Appendix G

Paleontological Assessment

PALEONTOLOGICAL ASSESSMENT FOR THE COMMERCIAL/RETAIL NWC MOUNTAIN AND LAKE STREETS PROJECT

CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA

APNs 389-030-012 to -018

Prepared for:

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Submitted to:

City of Lake Elsinore
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October 27, 2020

Paleontological Database Information

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Report Date:	October 27, 2020
Report Title:	Paleontological Assessment for the Commercial/Retail NWC Mountain and Lake Streets Project, City of Lake Elsinore, Riverside County, California (APNs 389-030-012 to -018)
Prepared for:	Empire Design Group, Inc. P.O. Box 944 Murrieta, California 94564
Submitted to:	City of Lake Elsinore Community Development Department Planning Division 130 South Main Street Lake Elsinore, California 92530
Prepared by:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064
USGS Quadrangle:	*Alberhill, California* (7.5 minute)
Study Area:	Approximately six acres
Key Words*:*	Paleontological assessment; Quaternary alluvial deposits; Pauba Fanglomerate; High sensitivity; Lake Elsinore, Riverside County.

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I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the Commercial/Retail NWC Mountain and Lake Streets Project (Assessor's Parcel Numbers 389-030-012 to -018), located at the northwest corner of the intersection of Mountain Street and Lake Street in the city of Lake Elsinore in Riverside County, California (Figures 1 and 2). On the U.S. Geological Survey, 7.5-minute, 1:24,000-scale *Alberhill, California* topographic quadrangle map, the project is located within Section 27, Township 5 South, Range 5 West, San Bernardino Base and Meridian (see Figure 2). The approximately six-acre project consists of a commercial development including a gas station, car wash, and convenience store, as well as retail and restaurant space.

II. REGULATORY SETTING

The California Environmental Quality Act (CEQA), which is patterned after the National Environmental Policy Act, is the overriding environmental document that sets the requirement for protecting California's cultural and paleontological resources. The document does not establish specific rules that must be followed, but mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection of nonrenewable paleontological resources under their jurisdiction.

State of California

Under Guidelines for the Implementation of CEQA, as amended March 29, 1999 (Title 1, Chapter 3, California Code of Regulations: 15000 et seq.), procedures define the type of activities, persons, and public agencies required to comply with CEQA. In the Environmental Checklist, one of the questions to answer is, "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (Section 15023, Appendix G, Section XIV, Part a). California Public Resources Code (PRC) Section 5097.5 states:

a) No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.
b) As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

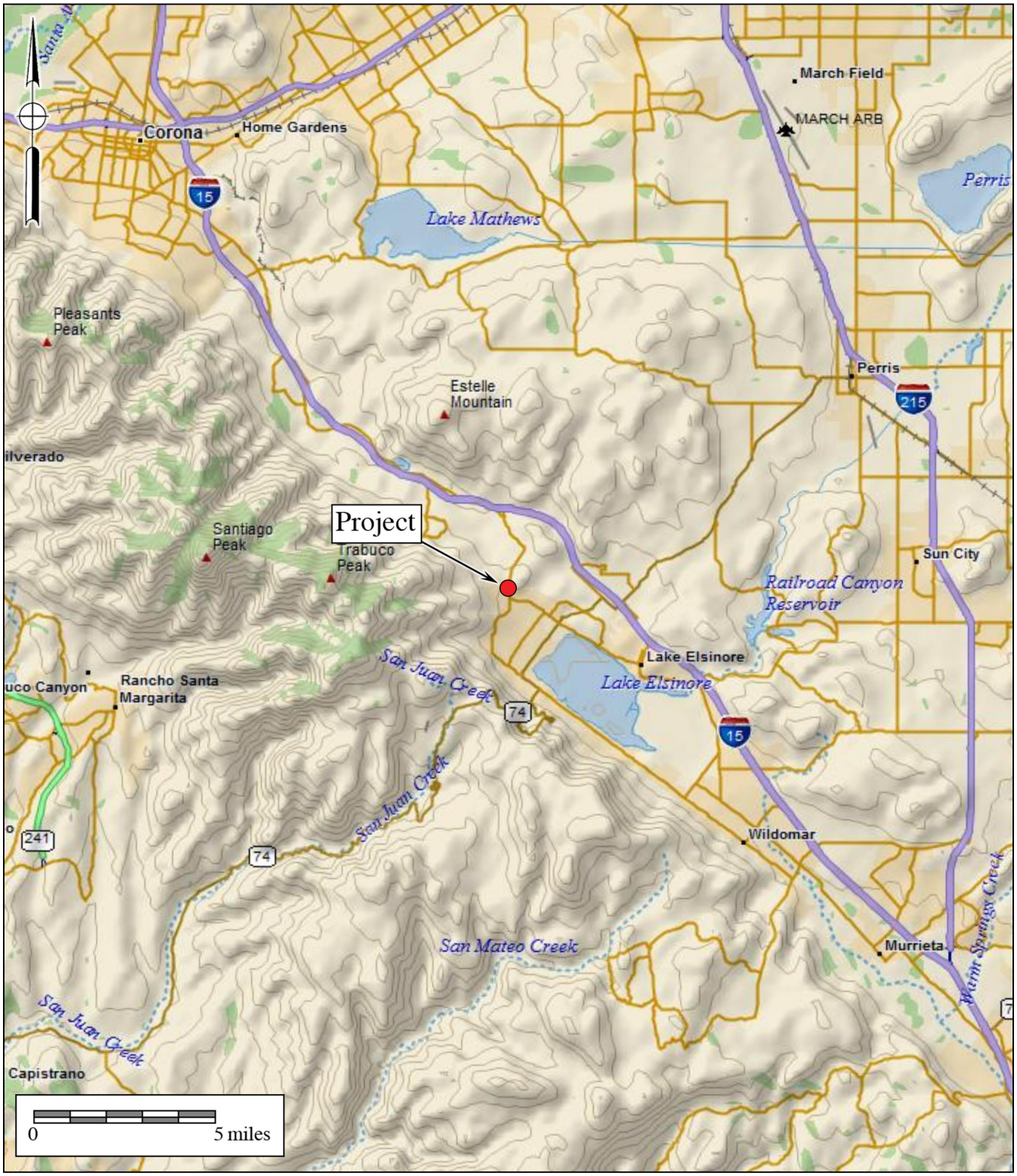


Figure 1

General Location Map

The Commercial/Retail NWC Mountain and Lake Streets Project

DeLorme (1:250,000)

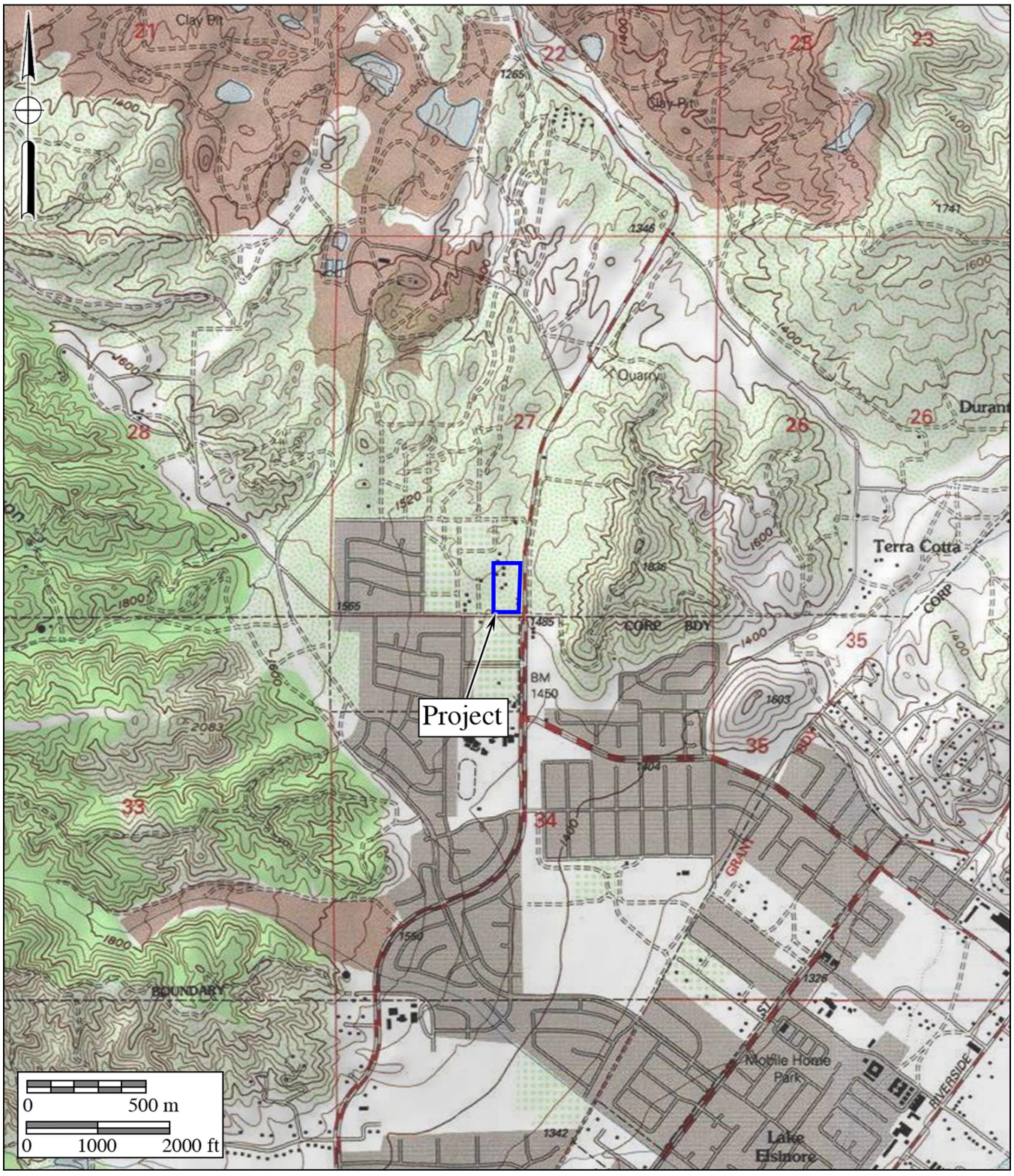


Figure 2

Project Location Map

The Commercial/Retail NWC Mountain and Lake Streets Project

USGS *Alberhill* Quadrangle (7.5-minute series)

County of Riverside

An interactive paleontological sensitivity mapping database is available online and maintained by the County of Riverside as a research tool to access the County's assignment of paleontological sensitivity levels for the various geologic formations within the county (County of Riverside 2020). This is specifically addressed in Section V of this report.

Paleontological resources are further addressed under the 2008 Multipurpose Open Space Element of the Riverside County General Plan, Policy OS 19.9, which states:

> This policy requires that when existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities, with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate repository, and file a report with the Planning Department. (County of Riverside 2008)

The "SABER Policy" (Safeguard Artifacts Being Excavated in Riverside County), enacted in October 2011 by the Riverside County Board of Supervisors, also requires that any paleontological resources found or unearthed in the county of Riverside be curated at the Western Science Center Museum on Searl Parkway in the city of Hemet.

City of Lake Elsinore

Paleontological resources are outlined in Chapter 4.6.7 of the City of Lake Elsinore General Plan, which was adopted on December 13, 2011 (City of Lake Elsinore 2011a). In the General Plan, mapped geologic areas are delineated according to their potential to yield fossils and are presented as Figure 4.6, "Paleontological Resources." This map figure is copied from the County of Riverside's interactive, online paleontological sensitivity mapping database, borrowing the paleontological sensitivity rating system as applied to geologic formations (County of Riverside 2020).

Goal 8 of the General Plan, "Preserve paleontological resources occurring within the City," states the following:

> … development in areas delineated as "High" or "Undetermined" potential sensitivity for paleontological resources [as shown on General Plan Figure 4.6], require the project applicant to hire a certified paleontologist, who must perform a literature search and/or survey and apply the relevant treatment for the site as recommended by the Society for Vertebrate Paleontology. (City of Lake Elsinore 2011a:4-63)

The City of Lake Elsinore Community Development Department will conduct an environmental review of a project and implement appropriate paleontological mitigation procedures, if necessary, prior to the project's approval.

The City of Lake Elsinore General Plan Update (City of Lake Elsinore 2011b) presents the City Paleontological Resource Map as Figure 3.2-3 and further defines paleontological sensitivity ratings, as applied to geological formations, using definitions from the County of Riverside sensitivity system as a baseline reference (City of Lake Elsinore 2011b:3.2-23). Paleontological goals, policies, and implementation programs stated in the General Plan Update are unchanged from those stated in the General Plan.

III. GEOLOGY

The geology of the area surrounding the project is shown on Figure 3 (after Morton and Miller 2006). The project lies within the Elsinore fault zone, which is locally comprised of several active fault segments (Weber 1977; Morton and Miller 2006). The estimated trace of the northwest-southeast-trending Glen Ivy North fault segment is mapped just south of the property (dashed black line on Figure 3 [Morton and Miller 2006; Weber 1977]).

The geologic units mapped as underlying the project indicate that the property is underlain by Holocene and late Pleistocene, young, sandy, alluvial-valley deposits (areas labeled "Qyv_a" and shown in pale orange on Figure 3). These sedimentary deposits are indicated by Morton and Miller (2006) as almost entirely of Holocene age, consisting of unconsolidated silt, sand, and clay-bearing alluvium. The thickness of the alluvial-valley deposits underlying the project is not known. Previously, Weber (1977) mapped the deposits underlying the project as late Pleistocene-aged older flood plain and valley fill alluvium. Mapped just east of the project are outcrops of Cretaceous-aged granite (labeled "Kgu" and shown in pink on Figure 3), the early Pleistocene-aged Pauba Fanglomerate (labeled "Qpf" and shown in faded brown), and Pleistocene-aged older alluvium (labeled "Qoa" and shown in tan). Nearby is the fossiliferous, Paleocene-aged Silverado Formation (labeled "Tsi," in dark orange) and metamorphic rocks ("TRmu," in blue).

IV. PALEONTOLOGICAL RESOURCES

Definition

Paleontological resources are the remains of prehistoric life that have been preserved in geologic strata. These remains are called fossils and include bones, shells, teeth, and plant remains (including their impressions, casts, and molds) in the sedimentary matrix, as well as trace fossils such as footprints and burrows. Fossils are considered older than 5,000 years of age (Society of Vertebrate Paleontology 2010) but may include younger remains (subfossils), for example, when viewed in the context of local extinction of the organism or habitat. Fossils are considered a nonrenewable resource under state, county, and local guidelines (see Section II of this report).

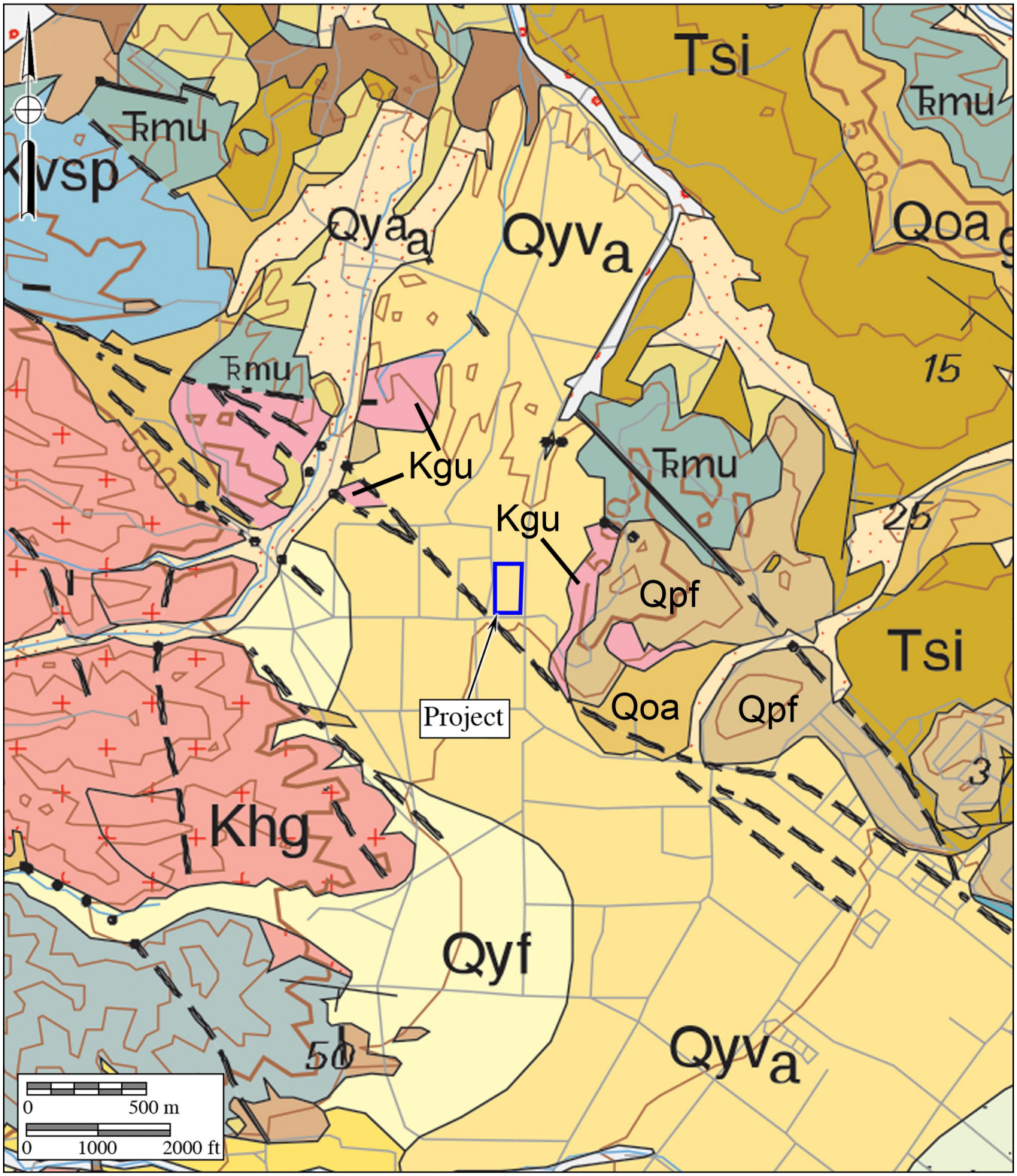


Figure 3

Geologic Map

The Commercial/Retail NWC Mountain and Lake Streets Project

Geology after Morton and Miller (2006)

Fossil Records Search

An in-house records search was performed for paleontological resources that are known in the vicinity of the project. Sources for records include those held by the Los Angeles County Natural History Museum (LACM), the San Bernardino County Museum (SBCM), the University of California at Riverside (UCR), and primary literature. No fossil localities are known from within the project boundaries.

The Paleocene Silverado Formation (historically termed the Martinez Formation) in the Temescal Valley is characterized by occurring as relatively small, scattered outcrops, but is nevertheless fossiliferous. Engel (1959) records the presence of molluscan fossils from his locality El-2 in Section 12 within the southernmost portion of the *Lake Mathews, California* USGS quadrangle, about five miles northwest of the current project, and lists nine bivalve and four gastropod species. A similar locality, El-1, is located approximately a half mile southeast of El-2, and included plant remains as well as marine shell fossils.

A records search was performed by the Department of Earth Sciences at UCR for the Saddleback Estates Project, which was located approximately three and a half miles northwest of the current project between Glen Eden Road and Horsethief Canyon Creek (Kooser 2003, in Appendix B). The records search recognized three fossil localities occurring from within the region, consisting of fossil clams and angiosperm leaves from the Silverado Formation that were collected in the 1930s. However, the available data for these localities are vague; the bivalve specimens appear to be from areas several miles away to the northwest, but the leaf locality appears to be much closer, described as "Hillside above road working storage yard on main road east of Elsinore, Temescal Canyon, Moulton Ranch (?)" (Kooser 2003). Based on this description and mapped outcrops of the Silverado Formation, the location of these leaf fossils could plausibly be from within one mile of the current project (see Figure 3).

The closest known fossil locality held by the LACM is their locality number 6059, which yielded the fossilized remains of a late Pleistocene camel (*Camelops hesternus*) from a location about six miles southeast of the current project. The nearest known SBCM locality is SBCM loc. 5.5.1, located about six miles northwest of the project, consisting of a fossil horse tooth of the Pleistocene genus *Plesippus* sp.

V. PALEONTOLOGICAL SENSITIVITY

Overview

The degree of paleontological sensitivity of any particular area is based on a number of factors, including the documented presence of fossiliferous resources on a site or in nearby areas, the presence of documented fossils within a particular geologic formation or lithostratigraphic unit, and whether or not the original depositional environment of the sediments is one that might have been conducive to the accumulation of organic remains that might have become fossilized over time. Late Quaternary (Holocene, or "modern") alluvium is generally considered to be

geologically too young to contain significant nonrenewable paleontological resources (*i.e.,* fossils) and, therefore, is typically assigned a low paleontological sensitivity. Old, Pleistocene (more than 11,700 years old), alluvial and alluvial fan deposits in the Inland Empire, however, often yield important Ice Age terrestrial vertebrate fossils, such as extinct mammoths, mastodons, giant ground sloths, extinct species of horse, bison, and camel, saber-toothed cats, and others. Therefore, these Pleistocene sediments are accorded a High paleontological resource sensitivity.

Professional Standards

The Society of Vertebrate Paleontology (2010) drafted guidelines outlining procedures that include:

> [E]valuating the potential for impacts of a proposed action on paleontological resources and for mitigating those impacts. Impact mitigation includes pre-project survey and salvage, monitoring and screen washing during excavation to salvage fossils, conservation and inventory, and final reports and specimen curation. The objective of these procedures is to offer standard methods for assessing potential impacts to fossils and mitigating these impacts.

The guidelines include four categories of paleontological sensitivity for geologic units (formations) that might be impacted by a proposed project, as listed below:

- *High Potential:* Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- *Undetermined Potential:* Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment, and that further study is needed to determine the potential of the rock unit.
- *Low Potential:* Rock units that are poorly represented by fossil specimens in institutional collections or based upon a general scientific consensus that only preserve fossils in rare circumstances.
- *No Potential:* Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

Paleontological Sensitivity Assessment

On Figure 4.6, "Paleontological Resources," from the City of Lake Elsinore General Plan (City of Lake Elsinore 2011a), most of the project plots within an area designated as having a "High A" potential paleontological resource sensitivity, as shown in the area colored red on Figure 4. The General Plan Update defines areas assigned with a High A "is based on geologic formations or mappable rock units that are known to contain or have the correct age and depositional conditions to contain significant paleontological resources. These include rocks of Silurian or

Devonian age and younger that have potential to contain remains of fossil fish and Mesozoic and Cenozoic rocks that contain fossilized body elements, and trace fossils such as tracks, nests, and eggs" (City of Lake Elsinore 2011b).

The lower southwest portion of the project plots within an area designated as having a "Low" potential paleontological resource sensitivity, as shown in the area colored yellow on Figure 4. The General Plan Update defines areas assigned with a Low paleontological potential or sensitivity as encompassing "lands for which previous field surveys and documentation demonstrates as having a low potential for containing significant paleontological resources subject to adverse impacts" (City of Lake Elsinore 2011b). However, criteria is not provided to define what is meant by "low potential" (City of Lake Elsinore 2011b). In general practice, assignment of a "low" sensitivity reflects rocks that generally do not contain fossils, such as modern (Holocene) sedimentary deposits and igneous rocks. Holocene deposits are generally too young to yield fossils. Since a "low" assignment has been applied to a wide spectrum of rock units, the Riverside County Land Information System, and therefore the City of Lake Elsinore General Plan, suggests that a qualified professional conduct an inspection of the site to determine its suitability to yield fossils.

