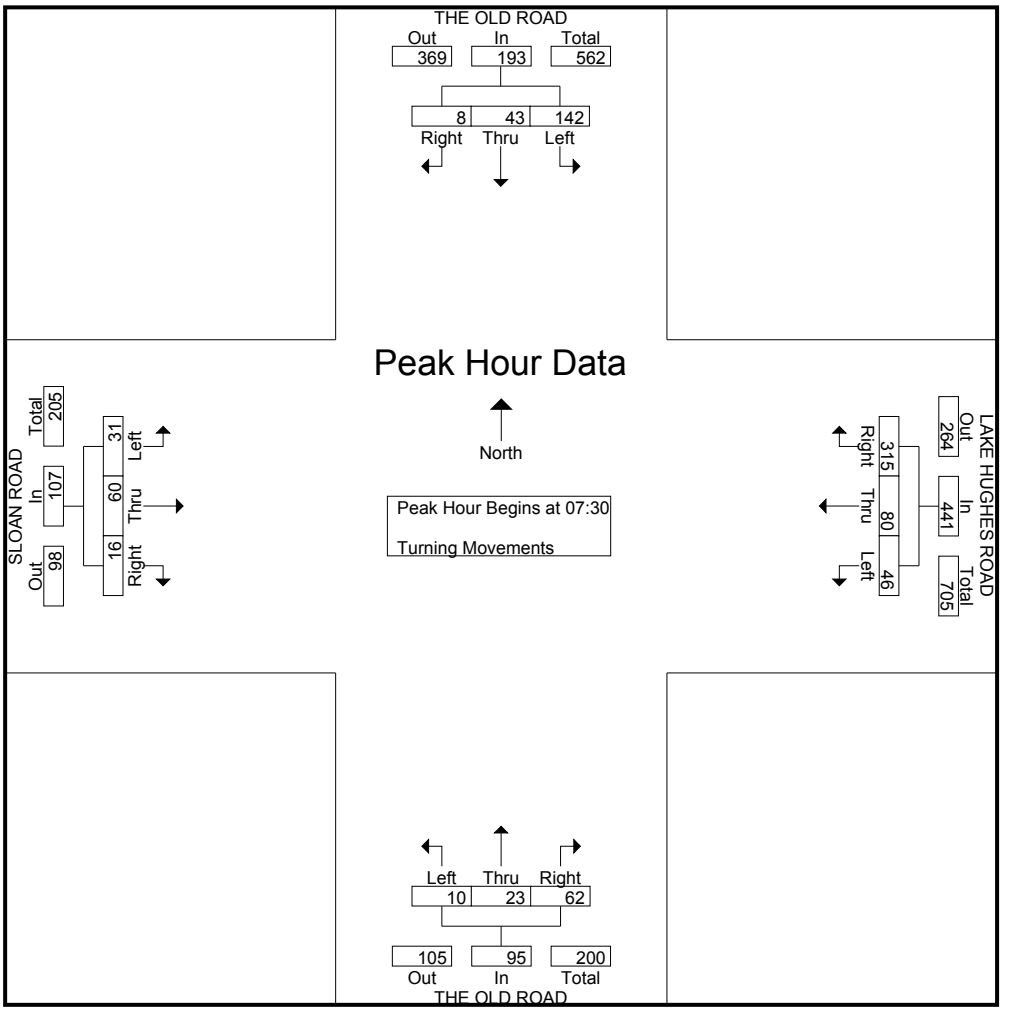
Groups Printed- Turning Movements

	THE OLD ROAD Southbound			LAKE HUGHES ROAD Westbound			THE OLD ROAD Northbound			SLOAN ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	1	8	30	68	9	5	3	3	0	1	9	3	140
07:15	6	9	36	65	4	7	10	4	1	3	10	7	162
07:30	0	6	47	92	16	7	14	3	3	5	28	11	232
07:45	3	15	43	104	21	17	10	6	2	3	19	5	248
Total	10	38	156	329	50	36	37	16	6	12	66	26	782
08:00	2	13	24	68	25	16	17	7	2	3	6	9	192
08:15	3	9	28	51	18	6	21	7	3	5	7	6	164
08:30	2	9	34	66	10	7	12	4	5	1	6	10	166
08:45	1	6	21	49	24	7	12	14	2	6	6	5	153
Total	8	37	107	234	77	36	62	32	12	15	25	30	675
16:00	5	8	35	73	24	6	11	15	8	6	15	7	213
16:15	3	10	30	68	23	11	15	9	6	3	13	12	203
16:30	3	5	25	90	33	12	10	18	3	11	14	11	235
16:45	4	10	32	65	38	13	14	6	9	3	11	6	211
Total	15	33	122	296	118	42	50	48	26	23	53	36	862
17:00	5	7	18	72	33	10	11	10	4	7	4	11	192
17:15	3	9	36	84	34	12	11	9	9	5	10	7	229
17:30	6	13	27	89	35	14	21	15	3	5	14	14	256
17:45	3	13	34	72	42	4	7	7	6	4	22	10	224
Total	17	42	115	317	144	40	50	41	22	21	50	42	901
Grand Total	50	150	500	1176	389	154	199	137	66	71	194	134	3220
Apprch %	7.1	21.4	71.4	68.4	22.6	9	49.5	34.1	16.4	17.8	48.6	33.6	
Total %	1.6	4.7	15.5	36.5	12.1	4.8	6.2	4.3	2	2.2	6	4.2	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : h1501004
Site Code : 00000000
Start Date : 1/22/2015
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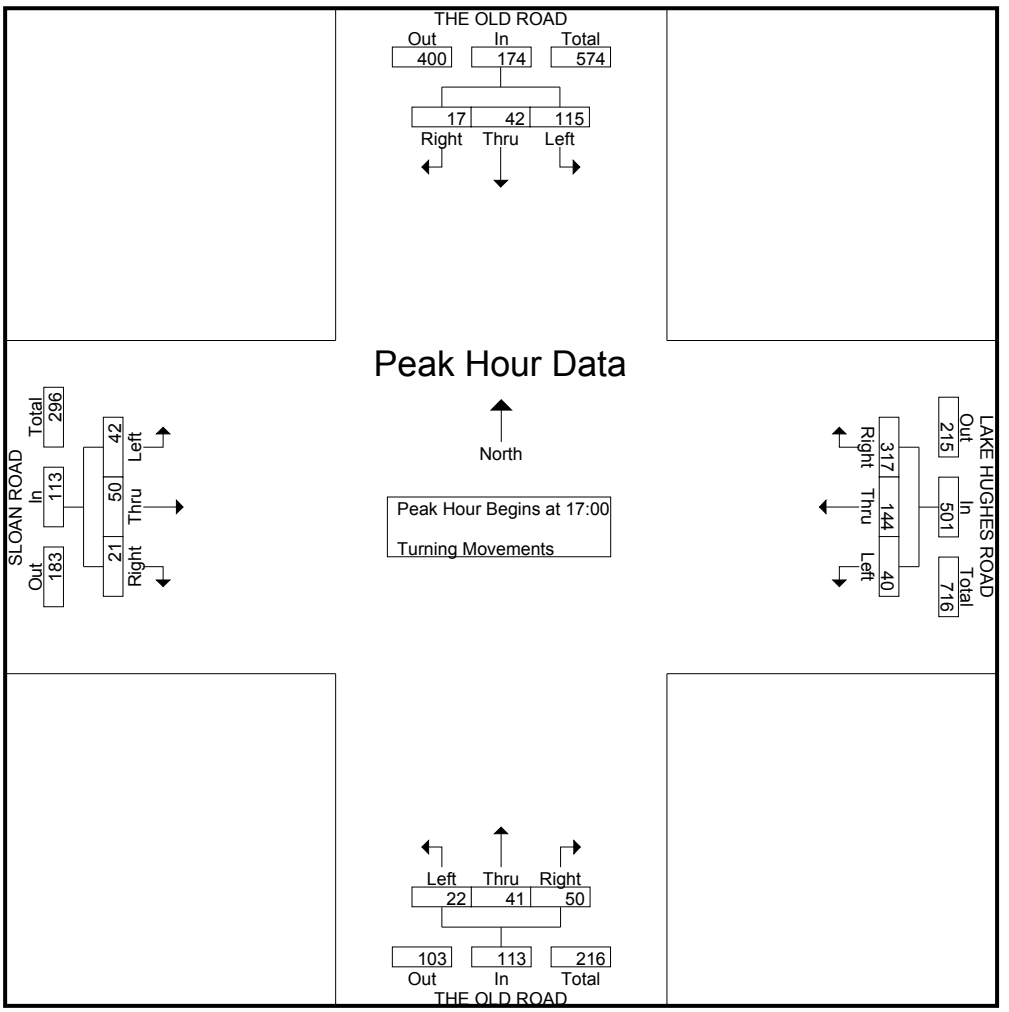
	THE OLD ROAD Southbound				LAKE HUGHES ROAD Westbound				THE OLD ROAD Northbound				SLOAN ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	6	**47**	53	92	16	7	115	14	3	**3**	20	**5**	**28**	**11**	**44**	232
07:45	**3**	**15**	43	**61**	**104**	21	**17**	**142**	10	6	2	18	3	19	5	27	**248**
08:00	2	13	24	39	68	**25**	16	109	17	**7**	2	26	3	6	9	18	192
08:15	3	9	28	40	51	18	6	75	**21**	7	3	**31**	5	7	6	18	164
Total Volume	8	43	142	193	315	80	46	441	62	23	10	95	16	60	31	107	836
% App. Total	4.1	22.3	73.6		71.4	18.1	10.4		65.3	24.2	10.5		15	56.1	29		
PHF	.667	.717	.755	.791	.757	.800	.676	.776	.738	.821	.833	.766	.800	.536	.705	.608	.843



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : h1501004
Site Code : 00000000
Start Date : 1/22/2015
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	THE OLD ROAD Southbound				LAKE HUGHES ROAD Westbound				THE OLD ROAD Northbound				SLOAN ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	5	7	18	30	72	33	10	115	11	10	4	25	**7**	4	11	22	192
17:15	3	9	**36**	48	84	34	12	130	11	9	**9**	29	5	10	7	22	229
17:30	**6**	**13**	27	46	**89**	35	**14**	**138**	**21**	**15**	3	**39**	5	14	**14**	33	**256**
17:45	3	13	34	**50**	72	**42**	4	118	7	7	6	20	4	**22**	10	**36**	224
Total Volume	17	42	115	174	317	144	40	501	50	41	22	113	21	50	42	113	901
% App. Total	9.8	24.1	66.1		63.3	28.7	8		44.2	36.3	19.5		18.6	44.2	37.2		
PHF	.708	.808	.799	.870	.890	.857	.714	.908	.595	.683	.611	.724	.750	.568	.750	.785	.880



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: I-5 NB RAMPS
E-W Direction: LAKE HUGHES ROAD

File Name : h1501005
Site Code : 00000000
Start Date : 1/27/2015
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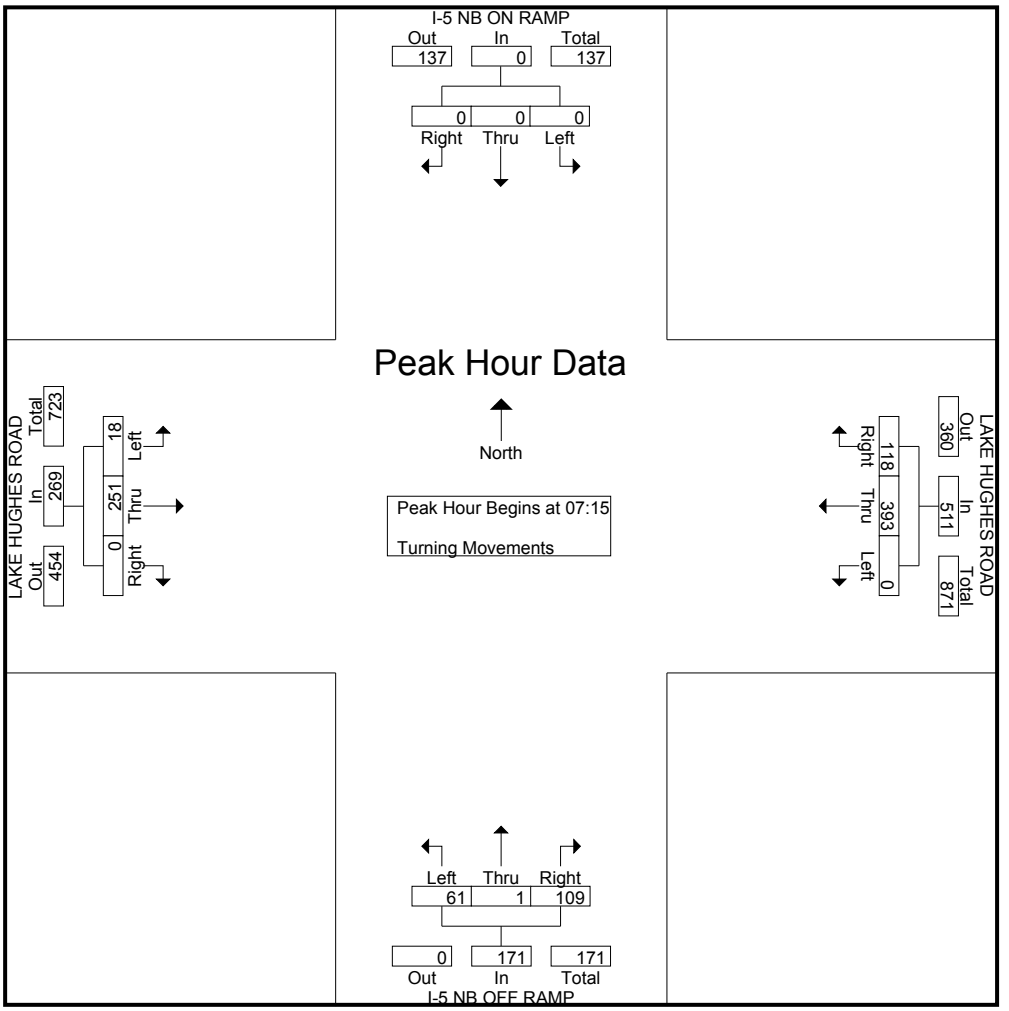
Groups Printed- Turning Movements