The Riverside County paleontological sensitivity rating system (and therefore the Lake Elsinore system) is based on the potential of a geologic formation to yield fossils. Typically, fossils are present in many, but not all, geologic formations of sedimentary origin. Factors determining the potential presence of fossils in sedimentary strata include age, depositional environment, and subsequent preservation of hard parts after the death of the organism. Holocene sediments are typically rated by the County (and Lake Elsinore) as having a Low paleontological sensitivity based on their lack for yielding fossils, but as shown in Figure 4, the Holocene alluvium mapped on the majority of the project are not indicated as such. This is due to inaccurate scaling by the County's website to reflect the geology as mapped, shown in Figure 3. The Holocene sediments mapped on the project (Qyv_a), as well as the outcrops of granite (Kgu) and metamorphic rocks (TRmu) nearby, should therefore be colored with the yellow tint. The potentially fossiliferous Pleistocene sediments and Silverado Formation mapped east of the project (Qoa, Qpf, Tsi, respectively) are approximately tinted in red, correctly following County and City criteria.

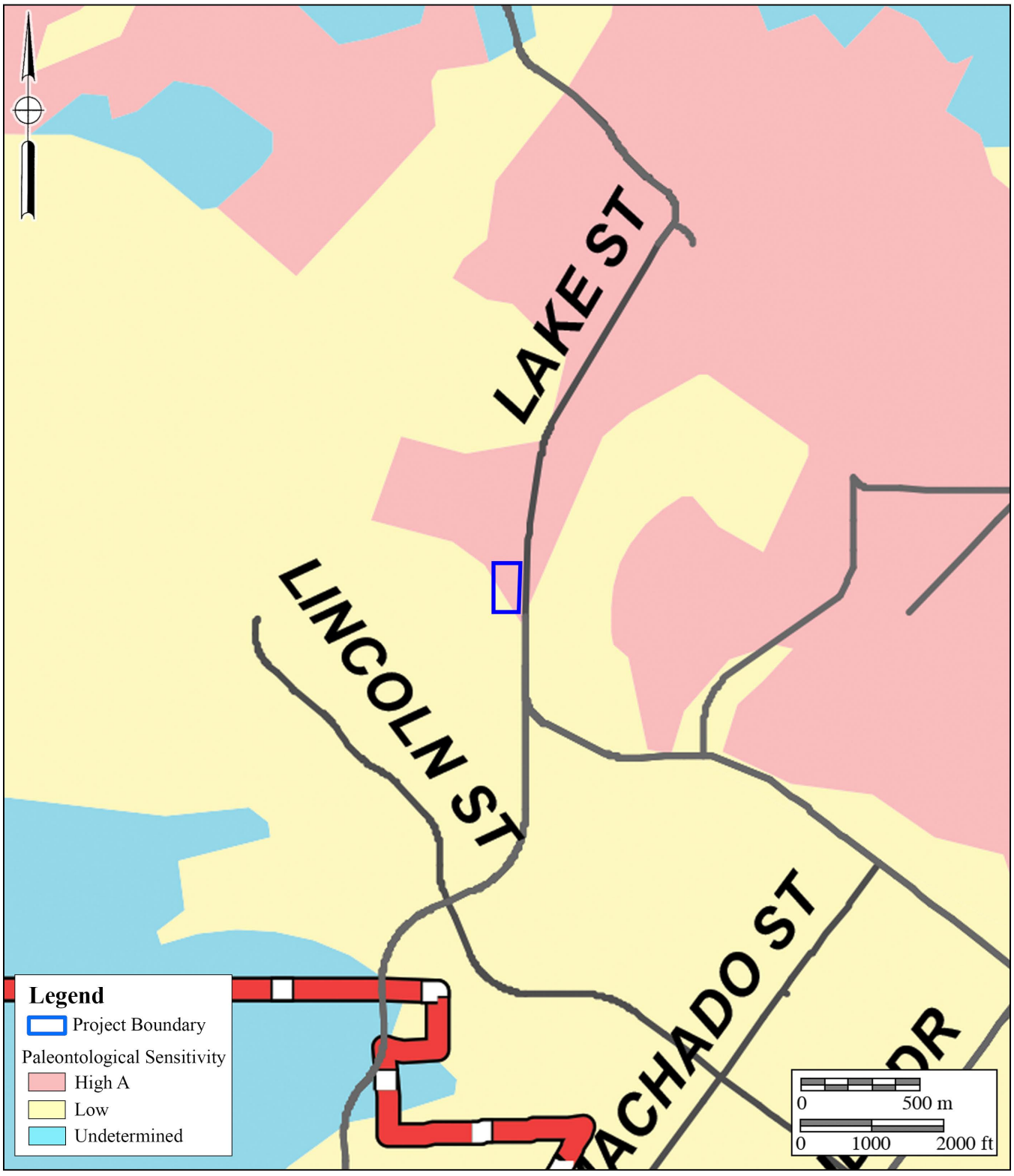


Figure 4

Paleontological Sensitivity Map

The Commercial/Retail NWC Mountain and Lake Streets Project

After City of Lake Elsinore General Plan (2011a)

VI. RECOMMENDATIONS

Based on the nearby presence of mapped outcrops of Quaternary (early to late Pleistocene) Pauba Fanglomerate (Qpf) and alluvial sediments (Qoa), there is a potential for these sedimentary units to underlie the Holocene deposits mapped at the surface at the project. Therefore, on the basis of this criterion, as well as the High A paleontological resource sensitivity locally assigned to these Pleistocene sediments (City of Lake Elsinore 2011a), and nearby large mammal fossil localities that typically occur in these types of Pleistocene deposits, full-time paleontological monitoring is recommended starting at a depth of 10 feet, or when Pleistocene-aged sediments are encountered during excavation activities, whichever is shallowest, during grading, excavation, or utility trenching activities at the Commercial/Retail NWC Mountain and Lake Streets Project.

A drafted Mitigation Monitoring and Reporting Program (MMRP) is proposed and must be consistent with the provisions of CEQA and the City of Lake Elsinore (2011a, 2011b), as well as the guidelines of the Society of Vertebrate Paleontology (2010). If implemented, the MMRP would mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (fossils), if present, to a level below significant. Paleontological monitoring may be reduced if, based on the observations and recommendations of the professional-level project paleontologist, the excavations are only occurring in, for example, coarse-grained sediments that are unlikely to yield paleontological resources. The proposed MMRP is outlined below:

1) Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources by a qualified paleontologist or paleontological monitor. Full-time monitoring of grading or excavation activities should be performed starting at a depth of 10 feet, or when Pleistocene-aged sediments are encountered during excavation activities, whichever is shallowest, in undisturbed areas of Quaternary (early to late Pleistocene) sedimentary deposits within the project boundaries. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor must be empowered to temporarily halt or divert equipment to allow for the removal of abundant or large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface or, if present, are determined by qualified paleontological personnel upon exposure and examination to have a low potential to contain or yield fossil resources.
2) Paleontological salvage during trenching and boring activities is typically from the generated spoils and does not delay the trenching or drilling activities. Fossils are collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes are taken on the map location and stratigraphy of the site, and the site is photographed before it is vacated and the fossils

are removed to a safe place. On mass grading projects, any discovered fossil site is protected by red flagging to prevent it from being overrun by earthmovers (scrapers) before salvage begins. Fossils are collected in a similar manner, with notes and photographs being taken before removing the fossils. Precise location of the site is determined with the use of handheld Global Positioning System units. If the site involves a large terrestrial vertebrate, such as large bone(s) or a mammoth tusk, that is/are too large to be easily removed by a single monitor, Brian F. Smith and Associates, Inc. (BFSA) will send a fossil recovery crew in to excavate around the find, encase the find within a plaster jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment is solicited to help remove the jacket to a safe location before it is returned to the BFSA laboratory for preparation.

3) Particularly small invertebrate fossils typically represent multiple specimens of a limited number of organisms, and a scientifically suitable sample can be obtained from one to several five-gallon buckets of fossiliferous sediment. If it is possible to dry screen the sediment in the field, a concentrated sample may consist of one or two buckets of material. For vertebrate fossils, the test is usually the observed presence of small pieces of bones within the sediments. If present, as many as 20 to 40 five-gallon buckets of sediment can be collected and returned to a separate facility to wet-screen the sediment. In the laboratory, individual fossils are cleaned of extraneous matrix, any breaks are repaired, and the specimen, if needed, is stabilized by soaking in an archivally approved acrylic hardener (*e.g.,* a solution of acetone and Paraloid B-72).
4) Preparation of recovered specimens to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
5) Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.,* the Western Science Center Museum, 2345 Searl Parkway, Hemet, California 92543). The paleontological program should include a written repository agreement prior to the initiation of mitigation activities.
6) Preparation of a final monitoring and mitigation report of findings and significance, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). The report, when submitted to the appropriate lead agency (City of Lake Elsinore), will signify satisfactory completion of the project program to mitigate impacts to any paleontological resources.

VII. CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this paleontological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief, and have been compiled in accordance with CEQA criteria.

October 27, 2020

Todd A. Wirths
Senior Paleontologist
California Professional Geologist No. 7588

Date

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VIII. REFERENCES

City of Lake Elsinore. 2011a. General Plan. http://www.lake-elsinore.org/city-hall/city-departments/community-development/planning/lake-elsinore-general-plan. Chapter 4: Resource Protection and Preservation.

City of Lake Elsinore. 2011b. General Plan Update, Final Recirculated Program EIR, SCH #2005121019. http://www.lake-elsinore.org/city-hall/city-departments/community-development/planning/lake-elsinore-general-plan/general-plan-certified-eir. Section 3.2: Cultural and Paleontological Resources.

County of Riverside. 2020. Map My County; Paleontological Sensitivity. https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC_Public.

Engel, R. 1959. Geology of the Lake Elsinore quadrangle, California. Geology and mineral deposits of the Lake Elsinore quadrangle, California: State of California Dept. of Natural Resources, Division of Mines, Bulletin 146, p. 9-58, pl. 1-3.

Kooser, Marilyn. 2003. Fossil locality search for the Saddleback Estates Survey, BFSA #03-41. Unpublished letter to Brian F. Smith and Associates, Poway, California, by the Geology Museum of the Dept. of Earth Sciences, Univ. of California at Riverside, letter dated 3 June. (attached)

Morton, D.M. and Miller, F.K. 2006. Geologic Map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California: U.S. Geological Survey Open-File Report 06-1217, scale 1:100,000.

Society of Vertebrate Paleontology. 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources; by the SVP Impact Mitigation Guidelines Revision Committee. http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx.

Weber, F.H., Jr. 1977. Seismic hazards related to geologic factors, Elsinore and Chico fault zones, northwestern Riverside County, California: California Div. of Mines and Geology Open-File Report 77-4 LA.

APPENDIX A

Qualifications of Key Personnel

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Education

Master of Science, Geological Sciences, San Diego State University, California **1995**

Bachelor of Arts, Earth Sciences, University of California, Santa Cruz **1992**

Professional Certifications

California Professional Geologist #7588, 2003
Riverside County Approved Paleontologist
San Diego County Qualified Paleontologist
Orange County Certified Paleontologist
OSHA HAZWOPER 40-hour trained; current 8-hour annual refresher

Professional Memberships

Board member, San Diego Geological Society
San Diego Association of Geologists; past President (2012) and Vice President (2011)
South Coast Geological Society
Southern California Paleontological Society

Experience

Mr. Wirths has more than a dozen years of professional experience as a senior-level paleontologist throughout southern California. He is also a certified California Professional Geologist. At BFSA, Mr. Wirths conducts on-site paleontological monitoring, trains and supervises junior staff, and performs all research and reporting duties for locations throughout Los Angeles, Ventura, San Bernardino, Riverside, Orange, San Diego, and Imperial Counties. Mr. Wirths was formerly a senior project manager conducting environmental investigations and remediation projects for petroleum hydrocarbon-impacted sites across southern California.

Selected Recent Reports

2019 *Paleontological Assessment for the Eastvale Self Storage Project, City of Eastvale, Riverside County, California.* Prepared for Gossett Development, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Resource Impact Mitigation Monitoring Program for the IPT Perris DC III Western/Nandina Project, Perris, Riverside County, California.* Prepared for IPT/Black Creek Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the 10407 Elm Avenue Project, City of Fontana, San Bernardino County, California*. Prepared for Advantage Environmental Consultants, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the 10575 Foothill Boulevard Project, City of Rancho Cucamonga, San Bernardino County, California*. Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Speedway TPM 37676 Project, Temescal Valley, Riverside County, California.* Prepared for Speedway Development. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the Natwar Project, Perris, Riverside County, California.* Prepared for Advantage Environmental Consultants, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Resource and Mitigation Monitoring Assessment, Beyond Food Mart, City of Perris, Riverside County, California.* Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the MorningStar Marguerite Project, Mission Viejo, Orange County, California.* Prepared for T&B Planning. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Monitoring Report for the West Markham Project (TR 33587), City of Perris, Riverside County, California*. Prepared for Markham JP/ARA, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Monitoring and Mitigation Report for the Artesa at Menifee Town Center Project Site, Sherman Road and La Piedra Road, Menifee, Riverside County, California.* Prepared for MBK Real Estate. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Monitoring Report, Diarq Residence, La Jolla, City of San Diego, San Diego County, California.* Prepared for West Way Drive, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Monitoring Report for the Nimitz Crossing Project, City of San Diego.* Prepared for Voltaire 24, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Jack Rabbit Trail Logistics Center Project, City of Beaumont, Riverside County, California.* Prepared for JRT BP 1, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Monitoring Report for the Oceanside Beachfront Resort Project, Oceanside, San California.* Prepared for S.D. Malkin Properties. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Impact Mitigation Program for the Nakase Project, Lake Forest, Orange County, San California.* Prepared for Glenn Lukos Associates, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

APPENDIX B

Record Search

UNIVERSITY OF CALIFORNIA, RIVERSIDE

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3 June 2003

Dr. George Kennedy
Brian F. Smith and Associates
12528 Kirkham Court, Suite 3
San Diego, California 92064

Dear Dr. Kennedy,

RE: Fossil locality search for the Saddleback Estates Survey, BFSA#03-41.

A search of our invertebrate and vertebrate fossil locality files has turned up three fossil sites from Paleocene beds of the Santa Ana Mountains. All three sites were collected long ago and documentation of the locations is minimal. "G.W." probably refers to Gordon White, who collected for Shell Oil in the early 1930s. Almost any Paleocene formation was called "Martinez" at the time these were collected.

UCR 1070 was collected by Shell Oil and merely says "Martinez Fm., G.W. 12, North end Santa Ana Mtns." The specimens include one largely complete *Ostrea* and two unidentified, smaller pelecypod valves.

UCR 1085 was also collected by Shell Oil and says "Martinez Fm., G.W. 15, N.E. slope of Santa Ana Mts." That collection consists of three fragments and two more complete valves identified as "*Pedalion* n. sp. A."

UCR 4147 was collected by Ruth Kirkby and is described as "Martinez, Elsinore Quad., Hillside above road working storage yard on main road east of Elsinore, Temescal Canyon, Moulton Ranch (?)". That collection consists of numerous angiosperm leaves, all unidentified.

A bill charging $75 for this search will be sent under separate cover.

Yours truly,

Dr. Marilyn Kooser
Museum Scientist

Appendix H

Greenhouse Gas Analysis

Lake and Mountain Shopping Center

GREENHOUSE GAS ANALYSIS

CITY OF LAKE ELSINORE

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OCTOBER 24, 2019

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LIST OF ABBREVIATED TERMS

(1)	Reference
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH4	Methane
CITY	City of Lake Elsinore
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
DRP	Development Review Process
EPA	Environmental Protection Agency
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
GHG Plan	Greenhouse Gas Plan
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
LCA	Life-Cycle Analysis
MMs	Mitigation Measures
$MMTCO_2e$	Million Metric Ton of Carbon Dioxide Equivalent
$MTCO_2e$	Metric Ton of Carbon Dioxide Equivalent
N_20	Nitrogen Dioxide
NIOSH	National Institute for Occupational Safety and Health
NO_x	Oxides of Nitrogen
PFC	Perfluorocarbons
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million

Project	Lake and Mountain Shopping Center
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile Organic Compounds

EXECUTIVE SUMMARY

The results of this *Lake and Mountain Shopping Center Greenhouse Gas Analysis* is summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for potential greenhouse gas impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.	3.7	*Less Than Significant*	*n/a*
GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	3.7	*Less Than Significant*	*n/a*

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1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the Lake and Mountain Shopping Center (referred to as "Project"). The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed Lake and Mountain Shopping Center Project is located on the northwest corner of Lake Street and Mountain Street in the City of Lake Elsinore, as shown on Exhibit 1-A. The Project site is currently vacant. Nearby existing residential tract homes are located east of the Project site across Lake Street and south across Mountain Street. Individual large lot single-family residential homes are located west and north of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel, as shown on Exhibit 1-B. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2021.

1.3 REGULATORY REQUIREMENTS

The Project would be required to comply with all mandates imposed by the State of California and the South Coast Air Quality Management District aimed at the reduction of air quality emissions. Those that are applicable to the Project and that would assist in the reduction of greenhouse gas emissions are:

- Global Warming Solutions Act of 2006 (AB32) (2).
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (SB 375) (3).
- Pavley Fuel Efficiency Standards (AB 1493). Establishes fuel efficiency ratings for new vehicles (4).
- Title 24 California Code of Regulations - California Building Code (CCR, Title 24). Establishes energy efficiency requirements for new construction (5).
- Title 20 California Code of Regulations - Appliance Energy Efficiency Standards (CCR, Title 20). Establishes energy efficiency requirements for appliances (6).
- Executive Order S-01-07 - Low Carbon Fuel Standard (LCFS). Requires carbon content of fuel sold in California to be 10% less by 2020 (7).

  California Water Conservation in Landscaping Act of 2006 (AB 1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (8).

EXHIBIT 1-A: LOCATION MAP

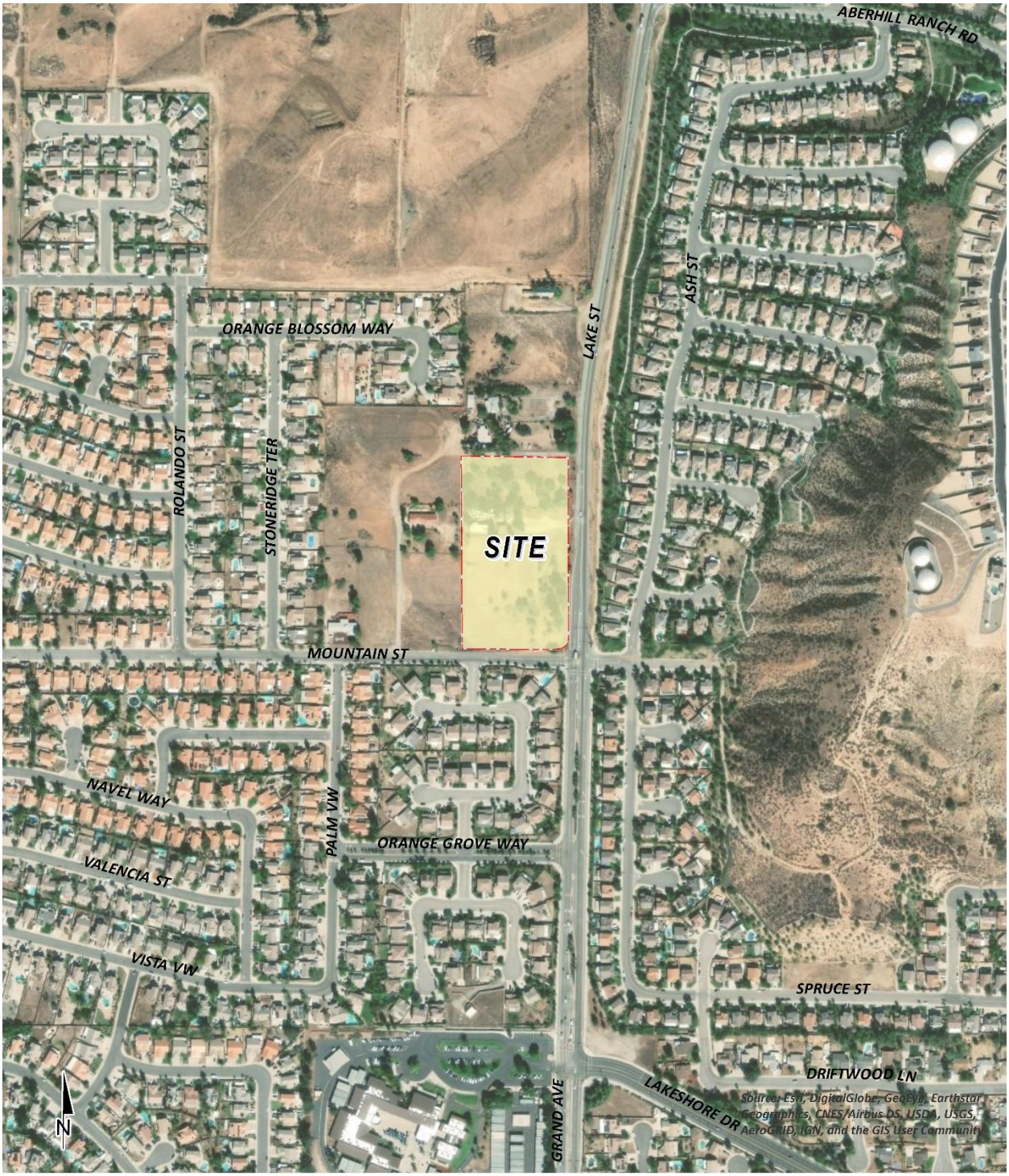
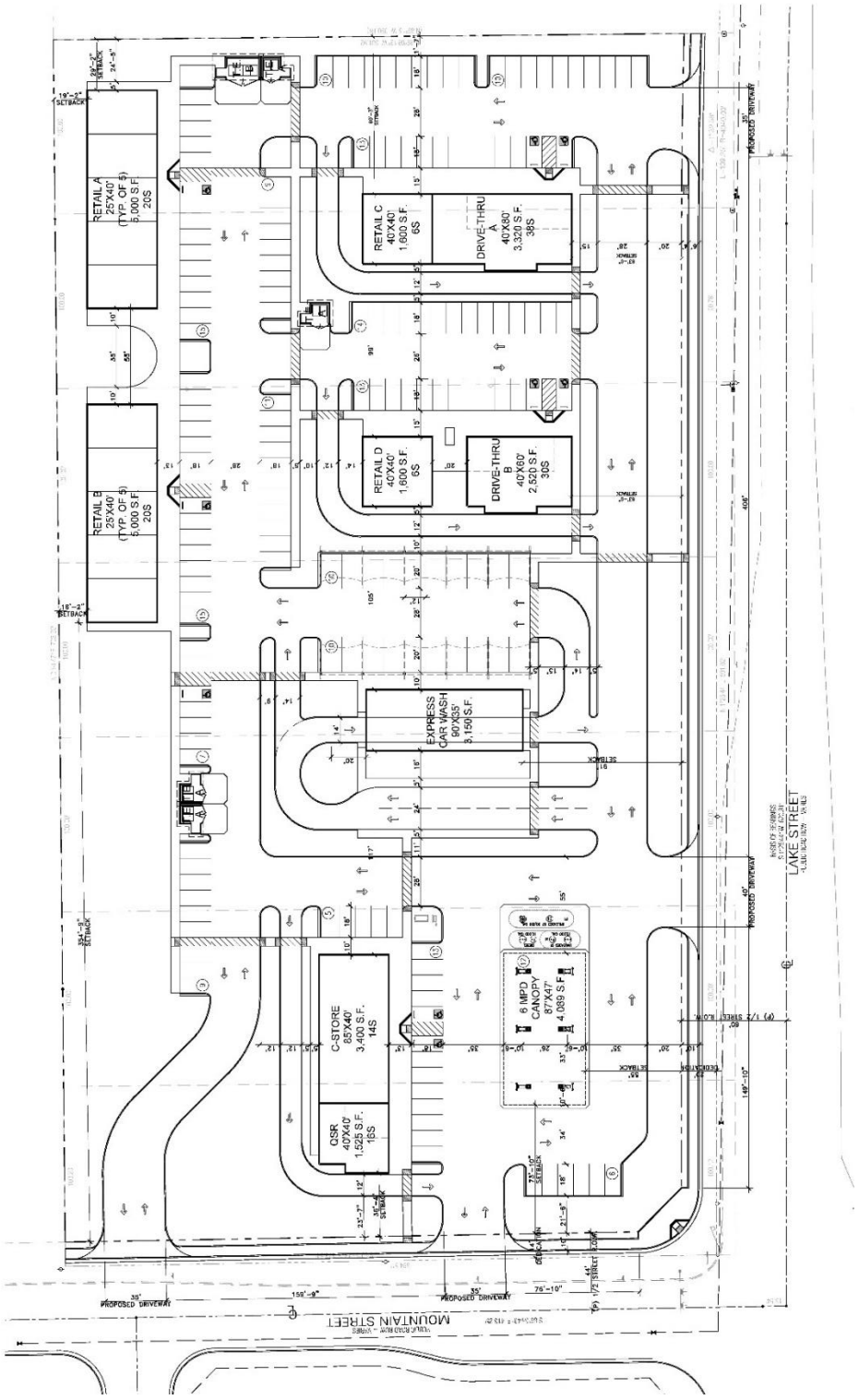


EXHIBIT 1-A: SITE PLAN



- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (9).
- Renewable Portfolio Standards (SB 100). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 60 percent by 2030 and 100 percent by 2045 (10).
- California Global Warming Solutions Act of 2006 (SB 32). Requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (11).