	I-5 NB ON RAMP Southbound			LAKE HUGHES ROAD Westbound			I-5 NB OFF RAMP Northbound			LAKE HUGHES ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	33	67	0	24	0	16	0	55	1	196
07:15	0	0	0	24	85	0	28	0	11	0	43	4	195
07:30	0	0	0	34	98	0	25	1	13	0	63	7	241
07:45	0	0	0	27	130	0	30	0	15	0	90	5	297
Total	0	0	0	118	380	0	107	1	55	0	251	17	929
08:00	0	0	0	33	80	0	26	0	22	0	55	2	218
08:15	0	0	0	29	57	0	35	0	19	0	36	2	178
08:30	0	0	0	27	44	0	16	1	12	0	47	4	151
08:45	0	0	0	26	44	0	32	1	15	0	39	3	160
Total	0	0	0	115	225	0	109	2	68	0	177	11	707
16:00	0	0	0	43	67	0	64	0	37	0	49	6	266
16:15	0	0	0	66	55	0	59	0	38	0	43	6	267
16:30	0	0	0	53	57	0	56	0	54	0	45	3	268
16:45	0	0	0	53	66	0	65	0	71	0	56	3	314
Total	0	0	0	215	245	0	244	0	200	0	193	18	1115
17:00	0	0	0	55	73	0	68	0	71	0	40	4	311
17:15	0	0	0	39	65	0	65	1	59	0	50	4	283
17:30	0	0	0	41	57	0	65	0	58	0	67	6	294
17:45	0	0	0	43	58	0	57	0	63	0	46	9	276
Total	0	0	0	178	253	0	255	1	251	0	203	23	1164
Grand Total	0	0	0	626	1103	0	715	4	574	0	824	69	3915
Apprch %	0	0	0	36.2	63.8	0	55.3	0.3	44.4	0	92.3	7.7	
Total %	0	0	0	16	28.2	0	18.3	0.1	14.7	0	21	1.8	

Transportation Studies, Inc.
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Tustin, CA. 92780

File Name : h1501005
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Start Date : 1/27/2015
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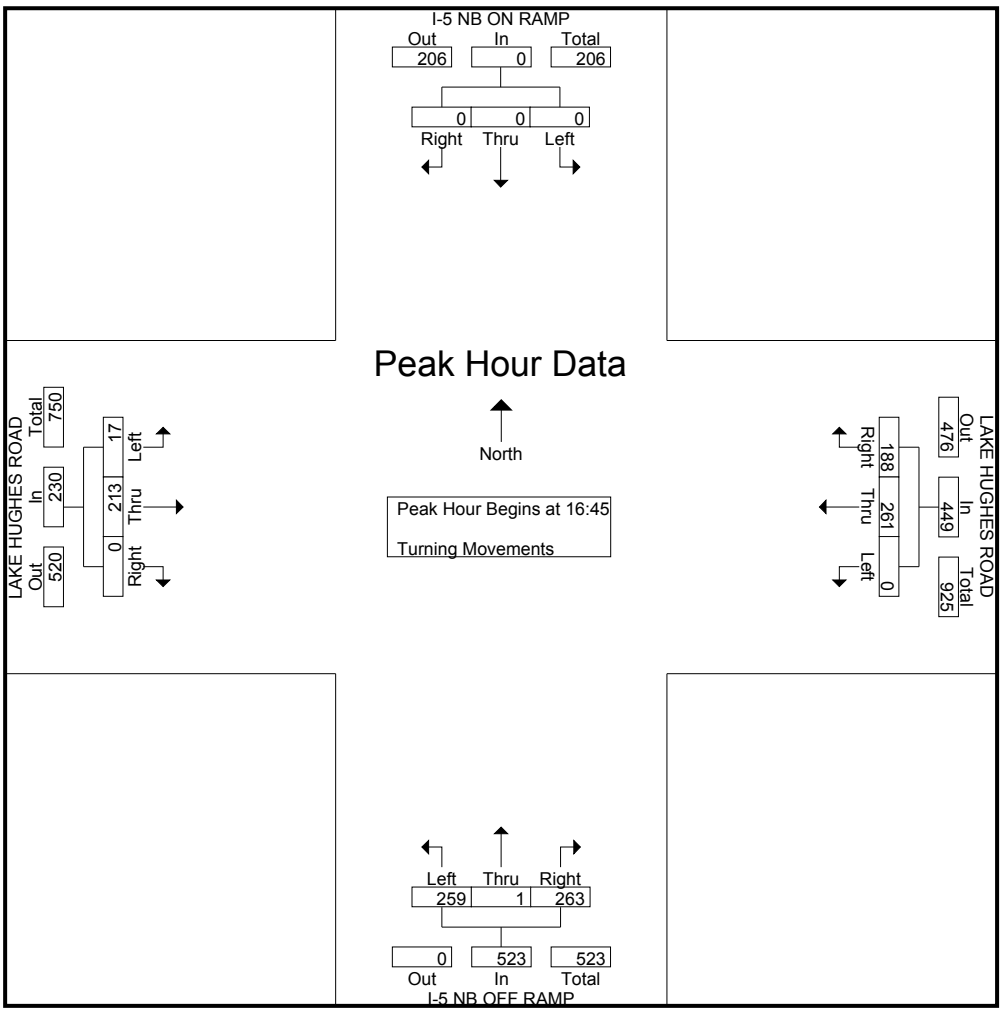
	I-5 NB ON RAMP Southbound				LAKE HUGHES ROAD Westbound				I-5 NB OFF RAMP Northbound				LAKE HUGHES ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	0	0	0	24	85	0	109	28	0	11	39	0	43	4	47	195
07:30	0	0	0	0	**34**	98	0	132	25	**1**	13	39	0	63	**7**	70	241
07:45	0	0	0	0	27	**130**	0	**157**	**30**	0	15	45	0	**90**	5	**95**	**297**
08:00	0	0	0	0	33	80	0	113	26	0	**22**	**48**	0	55	2	57	218
Total Volume	0	0	0	0	118	393	0	511	109	1	61	171	0	251	18	269	951
% App. Total	0	0	0		23.1	76.9	0		63.7	0.6	35.7		0	93.3	6.7		
PHF	.000	.000	.000	.000	.868	.756	.000	.814	.908	.250	.693	.891	.000	.697	.643	.708	.801



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : h1501005
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	I-5 NB ON RAMP Southbound				LAKE HUGHES ROAD Westbound				I-5 NB OFF RAMP Northbound				LAKE HUGHES ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	0	0	0	0	53	66	0	119	65	0	**71**	136	0	56	3	59	**314**
17:00	0	0	0	0	**55**	**73**	0	**128**	**68**	0	71	**139**	0	40	4	44	311
17:15	0	0	0	0	39	65	0	104	65	**1**	59	125	0	50	4	54	283
17:30	0	0	0	0	41	57	0	98	65	0	58	123	0	**67**	**6**	**73**	294
Total Volume	0	0	0	0	188	261	0	449	263	1	259	523	0	213	17	230	1202
% App. Total	0	0	0		41.9	58.1	0		50.3	0.2	49.5		0	92.6	7.4		
PHF	.000	.000	.000	.000	.855	.894	.000	.877	.967	.250	.912	.941	.000	.795	.708	.788	.957



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: CASTAIC ROAD
E-W Direction: LAKE HUGHES ROAD

File Name : H1501006
Site Code : 00000000
Start Date : 1/27/2015
Page No : 1

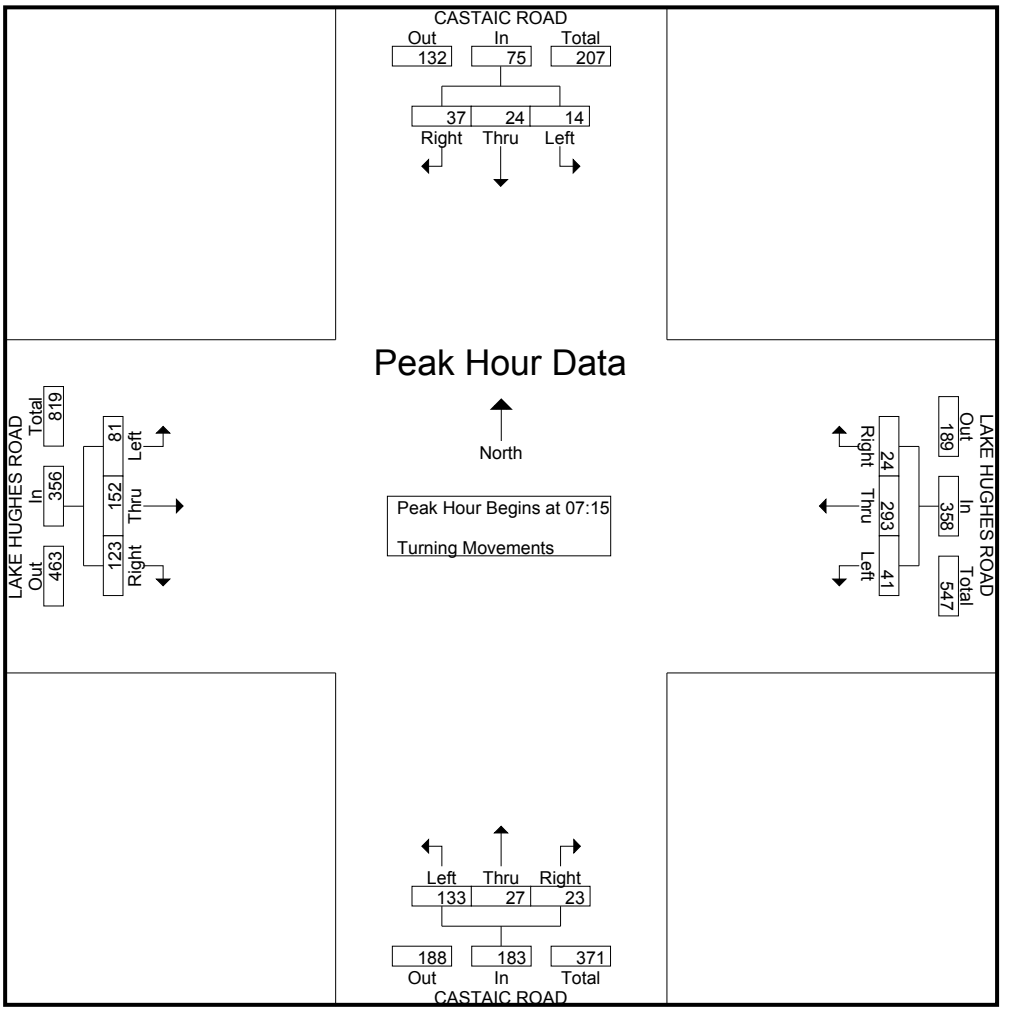
Groups Printed- Turning Movements

	CASTAIC ROAD Southbound			LAKE HUGHES ROAD Westbound			CASTAIC ROAD Northbound			LAKE HUGHES ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	12	1	5	4	46	8	10	4	34	33	36	14	207
07:15	7	7	3	3	61	8	6	5	29	29	20	15	193
07:30	10	6	3	6	76	13	8	7	36	27	41	25	258
07:45	9	3	3	8	87	11	6	7	32	37	64	15	282
Total	38	17	14	21	270	40	30	23	131	126	161	69	940
08:00	11	8	5	7	69	9	3	8	36	30	27	26	239
08:15	9	3	3	6	35	7	2	10	32	27	22	22	178
08:30	10	6	1	3	34	10	6	7	26	30	16	19	168
08:45	11	8	5	5	27	5	2	8	28	25	17	19	160
Total	41	25	14	21	165	31	13	33	122	112	82	86	745
16:00	30	7	8	9	30	8	17	18	45	42	43	26	283
16:15	22	10	11	6	33	9	7	8	72	36	39	32	285
16:30	21	7	5	6	35	9	9	11	61	33	45	26	268
16:45	29	9	8	12	31	3	7	10	55	30	48	34	276
Total	102	33	32	33	129	29	40	47	233	141	175	118	1112
17:00	27	9	6	10	28	5	10	17	61	37	52	18	280
17:15	24	9	11	8	35	6	11	8	48	39	57	24	280
17:30	19	15	6	1	29	6	13	11	53	36	58	31	278
17:45	27	12	6	9	27	4	4	15	45	34	43	29	255
Total	97	45	29	28	119	21	38	51	207	146	210	102	1093
Grand Total	278	120	89	103	683	121	121	154	693	525	628	375	3890
Apprch %	57.1	24.6	18.3	11.4	75.3	13.3	12.5	15.9	71.6	34.4	41.1	24.5	
Total %	7.1	3.1	2.3	2.6	17.6	3.1	3.1	4	17.8	13.5	16.1	9.6	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501006
Site Code : 00000000
Start Date : 1/27/2015
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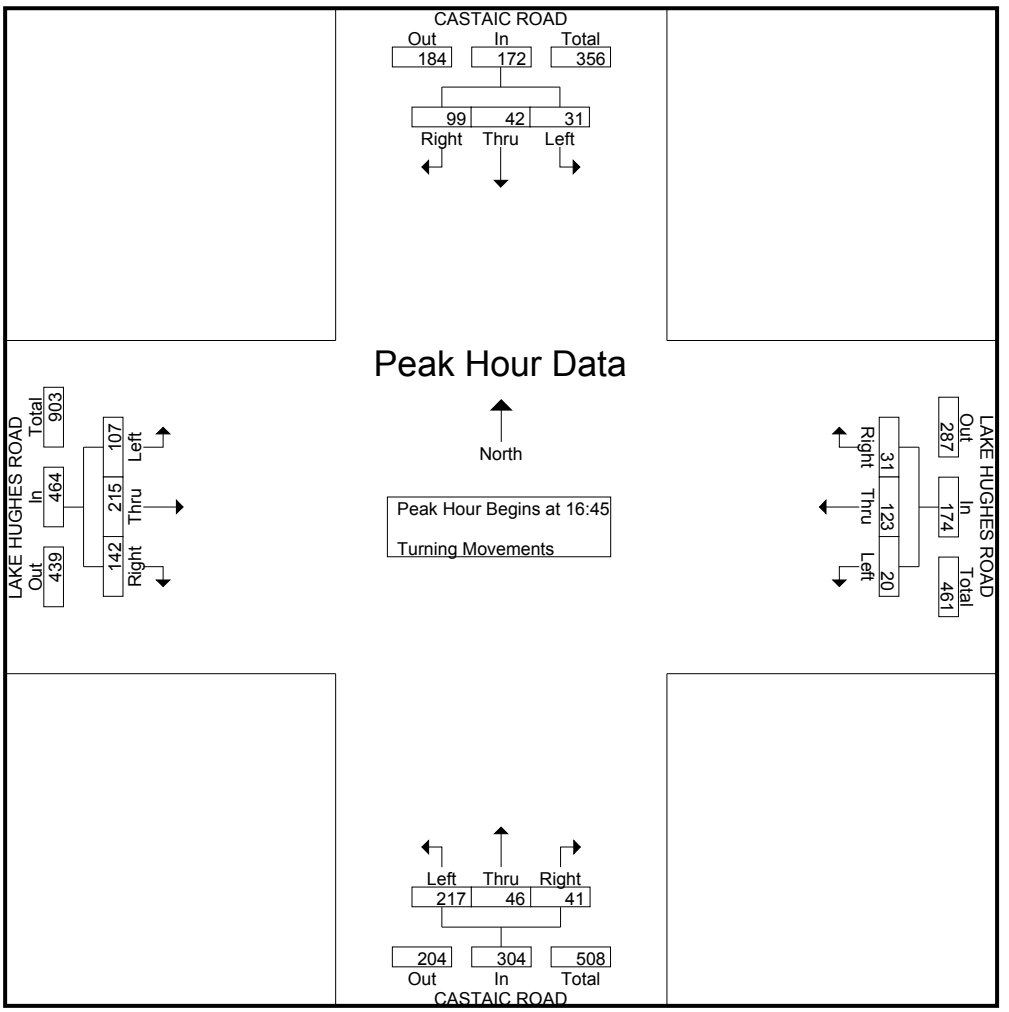
	CASTAIC ROAD Southbound				LAKE HUGHES ROAD Westbound				CASTAIC ROAD Northbound				LAKE HUGHES ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	7	7	3	17	3	61	8	72	6	5	29	40	29	20	15	64	193
07:30	10	6	3	19	6	76	**13**	95	**8**	7	**36**	**51**	27	41	25	93	258
07:45	9	3	3	15	**8**	**87**	11	**106**	6	7	32	45	**37**	**64**	15	**116**	**282**
08:00	**11**	**8**	**5**	**24**	7	69	9	85	3	**8**	36	47	30	27	**26**	83	239
Total Volume	37	24	14	75	24	293	41	358	23	27	133	183	123	152	81	356	972
% App. Total	49.3	32	18.7		6.7	81.8	11.5		12.6	14.8	72.7		34.6	42.7	22.8		
PHF	.841	.750	.700	.781	.750	.842	.788	.844	.719	.844	.924	.897	.831	.594	.779	.767	.862



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501006
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	CASTAIC ROAD Southbound				LAKE HUGHES ROAD Westbound				CASTAIC ROAD Northbound				LAKE HUGHES ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	**29**	9	8	**46**	**12**	31	3	46	7	10	55	72	30	48	**34**	112	276
17:00	27	9	6	42	10	28	5	43	10	**17**	**61**	**88**	37	52	18	107	**280**
17:15	24	9	**11**	44	8	**35**	**6**	**49**	11	8	48	67	**39**	57	24	120	280
17:30	19	**15**	6	40	1	29	6	36	**13**	11	53	77	36	**58**	31	**125**	278
Total Volume	99	42	31	172	31	123	20	174	41	46	217	304	142	215	107	464	1114
% App. Total	57.6	24.4	18		17.8	70.7	11.5		13.5	15.1	71.4		30.6	46.3	23.1		
PHF	.853	.700	.705	.935	.646	.879	.833	.888	.788	.676	.889	.864	.910	.927	.787	.928	.995



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: RIDGE ROUTE ROAD
E-W Direction: LAKE HUGHES ROAD

File Name : H1501007
Site Code : 00005724
Start Date : 1/27/2015
Page No : 1

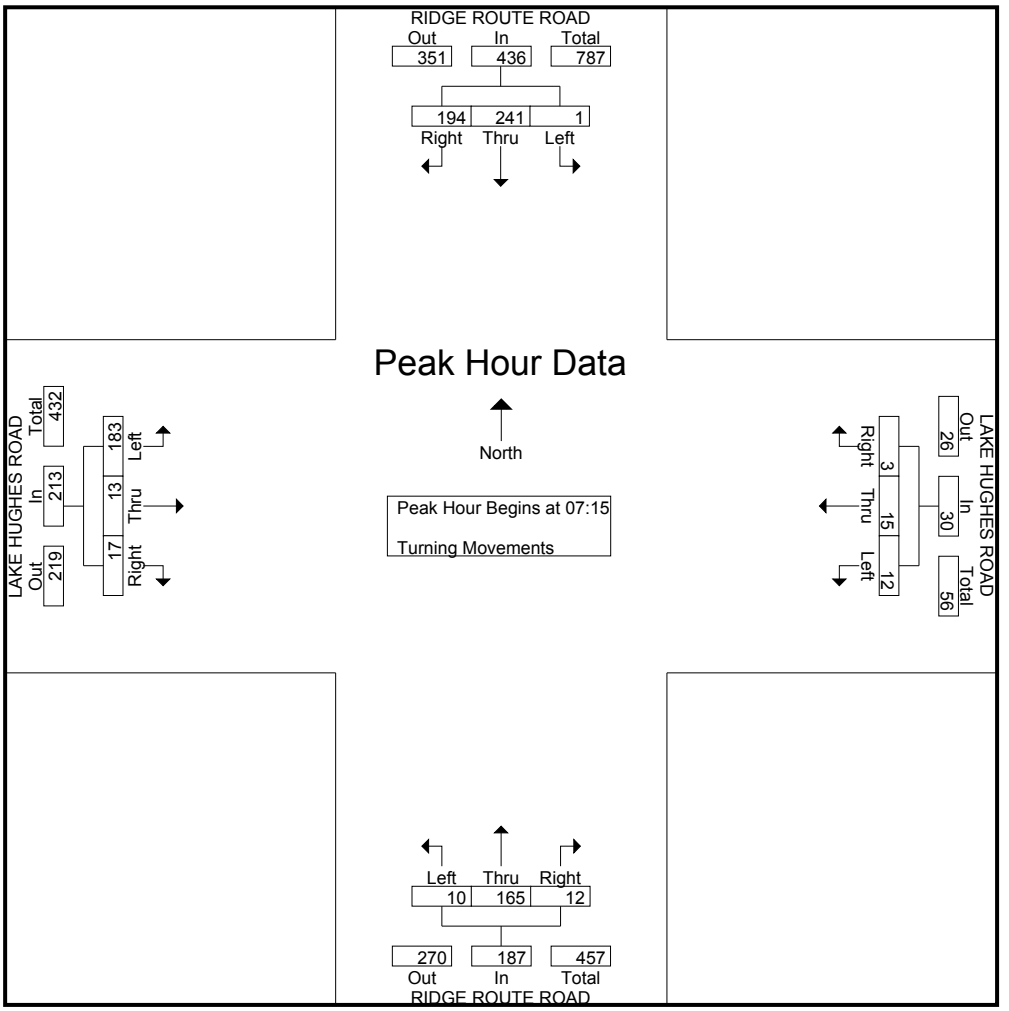
Groups Printed- Turning Movements

	RIDGE ROUTE ROAD Southbound			LAKE HUGHES ROAD Westbound			RIDGE ROUTE ROAD Northbound			LAKE HUGHES ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	13	20	0	1	4	5	4	15	5	2	6	16	91
07:15	16	31	1	0	1	2	3	27	3	2	2	30	118
07:30	33	56	0	0	4	3	2	43	2	7	3	52	205
07:45	69	72	0	0	3	3	1	67	3	3	2	78	301
Total	131	179	1	1	12	13	10	152	13	14	13	176	715
08:00	76	82	0	3	7	4	6	28	2	5	6	23	242
08:15	13	21	1	2	4	3	2	14	3	2	0	14	79
08:30	15	33	1	1	6	3	1	20	3	2	5	9	99
08:45	12	29	0	0	2	3	3	7	5	7	4	4	76
Total	116	165	2	6	19	13	12	69	13	16	15	50	496
16:00	11	15	0	2	3	3	4	11	11	6	4	8	78
16:15	12	18	2	1	6	5	12	24	5	7	4	18	114
16:30	10	19	0	2	6	5	9	15	7	5	1	8	87
16:45	5	21	0	0	10	5	8	21	7	4	5	14	100
Total	38	73	2	5	25	18	33	71	30	22	14	48	379
17:00	7	22	2	2	6	2	4	23	8	9	6	11	102
17:15	9	16	0	2	4	2	4	19	6	12	8	22	104
17:30	4	13	0	0	11	5	3	25	5	6	3	11	86
17:45	4	12	0	0	3	1	3	25	9	7	2	14	80
Total	24	63	2	4	24	10	14	92	28	34	19	58	372
Grand Total	309	480	7	16	80	54	69	384	84	86	61	332	1962
Apprch %	38.8	60.3	0.9	10.7	53.3	36	12.8	71.5	15.6	18	12.7	69.3	
Total %	15.7	24.5	0.4	0.8	4.1	2.8	3.5	19.6	4.3	4.4	3.1	16.9	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501007
Site Code : 00005724
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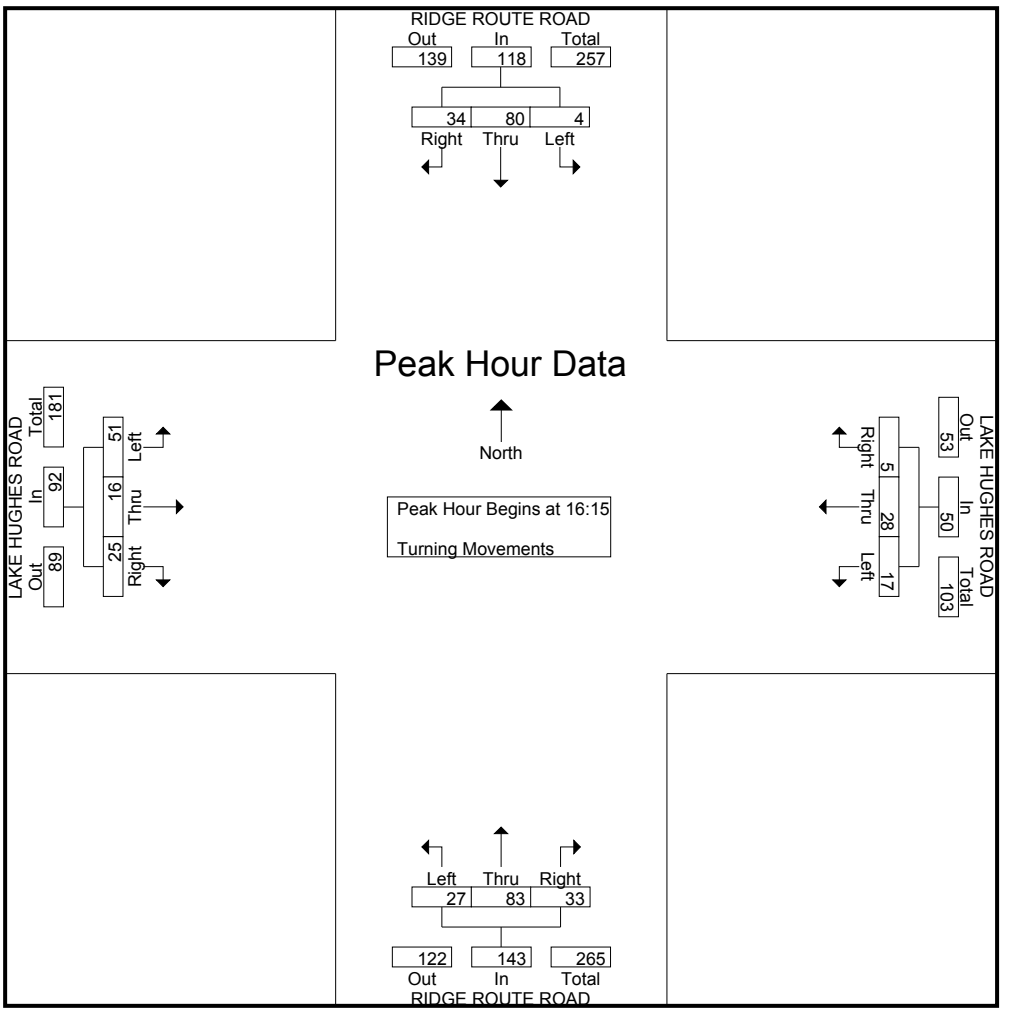
	RIDGE ROUTE ROAD Southbound				LAKE HUGHES ROAD Westbound				RIDGE ROUTE ROAD Northbound				LAKE HUGHES ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	16	31	**1**	48	0	1	2	3	3	27	**3**	33	2	2	30	34	118
07:30	33	56	0	89	0	4	3	7	2	43	2	47	**7**	3	52	62	205
07:45	69	72	0	141	0	3	3	6	1	**67**	3	**71**	3	2	**78**	**83**	**301**
08:00	**76**	**82**	0	**158**	**3**	**7**	**4**	**14**	**6**	28	2	36	5	**6**	23	34	242
Total Volume	194	241	1	436	3	15	12	30	12	165	10	187	17	13	183	213	866
% App. Total	44.5	55.3	0.2		10	50	40		6.4	88.2	5.3		8	6.1	85.9		
PHF	.638	.735	.250	.690	.250	.536	.750	.536	.500	.616	.833	.658	.607	.542	.587	.642	.719