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2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

Global Climate Change (GCC) is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The majority of scientists believe that the climate shift taking place since the Industrial Revolution is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of GHGs in the earth's atmosphere, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. The majority of scientists believe that this increased rate of climate change is the result of GHGs resulting from human activity and industrialization over the past 200 years.

An individual project like the Project evaluated in this GHGA cannot generate enough GHG emissions to affect a discernible change in global climate. However, the Project may participate in the potential for GCC by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water (H_2O) vapor, CO_2, N_2O, CH_4, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural GHG effect, the earth's average temperature would be approximately 61° Fahrenheit cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

2.3 GREENHOUSE GASES

GREENHOUSE GASES AND HEALTH EFFECTS

GHGs trap heat in the atmosphere, creating a GHG effect that results in global warming and climate change. Many gases demonstrate these properties and as discussed in Table 2-1. For the purposes of this analysis, emissions of CO_2, CH_4, and N_2O were evaluated (see Table 3-1 later in this report) because these gases are the primary contributors to GCC from development projects.

Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

TABLE 2-1: GREENHOUSE GASES

Greenhouse Gases	Description	Sources	Health Effects
H_2O	H_20 is the most abundant, important, and variable GHG in the atmosphere. H_2O vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which H_2O is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more H_2O is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more H_2O when it is warmer), leading to more H_2O vapor in the atmosphere. As a GHG, the higher concentration of H_2O vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more H_2O vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as	The main source of H_2O vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other H_2O bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.	There are no known direct health effects related to H_2O vapor at this time. It should be noted however that when some pollutants react with H_2O vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through H_2O vapor.

Greenhouse Gases	Description	Sources	Health Effects
	there are also dynamics that hold the positive feedback loop in check. As an example, when H_2O vapor increases in the atmosphere, more of it will eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up) (12).		
CO_2	CO_2 is an odorless and colorless GHG. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of CO_2 in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (13).	CO_2 is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. CO_2 is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (14).	Outdoor levels of CO_2 are not high enough to result in negative health effects. According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of CO_2 can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of CO_2 in the earth's atmosphere are estimated to be approximately 370 ppm, the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (15).

Greenhouse Gases	Description	Sources	Health Effects
CH_4	CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.	CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropocentric sources include fossil-fuel combustion and biomass burning (16).	CH_4 is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to high levels of CH_4 can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate.
N_2O	N_2O, also known as laughing gas, is a colorless GHG. Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb).	N_2O is produced by microbial processes in soil and H_2O, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also	N_2O can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (17).

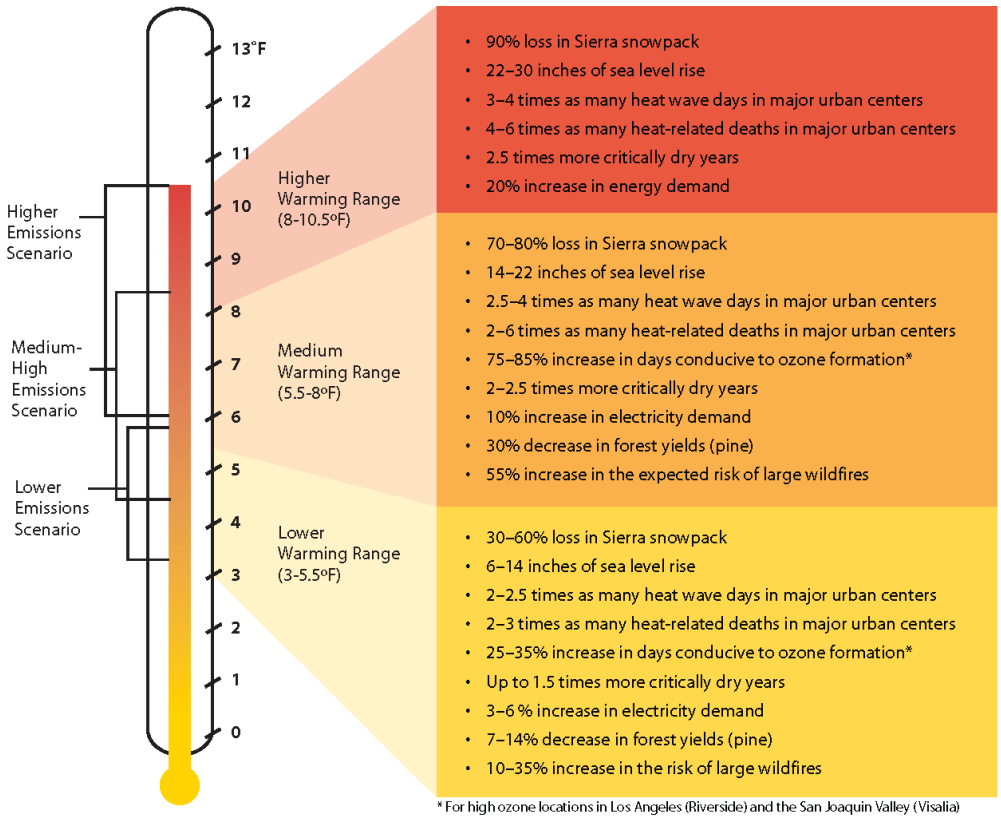
Greenhouse Gases	Description	Sources	Health Effects
		used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N_2O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (17).	
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	CFCs have no natural source but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years (18).	In confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

Greenhouse Gases	Description	Sources	Health Effects
HFCs	HFCs are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential (GWP). The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CH_2FCF), and HFC-152a (CH_3CF_2). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.	No health effects are known to result from exposure to HFCs.
PFCs	PFCs have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The EPA estimates that concentrations of CF_4 in the atmosphere are over 70 parts per trillion (ppt).	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.
SF_6	SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900) (19). The EPA indicates that concentrations in the 1990s were about 4 ppt.	SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.
Nitrogen Trifluoride (NF_3)	NF_3 is a colorless gas with a distinctly moldy odor. The World Resources Institute (WRI)	NF_3 is used in industrial processes and is produced in the manufacturing of	Long-term or repeated exposure may affect the liver

Greenhouse Gases	Description	Sources	Health Effects
	indicates that NF_3 has a 100-year GWP of 17,200 (20).	semiconductors, LCD (Liquid Crystal Display) panels, types of solar panels, and chemical lasers.	and kidneys and may cause fluorosis (21).

The potential health effects related directly to the emissions of CO_2, CH_4, and N_2O as they relate to development projects such as the Project are still being debated in the scientific community. Their cumulative effects to GCC have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (22). Exhibit 2-A presents the potential impacts of global warming (23).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990)



Source: Barbara H. Allen-Diaz. "Climate change affects us all." *University of California, Agriculture and Natural Resources*, 2009.

2.4 GLOBAL WARMING POTENTIAL

GHGs have varying GWP values. GWP of a GHG indicates the amount of warming a gas causes over a given period of time and represents the potential of a gas to trap heat in the atmosphere.

CO_2 is utilized as the reference gas for GWP, and thus has a GWP of 1. Carbon dioxide equivalent (CO_2e) is a term used for describing the difference GHGs in a common unit. CO_2e signifies the amount of CO_2 which would have the equivalent GWP.

The atmospheric lifetime and GWP of selected GHGs are summarized at Table 2-2. As shown in the table below, GWP for the Second Assessment Report, the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for CO_2 to 23,900 for SF_6 and GWP for the IPCC's 5th Assessment Report range from 1 for CO_2 to 23,500 for SF_6 (24).

TABLE 2-2: GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)	
		Second Assessment Report	5th Assessment Report
CO_2	See*	1	1
CH_4	12 .4	21	28
N_2O	121	310	265
HFC-23	222	11,700	12,400
HFC-134a	13.4	1,300	1,300
HFC-152a	1.5	140	138
SF_6	3,200	23,900	23,500

*As per Appendix 8.A. of IPCC's 5th Assessment Report, no single lifetime can be given.
Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

2.5 GREENHOUSE GAS EMISSIONS INVENTORIES

Global

Worldwide anthropogenic (human) GHG emissions are tracked by the IPCC for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2017. Based on the latest available data, the sum of these emissions totaled approximately 29,216,501 Gg CO_2e[1] (25) (26) as summarized on Table 2-3.

[1] The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2017 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China and India are from 2014.

United States

As noted in Table 2-3, the United States, as a single country, was the number two producer of GHG emissions in 2017.

TABLE 2-3: TOP GHG PRODUCING COUNTRIES AND THE EUROPEAN UNION [2]

Emitting Countries	GHG Emissions (Gg CO_2e)
China	11,911,710
United States	6,456,718
European Union (28-member countries)	4,323,163
India	3,079,810
Russian Federation	2,155,470
Japan	1,289,630
Total	**29,216,501**

Note: Gg – gigagram

State of California

California has significantly slowed the rate of growth of GHG emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls, but is still a substantial contributor to the U.S. emissions inventory total (27). The California Air Resource Board (CARB) compiles GHG inventories for the State of California. Based upon the 2018 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2016 GHG emissions period, California emitted an average 429.4 million metric tons of CO_2e ($MMTCO_2e$) per year including emissions resulting from imported electrical power in 2015 (28).

2.6 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35 percent under the lower warming range to 75 to 85 percent under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large

[2] Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer in https://www.climatewatchdata.org site to reference Non-Annex I countries of China and India.

increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply needed. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued GCC could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued GCC could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

GCC has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90 percent due to decreased precipitation.

Moreover, continued GCC has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of GCC.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.7 REGULATORY SETTING

INTERNATIONAL

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nation's Framework Convention on Climate Change ("Convention"). On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to

expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

International Climate Change Treaties. The Kyoto Protocol is an international agreement linked to the Convention. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of five percent against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2° Celsius above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014 more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties (COP) 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;

- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a) (29).

On June 2, 2017 President Donald Trump announced his intention to withdraw from the Paris Agreement. It should be noted that under the terms of the agreement, the United Sates cannot formally announce its resignation until November 4, 2019. Subsequently, withdrawal would be effective one year after notification in 2020.

NATIONAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG Endangerment. In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the Supreme Court found that four GHGs, including CO_2, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act (CAA). The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs— CO_2, CH_4, N_2O, HFCs, PFCs, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section

"Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator's findings (30).

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty (MD) passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the NHTSA issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (31). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and MD passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty (HD) trucks and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in CO_2 emissions and fuel consumption by the 2018 model year. For HD pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles and a 15 percent reduction for diesel vehicles by the 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

On April 2, 2018, the EPA signed the Mid-term Evaluation Final Determination, which finds that the model year 2022-2025 GHG standards are not appropriate and should be revised (32). This Final Determination serves to initiate a notice to further consider appropriate standards for model year 2022-2025 light-duty vehicles. On August 24, 2018, the EPA and NHTSA published a proposal to freeze the model year 2020 standards through model year 2026 and to revoke California's waiver under the CAA to establish more stringent standards (33).

Mandatory Reporting of GHGs. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On

September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons per year (MT/yr) or more of GHG emissions are required to submit annual reports to the EPA.

New Source Review. The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

> *"This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016."*

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for GHG Emissions for New Stationary Sources: Electric Utility Generating Units. As required by a settlement agreement, the EPA proposed new performance standards for emissions of CO_2 for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts would be required to meet an output-based standard of 1,000 pounds of CO_2 per megawatt-hour, based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016 the U.S. Supreme Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO_2 standards.

Cap-and-Trade. Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the NO_X Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap-and-trade program

currently; however, some states have joined to create initiatives to provide a mechanism for cap-and-trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps CO_2 emissions from power plants, auctions CO_2 emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap-and-trade system January 1, 2014, and joint offset auctions took place in 2015 (34).

SmartWay Program. The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (35):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all HD trucks will have to comply with the CARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10 percent or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.

- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

CALIFORNIA

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32. The California State Legislature enacted AB 32, which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "GHGs" as defined under AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The CARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> *"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems."* (36)

CARB approved the 1990 GHG emissions level of 427 $MMTCO_2e$ on December 6, 2007. Requiring emissions generated in California in 2020 to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" (BAU) scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations. At that level, a 28.4 percent reduction was required to achieve the 427 $MMTCO_2e$ 1990 inventory. In October 2010, CARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 $MMTCO_2e$. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (37).

Progress in Achieving AB 32 Targets and Remaining Reductions Required

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by CARB for 2000 through 2012 (CARB 2014a). The State has achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target.

- 1990: 427 $MMTCO_2e$ (AB 32 2020 target)
- 2000: 463 $MMTCO_2e$ (an average 8 percent reduction needed to achieve 1990 base)
- 2010: 450 $MMTCO_2e$ (an average 5 percent reduction needed to achieve 1990 base)

CARB has also made substantial progress in achieving its goal of achieving 1990 emissions levels by 2020. As described earlier in this section, CARB revised the 2020 BAU inventory forecast to account for new lower growth projections, which resulted in a new lower reduction from BAU to achieve the 1990 base. The previous reduction from 2020 BAU needed to achieve 1990 levels was 28.4 percent and the latest reduction from 2020 BAU is 21.7 percent.

- 2020: 545 $MMTCO_2e$ BAU (an average 21.7 percent reduction from BAU needed to achieve 1990 base)

CARB Scoping Plan. CARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (CARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS); and
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

The CARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward

long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities for the next several years. The Update does not set new targets for the State but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050 (38).

Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the amount of reductions California must achieve to return to the 1990 emissions level by 2020 as required by AB 32. The no-action scenario is known as "business-as-usual" or BAU. The CARB originally defined the BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the Scoping Plan.

As part of CEQA compliance for the Scoping Plan, CARB prepared a Supplemental Functional Equivalent Document (FED) in 2011. The FED included an updated 2020 BAU emissions inventory projection based on current economic forecasts (i.e., as influenced by the economic downturn) and emission reduction measures already in place, replacing its prior 2020 BAU emissions inventory. CARB staff derived the updated emissions estimates by projecting emissions growth, by sector, from the state's average emissions from 2006–2008. The new BAU estimate includes emission reductions for the million-solar-roofs program, the AB 1493 motor vehicle GHG emission standards, and the LCFS. In addition, CARB factored into the 2020 BAU inventory emissions reductions associated with 33 percent Renewables Portfolio Standard (RPS) for electricity generation. The updated BAU estimate of 507 $MMTCO_2e$ by 2020 requires a reduction of 80 $MMTCO_2e$, or a 16 percent reduction below the estimated BAU levels to return to 1990 levels (i.e., 427 $MMTCO_2e$) by 2020.

In order to provide a BAU reduction that is consistent with the original definition in the Scoping Plan and with threshold definitions used in thresholds adopted by lead agencies for CEQA purposes and many CAPs, the updated inventory without regulations was also included in the Supplemental FED. The CARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 $MMTCO_2e$. The updated CARB 2020 BAU projection in the Supplemental FED is 545 $MMTCO_2e$. Considering the updated BAU estimate of 545 $MMTCO_2e$ by 2020, CARB estimates a 21.7 percent reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 $MMTCO_2e$) by 2020, instead of the approximate 28.4 percent BAU reduction previously reported under the original Climate Change Scoping Plan (39).

2017 Climate Change Scoping Plan Update

In November 2017, CARB released the final 2017 Scoping Plan Update, which identifies the State's post-2020 reduction strategy. The 2017 Scoping Plan Update reflects the 2030 target of a 40 percent reduction below 1990 levels, set by Executive Order B-30-15 and codified by Senate Bill 32 (SB 32). Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the LCFS, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce CH_4 emissions from agricultural and other wastes.

The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (CH_4, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- LCFS, with an increased stringency (18 percent by 2030).
- Implementing SB 350, which expands the RPS to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of zero-emission vehicles (ZEV) trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing CH_4 and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20 percent reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Note, however, that the 2017 Scoping Plan acknowledges that:

> *"[a]chieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA."*

In addition to the statewide strategies listed above, the 2017 Scoping Plan also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. For

CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a CAP or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory (LBNL) and supported by CARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that GHG emissions through 2020 could range from 317 to 415 $MTCO_2e$/yr, "indicating that existing state policies will likely allow California to meet its target [of 2020 levels under AB 32]." CALGAPS also showed that by 2030, emissions could range from 211 to 428 $MTCO_2e$/yr, indicating that "even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40 percent below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the State's 80 percent reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (40) (41).

Senate Bill 32. On September 8, 2016, Governor Jerry Brown signed the Senate Bill (SB) 32 and its companion bill, Assembly Bill (AB) 197. SB 32 requires the state to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80 percent below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that CARB not only responds to the Governor, but also the Legislature (11).

Cap-and-Trade Program. The Scoping Plan identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to CARB, a cap-and-trade program will help put California on the path to meet its goal of reducing GHG emissions to 1990 levels by the year 2020 and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap will be able to trade permits to emit GHGs within the overall limit.

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. See Title 17 of the California Code of Regulations (CCR) §§ 95800 to 96023). The Cap-and-Trade Program is designed to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25.000 $MTCO_2e$/yr must comply with the Cap-and-Trade Program. Triggering of the 25.000 $MTCO_2e$/yr "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" (30) for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30 percent of the prior year's compliance obligation by November of each year. For example, in November 2014, a covered entity was required to submit compliance instruments to cover 30 percent of its 2013 GHG emissions.

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by CARB in the First Update:

> *"The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (CARB 2014)."*

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> *"The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is*

> *accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by CARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (CARB 2014)."*

As of January 1, 2015, the Cap-and-Trade Program covered approximately 85 percent of California's GHG emissions. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program.

The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. While the Cap-and-Trade Program technically covered fuel suppliers as early as 2012, they did not have a compliance obligation (i.e., they were not fully regulated) until 2015. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported. The point of regulation for transportation fuels is when they are "supplied" (i.e., delivered into commerce). Accordingly, as with stationary source GHG emissions and GHG emissions attributable to electricity use, virtually all, if not all, of GHG emissions from CEQA projects associated with VMT are covered by the Cap-and-Trade Program (CARB 2015) (42). In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the Program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions.[3]

[3] On March 17, 2011, the San Francisco Superior Court issued a final decision in *Association of Irritated Residents v. California Air Resources Board* (Case No. CPF-09-509562). While the Court upheld the validity of the CARB Scoping Plan for the implementation of AB 32, the Court enjoined CARB from further rulemaking under AB 32 until CARB amends its CEQA environmental review of the Scoping Plan to address the flaws identified by the Court. On May 23, 2011, CARB filed an appeal. On June 24, 2011, the Court of Appeal granted CARB's petition staying the trail court's order pending consideration of the appeal. In the interest of informed decision-making, on June 13, 2011, CARB released the expanded alternatives analysis in a draft Supplement to the AB 32 Scoping Plan Functional Equivalent Document. The CARB Board approved the Scoping Plan and the CEQA document on August 24, 2011.

SB 375 – the Sustainable Communities and Climate Protection Act of 2008. Passing the Senate on August 30, 2008, Senate Bill (SB) 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the CARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493 Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure

is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

SB 350— Clean Energy and Pollution Reduction Act of 2015. In October 2015, the legislature approved, and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
- Reorganize the Independent System Operator to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (43).

EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

Executive Order B-55-18 and SB 100. Executive Order B-55-18 and SB 100. SB 100 and Executive Order B-55-18 were signed by Governor Brown on September 10, 2018. Under the existing RPS, 25 percent of retail sales are required to be from renewable sources by December 31, 2016, 33 percent by December 31, 2020, 40 percent by December 31, 2024, 45 percent by December 31, 2027, and 50 percent by December 31, 2030. SB 100 raises California's RPS requirement to 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for the state of California by 2045; and sets a goal to maintain net negative emissions thereafter. The Executive Order directs the California Natural Resources Agency (CNRA), California Environmental Protection Agency (CalEPA), the Department of Food and Agriculture (CDFA), and CARB to include sequestration targets in the Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal.

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07 – Low Carbon Fuel Standard. The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established a LCFS and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, the CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by CEC on December 24, 2007) and was submitted to CARB for consideration as an "early action" item under AB 32. The CARB adopted the LCFS on April 23, 2009.

The LCFS was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against CARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing CARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that LCFS adopted by CARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled CARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for LCFS. In a partially published opinion, the Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of CARB approving LCFS regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while CARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, CARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. On November 16, 2015 the Office of Administrative Law (OAL) approved the Final Rulemaking Package. The new LCFS regulation became effective on January 1, 2016.

Executive Order S-13-08. Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the

Order, the 2009 California Climate Adaptation Strategy (CNRA 2009) was adopted, which is the "…first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$. The Order also requires the state's climate adaptation plan to be updated every three years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable for local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

CALIFORNIA REGULATIONS AND BUILDING CODES

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Standards. CCR, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three (23) categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (44).

Title 24 Energy Efficiency Standards and California Green Building Standards. CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: CALGreen is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that will be effective January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing

construction and demolition ordinances and defers to them as the ruling guidance provided, they establish a minimum 65 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2019 version of Title 24 was adopted by the CEC and will become effective on January 1, 2020. It should be noted that the analysis herein assumes compliance with the 2019 Title 24 Standards because the Project will be constructed after January 1, 2020.

The 2019 Title 24 standards will result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the SCAB and across the State of California. For example, the 2019 Title 24 standards will require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting requirements for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7 percent less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will use about 53 percent less energy than homes built under the 2016 standards. Nonresidential buildings (such as the Project) will use approximately 30 percent less energy due to lighting upgrade requirements (45).

Because the Project will be constructed after January 1,2019, the 2019 CALGreen standards are applicable to the Project and require, among other items (46):

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).

- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of note more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gal/day (5.303.1.1 and 5.303.1.2).
- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

CARB Refrigerant Management Program. CARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, CCR. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 pounds of a high GWP refrigerant. The refrigerant management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration

equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

Tractor-Trailer GHG Regulation. The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the HD tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

Phase I and 2 Heavy-Duty Vehicle GHG Standards. CARB has adopted a new regulation for GHG emissions from HD trucks and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the EPA rule for new trucks and engines nationally. Existing HD vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer Greenhouse Gas Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. In September 2011, the EPA adopted their new rule for HD trucks and engines. The EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements begin with model year (MY) 2014 with stringency levels increasing through MY 2018. The rule organizes truck compliance into three groupings, which include: a) HD pickups and vans; b) vocational vehicles; and c) combination tractors. The EPA rule does not regulate trailers.

CARB staff has worked jointly with the EPA and the NHTSA on the next phase of federal GHG emission standards for MD and HD vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later model year HD vehicles, including trailers. But as discussed above, the EPA and NHTSA have proposed to roll back GHG and fuel economy standards for cars and light-duty trucks, which suggests a similar rollback of Phase 2 standards for MD and HD vehicles may be pursued.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On December 28, 2018, the Natural Resources Agency announced the OAL approved the amendments to the CEQA Guidelines for implementing the CEQA. The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 1506.4 was amended to state that in determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. Additionally, a lead agency may use a model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use (47).

REGIONAL

The Project is within the South Coast Air Basin (SCAB), which is under the jurisdiction of the SCAQMD.

South Coast Air Quality Management District

SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.

- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
    - Residential and Commercial land use: 3,000 $MTCO_2e$/yr
    - Industrial land use: 10,000 $MTCO_2e$/yr
    - Based on land use type: residential: 3,500 $MTCO_2e$ per year; commercial: 1,400 $MTCO_2e$/yr; or mixed use: 3,000 $MTCO_2e$/yr
- Tier 4 has the following options:
    - Option 1: Reduce BAU emissions by a certain percentage; this percentage is currently undefined.
    - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
    - Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$/SP/year for projects and 6.6 $MTCO_2e$/SP/year for plans;
    - Option 3, 2035 target: 3.0 $MTCO_2e$/SP/year for projects and 4.1 $MTCO_2e$/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's interim thresholds used the Executive Order S-3-05-year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap CO_2 concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the Project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

City of Lake Elsinore Climate Action Plan

The City of Lake Elsinore Climate Action Plan (CAP) is a comprehensive document to ensure that the City reduces community-wide GHG emissions consistent with AB 32 and Executive Order S-3-05 (48). The CAP was prepared concurrently with the City's General Plan and EIR, to serve as the City's primary information and policy document for GHG emissions reductions in order to

analyze and reduce potentially significant GHG emissions resulting from development under the City of Lake Elsinore General Plan.

The CAP includes a "Project-Level CAP Consistency Worksheet" to determine if further analysis is required. It should be noted that the "Project-Level CAP Consistency Worksheet" is generally applicable to traditional land use development projects. As such, pursuant to the CAP documentation, consistency with the CAP is identified in Section 3.7 of this report.

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3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant GHG impact. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related GHG impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to GHG if it would (49):

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

3.3 PROJECT RELATED GREENHOUSE GAS EMISSIONS

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (50). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine greenhouse gas emissions. Output from the model runs for both construction and operational activity are provided in Appendix 3.1 and 3.2. The CalEEMod model includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water.

3.4 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (51). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time a LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and would be challenging to mitigate (52). Additionally, the science to calculate life cycle emissions is

not yet established or well defined, therefore SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

3.5 CONSTRUCTION EMISSIONS

Construction activities associated with the proposed Project will result in emissions of CO_2 and CH_4 from construction activities. The report *Lake and Mountain Shopping Center Air Quality Impact Analysis Report*, Urban Crossroads, Inc. (2019) contains detailed information regarding construction activity (53).

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational phase GHG emissions (54). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions.

3.6 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of CO_2, CH_4, and N_2O from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- Solid Waste
- Water Supply, Treatment and Distribution

3.6.1 AREA SOURCE EMISSIONS

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. CalEEMod default parameters were used to estimate emissions associated with landscape maintenance equipment for the Project scenario.

3.6.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building, the building energy use emissions do not include street lighting[4]. GHGs are also emitted

[4] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions

during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

3.6.3 MOBILE SOURCE EMISSIONS

Vehicles

Project mobile source air quality emissions are primarily dependent on both overall daily vehicle trip generation. Trip characteristics available from the report, *Lake and Mountain Shopping Center Traffic Impact Analysis* (Urban Crossroads, Inc. 2019) were utilized in this analysis (55).

3.6.4 SOLID WASTE

Commercial and industrial land uses will result in the generation and disposal of solid waste. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. CalEEMod default parameters were used to estimate GHG emissions associated with the disposal of solid waste for the Project scenario.

3.6.5 WATER SUPPLY, TREATMENT AND DISTRIBUTION

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. CalEEMod default parameters were used to estimate GHG emissions associated with water supply, with the exception of the proposed car was use. Estimated water use for the proposed car wash is summarized below.

The project includes the construction and operation of an automated car wash. Water usage for the car wash has been estimated based on the *Water Use, Evaporation and Carryout Conveyor Car Washes* (International Carwash Association, 2018) This study assumes that the average conveyor car wash utilizes 30 gallons of freshwater per vehicle (56). This GHGA assumes that the car wash will service approximately 388 vehicles per day[5] (based on the trip generation estimates from the Project's traffic study). This assumption likely overstates the Project car wash water use because not all vehicles generated by the car wash would necessarily be washed (e.g., employee trips, vendor trips, etc.) . On this basis, water usage for the proposed automated car wash is estimated at 4,424,531.67 gallons per year. The water usage estimates for the car wash were added to the default water usage estimates in CalEEMod.

related to street lighting are expected to be negligible and cannot be accurately quantified at this time as there is insufficient information as to the number and type of street lighting that would occur.

[5] The Car Wash is expected to generate 776 total daily trips (two-way). It is assumed that half of these trips are vehicles that will be serviced by the car wash (388 trips). For analytical purposes, this GHGA assumes that 388 trips (776 trips x 50%) are vehicles that will be serviced by the car wash.

3.7 EMISSIONS SUMMARY

The Project will result in approximately 431.23 $MTCO_2e$ per year from construction, area, energy, waste, and water usage. In addition, the Project has the potential to result in an additional 1,852.95 $MTCO_2e$ per year from mobile sources if the assumption is made that all of the vehicle trips to and from the Project are "new" trips resulting from the development of the Project. As shown on Table 3-1, the Project has the potential to generate a total of approximately 2,284.18 $MTCO_2e$ per year. As such, the Project would not exceed the SCAQMD's recommended numeric threshold of 3,000 $MTCO_2e$ if it were applied. Thus, the proposed Project would result in a less than significant impact with respect to GHG emissions. It should be noted that quantification of Project-related emissions is not a requirement to determine consistency with the City's adopted CAP, as illustrated in Section 3.7.

TABLE 3-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	23.34	0.004	0	23.44
Area	7.4E-04	0	0	7.9E-4
Energy	300.71	9.9E-3	3.6E-3	302.04
Mobile	1,847.85	0.20	0	1,852.95
Waste	24.19	1.43	0	59.94
Water Usage	37.63	0.25	6.2E-3	45.81
Total CO_2E (All Sources)	**2,284.18**			
SCAQMD Threshold	**3,000**			
Threshold Exceeded?	**NO**			

Source: CalEEMod™ model output, See Appendix 3.1 for detailed model outputs.
Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as x 10^{b}") and is followed by the value of the exponent

3.8 GREENHOUSE GAS EMISSIONS FINDINGS AND RECOMMENDATIONS

GHG Impact #1: The Project would generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment

The City of Lake Elsinore has not adopted its own numeric threshold of significance for determining impacts with respect to greenhouse gas (GHG) emissions. A screening threshold of 3,000 MTCO2e per year to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used by the County of Riverside (57) and numerous cities in the South Coast Air Basin and is based on the South Coast Air Quality Management District (SCAQMD) staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's *Interim*

CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans ("SCAQMD Interim GHG Threshold"). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required (58).

The Project will result in approximately 431.23 $MTCO_2e$ per year from construction, area, energy, waste, and water usage. In addition, the Project has the potential to result in an additional 1,852.95 $MTCO_2e$ per year from mobile sources if the assumption is made that all of the vehicle trips to and from the Project are "new" trips resulting from the development of the Project. As shown on Table 3-1, the Project has the potential to generate a total of approximately 2,284.18 $MTCO_2e$ per year. As such, the Project would not exceed the SCAQMD's recommended numeric threshold of 3,000 $MTCO_2e$ if it were applied. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change and no mitigation or further analysis is required.

GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Consistency with City of Lake Elsinore CAP

In 2006, California adopted AB 32, which requires the state to reduce statewide GHG emissions to 1990 levels by 2020, a reduction target that was introduced in EO S-3-05. In 2016, California adopted SB 32, which requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was introduced in EO B-30-15.

AB 32 and SB 32 codified state targets and directed State regulatory agencies to develop rules and regulations to meet the targets; AB 32 and SB 32 do not stipulate project-specific requirements. Specific requirements are codified in rules and regulations developed by regulatory agencies such as CARB and SCAQMD, and local City actions such as the City of Lake Elsinore CAP.

The City's CAP, adopted in 2011, certified that the City's target is consistent with AB 32's 2020 goals. The City CAP ensures that the City will be providing local GHG reductions that will complement state efforts to reduce GHG emissions to the AB 32 target. The proposed Project would not conflict with the applicable CAP reduction measures, as shown in Table 3-2. In addition to CAP requirements, Table 3-3 also discusses consistency with AB 32. Although the CAP was prepared prior to the adoption of SB 32, it is still an applicable plan.

The Project, as analyzed above, is consistent with AB 32. SB 32 establishes a goal to reduce GHG emissions to 40 percent below 1990 levels by 2030. However, studies have shown that, in order to meet the 2030 and long-term 2050 targets, aggressive technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. In its Climate Change Scoping Plan, ARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update, however, ARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; largescale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market

penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately."

Unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively the 2050 target of Executive Order S-3-05 has not been codified. Accordingly, the 2050 reduction target has not been the subject of any analysis by CARB. For example, CARB has not prepared an update to the aforementioned Scoping Plan that provides guidance to local agencies as to how they may seek to contribute to the achievement of the 2050 reduction target.

In 2017, the California Supreme Court examined the need to use the Executive Order S-3-05 2050 reduction target in Cleveland National Forest Foundation v. San Diego Association of Governments (2017) 3 Cal.5th 497 (Cleveland National). The case arose from SANDAG's adoption of its 2050 Regional Transportation Plan, which included its Sustainable Communities Strategy, as required by SB 375 (discussed above). On review, the Supreme Court held that SANDAG did not violate CEQA by not considering the Executive Order S-3-05 2050 reduction target.

As explained above, the 2050 reduction target of Executive Order S-3-05 has not been codified, unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively. Accordingly, the 2050 reduction target has not been the subject of any analysis by CARB. For example, CARB has not prepared an update to the aforementioned Scoping Plan that provides guidance to local agencies as to how they may seek to contribute to the achievement of the 2050 reduction target.

Further, the Project is much smaller in size and scope in comparison to the Regional Transportation Plan examined in *Cleveland National*. In that case, the California Supreme Court held that SANDAG did not violate CEQA by not considering the Executive Order S-3-05 2050 reduction target. Accordingly, there is no information presently available to assess the Project's consistency with regard to the 2050 target of Executive Order S-3-05. Project consistency with AB 32, and SB 32 are provided below after the consistency analysis for the City's CAP below.

TABLE 3-2: PROJECT CONSISTENCY WITH CITY OF LAKE ELSINORE CAP

CAP Measure	Applicability to Proposed Project	Remarks
Measure T-1.2: Pedestrian Infrastructure	Applicable	This measure requires the installation of sidewalks along new and reconstructed streets and sidewalks or paths to internally link all uses and provide connections to neighborhood activity centers, major destinations, and transit facilities contiguous with the project site. The Project would be required to provide sidewalks along Lake Street and Mountain Street, and all internal streets. This measure is implemented by the Department of Public Works and Building Department through policy development, development review, and conditions of approval. The proposed Project elements would be required to comply

CAP Measure	Applicability to Proposed Project	Remarks
		with conditions of approval imposed by the City. As such, the proposed Project would not conflict with this measure.
Measure T-1.4: Bicycle Infrastructure	Applicable	This measure requires new development to implement and connect to the network of Class I, II and III bikeways, trails and safety features identified in the General Plan, Bike Lane Master Plan, Trails Master Plan and Western Riverside County Non-Motorized Transportation plan. Consistent with the City's General Plan and Specific Plan a Class II bicycle lane is required along Lakeshore Drive within the study area. This measure is implemented by the Department of Public Works, Community Services Department, and Building Department through policy development, development review, and conditions of approval. The proposed Project elements would be required to comply with conditions of approval imposed by the City. As such, the proposed Project would not conflict with this measure.
Measure T-1.5: Bicycle Parking Standards	Applicable	This measure requires the City to enforce short-term and long-term bicycle parking standards for new non-residential developments. This measure is implemented by the Department of Public Works and Building Department through development review and conditions of approval. The proposed Project elements would be required to comply with conditions of approval imposed by the City. As such, the proposed Project would not conflict with this measure.
Measure T-2.1: Designated Parking for Fuel Efficient Vehicles	Applicable	This measure requires new non-residential developments to designate 10% of total parking spaces for low-emitting, fuel-efficient vehicles. This measure is implemented by the Department of Planning, Public Works and Building through development review and conditions of approval. The proposed Project elements would be

CAP Measure	Applicability to Proposed Project	Remarks
		required to comply with conditions of approval imposed by the City. As such, the proposed Project would not conflict with this measure.
Measure T-4.1: Commute Trip Reduction Program	Applicable	This measure requires the City to institute a commute trip reduction program for employers with fewer than 100 employees. This measure is implemented by the Department of Planning through amendment to the Municipal Code. The Project would be comprised of various project-specific actions, some of which may be subject to this measure. The proposed Project elements would be required to comply with the City's Municipal Code. As such, the proposed Project would not conflict with this measure.
Measure E-1.1: Tree Planting Requirements	Applicable	This measure requires new developments to plant at minimum one 15-gallon nondeciduous, umbrella-form tree per 30 linear feet of boundary length near buildings. This measure is implemented by the Departments of Planning, Public Works, and Parks and Recreation through City ordinance, development review process, and conditions of approval. The proposed Project elements would be required to comply with the City ordinances and conditions of approval. As such, the proposed Project would not conflict with this measure.
Measure E-1.2: Cool Roof Requirements	Applicable	This measure requires new non-residential development to use roofing materials having solar reflectance, thermal emittance or Solar Reflectance Index consistent with CalGreen Tier 1 values. This measure is implemented by the Departments of Planning and Building through City ordinance, development review process, and conditions of approval. The proposed Project elements would be required to comply with the City ordinances and conditions of approval. As such, the

CAP Measure	Applicability to Proposed Project	Remarks
		proposed Project would not conflict with this measure.
Measure E-1.3: Energy Efficient Building Standards	Applicable	This measure requires that new construction exceed the California Energy Code requirements, based on the 2008 Energy Efficiency Standards by 15% by 2020, through either the performance based or prescriptive approach described in the California Green Building Code. This measure is implemented by the Departments of Planning, Public Works, and Building through City ordinance, development review process, and conditions of approval. The proposed Project elements would be required to comply with the City ordinances and conditions of approval. As such, the proposed Project would not conflict with this measure.
Measure E-3.2: Energy Efficient Street and Traffic Signal Lights	Applicable	This measure requires the City to work with Southern California Edison to replace existing high-pressure sodium street lights and traffic lights with high efficiency alternatives, such as Low Emitting Diode (LED) lights; replace existing City owned traffic lights with LED lights; require any new street and traffic lights to be LED. This measure is currently being implemented by the Department of Public Works through renovation. The Planning Department obtains compliance through Municipal Code amendment, the development and review process, and conditions of approval. This measure would apply to any traffic lights replaced or installed as part of the Project. The proposed Project elements would be required to comply with the municipal code and conditions of approval. As such, the proposed Project would not conflict with this measure.
Measure E-4.1: Landscaping Ordinance	Applicable	This measure requires the City to enforce the City's AB 1881 Landscaping Ordinance, which requires that

CAP Measure	Applicability to Proposed Project	Remarks
		landscaping be water efficient, thereby consuming less energy and reducing emissions. This measure is implemented by the Departments of Building and Planning through City ordinance, development and review process, and conditions of approval. The proposed Project elements would be required to comply with these landscape requirements. As such, the proposed Project would not conflict with this measure.
Measure E-4.2: Indoor Water Conservation Requirements	Applicable	This measure requires that development projects reduce indoor water consumption by 30% by 2020. This measure is implemented by the Departments of Building and Planning through amendments to the Municipal Code and conditions of approval. The proposed Project elements would be required to comply with the City's Municipal Code and conditions of approval. As such, the proposed Project would not conflict with this measure. The proposed Project was analyzed with this measure, and no conflicts were identified.
Measure E-5.1: Renewable Energy Incentives	Applicable	This measure facilitates the voluntary installation of small-scale renewable energy systems, such as solar photovoltaic and solar hot water systems, by connecting residents and businesses with technical and financial assistance through the City website. This measure is implemented by the Departments of Building and Planning through outreach and incentive programs. No elements of the proposed Project would conflict with this measure.
Measure S-1.4: Construction and Demolition Waste Diversion	Applicable	This measure requires development projects to divert, recycle or salvage at least 65% of nonhazardous construction and demolition debris generated at the site by 2020 and requires all construction and demolition projects to be accompanied by a waste

CAP Measure	Applicability to Proposed Project	Remarks
		management plan for the project. This measure is implemented by the Departments of Planning and Building through City contracts, Municipal Code amendments, development and review process, and conditions of approval. The proposed Project project-specific elements would be required to comply with the City's Municipal Code and conditions of approval. As such, the proposed Project would not conflict with this measure.

Consistency with AB 32

ARB's *Scoping Plan* identifies strategies to reduce California's greenhouse gas emissions in support of AB32. Many of the strategies identified in the Scoping Plan are not applicable at the project level, such as long-term technological improvements to reduce emissions from vehicles. Some measures are applicable and supported by the project, such as energy efficiency. Finally, while some measures are not directly applicable, the project would not conflict with their implementation. Reduction measures are grouped into 18 action categories, as follows:

1. **California Cap-and-Trade Program Linked to Western Climate Initiative Partner Jurisdictions.** Implement a broad-based California cap-and-trade program to provide a firm limit on emissions. Link the California cap–and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California.[6] Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.
2. **California Light-Duty Vehicle Greenhouse Gas Standards.** Implement adopted Pavley standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
3. **Energy Efficiency.** Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).
4. **Renewables Portfolio Standards.** Achieve 33 percent renewable energy mix statewide.
5. **Low Carbon Fuel Standard.** Develop and adopt the Low Carbon Fuel Standard.
6. **Regional Transportation-Related Greenhouse Gas Targets.** Develop regional greenhouse gas emissions reduction targets for passenger vehicles.
7. **Vehicle Efficiency Measures.** Implement light-duty vehicle efficiency measures.
8. **Goods Movement.** Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.

[6] California Air Resources Board. California GHG Emissions – Forecast (2002-2020). October 2010

9. **Million Solar Roofs Program.** Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.
10. **Medium- and Heavy-Duty Vehicles.** Adopt medium- (MD) and heavy-duty (HD) vehicle efficiencies. Aerodynamic efficiency measures for HD trucks pulling trailers 53-feet or longer that include improvements in trailer aerodynamics and use of rolling resistance tires were adopted in 2008 and went into effect in 2010.[7] Future, yet to be determined improvements, includes hybridization of MD and HD trucks.
11. **Industrial Emissions.** Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. **High Speed Rail.** Support implementation of a high-speed rail system.
13. **Green Building Strategy.** Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
14. **High Global Warming Potential Gases.** Adopt measures to reduce high warming global potential gases.
15. **Recycling and Waste.** Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.
16. **Sustainable Forests.** Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The 2020 target for carbon sequestration is 5 million $MTCO_2e$/yr.
17. **Water.** Continue efficiency programs and use cleaner energy sources to move and treat water.
18. **Agriculture.** In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

Table 3-3 summarizes the Project's consistency with the State Scoping Plan. As summarized, the Project would not conflict with any of the provisions of the Scoping Plan and in fact supports the action categories: energy efficiency, water conservation, recycling, and landscaping.

TABLE 3-3: PROJECT CONSISTENCY WITH SCOPING PLAN GREENHOUSE GAS EMISSION REDUCTION

Number	Scoping Plan Measure	Remarks
T-1	Pavley Motor Vehicle Standards (AB 1493)	Residents would purchase vehicles in compliance with incumbent CARB vehicle standards
H-4	Limit High GWP Use in Consumer Products	Residents would use consumer products that would comply with the incumbent regulations
H-1	Motor Vehicle Air Conditioning Systems – Reduction from Non-Professional Servicing	Residents would be prohibited from performing air conditioning repairs and required to use professional servicing.
T-4	Tire Pressure Program	Motor vehicles driven by residents would maintain proper tire pressure when vehicles are serviced.
T-2	Low Carbon Fuel Standard	Motor vehicles driven by residents would use fuels that are compliant with incumbent standards.

[7] California Air Resources Board. Scoping Plan Measures Implementation Timeline. October 2010

Number	Scoping Plan Measure	Remarks
W-1	Water Use Efficiency	Development proposals within the Project site would implement measures to minimize water use and maximize efficiency. The Project will be required to show consistency with the City of Lake Elsinore's municipal code requiring efficient landscape requirements (Chapter 19.08 of the City's municipal code / consistency with the City's AB 1881 Landscaping Ordinance).
GB-1	Green Buildings	Development proposals within the Project site would be constructed in compliance with incumbent state or local green building standards.
H-5	Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	Motor vehicles driven by residents, employees, and customers would comply with the leak test requirements during smog checks.
E-1	Energy Efficiency Measures (Electricity)	The Project would comply with incumbent electrical energy efficiency standards. At this time, the Project would be required to comply with the 2016 Title 24 standards and applicable green building standards.
CR-1	Energy Efficiency (Natural Gas)	Development proposals within the Project site would comply with incumbent natural gas energy efficiency standards. At this time, the Project would be required to comply with the 2016 Title 24 standards and applicable green building standards.
GB-1	Greening New Residential and Commercial Construction	Development proposals within the Project site would comply with incumbent green building standards. At this time, the Project would be required to comply with the 2016 Title 24 standards and applicable green building standards.
GB-1	Greening Existing Homes and Commercial Buildings	Development proposals within the Project site would meet retrofit standards as they become effective.

Consistency with SB 32

Senate Bill 32 (SB 32) requires the state to reduce statewide greenhouse gas emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide greenhouse gas reduction target of 80% below 1990 levels by 2050 (11) (59).

According to research conducted by the Lawrence Berkeley National Laboratory and supported by the CARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. (40) (60).

The Project reduces its GHG emissions to the maximum extent feasible as discussed in this document. Additionally, the project applicant would not actively interfere with any future County-mandated, state-mandated, or federally-mandated retrofit obligations enacted or promulgated to legally require development County-wide, state-wide, or nation-wide to assist in meeting state-adopted greenhouse gas emissions reduction targets, including that established under Executive Order S-3-05, Executive Order B-30-15, or SB 32.

The Project does not interfere with the state's implementation of (i) Executive Order B-30-15 and SB 32's target of reducing statewide GHG emissions to 40% below 1990 levels by 2030 or (ii) Executive Order S-3-05's target of reducing statewide GHG emissions to 80% below 1990 levels by 2050 because it does not interfere with the state's implementation of GHG reduction plans described in the CARB's Updated Scoping Plan, including the state providing for 12,000 MW of renewable distributed generation by 2020, the California Building Commission mandating net zero energy homes in the building code after 2020, or existing building retrofits under AB 758. Therefore, the project's impacts on greenhouse gas emissions in the 2030 and 2050 horizon years are less than significant.