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
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File Name : H1501007
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	RIDGE ROUTE ROAD Southbound				LAKE HUGHES ROAD Westbound				RIDGE ROUTE ROAD Northbound				LAKE HUGHES ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	**12**	18	**2**	**32**	1	6	**5**	12	**12**	**24**	5	**41**	7	4	**18**	**29**	**114**
16:30	10	19	0	29	**2**	6	5	13	9	15	7	31	5	1	8	14	87
16:45	5	21	0	26	0	**10**	5	**15**	8	21	7	36	4	5	14	23	100
17:00	7	**22**	2	31	2	6	2	10	4	23	**8**	35	**9**	**6**	11	26	102
Total Volume	34	80	4	118	5	28	17	50	33	83	27	143	25	16	51	92	403
% App. Total	28.8	67.8	3.4		10	56	34		23.1	58	18.9		27.2	17.4	55.4		
PHF	.708	.909	.500	.922	.625	.700	.850	.833	.688	.865	.844	.872	.694	.667	.708	.793	.884



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: THE OLD ROAD
E-W Direction: PARKER ROAD

File Name : H1501008
Site Code : 00005724
Start Date : 1/28/2015
Page No : 1

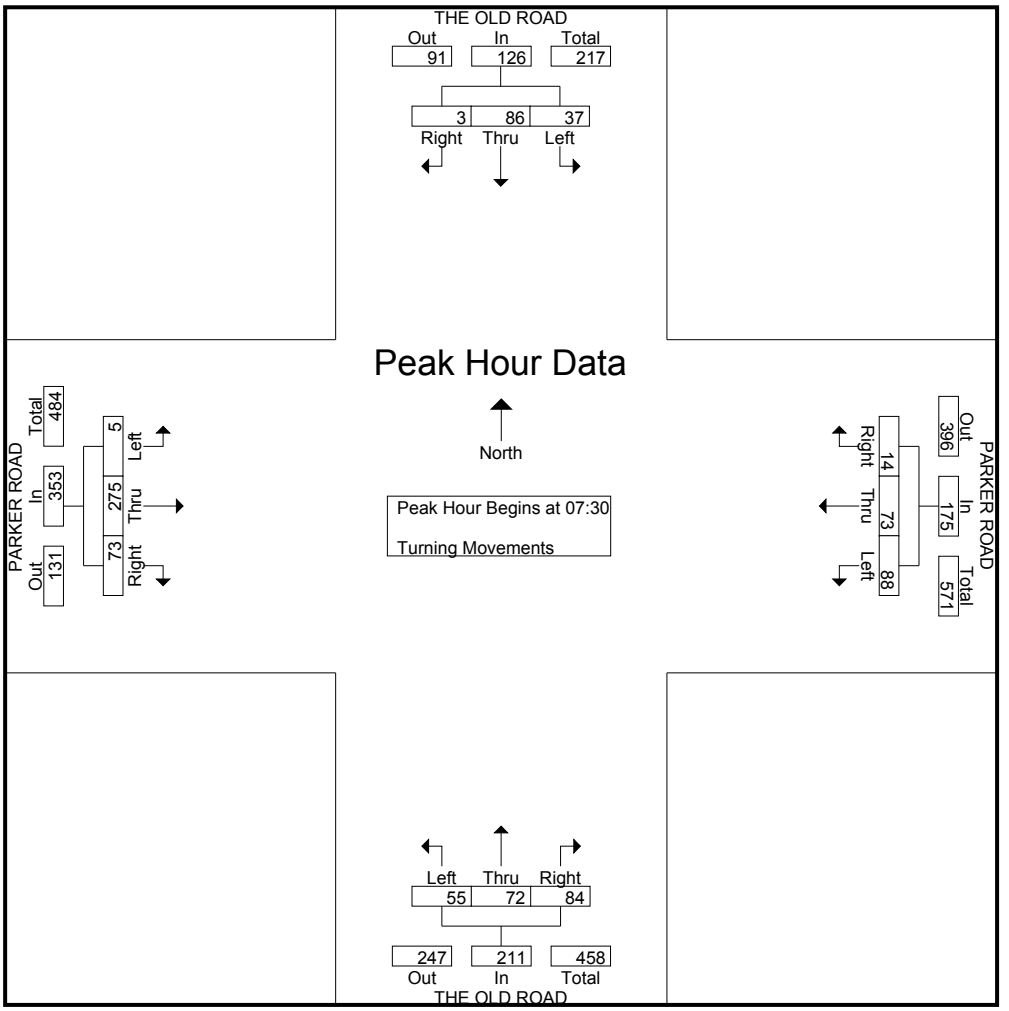
Groups Printed- Turning Movements

	THE OLD ROAD Southbound			PARKER ROAD Westbound			THE OLD ROAD Northbound			PARKER ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	2	6	9	4	12	4	12	5	4	8	59	0	125
07:15	0	14	8	2	14	13	10	5	3	13	68	2	152
07:30	2	14	10	2	10	13	19	5	4	10	76	0	165
07:45	0	20	7	2	20	18	21	13	8	19	97	2	227
Total	4	54	34	10	56	48	62	28	19	50	300	4	669
08:00	1	29	13	4	25	35	25	20	21	22	54	1	250
08:15	0	23	7	6	18	22	19	34	22	22	48	2	223
08:30	2	12	11	0	18	5	23	20	13	10	44	3	161
08:45	1	9	7	4	14	16	14	15	6	8	38	1	133
Total	4	73	38	14	75	78	81	89	62	62	184	7	767
16:00	5	17	6	17	45	20	20	19	9	13	27	2	200
16:15	2	17	9	11	33	14	25	17	15	9	37	1	190
16:30	3	11	15	11	40	19	17	21	18	10	35	0	200
16:45	1	8	6	8	55	17	18	20	5	4	33	3	178
Total	11	53	36	47	173	70	80	77	47	36	132	6	768
17:00	1	10	11	12	53	23	18	13	8	8	29	2	188
17:15	6	10	10	14	58	21	22	23	16	6	38	3	227
17:30	4	24	3	14	53	18	14	15	11	5	34	3	198
17:45	5	18	10	10	51	15	19	18	13	8	26	0	193
Total	16	62	34	50	215	77	73	69	48	27	127	8	806
Grand Total	35	242	142	121	519	273	296	263	176	175	743	25	3010
Apprch %	8.4	57.8	33.9	13.3	56.8	29.9	40.3	35.8	23.9	18.6	78.8	2.7	
Total %	1.2	8	4.7	4	17.2	9.1	9.8	8.7	5.8	5.8	24.7	0.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501008
Site Code : 00005724
Start Date : 1/28/2015
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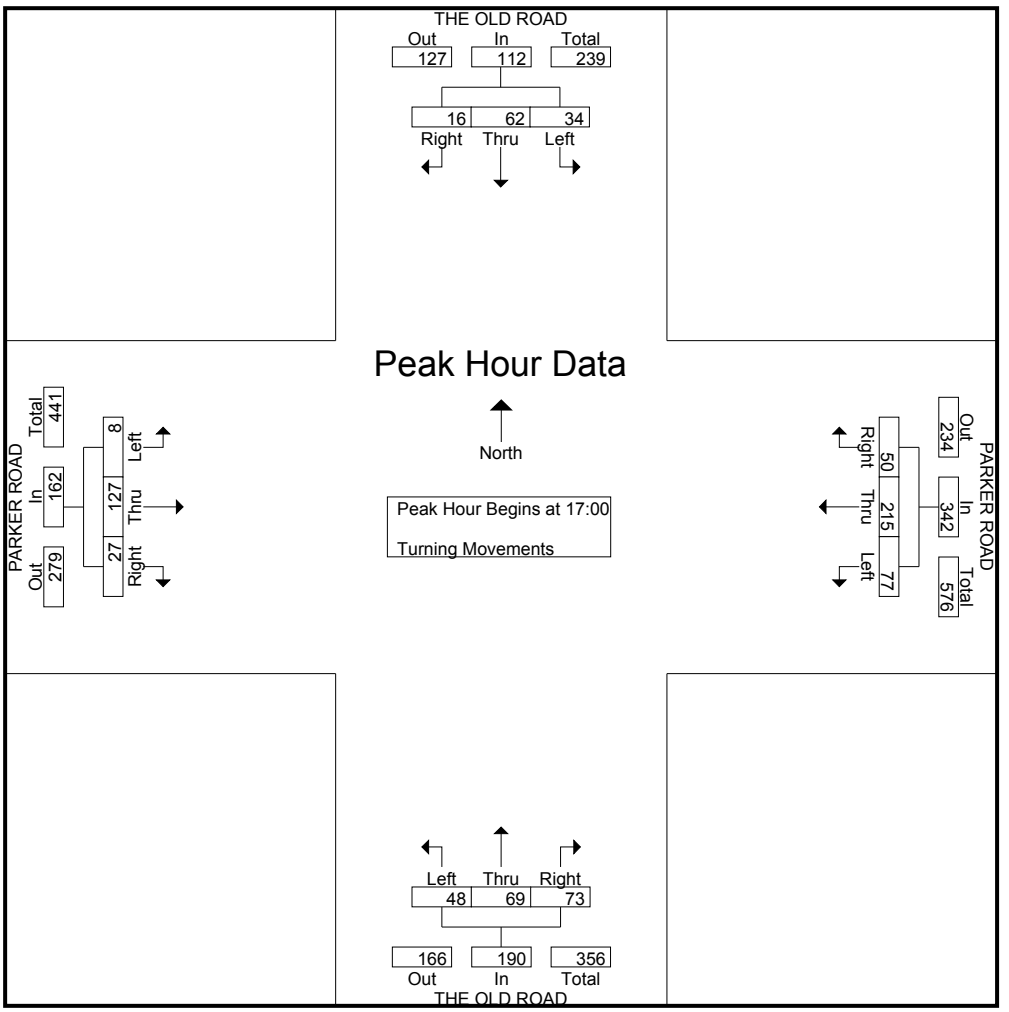
	THE OLD ROAD Southbound				PARKER ROAD Westbound				THE OLD ROAD Northbound				PARKER ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**2**	14	10	26	2	10	13	25	19	5	4	28	10	76	0	86	165
07:45	0	20	7	27	2	20	18	40	21	13	8	42	19	**97**	**2**	**118**	227
08:00	1	**29**	**13**	**43**	4	**25**	**35**	**64**	**25**	20	21	66	**22**	54	1	77	**250**
08:15	0	23	7	30	**6**	18	22	46	19	**34**	**22**	**75**	22	48	2	72	223
Total Volume	3	86	37	126	14	73	88	175	84	72	55	211	73	275	5	353	865
% App. Total	2.4	68.3	29.4		8	41.7	50.3		39.8	34.1	26.1		20.7	77.9	1.4		
PHF	.375	.741	.712	.733	.583	.730	.629	.684	.840	.529	.625	.703	.830	.709	.625	.748	.865



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501008
Site Code : 00005724
Start Date : 1/28/2015
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	THE OLD ROAD Southbound				PARKER ROAD Westbound				THE OLD ROAD Northbound				PARKER ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	1	10	**11**	22	12	53	**23**	88	18	13	8	39	**8**	29	2	39	188
17:15	**6**	10	10	26	**14**	**58**	21	**93**	**22**	**23**	**16**	**61**	6	**38**	**3**	**47**	**227**
17:30	4	**24**	3	31	14	53	18	85	14	15	11	40	5	34	3	42	198
17:45	5	18	10	**33**	10	51	15	76	19	18	13	50	8	26	0	34	193
Total Volume	16	62	34	112	50	215	77	342	73	69	48	190	27	127	8	162	806
% App. Total	14.3	55.4	30.4		14.6	62.9	22.5		38.4	36.3	25.3		16.7	78.4	4.9		
PHF	.667	.646	.773	.848	.893	.927	.837	.919	.830	.750	.750	.779	.844	.836	.667	.862	.888



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: I-5 SB ON RAMP
E-W Direction: PARKER ROAD

File Name : H1501009
Site Code : 00000000
Start Date : 1/22/2015
Page No : 1

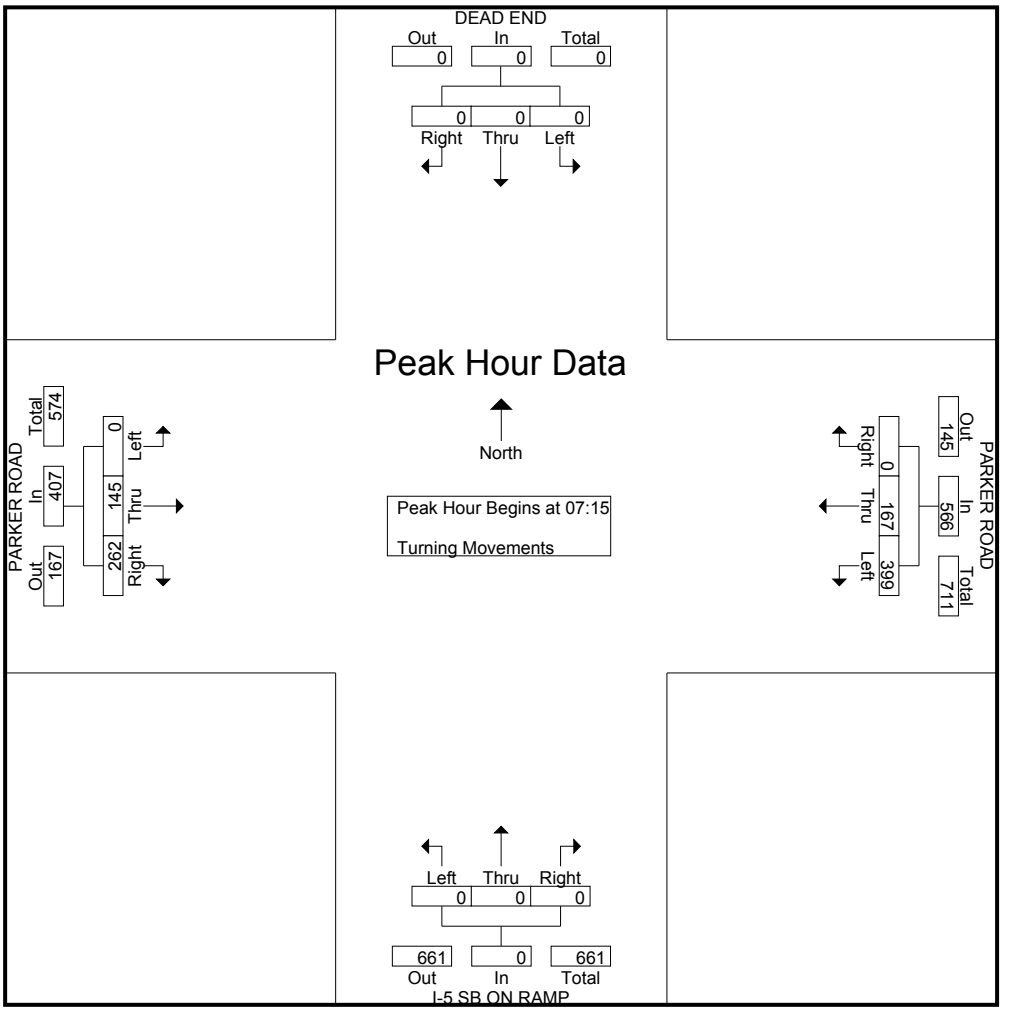
Groups Printed- Turning Movements

	DEAD END Southbound			PARKER ROAD Westbound			I-5 SB ON RAMP Northbound			PARKER ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	0	21	84	0	0	0	69	12	0	186
07:15	0	0	0	0	30	94	0	0	0	78	14	0	216
07:30	0	0	0	0	26	113	0	0	0	75	51	0	265
07:45	0	0	0	0	57	103	0	0	0	67	45	0	272
Total	0	0	0	0	134	394	0	0	0	289	122	0	939
08:00	0	0	0	0	54	89	0	0	0	42	35	0	220
08:15	0	0	0	0	40	71	0	0	0	53	34	0	198
08:30	0	0	0	0	35	65	0	0	0	38	21	0	159
08:45	0	0	0	0	33	77	0	0	0	42	18	0	170
Total	0	0	0	0	162	302	0	0	0	175	108	0	747
16:00	0	0	0	0	72	61	0	0	0	31	25	0	189
16:15	0	0	0	0	69	51	0	0	0	35	28	0	183
16:30	0	0	0	0	73	84	0	0	0	40	27	0	224
16:45	0	0	0	0	66	76	0	0	0	28	42	0	212
Total	0	0	0	0	280	272	0	0	0	134	122	0	808
17:00	0	0	0	0	90	88	0	0	0	31	36	0	245
17:15	0	0	0	0	84	82	0	0	0	29	23	0	218
17:30	0	0	0	0	90	83	0	0	0	28	31	0	232
17:45	0	0	0	0	88	74	0	0	0	28	48	0	238
Total	0	0	0	0	352	327	0	0	0	116	138	0	933
Grand Total	0	0	0	0	928	1295	0	0	0	714	490	0	3427
Apprch %	0	0	0	0	41.7	58.3	0	0	0	59.3	40.7	0	
Total %	0	0	0	0	27.1	37.8	0	0	0	20.8	14.3	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501009
Site Code : 00000000
Start Date : 1/22/2015
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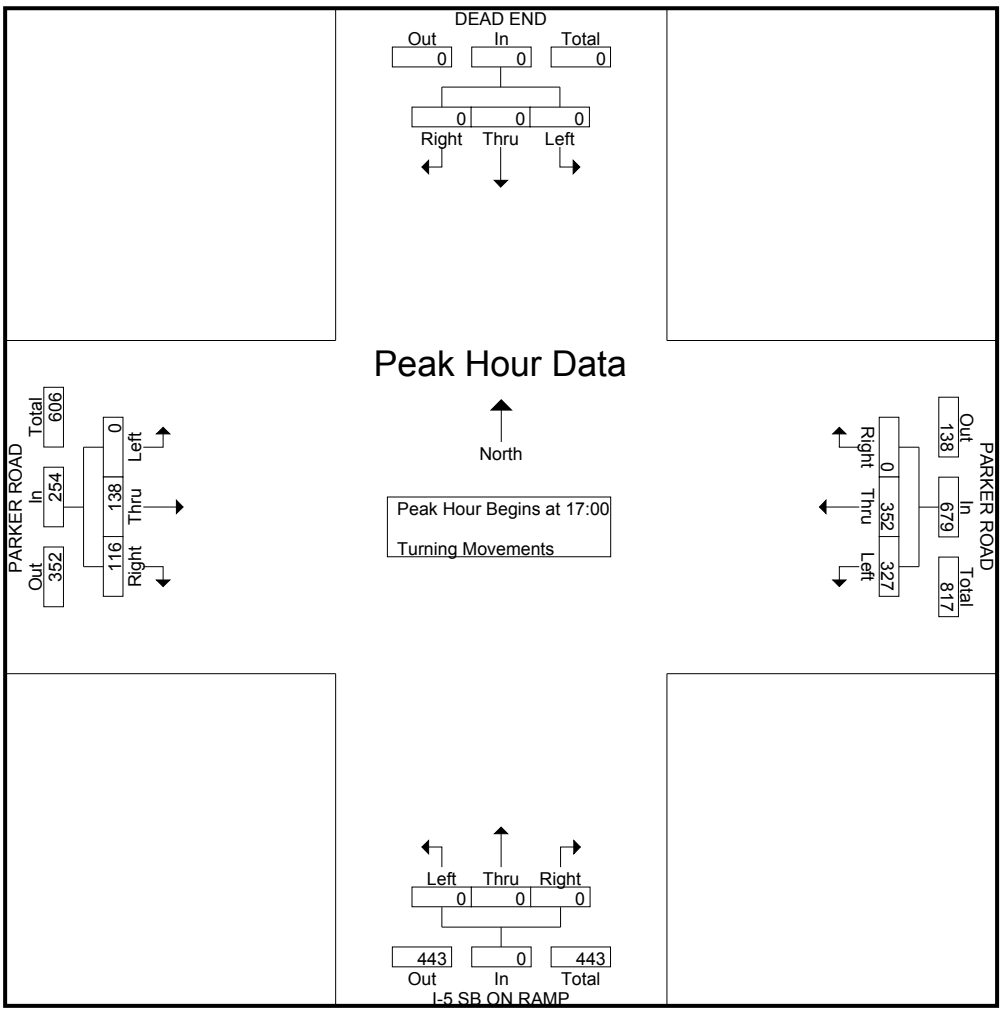
	DEAD END Southbound				PARKER ROAD Westbound				I-5 SB ON RAMP Northbound				PARKER ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	0	0	0	0	30	94	124	0	0	0	0	**78**	14	0	92	216
07:30	0	0	0	0	0	26	**113**	139	0	0	0	0	75	**51**	0	**126**	265
07:45	0	0	0	0	0	**57**	103	**160**	0	0	0	0	67	45	0	112	**272**
08:00	0	0	0	0	0	54	89	143	0	0	0	0	42	35	0	77	220
Total Volume	0	0	0	0	0	167	399	566	0	0	0	0	262	145	0	407	973
% App. Total	0	0	0		0	29.5	70.5		0	0	0		64.4	35.6	0		
PHF	.000	.000	.000	.000	.000	.732	.883	.884	.000	.000	.000	.000	.840	.711	.000	.808	.894



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501009
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	DEAD END Southbound				PARKER ROAD Westbound				I-5 SB ON RAMP Northbound				PARKER ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	0	0	0	0	**90**	**88**	**178**	0	0	0	0	**31**	36	0	67	**245**
17:15	0	0	0	0	0	84	82	166	0	0	0	0	29	23	0	52	218
17:30	0	0	0	0	0	90	83	173	0	0	0	0	28	31	0	59	232
17:45	0	0	0	0	0	88	74	162	0	0	0	0	28	**48**	0	**76**	238
Total Volume	0	0	0	0	0	352	327	679	0	0	0	0	116	138	0	254	933
% App. Total	0	0	0		0	51.8	48.2		0	0	0		45.7	54.3	0		
PHF	.000	.000	.000	.000	.000	.978	.929	.954	.000	.000	.000	.000	.935	.719	.000	.836	.952



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: I-5 NB OFF RAMP
E-W Direction: RIDGE ROUTE ROAD