The 2017 Scoping Plan builds on the 2008 Scoping Plan in order to achieve the 40 percent reduction from 1990 levels by 2030. Major elements of the 2017 Scoping Plan framework that will achieve the GHG reductions include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks. When adopted, this measure would apply to all trucks accessing the Project site. This may include providing incentives for existing truck retrofits or new trucks purchased by the building operators to be ZEV. As such, this measure has the potential to expedite the Project's implementation of ZEVs through incentives.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030). When adopted, this measure would apply to all fuel purchased and used by the Project in the state.
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030. When adopted, this measure would apply when electricity is provided to the Project by a utility company.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks. When adopted, this measure would apply to all trucks accessing the Project site, this may include existing trucks or new trucks that are part of the statewide goods movement sector.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030. When adopted, the Project would be required to comply with this measure and reduce SLPS accordingly.
- Continued implementation of SB 375. The Project is not within the purview of SB 375 and would therefore not conflict with this measure.
- Post-2020 Cap-and-Trade Program that includes declining caps. When adopted, the Project would be required to comply with the Cap-and-Trade Program if it generates emissions from sectors covered by Cap-and-Trade.
- 20 percent reduction in GHG emissions from refineries by 2030. When adopted, the Project would be required to comply with this measure if it were to utilize any fuel from refineries.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink. This is a statewide measure that would not apply to the Project.

As shown above, the Project would not conflict with any of the 2017 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project.

Further, as discussed above the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030.

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4 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2016.
2. **Air Resources Board.** Assembly Bill 32: Global Warming Solutions Act. [Online] 2006. http://www.arb.ca.gov/cc/ab32/ab32.htm.
3. —. Sustainable Communities. [Online] 2008. http://www.arb.ca.gov/cc/sb375/sb375.htm.
4. —. Clean Car Standards - Pavley, Assembly Bill 1493. [Online] September 24, 2009. http://www.arb.ca.gov/cc/ccms/ccms.htm.
5. **Building Standards Commission.** California Building Standards Code (Title 24, California Code of Regulations). [Online] http://www.bsc.ca.gov/codes.aspx.
6. **California Energy Commission.** California Code of Regulations, TITLE 20, Division 2. [Online] September 3, 2013. http://www.energy.ca.gov/reports/title20/index.html.
7. **Air Resources Board.** Title 17 - California Code of Regulation. [Online] 2010. http://www.arb.ca.gov/regs/regs-17.htm.
8. **Department of Water Resources.** Updated Model Water Efficient Landscape Ordinance AB 1881. [Online] 2006. [Cited: November 13, 2013.] http://www.water.ca.gov/wateruseefficiency/landscapeordinance/updatedOrd_history.cfm.
9. **California Energy Commission.** SB 1368 Emission Performance Standards. [Online] September 29, 2006. http://www.energy.ca.gov/emission_standards/.
10. —. Renewables Portfolio Standard (RPS). [Online] 2002. http://www.energy.ca.gov/portfolio/.
11. **California Legislative Information.** Senate Bill No. 32. [Online] September 8, 2016. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.
12. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Water Vapor. *NOAA National Centers For Environmental Information.* [Online] https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=watervapor.
13. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report.* **International Panel on Climate Change.** 4, 2007.
14. *The Carbon Cycle and Climate Change.* **Bennington, Bret J.** 1, s.l. : Brooks/Cole. ISBN 1 3: 978-0-495-73855-8.
15. **The National Institute for Occupational Safety and Health.** Carbon Dioxide. *Centers for Disease Control and Prevention.* [Online] https://www.cdc.gov/niosh/npg/npgd0103.html.
16. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Methane. *NOAA National Centers for Environmental Information.* [Online] https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=methane.
17. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] http://cait.wri.org.
18. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Chlorofluorocarbons. *NOAA National Centers For Environmental Information.* [Online] https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=chlorofluorocarbons.
19. **United States Environmental Protection Agency.** Regulation for Reducting Sulfur Hexafluoride Emissions from Gas Insulated Switchgear. *Environmental Protection Agency.* [Online] May 7, 2014.

https://www.epa.gov/sites/production/files/2016-02/documents/mehl-arb-presentation-2014-wkshp.pdf.

20. **World Resources Institute.** Nitrogen Trifluoride Now Required in GHG Protocol Greenhouse Gas Emissions Inventory. [Online] May 22, 2013. https://www.wri.org/blog/2013/05/nitrogen-trifluoride-now-required-ghg-protocol-greenhouse-gas-emissions-inventories.
21. **National Center for Biotechnology Information.** Nitrogen Trifluoride. *PubChem Compound Database.* [Online] https://pubchem.ncbi.nlm.nih.gov/compound/24553 .
22. **American Lung Association.** Climate Change. [Online] http://www.lung.org/our-initiatives/healthy-air/outdoor/climate-change/.
23. **Barbara H. Allen-Diaz.** Climate change affects us all. *University of California Agriculture and Natural Resources.* [Online] April 1, 2009. http://calag.ucanr.edu/Archive/?article=ca.v063n02p51.
24. **Intergovernmental Panel on Climate Change.** Climate Change 2013 The Physical Science Basis - Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. *AR5 Climate Change 2013: The Physical Science Basis.* [Online] September 2013. https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf.
25. **United Nations.** GHG Profiles - Annex I. [Online] http://di.unfccc.int/ghg_profile_annex1.
26. —. GHG Profiles - Non-Annex I. [Online] http://di.unfccc.int/ghg_profile_non_annex1.
27. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] http://cait.wri.org.
28. **Air Resources Board.** California Greenhouse Gas Emission Inventory 2000-2016 Edition. [Online] June 17, 2016. http://www.arb.ca.gov/cc/inventory/data/data.htm.
29. **Center for Climate and Energy Solutions (C2ES).** Outcomes of the U.N. Climate Change Conference. *Center for Climate and Energy Solutions (C2ES).* [Online] 2015. http://www.c2es.org/international/negotiations/cop21-paris/summary.
30. **Agency, United States Environmental Protection.** Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act. *United States Environmental Protection Agency.* [Online] https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean.
31. **Environmental Protection Agency.** Final Rule for Model Year 2017 and Later Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards. *Environmental Protection Agency.* [Online] 2012. https://www.govinfo.gov/content/pkg/FR-2012-10-15/pdf/2012-21972.pdf.
32. **Federal Register.** Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-Duty Vehicles. [Online] April 13, 2018. https://www.federalregister.gov/documents/2018/04/13/2018-07364/mid-term-evaluation-of-greenhouse-gas-emissions-standards-for-model-year-2022-2025-light-duty.
33. **Environmental Protection Agency.** The Safer Affordable Fuel-Efficient Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks. [Online] August 24, 2018. https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0756.
34. **Center For Climate and Energy Solutions.** California Cap and Trade. *Center For Climate and Energy Solutions.* [Online] 2015. https://www.c2es.org/content/california-cap-and-trade/.
35. **Environmental Protection Agency.** Learn About SmartWay. *Environmental Protection Agency.* [Online] https://www.epa.gov/smartway/learn-about-smartway.

36. **California Air Resources Board.** Assembly Bill 32: Global Warming Solutions Act. [Online] 2006. http://www.arb.ca.gov/cc/ab32/ab32.htm.

37. —. GHG 1990 Emissions Level & 2020 Limit. *California Air Resources Board.* [Online] https://ww2.arb.ca.gov/ghg-2020-limit.

38. —. First Update to the AB 32 Scoping Plan. *California Air Resources Board.* [Online] May 27, 2014. https://ww3.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

39. —. Initial AB 32 Climate Change Scoping Plan Document. *California Air Resources Board.* [Online] December 2008. https://ww3.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.

40. **Lawrence Berkeley National Laboratory.** California's Policies Can Significantly Cut Greenhouse Gas Emissions through 2030. *Lawrence Berkeley National Laboratory.* [Online] January 22, 2015. http://newscenter.lbl.gov/2015/01/22/californias-policies-can-significantly-cut-greenhouse-gas-emissions-2030/.

41. **Ernest Orlando Lawrence Berkeley National Laboratory.** Modeling California policy impacts on greenhouse gas emissions. [Online] 2015. https://eaei.lbl.gov/sites/all/files/lbnl-7008e.pdf.

42. **California Air Resources Board (CARB).** Cap and Trade Overview. *California Air Resources Board.* [Online] [Cited: May 10, 2016.] http://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf..

43. **California Legislative Information.** SB-350 Clean Energy and Pollution Reduction Act of 2015. *California Legislative Information.* [Online] https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350.

44. **California Energy Commission.** Appliance Efficiency Proceedings - Title 20. *California Energy Commission.* [Online] https://www.energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20/appliance-efficiency-proceedings.

45. **The California Energy Commission.** 2019 Building Energy Efficiency Standards . *California Energy Commission.* [Online] 2018. https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

46. **Department of General Services.** Building Standards Commission. *CALGreen.* [Online] https://codes.iccsafe.org/content/chapter/15778/.

47. **Association of Environmental Professionals.** *2018 CEQA California Environmental Quality Act.* 2018.

48. **City of Lake Elsinore.** *Climate Action Plan.* s.l. : Rincon Consultants, Inc., 2011.

49. **State of California.** *2019 CEQA California Environmental Quality Act.* 2019.

50. **California Air Pollution Control Officers Association (CAPCOA).** California Emissions Estimator Model (CalEEMod). [Online] September 2016. www.caleemod.com.

51. **California Natural Resources Agency.** Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. [Online] December 2009.

52. *Minutes for the GHG CEQA Significance.* **South Coast Air Quality Managment District.** 2008.

53. **Urban Crossroads, Inc.** *Lake and Mountain Shopping Center Air Quality Impact Analysis Report.* 2019.

54. **South Coast Air Quality Management District.** *Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #13.* [Powerpoint] Diamond Bar : s.n., 2009.

55. **Urban Crossroads, Inc.** *Lake and Mountain Shopping Center Traffic Impact Analysis.* 2018.

56. **International Carwash Association.** *Water Use, Evaporation and Carryout Conveyor Car Washes.* 2018.

57. **County of Riverside.** *Greenhouse Gas Emissions Screening Tables.* San Bernardino : Atkins, 2012.

58. **South Coast Air Quality Management District.** Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. [Online] http://www.aqmd.gov/hb/2008/December/081231a.htm.

59. **Policy Matters Journal: A Student Publication from the Goldman School of Public Policy.** New California Emissions Targets Spell Next Step in the State's Fight against Climate Change. [Online] September 1, 2016. http://www.policymattersjournal.org/sb32.html.

60. **Ernest Orlando Lawrence Berkeley National Laboratory.** Modeling California policy impacts on greenhouse gas emissions. [Online] 2015. https://eetd.lbl.gov/sites/all/files/lbnl-7008e.pdf.

5 CERTIFICATION

The contents of this greenhouse gas study report represent an accurate depiction of the greenhouse gas impacts associated with the proposed Lake and Mountain Shopping Center. The information contained in this greenhouse gas report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 3.1:

CALEEMOD EMISSIONS MODEL OUTPUTS

12769 - Lake and Mountain

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.01	Acre	5.01	218,235.60	0
Fast Food Restaurant with Drive Thru	7.37	1000sqft	0.17	7,365.00	0
Convenience Market With Gas Pumps	3.40	1000sqft	0.08	3,400.00	0
Regional Shopping Center	13.20	1000sqft	0.30	13,200.00	0
User Defined Retail	1.00	User Defined Unit	0.07	3,150.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acerage = information from site plan

Construction Phase -

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Crawler Tractors Utilized in Lieu of T/L/B

Off-road Equipment -

Off-road Equipment - Crawler Tractors Utilized in Lieu of T/L/B

Trips and VMT -

Grading -

Vehicle Trips - TG based on ITE 10th edition

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use - User Defined Retail Rates Consistent with Convenience Market With Gas Pump.

Water And Wastewater - Water Usage from Car Wash estimated as 30 gallons/vehicle washed

Solid Waste - Car Wash Solid Waste assumed to be equivalent to Convenience Market With Gas Pumps

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	0.00	5.61
tblEnergyUse	NT24E	0.00	2.44
tblEnergyUse	NT24NG	0.00	0.30
tblEnergyUse	T24E	0.00	4.58

tblEnergyUse	T24NG	0.00	1.92
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
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tblFleetMix	LDT1	0.04	0.10
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tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
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tblFleetMix	LHD1	0.02	0.00
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tblFleetMix	LHD2	5.1410e-003	0.00
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tblFleetMix	MCY	4.5820e-003	5.0000e-003

tblFleetMix	MCY	4.5820e-003	5.0000e-003
tblFleetMix	MCY	4.5820e-003	5.0000e-003
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tblFleetMix	MDV	0.12	0.06
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MDV	0.12	0.06
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tblFleetMix	MH	1.0380e-003	0.00
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tblFleetMix	MHD	0.02	0.00
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tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
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tblOffRoadEquipment	UsageHours	7.00	8.00
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tblVehicleEF	LDA	0.71	0.81
tblVehicleEF	LDA	1.02	1.87
tblVehicleEF	LDA	278.73	289.14
tblVehicleEF	LDA	58.81	54.24
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003

tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003
tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.06	0.20
tblVehicleEF	LDA	2.7930e-003	2.8600e-003
tblVehicleEF	LDA	6.0500e-004	5.3700e-004
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.07	0.22
tblVehicleEF	LDA	3.8980e-003	2.3810e-003
tblVehicleEF	LDA	5.6140e-003	0.05
tblVehicleEF	LDA	0.54	0.62
tblVehicleEF	LDA	1.19	2.17
tblVehicleEF	LDA	249.57	259.47
tblVehicleEF	LDA	58.81	54.82
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003
tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003

tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	9.8140e-003	9.1880e-003
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	2.4990e-003	2.5670e-003
tblVehicleEF	LDA	6.0800e-004	5.4200e-004
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.26
tblVehicleEF	LDT1	0.01	8.0140e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.46	1.62
tblVehicleEF	LDT1	3.40	2.43
tblVehicleEF	LDT1	315.98	317.00
tblVehicleEF	LDT1	72.28	66.64
tblVehicleEF	LDT1	0.14	0.14
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.21	0.23

tblVehicleEF	LDT1	0.35	0.27
tblVehicleEF	LDT1	0.14	0.15
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.20	0.87
tblVehicleEF	LDT1	0.24	0.44
tblVehicleEF	LDT1	3.1780e-003	3.1370e-003
tblVehicleEF	LDT1	7.8300e-004	6.5900e-004
tblVehicleEF	LDT1	0.21	0.23
tblVehicleEF	LDT1	0.35	0.27
tblVehicleEF	LDT1	0.14	0.15
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.20	0.87
tblVehicleEF	LDT1	0.26	0.48
tblVehicleEF	LDT1	0.01	9.0560e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.76	1.96
tblVehicleEF	LDT1	2.99	2.15
tblVehicleEF	LDT1	343.19	341.79
tblVehicleEF	LDT1	72.28	66.01
tblVehicleEF	LDT1	0.13	0.13
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.41	0.44
tblVehicleEF	LDT1	0.43	0.34
tblVehicleEF	LDT1	0.27	0.29

tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.20	0.88
tblVehicleEF	LDT1	0.21	0.38
tblVehicleEF	LDT1	3.4550e-003	3.3820e-003
tblVehicleEF	LDT1	7.7500e-004	6.5300e-004
tblVehicleEF	LDT1	0.41	0.44
tblVehicleEF	LDT1	0.43	0.34
tblVehicleEF	LDT1	0.27	0.29
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.20	0.88
tblVehicleEF	LDT1	0.23	0.42
tblVehicleEF	LDT1	0.01	7.7080e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.37	1.51
tblVehicleEF	LDT1	3.46	2.48
tblVehicleEF	LDT1	307.88	309.49
tblVehicleEF	LDT1	72.28	66.77
tblVehicleEF	LDT1	0.14	0.14
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.23	1.01

tblVehicleEF	LDT1	0.25	0.45
tblVehicleEF	LDT1	3.0960e-003	3.0630e-003
tblVehicleEF	LDT1	7.8400e-004	6.6100e-004
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.23	1.01
tblVehicleEF	LDT1	0.27	0.50
tblVehicleEF	LDT2	5.6080e-003	4.2470e-003
tblVehicleEF	LDT2	7.2840e-003	0.07
tblVehicleEF	LDT2	0.76	0.98
tblVehicleEF	LDT2	1.53	2.73
tblVehicleEF	LDT2	355.02	338.79
tblVehicleEF	LDT2	81.24	71.51
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.5560e-003	3.3520e-003

tblVehicleEF	LDT2	8.3800e-004	7.0800e-004
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.11	0.37
tblVehicleEF	LDT2	6.3630e-003	4.8280e-003
tblVehicleEF	LDT2	6.3270e-003	0.06
tblVehicleEF	LDT2	0.93	1.20
tblVehicleEF	LDT2	1.35	2.42
tblVehicleEF	LDT2	386.34	362.86
tblVehicleEF	LDT2	81.24	70.86
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.14	0.22
tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	0.10	0.17
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.09	0.29
tblVehicleEF	LDT2	3.8710e-003	3.5900e-003
tblVehicleEF	LDT2	8.3500e-004	7.0100e-004
tblVehicleEF	LDT2	0.14	0.22

tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	0.10	0.17
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.09	0.32
tblVehicleEF	LDT2	5.3900e-003	4.0760e-003
tblVehicleEF	LDT2	7.4940e-003	0.07
tblVehicleEF	LDT2	0.71	0.91
tblVehicleEF	LDT2	1.57	2.80
tblVehicleEF	LDT2	345.65	331.49
tblVehicleEF	LDT2	81.24	71.65
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.07	0.51
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	3.4620e-003	3.2800e-003
tblVehicleEF	LDT2	8.3900e-004	7.0900e-004
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.05	0.07

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.51
tblVehicleEF	LDT2	0.11	0.38
tblVehicleEF	LHD1	5.4460e-003	4.8820e-003
tblVehicleEF	LHD1	0.01	5.3310e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.96	0.72
tblVehicleEF	LHD1	2.41	0.96
tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.95
tblVehicleEF	LHD1	30.36	10.54
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.21	1.60
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004
tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	3.8710e-003	3.1780e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.9010e-003	1.5570e-003
tblVehicleEF	LHD1	0.08	0.06

tblVehicleEF	LHD1	0.31	0.50
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4900e-004	1.0400e-004
tblVehicleEF	LHD1	3.8710e-003	3.1780e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.9010e-003	1.5570e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.31	0.50
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	5.4460e-003	4.8940e-003
tblVehicleEF	LHD1	0.01	5.4200e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.97	0.73
tblVehicleEF	LHD1	2.29	0.92
tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.97
tblVehicleEF	LHD1	30.36	10.46
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.08	1.51
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004

tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
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tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	7.2450e-003	5.9530e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.6380e-003	2.9980e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4700e-004	1.0300e-004
tblVehicleEF	LHD1	7.2450e-003	5.9530e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.6380e-003	2.9980e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	5.4460e-003	4.8810e-003
tblVehicleEF	LHD1	0.01	5.3180e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.96	0.72
tblVehicleEF	LHD1	2.41	0.96

tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.95
tblVehicleEF	LHD1	30.36	10.54
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.18	1.59
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004
tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	3.4570e-003	2.8250e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7350e-003	1.4150e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
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tblVehicleEF	LHD1	3.4570e-003	2.8250e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7350e-003	1.4150e-003

tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD2	3.6660e-003	3.1720e-003
tblVehicleEF	LHD2	4.5290e-003	3.8570e-003
tblVehicleEF	LHD2	8.3110e-003	9.0280e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.50	0.53
tblVehicleEF	LHD2	1.15	0.56
tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.29
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.71	1.77
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	3.8700e-004	1.1400e-004
tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	1.4980e-003	1.6870e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.7800e-004	8.4200e-004
tblVehicleEF	LHD2	0.06	0.06

tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1550e-003
tblVehicleEF	LHD2	2.5700e-004	7.2000e-005
tblVehicleEF	LHD2	1.4980e-003	1.6870e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.7800e-004	8.4200e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	LHD2	3.6660e-003	3.1790e-003
tblVehicleEF	LHD2	4.5800e-003	3.8860e-003
tblVehicleEF	LHD2	8.0210e-003	8.7250e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.51	0.53
tblVehicleEF	LHD2	1.10	0.53
tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.25
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.62	1.67
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004

tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	2.8320e-003	3.1830e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.4720e-003	1.6130e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1560e-003
tblVehicleEF	LHD2	2.5600e-004	7.2000e-005
tblVehicleEF	LHD2	2.8320e-003	3.1830e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4720e-003	1.6130e-003
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	LHD2	3.6660e-003	3.1700e-003
tblVehicleEF	LHD2	4.5170e-003	3.8490e-003
tblVehicleEF	LHD2	8.3600e-003	9.0930e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.50	0.53
tblVehicleEF	LHD2	1.16	0.56

tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.30
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.70	1.75
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004
tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	1.1910e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.6000e-004	7.0100e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.27
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1550e-003
tblVehicleEF	LHD2	2.5700e-004	7.2000e-005
tblVehicleEF	LHD2	1.1910e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.6000e-004	7.0100e-004

tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.27
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.52	19.61
tblVehicleEF	MCY	9.67	8.55
tblVehicleEF	MCY	165.74	208.30
tblVehicleEF	MCY	46.23	60.73
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.15	2.16
tblVehicleEF	MCY	0.57	1.87
tblVehicleEF	MCY	2.08	1.83
tblVehicleEF	MCY	2.0380e-003	2.0610e-003
tblVehicleEF	MCY	6.8100e-004	6.0100e-004
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.65	2.65
tblVehicleEF	MCY	0.57	1.87

tblVehicleEF	MCY	2.26	1.99
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	20.23	20.27
tblVehicleEF	MCY	9.11	8.00
tblVehicleEF	MCY	165.74	209.26
tblVehicleEF	MCY	46.23	59.19
tblVehicleEF	MCY	0.98	0.98
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	3.35	3.28
tblVehicleEF	MCY	1.24	1.23
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.13	2.13
tblVehicleEF	MCY	0.57	1.86
tblVehicleEF	MCY	1.86	1.63
tblVehicleEF	MCY	2.0490e-003	2.0710e-003
tblVehicleEF	MCY	6.6500e-004	5.8600e-004
tblVehicleEF	MCY	3.35	3.28
tblVehicleEF	MCY	1.24	1.23
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.62	2.63
tblVehicleEF	MCY	0.57	1.86
tblVehicleEF	MCY	2.02	1.77
tblVehicleEF	MCY	0.42	0.32

tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.04	19.14
tblVehicleEF	MCY	9.62	8.49
tblVehicleEF	MCY	165.74	207.52
tblVehicleEF	MCY	46.23	60.64
tblVehicleEF	MCY	1.12	1.12
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.05	1.04
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.15	2.15
tblVehicleEF	MCY	0.65	2.12
tblVehicleEF	MCY	2.08	1.83
tblVehicleEF	MCY	2.0310e-003	2.0540e-003
tblVehicleEF	MCY	6.8100e-004	6.0000e-004
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.05	1.04
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.64	2.65
tblVehicleEF	MCY	0.65	2.12
tblVehicleEF	MCY	2.27	1.99
tblVehicleEF	MDV	0.01	5.7580e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.42	1.20

tblVehicleEF	MDV	3.18	3.27
tblVehicleEF	MDV	488.89	421.49
tblVehicleEF	MDV	110.15	88.73
tblVehicleEF	MDV	0.17	0.12
tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.25	0.45
tblVehicleEF	MDV	4.9000e-003	4.1680e-003
tblVehicleEF	MDV	1.1570e-003	8.7800e-004
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.27	0.49
tblVehicleEF	MDV	0.01	6.5120e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.73	1.46
tblVehicleEF	MDV	2.81	2.88
tblVehicleEF	MDV	530.71	447.07

tblVehicleEF	MDV	110.15	87.92
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.22	0.26
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.17	0.21
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.21	0.39
tblVehicleEF	MDV	5.3230e-003	4.4210e-003
tblVehicleEF	MDV	1.1510e-003	8.7000e-004
tblVehicleEF	MDV	0.22	0.26
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.17	0.21
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.23	0.43
tblVehicleEF	MDV	0.01	5.5370e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.33	1.12
tblVehicleEF	MDV	3.24	3.34
tblVehicleEF	MDV	476.42	413.84
tblVehicleEF	MDV	110.15	88.88
tblVehicleEF	MDV	0.16	0.12

tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.25	0.46
tblVehicleEF	MDV	4.7750e-003	4.0920e-003
tblVehicleEF	MDV	1.1590e-003	8.8000e-004
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.28	0.50
tblVehicleEF	MH	0.03	3.3370e-003
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tblVehicleEF	MH	5.98	0.00
tblVehicleEF	MH	1,002.10	941.76
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tblVehicleEF	MH	1.67	4.43
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
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tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.08	0.00
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tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.35	0.00
tblVehicleEF	MH	9.9460e-003	8.9030e-003
tblVehicleEF	MH	6.8100e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.08	0.00
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tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.39	0.00
tblVehicleEF	MH	0.03	3.3370e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.78	0.34
tblVehicleEF	MH	5.56	0.00
tblVehicleEF	MH	1,002.10	941.76
tblVehicleEF	MH	57.67	0.00
tblVehicleEF	MH	1.55	4.18
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
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tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
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tblVehicleEF	MH	1.06	0.00
tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
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tblVehicleEF	MH	0.04	0.14

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tblVehicleEF	MH	0.53	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.35	0.00
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tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MHD	1,066.63	1,001.03
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tblVehicleEF	MHD	1.0680e-003	2.4180e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	1.0220e-003	2.3130e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	1.7450e-003	7.1900e-004
tblVehicleEF	MHD	0.05	0.02
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tblVehicleEF	MHD	8.5800e-004	3.5500e-004
tblVehicleEF	MHD	0.03	0.11
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	MHD	1.4610e-003	7.1000e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.6100e-004	8.1000e-005
tblVehicleEF	MHD	1.7450e-003	7.1900e-004
tblVehicleEF	MHD	0.05	0.02
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tblVehicleEF	MHD	8.5800e-004	3.5500e-004
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tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.40	0.05
tblVehicleEF	MHD	0.02	2.9880e-003
tblVehicleEF	MHD	3.7740e-003	6.0080e-003

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tblVehicleEF	MHD	1,066.63	1,001.04
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tblVehicleEF	MHD	0.93	2.23
tblVehicleEF	MHD	9.0000e-004	2.0410e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	8.6100e-004	1.9530e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	3.3760e-003	1.3770e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.6840e-003	7.0100e-004
tblVehicleEF	MHD	0.03	0.11
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.36	0.04
tblVehicleEF	MHD	1.5460e-003	7.2500e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.5600e-004	8.0000e-005
tblVehicleEF	MHD	3.3760e-003	1.3770e-003
tblVehicleEF	MHD	0.06	0.02

tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	1.6840e-003	7.0100e-004
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tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.39	0.05
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tblVehicleEF	MHD	0.06	8.5610e-003
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tblVehicleEF	MHD	139.53	72.84
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tblVehicleEF	MHD	0.98	2.35
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tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	1.2430e-003	2.8110e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	1.3320e-003	5.6300e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	6.7900e-004	2.8800e-004
tblVehicleEF	MHD	0.03	0.11

tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	MHD	1.3440e-003	6.9100e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.6300e-004	8.1000e-005
tblVehicleEF	MHD	1.3320e-003	5.6300e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.7900e-004	2.8800e-004
tblVehicleEF	MHD	0.04	0.12
tblVehicleEF	MHD	0.02	0.11
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tblVehicleEF	OBUS	8.0950e-003	8.5070e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.27	0.50
tblVehicleEF	OBUS	0.54	0.93
tblVehicleEF	OBUS	6.17	2.58
tblVehicleEF	OBUS	75.04	73.28
tblVehicleEF	OBUS	1,098.07	1,407.22
tblVehicleEF	OBUS	70.10	20.86
tblVehicleEF	OBUS	0.35	0.44
tblVehicleEF	OBUS	1.12	1.70
tblVehicleEF	OBUS	1.2100e-004	1.7750e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	1.1600e-004	1.6990e-003

tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	2.1800e-003	2.5990e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.3000e-004	1.1120e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.39	0.12
tblVehicleEF	OBUS	7.2800e-004	6.9900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0900e-004	2.0600e-004
tblVehicleEF	OBUS	2.1800e-003	2.5990e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.3000e-004	1.1120e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.42	0.14
tblVehicleEF	OBUS	0.01	8.9470e-003
tblVehicleEF	OBUS	8.2540e-003	8.6370e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.26	0.48
tblVehicleEF	OBUS	0.55	0.94
tblVehicleEF	OBUS	5.76	2.41
tblVehicleEF	OBUS	78.48	73.81
tblVehicleEF	OBUS	1,098.07	1,407.25

tblVehicleEF	OBUS	70.10	20.57
tblVehicleEF	OBUS	0.36	0.45
tblVehicleEF	OBUS	1.04	1.59
tblVehicleEF	OBUS	1.0200e-004	1.5000e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	9.8000e-005	1.4350e-003
tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	4.0690e-003	4.7330e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	1.7890e-003	2.1320e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.37	0.12
tblVehicleEF	OBUS	7.6100e-004	7.0400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0200e-004	2.0400e-004
tblVehicleEF	OBUS	4.0690e-003	4.7330e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	1.7890e-003	2.1320e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.40	0.13
tblVehicleEF	OBUS	0.01	8.9200e-003

tblVehicleEF	OBUS	8.0660e-003	8.4690e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.28	0.53
tblVehicleEF	OBUS	0.54	0.92
tblVehicleEF	OBUS	6.22	2.60
tblVehicleEF	OBUS	70.30	72.56
tblVehicleEF	OBUS	1,098.07	1,407.21
tblVehicleEF	OBUS	70.10	20.90
tblVehicleEF	OBUS	0.34	0.44
tblVehicleEF	OBUS	1.11	1.68
tblVehicleEF	OBUS	1.4700e-004	2.1560e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	1.4100e-004	2.0620e-003
tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	1.8870e-003	2.3830e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	8.5400e-004	1.0620e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.27
tblVehicleEF	OBUS	0.39	0.13
tblVehicleEF	OBUS	6.8300e-004	6.9200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1000e-004	2.0700e-004
tblVehicleEF	OBUS	1.8870e-003	2.3830e-003

tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	8.5400e-004	1.0620e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.27
tblVehicleEF	OBUS	0.42	0.14
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6110e-003
tblVehicleEF	SBUS	0.06	6.9670e-003
tblVehicleEF	SBUS	7.83	3.03
tblVehicleEF	SBUS	0.64	0.53
tblVehicleEF	SBUS	6.66	0.94
tblVehicleEF	SBUS	1,146.29	366.87
tblVehicleEF	SBUS	1,103.40	1,115.27
tblVehicleEF	SBUS	53.92	6.06
tblVehicleEF	SBUS	10.00	3.57
tblVehicleEF	SBUS	4.65	4.82
tblVehicleEF	SBUS	0.01	4.0660e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	3.8900e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	4.6830e-003	1.3080e-003
tblVehicleEF	SBUS	0.03	8.6250e-003

tblVehicleEF	SBUS	0.94	0.36
tblVehicleEF	SBUS	2.1770e-003	6.2500e-004
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.37	0.04
tblVehicleEF	SBUS	0.01	3.5040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.5500e-004	6.0000e-005
tblVehicleEF	SBUS	4.6830e-003	1.3080e-003
tblVehicleEF	SBUS	0.03	8.6250e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	2.1770e-003	6.2500e-004
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.40	0.04
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6860e-003
tblVehicleEF	SBUS	0.05	5.8380e-003
tblVehicleEF	SBUS	7.71	2.99
tblVehicleEF	SBUS	0.65	0.54
tblVehicleEF	SBUS	4.83	0.68
tblVehicleEF	SBUS	1,198.60	377.09
tblVehicleEF	SBUS	1,103.40	1,115.28
tblVehicleEF	SBUS	53.92	5.63
tblVehicleEF	SBUS	10.32	3.66
tblVehicleEF	SBUS	4.37	4.53
tblVehicleEF	SBUS	9.1190e-003	3.4340e-003

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	8.7240e-003	3.2850e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	8.4640e-003	2.3620e-003
tblVehicleEF	SBUS	0.03	9.1440e-003
tblVehicleEF	SBUS	0.93	0.36
tblVehicleEF	SBUS	4.0830e-003	1.1650e-003
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.31	0.03
tblVehicleEF	SBUS	0.01	3.6000e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.2400e-004	5.6000e-005
tblVehicleEF	SBUS	8.4640e-003	2.3620e-003
tblVehicleEF	SBUS	0.03	9.1440e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	4.0830e-003	1.1650e-003
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.34	0.04
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6040e-003
tblVehicleEF	SBUS	0.07	7.2110e-003

tblVehicleEF	SBUS	8.00	3.09
tblVehicleEF	SBUS	0.63	0.53
tblVehicleEF	SBUS	7.02	0.98
tblVehicleEF	SBUS	1,074.07	352.76
tblVehicleEF	SBUS	1,103.40	1,115.26
tblVehicleEF	SBUS	53.92	6.14
tblVehicleEF	SBUS	9.56	3.44
tblVehicleEF	SBUS	4.60	4.78
tblVehicleEF	SBUS	0.01	4.9380e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	4.7240e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	4.1680e-003	1.1480e-003
tblVehicleEF	SBUS	0.03	8.8290e-003
tblVehicleEF	SBUS	0.94	0.36
tblVehicleEF	SBUS	2.1000e-003	6.0300e-004
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.38	0.04
tblVehicleEF	SBUS	0.01	3.3710e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6100e-004	6.1000e-005
tblVehicleEF	SBUS	4.1680e-003	1.1480e-003

tblVehicleEF	SBUS	0.03	8.8290e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	2.1000e-003	6.0300e-004
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.41	0.05
tblVehicleEF	UBUS	1.51	3.35
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	8.45	26.05
tblVehicleEF	UBUS	15.26	1.50
tblVehicleEF	UBUS	1,822.40	1,617.71
tblVehicleEF	UBUS	153.45	18.08
tblVehicleEF	UBUS	4.95	0.32
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	9.7430e-003	1.6370e-003
tblVehicleEF	UBUS	0.11	9.7740e-003
tblVehicleEF	UBUS	4.7860e-003	7.1300e-004
tblVehicleEF	UBUS	0.52	0.05
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.17	0.07

tblVehicleEF	UBUS	9.9960e-003	4.8690e-003
tblVehicleEF	UBUS	1.8100e-003	1.7900e-004
tblVehicleEF	UBUS	9.7430e-003	1.6370e-003
tblVehicleEF	UBUS	0.11	9.7740e-003
tblVehicleEF	UBUS	4.7860e-003	7.1300e-004
tblVehicleEF	UBUS	2.08	3.43
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.28	0.08
tblVehicleEF	UBUS	1.52	3.35
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	8.53	26.06
tblVehicleEF	UBUS	13.06	1.28
tblVehicleEF	UBUS	1,822.40	1,617.72
tblVehicleEF	UBUS	153.45	17.70
tblVehicleEF	UBUS	4.62	0.31
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	0.02	2.9250e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.6600e-003	1.4550e-003
tblVehicleEF	UBUS	0.53	0.05

tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.06	0.07
tblVehicleEF	UBUS	9.9970e-003	4.8690e-003
tblVehicleEF	UBUS	1.7720e-003	1.7500e-004
tblVehicleEF	UBUS	0.02	2.9250e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.6600e-003	1.4550e-003
tblVehicleEF	UBUS	2.09	3.43
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.17	0.07
tblVehicleEF	UBUS	1.51	3.35
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	8.44	26.05
tblVehicleEF	UBUS	15.44	1.49
tblVehicleEF	UBUS	1,822.40	1,617.71
tblVehicleEF	UBUS	153.45	18.06
tblVehicleEF	UBUS	4.92	0.31
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	8.9770e-003	1.7200e-003
tblVehicleEF	UBUS	0.13	0.01

tblVehicleEF	UBUS	4.3820e-003	7.5400e-004
tblVehicleEF	UBUS	0.52	0.05
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.18	0.07
tblVehicleEF	UBUS	9.9960e-003	4.8690e-003
tblVehicleEF	UBUS	1.8130e-003	1.7900e-004
tblVehicleEF	UBUS	8.9770e-003	1.7200e-003
tblVehicleEF	UBUS	0.13	0.01
tblVehicleEF	UBUS	4.3820e-003	7.5400e-004
tblVehicleEF	UBUS	2.08	3.43
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.29	0.08
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TTP	80.20	96.00
tblVehicleTrips	CC_TTP	78.80	96.00
tblVehicleTrips	CC_TTP	64.70	96.00
tblVehicleTrips	CC_TTP	0.00	96.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	0.00	3.00
tblVehicleTrips	CW_TTP	0.80	1.00
tblVehicleTrips	CW_TTP	2.20	1.00
tblVehicleTrips	CW_TTP	16.30	1.00

tblVehicleTrips	CW_TTP	0.00	1.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	PB_TP	65.00	70.00
tblVehicleTrips	PB_TP	50.00	67.00
tblVehicleTrips	PB_TP	11.00	39.00
tblVehicleTrips	PR_TP	14.00	30.00
tblVehicleTrips	PR_TP	29.00	33.00
tblVehicleTrips	PR_TP	54.00	61.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	1,448.33	700.00
tblVehicleTrips	ST_TR	722.03	616.12
tblVehicleTrips	ST_TR	0.00	775.00
tblVehicleTrips	SU_TR	1,182.08	700.00
tblVehicleTrips	SU_TR	542.72	472.58
tblVehicleTrips	SU_TR	0.00	775.00
tblVehicleTrips	WD_TR	845.60	837.58
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	42.70	114.93
tblVehicleTrips	WD_TR	0.00	775.00
tblWater	IndoorWaterUseRate	0.00	4,248,600.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2496	2.6734	1.7202	4.9000e-003	0.2951	0.1091	0.4042	0.1165	0.1019	0.2184	0.0000	442.7566	442.7566	0.0726	0.0000	444.5718
2021	0.3082	1.3574	1.3249	2.9000e-003	0.0761	0.0631	0.1392	0.0205	0.0592	0.0797	0.0000	257.3922	257.3922	0.0443	0.0000	258.4996
Maximum	**0.3082**	**2.6734**	**1.7202**	**4.9000e-003**	**0.2951**	**0.1091**	**0.4042**	**0.1165**	**0.1019**	**0.2184**	**0.0000**	**442.7566**	**442.7566**	**0.0726**	**0.0000**	**444.5718**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2496	2.6734	1.7202	4.9000e-003	0.1830	0.1091	0.2921	0.0638	0.1019	0.1657	0.0000	442.7563	442.7563	0.0726	0.0000	444.5716
2021	0.3082	1.3574	1.3249	2.9000e-003	0.0761	0.0631	0.1392	0.0205	0.0592	0.0797	0.0000	257.3920	257.3920	0.0443	0.0000	258.4994
Maximum	**0.3082**	**2.6734**	**1.7202**	**4.9000e-003**	**0.1830**	**0.1091**	**0.2921**	**0.0638**	**0.1019**	**0.1657**	**0.0000**	**442.7563**	**442.7563**	**0.0726**	**0.0000**	**444.5716**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**30.21**	**0.00**	**20.63**	**38.46**	**0.00**	**17.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-4-2020	8-3-2020	1.4206	1.4206
2	8-4-2020	11-3-2020	0.9182	0.9182
3	11-4-2020	2-3-2021	0.8858	0.8858
4	2-4-2021	5-3-2021	0.8043	0.8043
5	5-4-2021	8-3-2021	0.5497	0.5497
		Highest	1.4206	1.4206

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1277	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Energy	0.0111	0.1009	0.0847	6.1000e-004		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	300.7049	300.7049	9.9900e-003	3.6400e-003	302.0403
Mobile	3.1766	5.6893	12.9172	0.0199	1.6390	0.0275	1.6665	0.4357	0.0258	0.4616	0.0000	1,847.8497	1,847.8497	0.2041	0.0000	1,852.9525
Waste						0.0000	0.0000		0.0000	0.0000	24.1945	0.0000	24.1945	1.4299	0.0000	59.9408
Water						0.0000	0.0000		0.0000	0.0000	2.4477	35.1820	37.6297	0.2529	6.2400e-003	45.8096
Total	**3.3154**	**5.7901**	**13.0023**	**0.0205**	**1.6390**	**0.0352**	**1.6742**	**0.4357**	**0.0335**	**0.4692**	**26.6422**	**2,183.7373**	**2,210.3794**	**1.8968**	**9.8800e-003**	**2,260.7440**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1277	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Energy	0.0111	0.1009	0.0847	6.1000e-004		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	300.7049	300.7049	9.9900e-003	3.6400e-003	302.0403
Mobile	3.1766	5.6893	12.9172	0.0199	1.6390	0.0275	1.6665	0.4357	0.0258	0.4616	0.0000	1,847.8497	1,847.8497	0.2041	0.0000	1,852.9525
Waste						0.0000	0.0000		0.0000	0.0000	24.1945	0.0000	24.1945	1.4299	0.0000	59.9408
Water						0.0000	0.0000		0.0000	0.0000	1.9582	28.7802	30.7384	0.2023	4.9900e-003	37.2846
Total	**3.3154**	**5.7901**	**13.0023**	**0.0205**	**1.6390**	**0.0352**	**1.6742**	**0.4357**	**0.0335**	**0.4692**	**26.1526**	**2,177.3355**	**2,203.4881**	**1.8463**	**8.6300e-003**	**2,252.2190**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.84**	**0.29**	**0.31**	**2.66**	**12.65**	**0.38**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/30/2020	6/12/2020	5	10	
2	Grading	Grading	6/13/2020	7/10/2020	5	20	
3	Building Construction	Building Construction	7/11/2020	5/28/2021	5	230	
4	Paving	Paving	5/29/2021	6/25/2021	5	20	
5	Architectural Coating	Architectural Coating	6/26/2021	7/23/2021	5	20	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 40

Acres of Paving: 5.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,673; Non-Residential Outdoor: 13,558; Striped Parking Area: 13,094 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48
Site Preparation	Graders	1	8.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,802.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	101.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1009	0.0000	0.1009	0.0508	0.0000	0.0508	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0301	0.3505	0.1210	3.2000e-004		0.0150	0.0150		0.0138	0.0138	0.0000	27.9606	27.9606	9.0400e-003	0.0000	28.1867
Total	**0.0301**	**0.3505**	**0.1210**	**3.2000e-004**	**0.1009**	**0.0150**	**0.1159**	**0.0508**	**0.0138**	**0.0646**	**0.0000**	**27.9606**	**27.9606**	**9.0400e-003**	**0.0000**	**28.1867**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.9000e-004	3.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8276	0.8276	2.0000e-005	0.0000	0.8282
Total	**4.1000e-004**	**2.9000e-004**	**3.0900e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8276**	**0.8276**	**2.0000e-005**	**0.0000**	**0.8282**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0394	0.0000	0.0394	0.0198	0.0000	0.0198	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0301	0.3505	0.1210	3.2000e-004		0.0150	0.0150		0.0138	0.0138	0.0000	27.9606	27.9606	9.0400e-003	0.0000	28.1867
Total	**0.0301**	**0.3505**	**0.1210**	**3.2000e-004**	**0.0394**	**0.0150**	**0.0543**	**0.0198**	**0.0138**	**0.0336**	**0.0000**	**27.9606**	**27.9606**	**9.0400e-003**	**0.0000**	**28.1867**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.9000e-004	3.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8276	0.8276	2.0000e-005	0.0000	0.8282
Total	**4.1000e-004**	**2.9000e-004**	**3.0900e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8276**	**0.8276**	**2.0000e-005**	**0.0000**	**0.8282**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0829	0.0000	0.0829	0.0356	0.0000	0.0356	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0354	0.4241	0.1671	4.4000e-004		0.0172	0.0172		0.0158	0.0158	0.0000	38.5676	38.5676	0.0125	0.0000	38.8794
Total	**0.0354**	**0.4241**	**0.1671**	**4.4000e-004**	**0.0829**	**0.0172**	**0.1000**	**0.0356**	**0.0158**	**0.0514**	**0.0000**	**38.5676**	**38.5676**	**0.0125**	**0.0000**	**38.8794**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.3600e-003	0.3397	0.0440	1.0600e-003	0.0242	1.0600e-003	0.0252	6.6300e-003	1.0200e-003	7.6500e-003	0.0000	101.5857	101.5857	6.3700e-003	0.0000	101.7448
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	4.8000e-004	5.1600e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3794	1.3794	3.0000e-005	0.0000	1.3803
Total	**8.0500e-003**	**0.3402**	**0.0491**	**1.0800e-003**	**0.0258**	**1.0700e-003**	**0.0269**	**7.0700e-003**	**1.0300e-003**	**8.1000e-003**	**0.0000**	**102.9651**	**102.9651**	**6.4000e-003**	**0.0000**	**103.1251**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0323	0.0000	0.0323	0.0139	0.0000	0.0139	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0354	0.4241	0.1671	4.4000e-004		0.0172	0.0172		0.0158	0.0158	0.0000	38.5675	38.5675	0.0125	0.0000	38.8793
Total	**0.0354**	**0.4241**	**0.1671**	**4.4000e-004**	**0.0323**	**0.0172**	**0.0495**	**0.0139**	**0.0158**	**0.0297**	**0.0000**	**38.5675**	**38.5675**	**0.0125**	**0.0000**	**38.8793**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.3600e-003	0.3397	0.0440	1.0600e-003	0.0242	1.0600e-003	0.0252	6.6300e-003	1.0200e-003	7.6500e-003	0.0000	101.5857	101.5857	6.3700e-003	0.0000	101.7448
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	4.8000e-004	5.1600e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3794	1.3794	3.0000e-005	0.0000	1.3803
Total	**8.0500e-003**	**0.3402**	**0.0491**	**1.0800e-003**	**0.0258**	**1.0700e-003**	**0.0269**	**7.0700e-003**	**1.0300e-003**	**8.1000e-003**	**0.0000**	**102.9651**	**102.9651**	**6.4000e-003**	**0.0000**	**103.1251**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1398	1.2803	1.1140	1.7900e-003		0.0741	0.0741		0.0696	0.0696	0.0000	153.8707	153.8707	0.0384	0.0000	154.8296
Total	**0.1398**	**1.2803**	**1.1140**	**1.7900e-003**		**0.0741**	**0.0741**		**0.0696**	**0.0696**	**0.0000**	**153.8707**	**153.8707**	**0.0384**	**0.0000**	**154.8296**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0500e-003	0.2580	0.0505	6.4000e-004	0.0157	1.4600e-003	0.0171	4.5200e-003	1.4000e-003	5.9100e-003	0.0000	60.9801	60.9801	4.8700e-003	0.0000	61.1020
Worker	0.0288	0.0202	0.2153	6.4000e-004	0.0688	4.2000e-004	0.0693	0.0183	3.9000e-004	0.0187	0.0000	57.5849	57.5849	1.4400e-003	0.0000	57.6209
Total	**0.0358**	**0.2781**	**0.2658**	**1.2800e-003**	**0.0845**	**1.8800e-003**	**0.0864**	**0.0228**	**1.7900e-003**	**0.0246**	**0.0000**	**118.5650**	**118.5650**	**6.3100e-003**	**0.0000**	**118.7229**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1398	1.2803	1.1140	1.7900e-003		0.0741	0.0741		0.0696	0.0696	0.0000	153.8705	153.8705	0.0384	0.0000	154.8294
Total	**0.1398**	**1.2803**	**1.1140**	**1.7900e-003**		**0.0741**	**0.0741**		**0.0696**	**0.0696**	**0.0000**	**153.8705**	**153.8705**	**0.0384**	**0.0000**	**154.8294**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0500e-003	0.2580	0.0505	6.4000e-004	0.0157	1.4600e-003	0.0171	4.5200e-003	1.4000e-003	5.9100e-003	0.0000	60.9801	60.9801	4.8700e-003	0.0000	61.1020
Worker	0.0288	0.0202	0.2153	6.4000e-004	0.0688	4.2000e-004	0.0693	0.0183	3.9000e-004	0.0187	0.0000	57.5849	57.5849	1.4400e-003	0.0000	57.6209
Total	**0.0358**	**0.2781**	**0.2658**	**1.2800e-003**	**0.0845**	**1.8800e-003**	**0.0864**	**0.0228**	**1.7900e-003**	**0.0246**	**0.0000**	**118.5650**	**118.5650**	**6.3100e-003**	**0.0000**	**118.7229**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1072	0.9937	0.9365	1.5300e-003		0.0543	0.0543		0.0510	0.0510	0.0000	131.5512	131.5512	0.0325	0.0000	132.3626
Total	**0.1072**	**0.9937**	**0.9365**	**1.5300e-003**		**0.0543**	**0.0543**		**0.0510**	**0.0510**	**0.0000**	**131.5512**	**131.5512**	**0.0325**	**0.0000**	**132.3626**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0600e-003	0.1977	0.0380	5.4000e-004	0.0134	3.8000e-004	0.0138	3.8600e-003	3.6000e-004	4.2200e-003	0.0000	51.7223	51.7223	3.9500e-003	0.0000	51.8210
Worker	0.0230	0.0155	0.1685	5.3000e-004	0.0588	3.5000e-004	0.0592	0.0156	3.2000e-004	0.0160	0.0000	47.5800	47.5800	1.1100e-003	0.0000	47.6077
Total	**0.0280**	**0.2131**	**0.2065**	**1.0700e-003**	**0.0722**	**7.3000e-004**	**0.0730**	**0.0195**	**6.8000e-004**	**0.0202**	**0.0000**	**99.3023**	**99.3023**	**5.0600e-003**	**0.0000**	**99.4286**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1072	0.9937	0.9365	1.5300e-003		0.0543	0.0543		0.0510	0.0510	0.0000	131.5510	131.5510	0.0325	0.0000	132.3625
Total	**0.1072**	**0.9937**	**0.9365**	**1.5300e-003**		**0.0543**	**0.0543**		**0.0510**	**0.0510**	**0.0000**	**131.5510**	**131.5510**	**0.0325**	**0.0000**	**132.3625**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0600e-003	0.1977	0.0380	5.4000e-004	0.0134	3.8000e-004	0.0138	3.8600e-003	3.6000e-004	4.2200e-003	0.0000	51.7223	51.7223	3.9500e-003	0.0000	51.8210
Worker	0.0230	0.0155	0.1685	5.3000e-004	0.0588	3.5000e-004	0.0592	0.0156	3.2000e-004	0.0160	0.0000	47.5800	47.5800	1.1100e-003	0.0000	47.6077
Total	**0.0280**	**0.2131**	**0.2065**	**1.0700e-003**	**0.0722**	**7.3000e-004**	**0.0730**	**0.0195**	**6.8000e-004**	**0.0202**	**0.0000**	**99.3023**	**99.3023**	**5.0600e-003**	**0.0000**	**99.4286**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341
Total	**6.4000e-004**	**4.3000e-004**	**4.7200e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3333**	**1.3333**	**3.0000e-005**	**0.0000**	**1.3341**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341
Total	**6.4000e-004**	**4.3000e-004**	**4.7200e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3333**	**1.3333**	**3.0000e-005**	**0.0000**	**1.3341**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1560					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9200e-003	0.0204	0.0242	4.0000e-005		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	3.4043	3.4043	2.3000e-004	0.0000	3.4102
Total	**0.1590**	**0.0204**	**0.0242**	**4.0000e-005**		**1.2500e-003**	**1.2500e-003**		**1.2500e-003**	**1.2500e-003**	**0.0000**	**3.4043**	**3.4043**	**2.3000e-004**	**0.0000**	**3.4102**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	5.8000e-004	6.3000e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	1.7777	1.7777	4.0000e-005	0.0000	1.7787
Total	**8.6000e-004**	**5.8000e-004**	**6.3000e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.7777**	**1.7777**	**4.0000e-005**	**0.0000**	**1.7787**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1560					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9200e-003	0.0204	0.0242	4.0000e-005		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	3.4043	3.4043	2.3000e-004	0.0000	3.4102
Total	**0.1590**	**0.0204**	**0.0242**	**4.0000e-005**		**1.2500e-003**	**1.2500e-003**		**1.2500e-003**	**1.2500e-003**	**0.0000**	**3.4043**	**3.4043**	**2.3000e-004**	**0.0000**	**3.4102**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	5.8000e-004	6.3000e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	1.7777	1.7777	4.0000e-005	0.0000	1.7787
Total	**8.6000e-004**	**5.8000e-004**	**6.3000e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.7777**	**1.7777**	**4.0000e-005**	**0.0000**	**1.7787**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.1766	5.6893	12.9172	0.0199	1.6390	0.0275	1.6665	0.4357	0.0258	0.4616	0.0000	1,847.8497	1,847.8497	0.2041	0.0000	1,852.9525
Unmitigated	3.1766	5.6893	12.9172	0.0199	1.6390	0.0275	1.6665	0.4357	0.0258	0.4616	0.0000	1,847.8497	1,847.8497	0.2041	0.0000	1,852.9525