File Name : H1501010
Site Code : 00000000
Start Date : 1/22/2015
Page No : 1

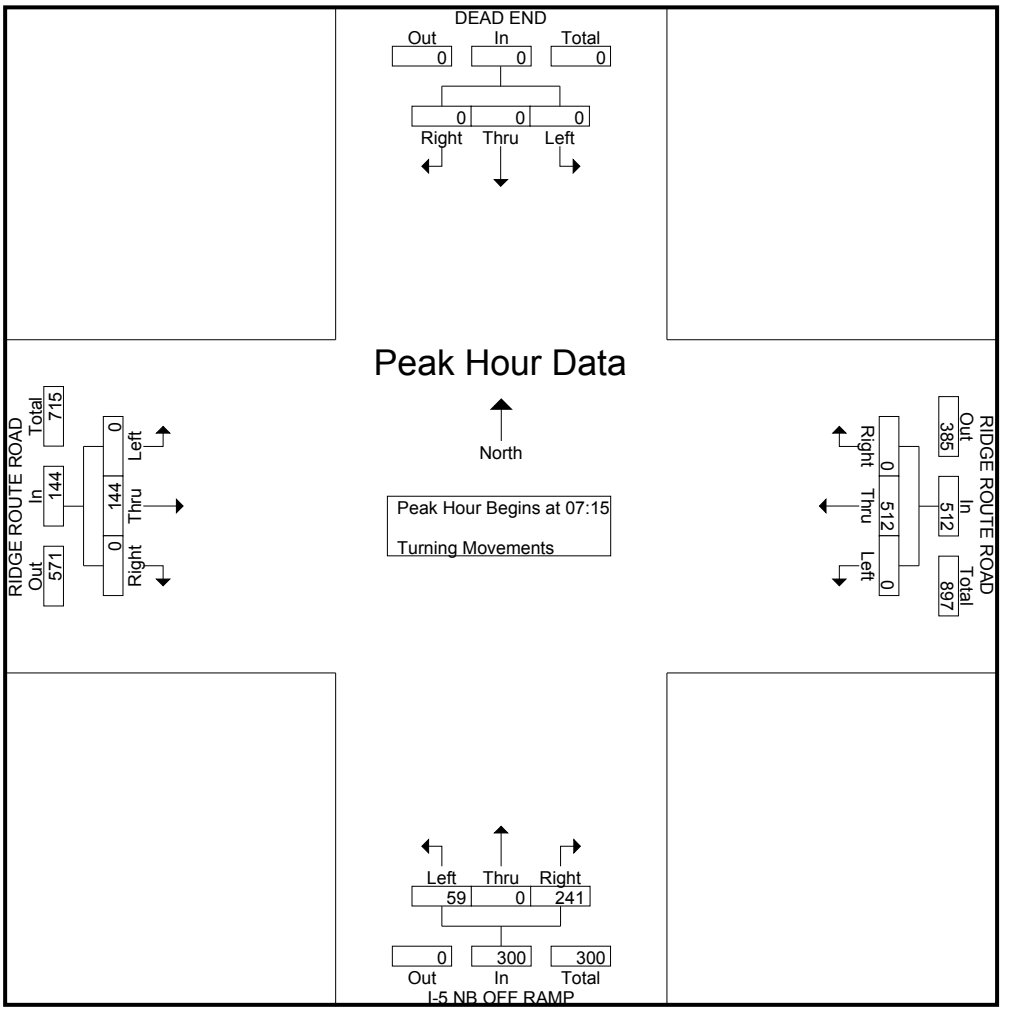
Groups Printed- Turning Movements

	DEAD END Southbound			RIDGE ROUTE ROAD Westbound			I-5 NB OFF RAMP Northbound			RIDGE ROUTE ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	0	87	0	48	0	15	0	10	0	160
07:15	0	0	0	0	118	0	61	0	10	0	14	0	203
07:30	0	0	0	0	132	0	64	0	12	0	50	0	258
07:45	0	0	0	0	138	0	58	0	19	0	46	0	261
Total	0	0	0	0	475	0	231	0	56	0	120	0	882
08:00	0	0	0	0	124	0	58	0	18	0	34	0	234
08:15	0	0	0	0	88	0	49	0	16	0	34	0	187
08:30	0	0	0	0	89	0	55	0	17	0	20	0	181
08:45	0	0	0	0	88	0	60	0	14	0	16	0	178
Total	0	0	0	0	389	0	222	0	65	0	104	0	780
16:00	0	0	0	0	90	0	109	0	50	0	25	0	274
16:15	0	0	0	0	75	0	110	0	39	0	27	0	251
16:30	0	0	0	0	109	0	127	0	46	0	25	0	307
16:45	0	0	0	0	105	0	135	0	44	0	42	0	326
Total	0	0	0	0	379	0	481	0	179	0	119	0	1158
17:00	0	0	0	0	128	0	119	0	46	0	37	0	330
17:15	0	0	0	0	106	0	127	0	57	0	26	0	316
17:30	0	0	0	0	126	0	125	0	50	0	32	0	333
17:45	0	0	0	0	112	0	120	0	52	0	43	0	327
Total	0	0	0	0	472	0	491	0	205	0	138	0	1306
Grand Total	0	0	0	0	1715	0	1425	0	505	0	481	0	4126
Apprch %	0	0	0	0	100	0	73.8	0	26.2	0	100	0	
Total %	0	0	0	0	41.6	0	34.5	0	12.2	0	11.7	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
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File Name : H1501010
Site Code : 00000000
Start Date : 1/22/2015
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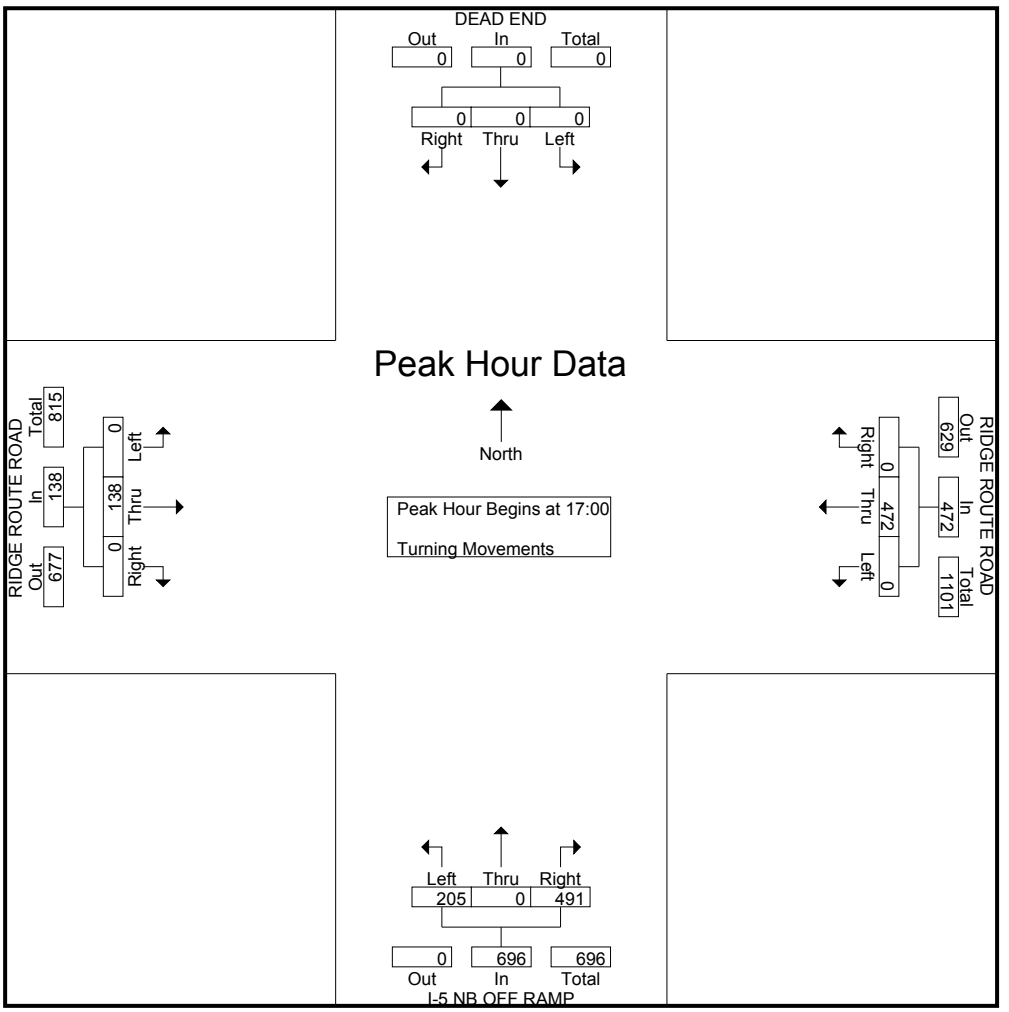
	DEAD END Southbound				RIDGE ROUTE ROAD Westbound				I-5 NB OFF RAMP Northbound				RIDGE ROUTE ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	0	0	0	0	118	0	118	61	0	10	71	0	14	0	14	203
07:30	0	0	0	0	0	132	0	132	**64**	0	12	76	0	**50**	0	**50**	258
07:45	0	0	0	0	0	**138**	0	**138**	58	0	**19**	**77**	0	46	0	46	**261**
08:00	0	0	0	0	0	124	0	124	58	0	18	76	0	34	0	34	234
Total Volume	0	0	0	0	0	512	0	512	241	0	59	300	0	144	0	144	956
% App. Total	0	0	0		0	100	0		80.3	0	19.7		0	100	0		
PHF	.000	.000	.000	.000	.000	.928	.000	.928	.941	.000	.776	.974	.000	.720	.000	.720	.916



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501010
Site Code : 00000000
Start Date : 1/22/2015
Page No : 3

	DEAD END Southbound				RIDGE ROUTE ROAD Westbound				I-5 NB OFF RAMP Northbound				RIDGE ROUTE ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	0	0	0	0	**128**	0	**128**	119	0	46	165	0	37	0	37	330
17:15	0	0	0	0	0	106	0	106	**127**	0	**57**	**184**	0	26	0	26	316
17:30	0	0	0	0	0	126	0	126	125	0	50	175	0	32	0	32	**333**
17:45	0	0	0	0	0	112	0	112	120	0	52	172	0	**43**	0	**43**	327
Total Volume	0	0	0	0	0	472	0	472	491	0	205	696	0	138	0	138	1306
% App. Total	0	0	0		0	100	0		70.5	0	29.5		0	100	0		
PHF	.000	.000	.000	.000	.000	.922	.000	.922	.967	.000	.899	.946	.000	.802	.000	.802	.980



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SANTA CLARITA
N-S- Direction: CASTAIC ROAD
E-W Direction: RIDGE ROUTE ROAD

File Name : H1501011
Site Code : 00000000
Start Date : 1/22/2015
Page No : 1

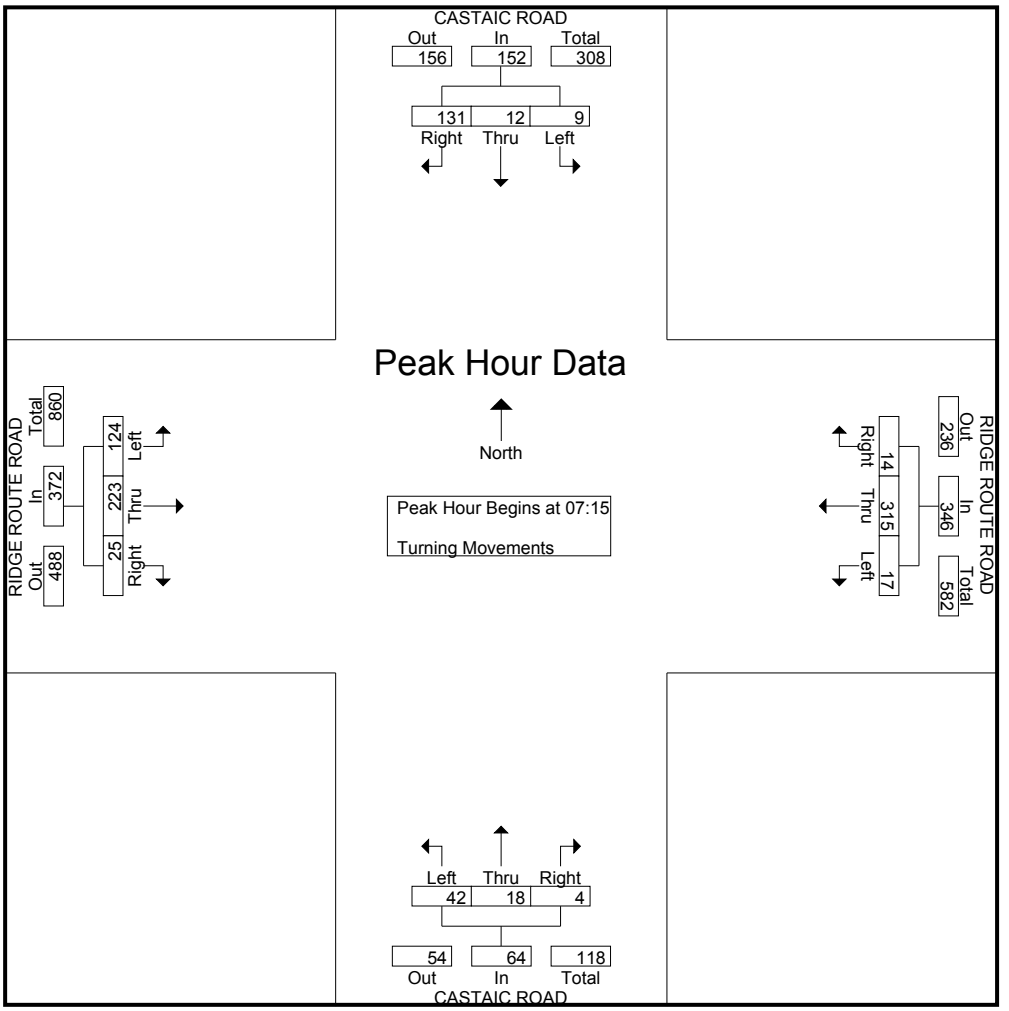
Groups Printed- Turning Movements

	CASTAIC ROAD Southbound			RIDGE ROUTE ROAD Westbound			CASTAIC ROAD Northbound			RIDGE ROUTE ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	27	1	2	7	67	4	1	3	9	11	30	18	180
07:15	35	0	1	1	68	4	1	6	8	10	42	24	200
07:30	25	4	2	3	93	4	2	2	11	3	78	29	256
07:45	33	2	3	8	87	5	0	5	7	5	62	32	249
Total	120	7	8	19	315	17	4	16	35	29	212	103	885
08:00	38	6	3	2	67	4	1	5	16	7	41	39	229
08:15	29	4	2	1	50	6	4	9	6	10	41	33	195
08:30	34	5	0	2	41	5	4	3	14	5	34	30	177
08:45	37	4	4	2	38	5	3	1	9	13	21	38	175
Total	138	19	9	7	196	20	12	18	45	35	137	140	776
16:00	30	8	2	3	35	4	4	12	30	19	47	59	253
16:15	32	12	3	6	31	4	3	6	10	23	55	59	244
16:30	37	7	2	4	41	9	4	14	29	23	69	56	295
16:45	38	15	4	3	36	4	4	15	27	62	63	53	324
Total	137	42	11	16	143	21	15	47	96	127	234	227	1116
17:00	36	6	1	10	34	6	5	18	49	31	67	53	316
17:15	35	8	5	7	34	5	4	5	37	26	58	62	286
17:30	39	9	8	8	46	1	5	8	32	29	56	59	300
17:45	33	10	3	3	38	11	7	15	44	51	55	54	324
Total	143	33	17	28	152	23	21	46	162	137	236	228	1226
Grand Total	538	101	45	70	806	81	52	127	338	328	819	698	4003
Apprch %	78.7	14.8	6.6	7.3	84.2	8.5	10.1	24.6	65.4	17.8	44.4	37.8	
Total %	13.4	2.5	1.1	1.7	20.1	2	1.3	3.2	8.4	8.2	20.5	17.4	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : H1501011
Site Code : 00000000
Start Date : 1/22/2015
Page No : 2