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,847.77	2,380.00	2380.00	1,033,287	1,033,287
Fast Food Restaurant with Drive Thru	3,470.90	4,540.80	3482.91	1,505,068	1,505,068
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	1,517.08	659.60	333.17	902,534	902,534
User Defined Retail	775.00	775.00	775.00	917,671	917,671
Total	8,610.75	8,355.41	6,971.08	4,358,561	4,358,561

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	16.60	3.00	6.90	1.00	96.00	3.00	30	0	70
Fast Food Restaurant with Drive	16.60	3.00	6.90	1.00	96.00	3.00	33	0	67
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	3.00	6.90	1.00	96.00	3.00	61	0	39
User Defined Retail	16.60	3.00	6.90	1.00	96.00	3.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038
Regional Shopping Center	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
User Defined Retail	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	190.8965	190.8965	7.8800e-003	1.6300e-003	191.5795
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	190.8965	190.8965	7.8800e-003	1.6300e-003	191.5795
NaturalGas Mitigated	0.0111	0.1009	0.0847	6.1000e-004		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	109.8083	109.8083	2.1000e-003	2.0100e-003	110.4609
NaturalGas Unmitigated	0.0111	0.1009	0.0847	6.1000e-004		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	109.8083	109.8083	2.1000e-003	2.0100e-003	110.4609

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	7548	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4028	0.4028	1.0000e-005	1.0000e-005	0.4052
Fast Food Restaurant with Drive Thru	2.01389e+006	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003	0.0000	107.4686	107.4686	2.0600e-003	1.9700e-003	108.1072
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	29304	1.6000e-004	1.4400e-003	1.2100e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5638	1.5638	3.0000e-005	3.0000e-005	1.5731
User Defined Retail	6993	4.0000e-005	3.4000e-004	2.9000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.3732	0.3732	1.0000e-005	1.0000e-005	0.3754
Total		**0.0111**	**0.1009**	**0.0847**	**6.0000e-004**		**7.6700e-003**	**7.6700e-003**		**7.6700e-003**	**7.6700e-003**	**0.0000**	**109.8083**	**109.8083**	**2.1100e-003**	**2.0200e-003**	**110.4609**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	7548	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4028	0.4028	1.0000e-005	1.0000e-005	0.4052
Fast Food Restaurant with Drive Thru	2.01389e+006	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003	0.0000	107.4686	107.4686	2.0600e-003	1.9700e-003	108.1072
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	29304	1.6000e-004	1.4400e-003	1.2100e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5638	1.5638	3.0000e-005	3.0000e-005	1.5731
User Defined Retail	6993	4.0000e-005	3.4000e-004	2.9000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.3732	0.3732	1.0000e-005	1.0000e-005	0.3754
Total		**0.0111**	**0.1009**	**0.0847**	**6.0000e-004**		**7.6700e-003**	**7.6700e-003**		**7.6700e-003**	**7.6700e-003**	**0.0000**	**109.8083**	**109.8083**	**2.1100e-003**	**2.0200e-003**	**110.4609**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	42942	13.6822	5.6000e-004	1.2000e-004	13.7312
Fast Food Restaurant with Drive Thru	349690	111.4188	4.6000e-003	9.5000e-004	111.8174
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	166716	53.1193	2.1900e-003	4.5000e-004	53.3093
User Defined Retail	39784.5	12.6762	5.2000e-004	1.1000e-004	12.7215
Total		**190.8965**	**7.8700e-003**	**1.6300e-003**	**191.5795**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	42942	13.6822	5.6000e-004	1.2000e-004	13.7312
Fast Food Restaurant with Drive Thru	349690	111.4188	4.6000e-003	9.5000e-004	111.8174
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	166716	53.1193	2.1900e-003	4.5000e-004	53.3093
User Defined Retail	39784.5	12.6762	5.2000e-004	1.1000e-004	12.7215
Total		**190.8965**	**7.8700e-003**	**1.6300e-003**	**191.5795**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1277	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Unmitigated	0.1277	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0156					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Total	**0.1277**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.4000e-004**	**7.4000e-004**	**0.0000**	**0.0000**	**7.9000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0156					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Total	**0.1277**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.4000e-004**	**7.4000e-004**	**0.0000**	**0.0000**	**7.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	30.7384	0.2023	4.9900e-003	37.2846
Unmitigated	37.6297	0.2529	6.2400e-003	45.8096

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.251847 / 0.154358	1.6712	8.2700e-003	2.1000e-004	1.9398
Fast Food Restaurant with Drive Thru	2.23704 / 0.14279	10.4962	0.0733	1.8000e-003	12.8664
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.977757 / 0.599271	6.4880	0.0321	8.1000e-004	7.5308
User Defined Retail	4.2486 / 0	18.9744	0.1392	3.4200e-003	23.4726
Total		**37.6297**	**0.2529**	**6.2400e-003**	**45.8096**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.201477 / 0.154358	1.4462	6.6200e-003	1.7000e-004	1.6615
Fast Food Restaurant with Drive Thru	1.78963 / 0.14279	8.4980	0.0586	1.4400e-003	10.3946
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.782206 / 0.599271	5.6147	0.0257	6.5000e-004	6.4505
User Defined Retail	3.39888 / 0	15.1795	0.1113	2.7400e-003	18.7780
Total		**30.7384**	**0.2023**	**5.0000e-003**	**37.2846**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	24.1945	1.4299	0.0000	59.9408
Unmitigated	24.1945	1.4299	0.0000	59.9408

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market With Gas Pumps	10.22	2.0746	0.1226	0.0000	5.1397
Fast Food Restaurant with Drive Thru	84.89	17.2319	1.0184	0.0000	42.6913
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	13.86	2.8135	0.1663	0.0000	6.9702
User Defined Retail	10.22	2.0746	0.1226	0.0000	5.1397
Total		**24.1945**	**1.4299**	**0.0000**	**59.9408**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market With Gas Pumps	10.22	2.0746	0.1226	0.0000	5.1397
Fast Food Restaurant with Drive Thru	84.89	17.2319	1.0184	0.0000	42.6913
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	13.86	2.8135	0.1663	0.0000	6.9702
User Defined Retail	10.22	2.0746	0.1226	0.0000	5.1397
Total		**24.1945**	**1.4299**	**0.0000**	**59.9408**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix I

Phase I Environmental Site Assessment



PHASE I ENVIRONMENTAL SITE ASSESSMENT

Empire Design Group

NWC Mountain Street & Lake Street
APNs: 389-030-012 through -018
City of Lake Elsinore
Riverside County, California 92530

September 23, 2019

TA-GROUP DD Project Number 0719002

Corporate Office: 3146 Tiger Run Court • Suite 118 • Carlsbad, California 92010 • Ph: 760-473-0645

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Prepared for:

Greg Hahn
Principal
Empire Design Group
24861 Washington Street
Murietta, CA 92562

Site location:

SWC Mountain Street and Lake Street
APNs: 389-030-012 through -018
City of Lake Elsinore
Riverside County, California 92530

Prepared and Edited by:

Timothy A. Lester, CEM
Principal

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TA-GROUP DD Project Number 0719002

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GENERAL SUBJECT PROPERTY INFORMATION

Project Information: Residential Property

Project 0719002

Subject Property:
SWC Mountain Street and Lake Street
APNs: 389-030-012 through -018
City of Lake Elsinore
Riverside County, California 92530

Client Information:
Greg Hahn
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E-mail Address of Environmental Professional: timothy.lester@TA-GroupDD.com

Site Access Contact: Valerie Salempessy / Empire Design Group / Phone 951.696.1490

Inspection Date: September 5, 2019 / **Report Date:** September 10, 2019

Site Assessor: Timothy A. Lester – Principal

Environmental Professional (EP) Certification: I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312.10 (**Resume, Appendix A**).

Timothy Lester
Managing Principal

AAI Certification: We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Timothy Lester
Managing Principal

EXECUTIVE SUMMARY

TA-GROUP DD conducted a Phase I Environmental Site Assessment (ESA) for Empire Design Group at the subject property located at the northwest corner Mountain Street and Lake Street, City of Lake Elsinore, Riverside County, California. The purpose of this Phase I ESA was to assess the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment (i.e., *recognized environmental condition* as delineated in ASTM E1527- 13).

The subject property is immediately bound by Lake Street to the East and Mountain Street to the south. Residential and/or vacant properties are present on all sides. According to the County of Riverside GIS search engine (https://planning.rctlma.org/Zoning-Information/Whats-My-Zoning, the site is not within a designated zoning overlay, and is subject to City of Lake Elsinore Ordinance 348. The subject property consists of six adjacent parcels, identified as Assessor's Parcel Numbers (APNs) is 389-030-012 through -018. Two residences are present on the northern portion of the overall property. The balance is undeveloped with the exception of historical home foundation/chimney remnants.

Based on historical records such as aerial photographs and topographic maps, the subject property was developed with residential structures from at least 1953. Three clusters of buildings; 1 north, 1 in the north central portion, and one in the southeast corner of the site, are present in aerial photos and topographic maps. In 1981 another building is shown on the northern, western portion of the site. Between 1985 and 1994 the northern structures were removed. Between 1994 and 2001 the southeastern structure was removed. Since that time the site appears to have generally been developed in its current configuration.

TA-GROUP DD contacted the county of Riverside Department of Environmental Health (RCDEH), California Department of Toxic Substances Control (DTSC), State Water Resources Control Board (SWRCB), and reviewed other state and federal databases to determine if the subject property, or any adjacent properties, were listed as hazardous waste generators, underground storage tank (UST) releases, or as having other environmental concerns (i.e., spill, leak, or aboveground tank [AST]).

On September 5, TA-GROUP DD personnel conducted a site reconnaissance to physically observe the subject property and adjoining properties for conditions indicating a potential environmental concern. Concerns would include any evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage and/or handling. No evidence of environmental concerns more serious than *Deminimus* conditions were noted during our site reconnaissance.

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of APNs 389-030-012 through -018, the *subject property*. Any exceptions to, or deletions from, this practice are described in **Section 7.0** of this report.

This assessment has revealed no evidence of *recognized environmental conditions* associated with the Subject property.

1.0 INTRODUCTION

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment (ESA) was to assess the possible presence of *recognized environmental conditions* for the property located at the northwest corner of Mountain and Lake Streets, City of Lake Elsinore, Riverside County, California (**Figure 1**). *Recognized environmental conditions (RECs)* include property uses that may indicate the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. The term *RECs* is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment, and that would not be subject to enforcement action by a regulatory agency.

This ESA was performed in general conformance with the American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, Designation E1527-13.

1.2 Scope of Services

The following scope of services was conducted by TA-GROUP DD:

- A review of readily available documents which included topographic, geologic, and hydrogeologic conditions associated with the subject property.
- A review of readily available maps, aerial photographs and other documents relative to historical subject property usage and development.
- A review of readily available federal, state, county, and city documents and database files concerning hazardous material storage, generation and disposal, active and inactive landfills, existing environmental concerns, and associated permits related to the subject property and/or immediately adjacent sites.
- A site reconnaissance to ascertain current conditions of the subject property.
- Interviews with person(s) knowledgeable of the subject property.
- The preparation of this report which presents our findings, conclusions, and recommendations.

1.3 Reliance

This ESA has been prepared for the sole use of the Empire Design Group (Client). Phase I ESA's are research products constrained by the amount and quality of documentation readily available to the assessor. Such research is inherently limited, subject to regulatory changes and the opinions of many third parties. No warranty is expressed or implied for this product. This assessment should not be relied upon by other parties without the express written consent of TA-GROUP DD and the Client. Any use or reliance upon this assessment by a party other than the Client; therefore, shall be solely at the risk of such third party and without legal recourse against TA-GROUP DD, its employees, officers, or directors, regardless of whether the action in which recovery of damages is brought or based upon contract, tort, statute or otherwise.

2.0 PHYSIOGRAPHIC SETTING

2.1 Site Description

The subject property is located northwest of the intersection of Lake and Mountain Streets, in the City of Lake Elsinore, County of Riverside, California (**Figure 2**). The property is generally located in the northern portion of Lake Elsinore.

The subject property consists of approximately 12-acres on six parcels identified as Assessor's Parcel Numbers (APNs) 389-030-012 through -018 (**Appendix B**). Three addresses are associated with the property; 28775 Robb Street; 28195 Lake Street, and 7 Lake Street. The property has been developed with single family residences since at least 1953.

The subject property is bound by residential property and/or undeveloped land on all four sides. According to the County of Riverside GIS search engine (https://planning.rctlma.org/Zoning-Information/Whats-My-Zoning, the site is not within a designated zoning overlay, and is subject to City of Lake Elsinore Ordinance 348.

Based on historical records such as aerial photographs and topographic maps, the subject property was developed with residential structures from at least 1953. Three clusters of buildings; 1 north, 1 in the north central portion, and one in the southeast corner of the site, are present in aerial photos and topographic maps. In 1981 another building is shown on the northern, western portion of the site. Between 1985 and 1994 the northern structures were removed. Between 1994 and 2001 the southeastern structure was removed. Since that time the site appears to have generally been developed in its current configuration.

2.2 Topography

The subject property is located on the United States Geological Survey (USGS), Alberhill, 7.5-Minute Quadrangle (USGS, 1997). The map indicates the elevation of the subject property ranges from approximately 1,524 feet above mean sea level (amsl) on the lower elevations along the northwestern margins and rises in elevation to approximately 1,485 feet amsl at the southwestern property margins. The property consists of land which generally slopes north to south (Mountain Street).

2.3 Regional and Local Geology

The subject property lies within the Perris Block of the Peninsular Ranges geomorphic province. The Perris Block is a stable rectangular area situated between the Elsinore Fault zone (to the west) and the San Jacinto Fault zone (to the east). The Peninsular Ranges geomorphic province, one of the largest geomorphic units in western North America, extends from the Transverse Ranges geomorphic province and the Los Angeles Basin, south to Baja California. It is bound on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province. The Peninsular Ranges are essentially a series of northeast-southeast oriented fault blocks (CDMG, 2002).

Three (3) major faults zones and some subordinate fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zones trend northwest-southeast, and are found near the middle of the province. The Riverside County RCLIS indicates the property lies within the Glen Ivy Fault zone.

Other major faults in the vicinity include the San Andreas Fault zone which borders the northeasterly margin of the province, whereas, a fault related to the San Andreas Transform Fault System, the Newport-Inglewood - Rose Canyon Fault zone, exists near the western margin and Continental Borderland geomorphic province (CDMG, 1977).

Soils beneath the subject property and vicinity have been identified by the United States Department of Agriculture – Natural Resources Conservation Service, Web Soil Survey (USDA, 2018) as MnD2 Monserate Sandy Loam and GyD2 Greenfield Sandy Loams, present on slopes from 5 to 15 percent.

2.4 Regional and Local Hydrogeology

According to the California Regional Water Quality Control Board – Santa Ana Region 8 (SARWQCB, 1995), the subject site is located within the Elsinore Hydrologic Subarea, of the Elsinore Valley Hydrologic Area, of the San Jacinto Valley Hydrologic Unit. Groundwater in this subarea has been designated as beneficial for municipal domestic supply, agricultural, and industrial.

TA-GROUP DD reviewed the California Department of Water Resources, Water Data Library website (http://wdl.water.ca.gov/waterdatalibrary/index.cfm) for additional information pertaining to groundwater and water supply wells on or close to the subject property. According to the website, there are no water supply wells located on the subject property or in the immediate site vicinity. Based on topography, groundwater flow direction in the vicinity of the subject property would be expected to flow to the southeast towards Lake Elsinore.

2.5 Hydrologic Flood Plain Information

TA-GROUP DD reviewed the Federal Emergency Management Agency (FEMA, 2016) Flood Insurance Rate Map (FIRM) online database to determine if the subject property was in a flood zone. According to FIRM Number 06065C2037G – effective August 28, 2008, the subject property is located within flood Zone X. FEMA defines Zone X as an area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. A copy of the FIRM is included in **Appendix B**.

3.0 SUBJECT PROPERTY BACKGROUND

3.1 Property Ownership

Information regarding ownership of the subject property was obtained from the Client who provided Preliminary Title Report (PTR) for three property addresses. Ownership of 28875 Robb Road was identified as the Haapala Family Trust; ownership of 7 Lake Street as Martin J Miles; Martin G Miles, and Patsy Miles; ownership of 28915 Lake Street was Lake Street Marketplace, LLC. Copies of PTRs are included in **Appendix B.**

3.2 Property History

TA-GROUP DD reviewed readily available information sources to evaluate historic land use in and around the subject property. These information sources include aerial photographs, USGS maps, City of Lake Elsinore, and County of Riverside Planning and Building and Safety Department files. The information sources are reviewed in the following sections.

3.2.1 Historical Use Review

Aerial photographs dating to 1954 and historical topographical maps dating to 1953, provided by ERIS®, were reviewed to identify historical land development and any surface conditions which may have impacted the subject property. A 2018 aerial photograph was obtained from Google Earth®, a copy of which is included herein (**Figure 2**). **Table 1** summarizes the results of the aerial photograph review. Copies of the aerial photographs and historical topographic maps provided by ERIS®, Inc. are included in **Appendix C**.

Based on the information reviewed, the subject property was developed with residences from at least 1938. Several residences were built on the overall property through the 1980's, after which a northern residence was removed, and by the early 2000's the residence on the southeast was removed. Since

TABLE 1
Summary of Historical Use Review

Year	Source and Scale	Comments
1938	Aerial Photograph 1 inch = 500 feet	Three residences are present; all accessed by dirt driveways. Two on the northern lots; and one on the southeastern lot. Lake Street is present and paved; Mountain is dirt, Development is not present to the north, east, or west. Orchards are present to the south across Mountain.
1953	Aerial Photograph 1 inch = 500 feet	As above. Mountain Street is more defined.
1962	Aerial Photograph 1 inch = 500 feet	As above. New residential neighbor adjacent to north. Orchards to south have expanded to west.
1967	Aerial Photograph 1 inch = 500 feet	As above
1974	Aerial Photograph 1 inch = 500 feet	Another residence added on north. Otherwise subject as above. Area to west filling in with orchards.
1981	Aerial Photograph 1 inch = 500 feet	New longer e-w building (current main home) present. Otherwise as above. New home a block to west. Surrounding area single pad residential development expanding.
1985	Aerial Photograph 1 inch = 500 feet	As above. Housing tracts appearing to the southeast.
1994	Aerial Photograph 1 inch = 500 feet	Residence on north gone, otherwise as above. New home neighboring west. Tract homes now present to west and southwest.
2002	Aerial Photograph 1 inch = 500 feet	Difficult to tell, but house on southeast may be gone. Subject otherwise as above. Tracts to west and southeast expanding eastward close to subject.
2005	Aerial Photograph 1 inch = 500 feet	Site as above. Tract homes now present immediately to south and infilling to east and northeast.
2010	Aerial Photograph 1 inch = 500 feet	Subject now is current configuration. Tract homes now infilled most of area with exception of neighbors to west and north.
2014	Aerial Photograph 1 inch = 500 feet	As above
2019	Aerial Photograph 1 inch = 500 feet	As above

3.2.2 City/County Directories

Directory listings associated with the subject property and the adjacent and surrounding streets (Pedley Road and Limonite Avenue), were obtained from ERIS®, an environmental information/database retrieval service. Directory listings were found dating to 1951. According to the information reviewed, the subject property address, 6501 Clay Street was as occupied by pipe manufacturing facilities in directories searched dating from 1970 through 2008. The occupants were listed as: United Concrete Pipe Corporation (1970, 1977, and 1981); California Steel Pressure Pipe Company (1996); Northwest Pipe Company (2001, 2002, and 2003); and California Steel Pressure Pipe Company (again and most recently in 2008). Listings for Alcorn Fence, discussed as a LUST case in this report, started in 1986. Plaza Cleaners was listed on Limonite starting in the 2006 Directory. No other dry cleaners, service stations, or other release cases discussed elsewhere were listed. A copy of the directory report is included in **Appendix C**.