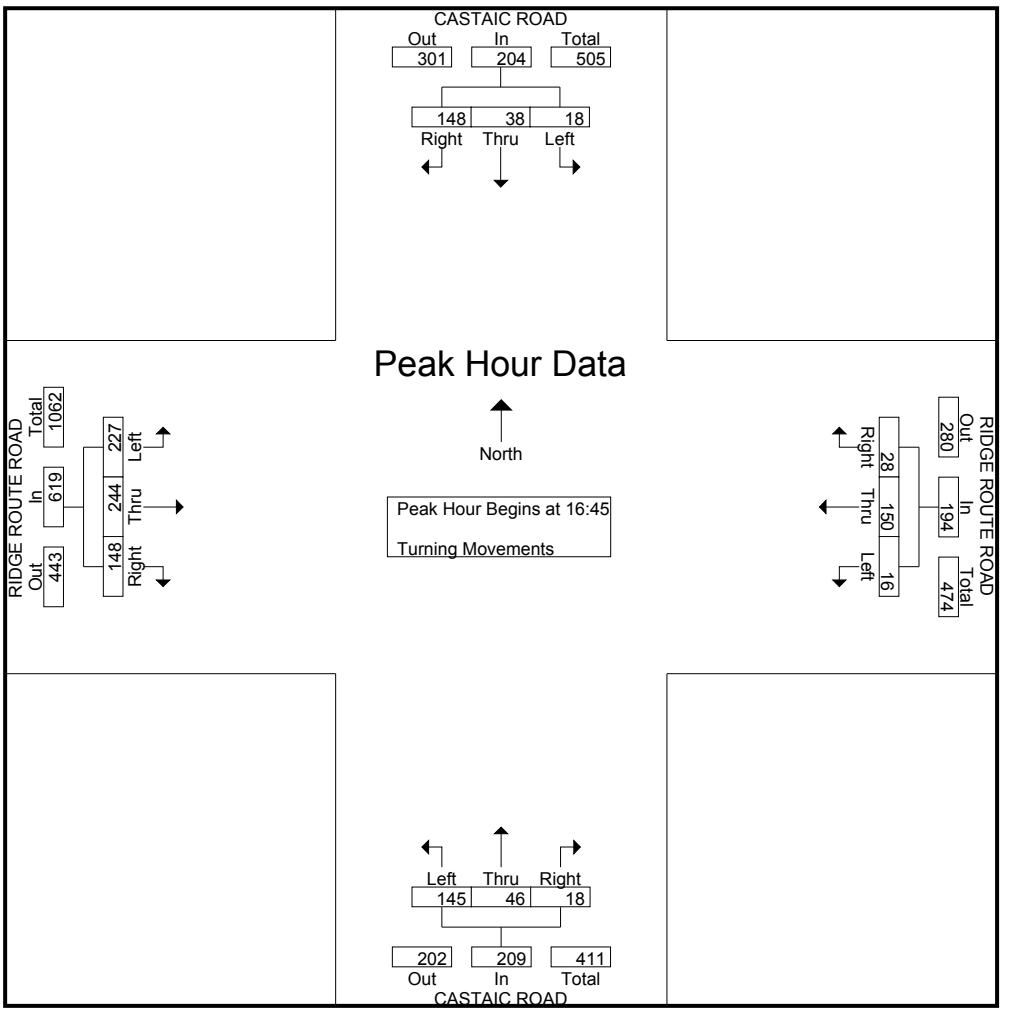
	CASTAIC ROAD Southbound				RIDGE ROUTE ROAD Westbound				CASTAIC ROAD Northbound				RIDGE ROUTE ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	35	0	1	36	1	68	4	73	1	**6**	8	15	**10**	42	24	76	200
07:30	25	4	2	31	3	**93**	4	**100**	**2**	2	11	15	3	**78**	29	**110**	**256**
07:45	33	2	**3**	38	**8**	87	**5**	100	0	5	7	12	5	62	32	99	249
08:00	**38**	**6**	3	**47**	2	67	4	73	1	5	**16**	**22**	7	41	**39**	87	229
Total Volume	131	12	9	152	14	315	17	346	4	18	42	64	25	223	124	372	934
% App. Total	86.2	7.9	5.9		4	91	4.9		6.2	28.1	65.6		6.7	59.9	33.3		
PHF	.862	.500	.750	.809	.438	.847	.850	.865	.500	.750	.656	.727	.625	.715	.795	.845	.912



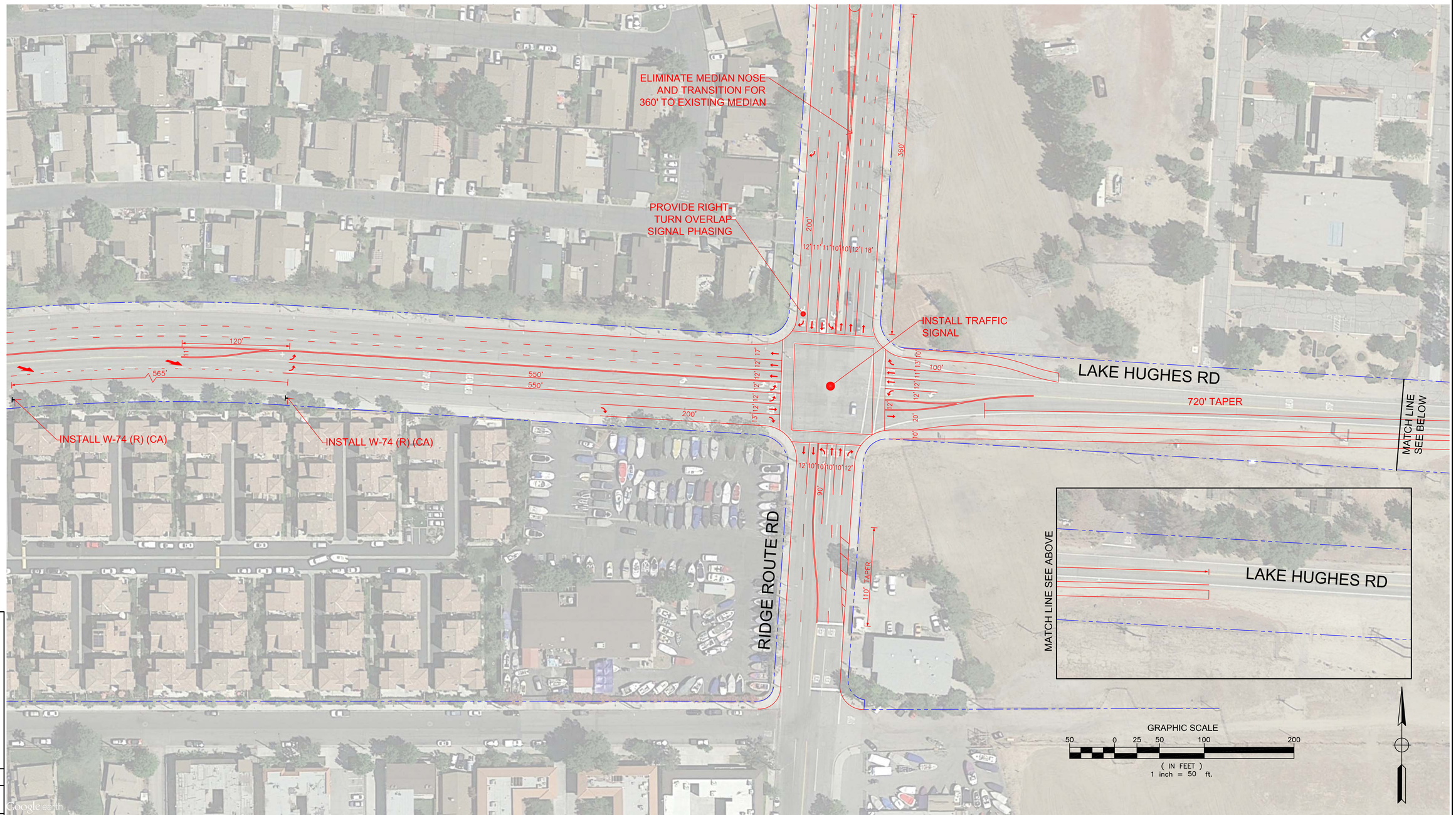
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Tustin, CA. 92780

File Name : H1501011
Site Code : 00000000
Start Date : 1/22/2015
Page No : 3

	CASTAIC ROAD Southbound				RIDGE ROUTE ROAD Westbound				CASTAIC ROAD Northbound				RIDGE ROUTE ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	38	**15**	4	**57**	3	36	4	43	4	15	27	46	**62**	63	53	**178**	**324**
17:00	36	6	1	43	**10**	34	**6**	50	**5**	**18**	**49**	**72**	31	**67**	53	151	316
17:15	35	8	5	48	7	34	5	46	4	5	37	46	26	58	**62**	146	286
17:30	**39**	9	**8**	56	8	**46**	1	**55**	5	8	32	45	29	56	59	144	300
Total Volume	148	38	18	204	28	150	16	194	18	46	145	209	148	244	227	619	1226
% App. Total	72.5	18.6	8.8		14.4	77.3	8.2		8.6	22	69.4		23.9	39.4	36.7		
PHF	.949	.633	.563	.895	.700	.815	.667	.882	.900	.639	.740	.726	.597	.910	.915	.869	.946



Appendix D CONCEPT MITIGATION PLAN



NO.	PROJECT	CADD FILE NAME	DATE	BY	REVISIONS

DRAWN BY: _____

T.G. Page: 4369 / H-6

REGISTERED PROFESSIONAL ENGINEER
FENG XU
No. 80744
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:

Stantec

_____ DATE: _____
FENG XU, RCE 80744 EXPIRE 3-31-17

CONSTRUCTION DIVISION SHALL CONTACT TRAFFIC AND LIGHTING DIVISION PRIOR TO ISSUANCE OF PERMIT

REVIEWED
DATE: _____

RECOMMENDED
DATE: _____

APPROVED
GAIL FARBER, DIRECTOR OF PUBLIC WORKS

BY: _____ _____
ASSISTANT DEPUTY DIRECTOR DATE

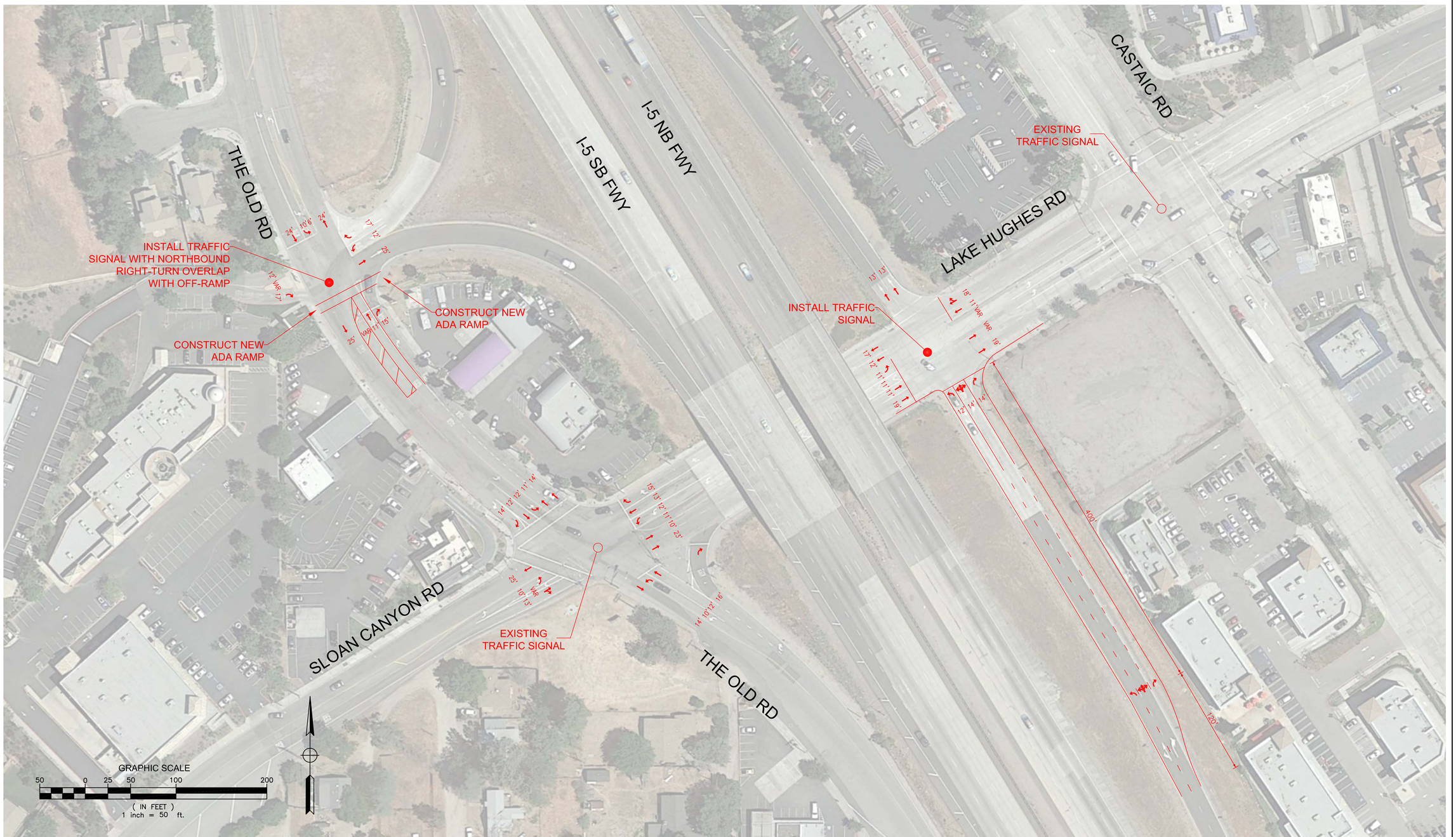
THIS PLAN EXPIRES TWO YEARS AFTER APPROVAL DATE

NORTHLAKE ASSOCIATES, LLC
NORTHLAKE SPECIFIC PLAN
CASTAIC,CA

CONCEPT MITIGATION PLAN
RIDGE ROUTE RD AND LAKE HUGHES RD

VTTM 73336	SHEET 1 OF 3	SCALE: 1" = 50'	T.S.

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4/4/2016 8:01 AM



NO.	PROJECT	CADD FILE NAME	DATE	BY

REVISIONS

T.G. Page: 4369 / G-6

CONSTRUCTION DIVISION SHALL CONTACT TRAFFIC AND LIGHTING DIVISION PRIOR TO ISSUANCE OF PERMIT

REGISTERED PROFESSIONAL ENGINEER
FENG XU
No. 80744
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:
Stantec

FENG XU, RCE 80744 EXPIRE 3-31-17 DATE:

REVIEWED
DATE:

RECOMMENDED
DATE:

APPROVED
GAIL FARBER, DIRECTOR OF PUBLIC WORKS
BY: ASSISTANT DEPUTY DIRECTOR DATE

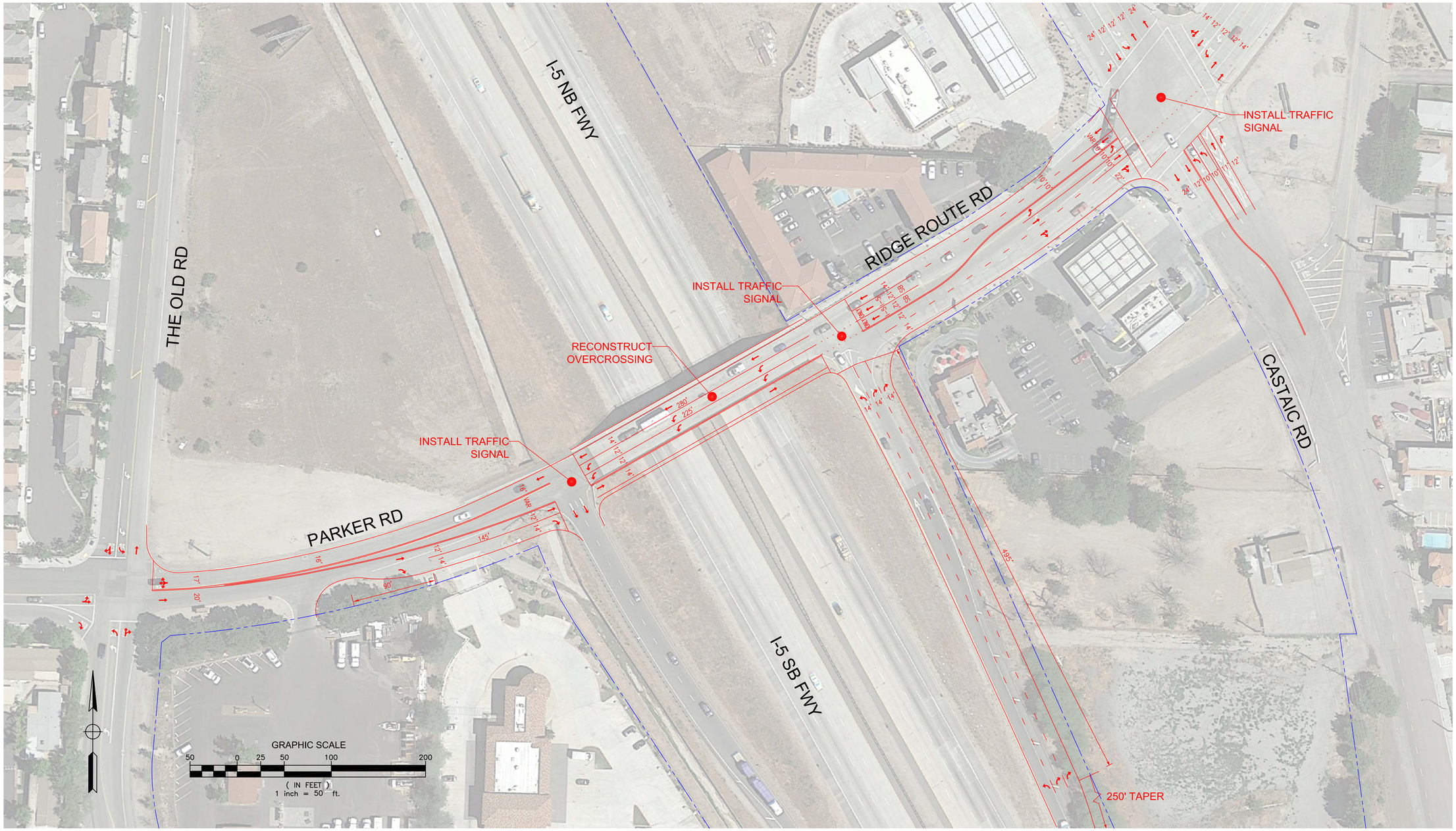
NORTHLAKE ASSOCIATES, LLC
NORTHLAKE SPECIFIC PLAN
CASTAIC,CA

CONCEPT MITIGATION PLAN
THE OLD RD, LAKE HUGHES RD TO I-5 RAMPS

VTTM 73336 | SHEET 2 OF 3 | SCALE: 1" = 50' T.S.

THIS PLAN EXPIRES TWO YEARS AFTER APPROVAL DATE

9/17/2015 2:29 AM
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REVISIONS	BY	DATE	CADD FILE NAME	PROJECT	NO.

T.G. Page: 4369 / H-7

REGISTERED PROFESSIONAL ENGINEER
FENG XU
No. 80744
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

CONSTRUCTION DIVISION SHALL CONTACT TRAFFIC AND LIGHTING DIVISION PRIOR TO ISSUANCE OF PERMIT

PLANS PREPARED BY:
Stantec

FENG XU, RCE 80744 EXPIRE 3-31-17 DATE:

REVIEWED
DATE:

RECOMMENDED
DATE:

APPROVED
GAIL FARBER, DIRECTOR OF PUBLIC WORKS

BY: ASSISTANT DEPUTY DIRECTOR DATE

NORTHLAKE ASSOCIATES, LLC
NORTHLAKE SPECIFIC PLAN
CASTAIC, CA

CONCEPT MITIGATION PLAN
THE OLD RD AND PARKER RD -
RIDGE ROUTE RD AND CASTAIC RD

VTTM 73336 | SHEET 3 OF 3 | SCALE: 1" = 50' T.S.

THIS PLAN EXPIRES TWO YEARS AFTER APPROVAL DATE

4/14/2016 10:02 AM
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Appendix EHCM WORKSHEETS

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	190	280	1130	450	0	0
Future Volume (vph)	190	280	1130	450	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	300		0	0
Storage Lanes		1	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	1.00
Frt		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	1845	1568	3335	1810	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	1845	1568	3335	1810	0	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		77				
Link Speed (mph)	30			30	30	
Link Distance (ft)	486			342	585	
Travel Time (s)	11.0			7.8	13.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	5%	5%	2%	2%
Adj. Flow (vph)	190	280	1130	450	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	190	280	1130	450	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1	1	1	1		
Detector Template						
Leading Detector (ft)	50	50	50	50		
Trailing Detector (ft)	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0		
Detector 1 Size(ft)	50	50	50	50		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		
Turn Type	NA	Perm	Split	NA		
Protected Phases	4		8	8		
Permitted Phases		4				
Detector Phase	4	4	8	8		
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0		
Minimum Split (s)	20.0	20.0	20.0	20.0		

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Total Split (s)	35.0	35.0	55.0	55.0		
Total Split (%)	38.9%	38.9%	61.1%	61.1%		
Maximum Green (s)	31.0	31.0	51.0	51.0		
Yellow Time (s)	3.5	3.5	3.5	3.5		
All-Red Time (s)	0.5	0.5	0.5	0.5		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0	4.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0		
Recall Mode	None	None	None	None		
Walk Time (s)	5.0	5.0	5.0	5.0		
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		
Pedestrian Calls (#/hr)	0	0	0	0		
Act Effct Green (s)	40.0	40.0	42.0	42.0		
Actuated g/C Ratio	0.44	0.44	0.47	0.47		
v/c Ratio	0.23	0.38	0.73	0.53		
Control Delay	18.4	15.3	17.2	15.2		
Queue Delay	0.0	0.0	0.0	0.2		
Total Delay	18.4	15.3	17.3	15.4		
LOS	B	B	B	B		
Approach Delay	16.5			16.7		
Approach LOS	B			B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 15 (17%), Referenced to phase 2: and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: I-5 SB & Parker



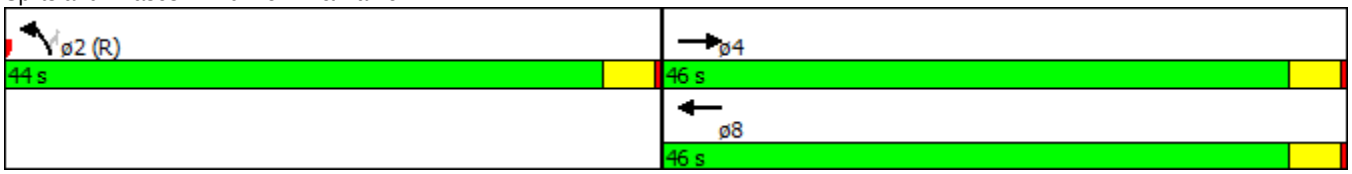


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	190	0	0	1360	230	860
Future Volume (vph)	190	0	0	1360	230	860
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		400	400
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	0.88
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	1810	0	0	4893	1703	2682
Flt Permitted					0.950	
Satd. Flow (perm)	1810	0	0	4893	1703	2682
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						860
Link Speed (mph)	30			30	30	
Link Distance (ft)	342			421	1215	
Travel Time (s)	7.8			9.6	27.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	5%	6%	6%	6%	6%
Adj. Flow (vph)	190	0	0	1360	230	860
Shared Lane Traffic (%)						
Lane Group Flow (vph)	190	0	0	1360	230	860
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1			1	1	1
Detector Template						
Leading Detector (ft)	50			50	50	50
Trailing Detector (ft)	0			0	0	0
Detector 1 Position(ft)	0			0	0	0
Detector 1 Size(ft)	50			50	50	50
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Turn Type	NA			NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Detector Phase	4			8	2	2
Switch Phase						
Minimum Initial (s)	4.0			4.0	4.0	4.0
Minimum Split (s)	20.0			20.0	20.0	20.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (s)	46.0			46.0	44.0	44.0
Total Split (%)	51.1%			51.1%	48.9%	48.9%
Maximum Green (s)	42.0			42.0	40.0	40.0
Yellow Time (s)	3.5			3.5	3.5	3.5
All-Red Time (s)	0.5			0.5	0.5	0.5
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.0			4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	None			None	C-Max	C-Max
Walk Time (s)	5.0			5.0	5.0	5.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	34.4			34.4	47.6	47.6
Actuated g/C Ratio	0.38			0.38	0.53	0.53
v/c Ratio	0.27			0.73	0.26	0.47
Control Delay	36.9			10.8	13.6	2.0
Queue Delay	0.0			0.1	0.0	0.0
Total Delay	36.9			10.8	13.6	2.0
LOS	D			B	B	A
Approach Delay	36.9			10.8	4.4	
Approach LOS	D			B	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 88 (98%), Referenced to phase 2:NBL and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 10: I-5 NB & Parker



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	330	330	1040	630	0	0
Future Volume (vph)	330	330	1040	630	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		250	300		0	0
Storage Lanes		1	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	1.00
Frt		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	1845	1568	3335	1810	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	1845	1568	3335	1810	0	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		95				
Link Speed (mph)	30			30	30	
Link Distance (ft)	486			342	585	
Travel Time (s)	11.0			7.8	13.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	5%	5%	2%	2%
Adj. Flow (vph)	330	330	1040	630	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	330	330	1040	630	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1	1	1	1		
Detector Template						
Leading Detector (ft)	50	50	50	50		
Trailing Detector (ft)	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0		
Detector 1 Size(ft)	50	50	50	50		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		
Turn Type	NA	Perm	Split	NA		
Protected Phases	4		8	8		
Permitted Phases		4				
Detector Phase	4	4	8	8		
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0		
Minimum Split (s)	20.0	20.0	20.0	20.0		

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Total Split (s)	35.0	35.0	55.0	55.0		
Total Split (%)	38.9%	38.9%	61.1%	61.1%		
Maximum Green (s)	31.0	31.0	51.0	51.0		
Yellow Time (s)	3.5	3.5	3.5	3.5		
All-Red Time (s)	0.5	0.5	0.5	0.5		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0	4.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0		
Recall Mode	None	None	None	None		
Walk Time (s)	5.0	5.0	5.0	5.0		
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		
Pedestrian Calls (#/hr)	0	0	0	0		
Act Effct Green (s)	39.2	39.2	42.8	42.8		
Actuated g/C Ratio	0.44	0.44	0.48	0.48		
v/c Ratio	0.41	0.45	0.66	0.73		
Control Delay	21.7	16.6	20.3	23.2		
Queue Delay	0.1	0.0	0.3	0.7		
Total Delay	21.8	16.6	20.6	23.9		
LOS	C	B	C	C		
Approach Delay	19.2			21.8		
Approach LOS	B			C		

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 15 (17%), Referenced to phase 2: and 6:, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 21.1		Intersection LOS: C	
Intersection Capacity Utilization 110.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 2: I-5 SB & Parker





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	330	0	0	1270	400	1590
Future Volume (vph)	330	0	0	1270	400	1590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		400	400
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	0.91	1.00	0.88
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	1810	0	0	4893	1703	2682
Flt Permitted					0.950	
Satd. Flow (perm)	1810	0	0	4893	1703	2682
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						483
Link Speed (mph)	30			30	30	
Link Distance (ft)	342			421	1215	
Travel Time (s)	7.8			9.6	27.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	5%	6%	6%	6%	6%
Adj. Flow (vph)	330	0	0	1270	400	1590
Shared Lane Traffic (%)						
Lane Group Flow (vph)	330	0	0	1270	400	1590
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1			1	1	1
Detector Template						
Leading Detector (ft)	50			50	50	50
Trailing Detector (ft)	0			0	0	0
Detector 1 Position(ft)	0			0	0	0
Detector 1 Size(ft)	50			50	50	50
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Turn Type	NA			NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Detector Phase	4			8	2	2
Switch Phase						
Minimum Initial (s)	4.0			4.0	4.0	4.0
Minimum Split (s)	20.0			20.0	20.0	20.0