3.2.3 Fire Insurance Maps

TA-GROUP DD researched available Fire Insurance Maps of the subject property. Fire Insurance Maps provide detailed information on site structures, uses, and occupancies and were typically utilized by insurance companies to evaluate potential fire risk. TA-GROUP DD requested a Sanborn map search from ERIS®, an environmental information/database retrieval service. According to ERIS, there is no Sanborn map coverage for the area of the subject property.

3.2.4 City of Jurupa Valley and County of Riverside Building Department Files

Previous investigations have documented City of Jurupa, City and County of Riverside records for the subject site. The County of Riverside confirmed initial building permits dating to 1964. The site was demolished in 2006. Additional review of building permits was not considered necessary for this document.

3.3 Regulatory Database Search

TA-GROUP DD subcontracted an electronic database report from ERIS®, an environmental information/database retrieval service. Facilities were identified by county, state, or federal agencies that generate, store, or dispose of hazardous materials or which have or have had releases from underground storage tanks, industrial uses, or related sites. A copy of the ERIS® radius report is provided in **Appendix D,** along with a description of the individual databases.

In our opinion most of the larger environmental releases have been documented since Federal Environmental regulations were implemented a half a century ago. Since that time substantial scrutiny has been levied at industrial, fuel, solvent, and hazardous materials users/generators. In general, this means that the threat to a particular subject property is either from documented / regulated larger release sites (such as CERCLA/RCRA), or alternatively from private sites where use predated regulatory scrutiny.

With this in mind, TA-GROUP DD generally evaluates environmental hazard threat based upon 5 main criteria (not necessarily in this order): proximity to the subject site, size of release/potential release, age of potential release, direction of groundwater gradient, and depth to groundwater. In general, we believe proximity is generally the most important of these factors, as a small release of hazardous substances can

have a substantial effect on environmental liability. **Table 3** identifies sites found based on proximity, including database source:

TABLE 2 Database Search ID with Results	No. of Reported Facilities	Search Radius (Miles)
ONE HALF to ONE MILE (.05-1.0) RADIUS		
NO LISTINGS	0	0.5-1.0
ONE QUARTER to ONE HALF MILE (0.25-0.5) RADIUS		
NO LISTINGS	0	0.25-0.5
ONE EIGTH TO ONE QUARTER MILE (0.125-0.25) RADIUS		
State LUST	1	0.125-0.25
County Delisted (see Subject Note)	2	0.125-0.25
Subject Property Border to One Eighth Mile (0.125) Radius		
State HHSS	2	B-0.125
State Historical Tank	1	B-0.125
County LOP	1	B-0.125
Federal FIND/FWS	4	B-0.125
Federal MINES	1	B-0.125
State CHMIRS	1	B-0.125
State HAZNET	1	B-0.125
SUBJECT SITE		
NO LISTINGS	0	SUBJECT

3.3.1 Subject Property

The subject property was not listed on any of the regulatory databases reviewed. However, a site listed at 28875 Robb Street may be on the subject site; Robb Street was renamed Lake Street in the past. A Googlemap search shows the site, listing No. 2, on the northernmost parcel of the site. The listing is for a HAZNET listing of a former EPA permit No. CAC000702872. A HAZNET permit indicates a hazardous waste disposal permit was taken out at some time. In the absence of any information regarding former tanks, a release of any kind, absence of RCRA generator listings, or other information denoting a release of any kind or the ongoing use of chemicals, the listing is not considered an REC.

3.3.2 Adjacent Properties (within 1/8th Mile Radius Distance (660 feet)

Please refer to ERIS Radius Maps. There are 12 notations (listings 1-9) within this radius; some have multiple notations. Listing numbers 1 is discussed above (3.3.1). Listing number 2 is a FIND/FWS listing at a lift station. FINDS/FWS listings simply indicate that an agency has a permit or other interest in a site. They are not considered REC without supplemental leak or related listings that categorize them as release threats.
Listing 3 involves 2 additional FINDS/FWS notations that are also not considered REC. Listings 4,

5, 6 and 9 are either FINDS/FWS or HHSS permit sites and not considered REC. Listing 6 also is an historical tank (HIST TANK) site. The existence of a tank, in the absence of a release or other threat data, is not considered an REC. Listing 7 is a double listing of a Riverside County LOP (the same as listing 12 noted below / 29051 Robb). Listing 8 is a sand and gravel mine site, Pacific Aggregates, located 1,500 north and topographically lower than the subject site. Due to distance, topographically lower elevation; and absence of leaking storage tank reports, the site is not considered an REC.

3.3.3 Surrounding Area; 1/8 to 1/4 Miles Radius Distance (660-1,320 feet)

Please refer to ERIS Radius Maps. There are three listings (10, 11, 12) within this radius. Listings 10 and 11 are former Disclosure facility listings which have been delisted. Listing 12 is a closed leaking gasoline (1994) LUST case. Delisted sites refer to former potential or actual permits; permits are not considered REC. The former LUST case is located downgradient and distant (over 1000 feet) from the subject site; based on distance, downgradient location, and closed status, the site is not considered an REC.

3.3.4 Surrounding Area; 1/4 to 1/2 Miles Radius Distance (1,320-2,640 feet)

Please refer to ERIS Radius Maps. There are no listings in this radius on any of the regulatory databases reviewed.

3.3.5 Surrounding Area; 1/2 to 1.0 Miles Radius Distance (2,640-5,280 feet)

Please refer to ERIS Radius Maps. There are no listings in this radius on any of the regulatory databases reviewed.

3.4 Regulatory Agency Review

3.4.1 Riverside County Fire Department

TA-GROUP DD contacted the Riverside County Fire Department (RCFD) concerning any permit, inspection, UST, or cleanup information available for the subject property. According to RCFD staff, they do not hold or track permits regarding hazardous materials. This information is regulated by the County of Riverside Department of Environmental Health. No other pertinent information was available with the RCFD.

3.4.2 County of Riverside Department of Environmental Health

TA-GROUP DD contacted the County of Riverside Department of Environmental Health (RCDEH) for information regarding any Underground Storage Tank (UST) permits, LUST cases, Hazardous Waste Generator permits, Emergency Responses, Complaint and Investigation (ERCI) documents, DTSC Calsite listings, and Superfund Site listings, pertaining to the subject property.

The RCDEH did have records for the subject site. Based on the amount of County information contained in the ERIS report, and the absence of immediately adjacent release cases, TA-Group DD elected bot to review RCDEH physical case files.

3.4.3 California Department of Toxic Substances Control

TA-GROUP DD reviewed the DTSC online database EnviroStor for listings on or adjacent to the property. Neither the property nor any adjacent properties were listed on any of the databases researched.

3.4.4 State Water Resources Control Board

TA-GROUP DD reviewed the online database GeoTracker, which provides records on LUSTs and Spills, Leaks, Investigation and Cleanup (SLIC) sites, which is maintained by the State Water Resources Control Board (. The subject property was not listed on any of the databases researched. The 29051 Robb Street site discussed in section 3.3.2 was the closest listing in the area.

3.4.5 Review of Division of Oil, Gas and Geothermal Resources Files

Oil and gas wells were not observed at the subject property during our site reconnaissance. A review of the California Division of Oil, Gas, and Geothermal Resources Website for oil and gas fields in California and Alaska https://maps.conservation.ca.gov/doggr/wellfinder /#openModal) did not indicate the presence of oil and gas wells in the vicinity of the property (Township 02 South Range 06 West Section 25).

3.4.6 National Pipeline Mapping System

TA-GROUP DD reviewed the National Pipeline Mapping System public viewer website (https://pvnpms.phmsa.dot.gov/PublicViewer/) for gas transmission pipelines and hazardous liquid trunk-lines on or close to the subject property. According to the information reviewed, a Natural Gas Transmission line is present approximately 1.4-miles north of the property, on Lake Street. The pipeline is not considered an environmental concern due to distance.

3.5 Interview with Current Property Owner

TA-GROUP DD contacted the property owner's representative; Mr. Austin Hahn of Empire Design Group, who completed User and Owner Questionnaires in **Appendix E**.

3.5.1 Past or Present Uses Indicating Environmental Concern

Mr. Hahn stated that the subject property is currently vacant land and/or residential.

3.5.2 Environmental Liens or Governmental Notification

Mr. Hahn stated that he is not aware of any environmental liens or governmental notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property.

3.5.3 Presence of Hazardous Substances or Environmental Violations

Mr. Hahn was not aware of any environmental violations relating to the property.

3.5.4 Previous Assessments

Mr. Hahn was not aware of any previous environmental assessments related to the property.

3.5.5 Legal Proceedings

Mr. Hahn stated that he is not aware of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substance or petroleum products involving the property by any owner or occupant of the property.

3.6 User Specific Information

Pursuant to ASTM E1527-13, TA-GROUP DD provided a Phase I ESA User Specific Questionnaire to the "user" (the person on whose behalf the Phase I ESA is being conducted); in this case the User is also the Owner. Mr. Will Hahn, with Inland Harbor Corporation, LLC. The User Specific Information provided by Mr. Hahn is documented in the following sections. A list of the user specific questions (per ASTM E1527-13) with associated responses is included in **Appendix F**.

3.6.1 Environmental Liens or Activity and Use Limitations

Mr. Hahn stated that to his knowledge, there are no environmental liens or activity and land use limitations (AULs) associated with the subject property.

3.6.2 Specialized Knowledge

Mr. Hahn stated that he has no specialized knowledge or experience related to the property or nearby properties (i.e., knowledge of the chemicals or processes used by a type of business).

3.6.3 Valuation Reduction for Environmental Issues

Mr. Hahn indicated the purchase price was reflective of market value.

3.6.4 Presence or Likely Presence of Contamination

Mr. Hahn stated that he had no knowledge or former underground or aboveground tanks, or past spills/releases on the property.

3.6.5 Other

Mr. Hahn stated that the Phase I ESA is required as part of the City's CEQA process.

3.7 Other Environmental Issues

3.7.1 Asbestos-Containing Materials

Asbestos, a natural fiber used in the manufacturing of a number of different building materials, has been identified as a human carcinogen. Most friable (i.e., easily broken or crushed) Asbestos-Containing Materials (ACM) were banned in building materials by 1978. By 1989, most major manufacturers had voluntarily removed non-friable ACM (i.e., flooring, roofing, and mastics/sealants) from the market. These materials, however, were not banned completely.
The subject property is developed with historical residential structures. The presence of ACM

should be evaluated prior to any demolition event. Sampling for such materials is outside of the scope of this report.

3.7.2 Lead-Based Paint

Lead-Based Paint has been identified by Occupational Safety and Health Administration (OSHA), the United States Environmental Protection Agency (U.S. EPA) and the Department of Housing and Urban Development (HUD) as being a potential health risk to humans, particularly children, based on its effects to the central nervous system, kidneys, and bloodstream. The risk of Lead-Based Paint has been classified by HUD based upon the age and condition of the painted surface.

The subject property is developed with historical residential structures. The presence of Lead-Based Paint should be evaluated prior to any demolition event. Sampling for such materials is outside of the scope of this report.

3.7.3 Radon

Radon is a radioactive gas which has been identified as a human carcinogen. Radon gas is typically associated with fine-grained rock and soil, and results from the radioactive decay of radium. The U.S. EPA recommends that homeowners in areas with radon screening levels greater than 4 Picocurries per liter (pCi/L) conduct mitigation of radon gas to reduce exposure.
Sections 307 and 309 of the Indoor Radon Abatement Act of 1988 (IRAA) directed the U.S. EPA to list and identify areas of the U.S. with the potential for elevated indoor radon levels. U.S. EPA's Map of Radon Zones (EPA-402-R-93-071) assigns each of the 3,141 counties in the U.S. to one of three zones based on radon potential:

- Zone 1 counties have a predicted average indoor radon screening level greater than 4 pCi/L.
- Zone 2 counties have a predicted average indoor radon screening level between 2 and 4 pCi/L.
- Zone 3 counties have a predicted average indoor radon screening level less than 2 pCi/L.

Based on such factors as indoor radon measurements, geology, aerial radioactivity, and soil permeability; the U.S. EPA has identified the County of Riverside as Zone 2 (i.e., a predicted average indoor radon screening level between 2 and 4 pCi/L). TA-GROUP DD does not consider radon as a significant environmental concern at this time.

4.0 SITE RECONNAISSANCE

4.1 Purpose

The purpose of our site reconnaissance was to physically observe the subject property, property structures, and adjoining properties for conditions indicating an existing release, past release, or threatened release of any hazardous substances or petroleum products into structures on the subject site, or into soil and/or groundwater beneath the property. This would include any evidence of contamination, distressed vegetation, petroleum-hydrocarbon surface staining, waste drums, USTs, ASTs, illegal dumping,

or improper waste storage/handling. Detailed information pertaining to our site reconnaissance is provided in the following text.

4.2 Subject Site

On September 4, 2019 EEI personnel conducted a site reconnaissance to visually observe the subject property and adjoining properties for conditions indicating a potential environmental concern. Environmental concerns would include any evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage and/or handling. Visual conditions present during the site reconnaissance are documented in the Photographic Log (**Appendix F**), and summarized in **Table 2**.

The subject property consists of approximately 6-acres located northwest of the intersection of Lake Street and Mountain Street, in the City of Lake Elsinore, Riverside County, California (**Figure 2**).

EEI staff was unescorted on the property. The single-family home renter had not been made aware of our site reconnaissance; we were not given access to the residence due to the presence of a large watchdog that was considered a threat by the tenant. We were given access to the balance of the property.

Staff entered the northern parcel boundary dirt road and observed the northern two parcels present north of the residence. A chain link fence bounds the overall site on the north. The parcel is open to the west. The site slopes up from Lake Street some 20 feet. The northernmost parcel is vacant and undeveloped, and grass covered. The parcel immediately north of the residence is fenced with chain link at the residence, and contains another smaller chain link fenced area on its western end. The parcel is undeveloped except for several power poles which run East-West towards the western property line.

TA-Group staff accessed the residential parcel through the dirt driveway, also from Lake Street. The main residence, which sits on a concrete foundation, appears to be a mobile home. It was not accessible. Chain link fence is present around both residences. TA-Group DD observed two open sheds/garages immediately north of the main residence; the contents of both appear to be trash and old household items. Gallon paint cans are present. The floors are dirt. No spills or odors were present.

We observed the smaller, vacant home immediately east of the main residence. The building is wood framed, with concrete or lath/plaster walls, wooden floors, and a concrete perimeter foundation. Floor covers are rolled vinyl and vinyl tiles. The home has an access point for a below grade “root cellar” type storage area which we did not access due to safety considerations. No contents were noted when we attempted to lift the entry cover. A plastic shed is located between the residences. The floor is covered with at least a foot of undetermined organic materials; the shed may have been used for livestock at some point.
Trash and debris are scattered in the area north of the residence from the sheds to the east along the chain link fence. No petroleum products were noted in the trash. Several trucks and cars are parked along the fence.

We accessed the balance of the site to the south on foot, proceeding clockwise around the property, walking transects as needed to thoroughly survey the site. South of the entrance drive there are two apparent abandoned wells with pressure tanks. Further south is evidence of a former home with remnant foundation and chimney. The slope rises from the driveway up to the former residence, which is 10-15

feet above the adjacent roadway. There are several trees in this area; however, most of the southern parcels have been recently plowed; we assume for fire prevention. We walked the balance of the open southern parcels. Barb wire fence is present along Lake Street, Mountain Street, and the western property line. A small, tall wooden building is present southwest of the aforementioned residence. A galvanized water tank is present in the structure.

In conclusion, with the exception of the paint cans noted in the sheds and the trash/debris noted near the residence, no evidence of contamination, distressed vegetation, petroleum-hydrocarbon surface staining, waste drums, USTs, ASTs, illegal dumping, or improper waste storage/handling was noted during our site reconnaissance, except for the items described above.

TABLE 3
Summary of Site Reconnaissance

Item	Concerns	Comments
General Housekeeping	No	No concerns observed. Housekeeping is poor, but chemicals are generally not present in other than DeMinimus amounts
Surface Spills	No	No concerns observed.
Stained Surfaces	No	No concerns observed.
Fill Materials	No	No concerns observed.
Pits/Ponds/Lagoons	No	No concerns observed.
Surface Impoundments	No	No concerns observed.
ASTs/USTs	No	No concerns observed.
Distressed Vegetation	No	No concerns observed.
Wetlands	No	No concerns observed.
Electrical Substations	No	No concerns observed.
Areas of Dumping	No	No concerns observed.
Transformers	No	No concerns observed.
Waste/Scrap Storage	No	No concerns observed. Trash and debris are present near the residence.
Chemical Use/Storage	No	No concerns observed. Paint cans noted in the sheds are considered deminimus amounts.

4.3 Adjacent Properties

EEI conducted a visual and auto reconnaissance of the adjoining commercial development and drove the immediate area to observe the potential for offsite impacts that may affect the subject property. These would include evidence of chemical storage or usage, surface staining or leakage, distressed vegetation, or evidence of illegal dumping. The area is residential and rural residential. No service stations, dry cleaners, or industrial users were noted in the immediate vicinity. We did not observe any environmental issues related to these adjacent properties.

5.0 VAPOR ENCROACHMENT SCREEN

ASTM Standard E2600-10 Standard Guide for Vapor Encroachment Screening (VES) on Property Involved in Real Estate Transactions was used as guidance for conducting a VES for the subject property. The

purpose of the screening is to determine whether a potential Vapor Encroachment Condition (pVEC) exists from chemicals of concern (COC*)* that may migrate as vapors onto a property as a result of contaminated soil and groundwater on or near the subject property.

The screening involves a two tiered approach to assessing pVEC risk as described herein. The VES process includes a review of site conditions (e.g., aerial photographs, city directories, and environmental database information), which is information typically collected during a Phase I ESA, user provided information, and in some instances the use of a third-party vapor encroachment application. The following sections describe the VES performed on the subject property.

5.1 Site Conditions

The elevation of the subject property ranges from approximately 1,524 feet above mean sea level (amsl) on the lower elevations along the northwestern margins and rises in elevation to approximately 1,485 feet amsl at the southwestern property margins. The property consists of land which generally slopes north to south (Mountain Street). Based on topography, groundwater flow direction in the vicinity of the subject property would be expected to flow to the southeast towards Lake Elsinore.

Soils beneath the subject property and vicinity have been identified by the United States Department of Agriculture – Natural Resources Conservation Service, Web Soil Survey (USDA, 2018) as MnD2 Monserate Sandy Loam and GyD2 Greenfield Sandy Loams, present on slopes from 5 to 15 percent.

5.2 User Provided Information

To assist TA-GROUP DD in the completion of the VES, the property owner's representative, Mr. Austin Hahn, completed a Vapor Encroachment Screen - User Questionnaire (**Appendix F**). The questionnaire provided basic information regarding the use, condition, and proposed development of the subject property.

According to Mr. Hahn the proposed development on the property will include slab-on-grade development. Proposed fuel energy for the future development are natural gas and electrical power. Mr. Hahn was not aware of any historical environmental issues on the property.

5.3 Tier 1 Screening – Search Distance Test/Chemicals of Concern

A Tier 1 Screening includes the search distance test that involves a review of the regulatory database report and available historical records obtained during the Phase I ESA process to decide if any known or suspect potentially contaminated properties exist within the Area of Concern (AOC). High risk sites are typically current and former gas stations, former and current dry cleaners, manufactured gas plants, and industrial sites (Brownfields). The AOC is defined as any up-gradient sites within the ASTM E1527-13 standard search distances and any cross or down gradient sites within 1/3 mile (1745-feet) *for solvents and petroleum products. If the contamination at the known or potentially contaminated sites within the AOC consists of Chemicals of Concern (COCs), then a potential Vapor Encroachment Condition (pVEC) exists, and a Tier 2 Screening evaluation is recommended. If no known or potentially contaminated sites with COCs exist within the AOC, no further inquiry is necessary.

5.4 Findings

No sites were identified within the Area of Concern (AOC) that were considered to pose a pVEC at the subject property. Based on the results of the Tier 1 VES, TA-GROUP DD concluded that a VEC can be ruled out, due to the absence of known or suspected contaminated properties within the AOC, including the subject site.

6.0 CONCLUSIONS AND RECOMMENDATIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM E1527-13 on the *subject property*. Any exceptions to, or deletions from, this practice are described in Section 7.0 of this report. This assessment has revealed the following evidence of *recognized environmental conditions* in connection with the *subject property*.

- *Known or suspected RECs* – are defined by the ASTM E1527-13 as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

  This assessment has revealed no *known or suspected RECs* in connection with the subject property.

- *Controlled RECs (CRECs)* – are defined by the ASTM E1527-13 as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (e.g., as evidenced by the issuance of a NFA letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (e.g., property use restrictions, AULs, institutional controls, or engineering controls)

  This assessment has revealed no evidence of *CRECs* in connection with the subject property.

- *Historical RECs (HRECs)* – are defined by the ASTM E1527-13 as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (e.g., property use restrictions, AULs, institutional controls, or engineering controls).

  This assessment has revealed no evidence of *HREC's* in connection with the subject property.

- *De Minimis* Conditions – include environmental concerns identified which may warrant discussion but do not qualify as RECs, as defined by the ASTM E1527-13.

  No *de minimis* conditions were revealed in connection with the subject property.

7.0 DATA GAPS AND DEVIATIONS FROM ASTM PRACTICES

Section 3.2.21 (ASTM E1527-13) defines a data gap as "a lack or inability to obtain information required by the practice despite good faith efforts of the environmental professional to gather such information."

7.1 Historical Data Gaps

No historical data gaps were identified during our research efforts.

7.2 Regulatory Data Gaps

No regulatory data gaps were identified during our research efforts.

7.3 Onsite Data Gaps

No on-site data gaps were identified during our research efforts.

7.4 Deviations from ASTM Practices

Section 12.10 (ASTM E1527-13), states that all deletions and deviations from this practice shall be listed individually and in detail, including client-imposed constraints, and all additions should be listed. TA-GROUP DD believes that there are no exceptions to, or deletions and deviations from, the ASTM E1527-13 Guidelines.

8.0 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of APNs 163-400-001 and -052, the *subject property*. Any exceptions to, or deletions from, this practice are described in **Section 7.0** of this report.

This assessment has revealed no evidence of *Recognized environmental conditions* in connection with the *subject property*.

9.0 REFERENCES

California Department of Toxic Substances (DTSC), Website (http://www.envirostor.dtsc.ca.gov/public/), EnviroStor database.

California Department of Water Resources, Water Data Library (WDL), Website (http://www.water.ca.gov/waterdatalibrary).

California Division of Mines and Geology (CDMG), 2002 California Geological Survey, California Geomorphic Provinces Note 36, Electronic Copy, Revised December 2002.

California Division of Oil, Gas, and Geothermal Resources (CDOGGR) website, www.consrv.ca.gov, Oil and Gas Maps District 1, accessed August 2015.

Federal Emergency Management Agency (FEMA) website, (www.fema.gov).

Jennings, Charles W., 1994, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, California Geologic Data Map Series, Map

National Pipeline Mapping System (NPMS), Public Map Viewer Website, (https://www.npms. phmsa.dot.gov/PublicViewer/).

Riverside County Integrated Project (RCIP) Proposed Multiple Species Habitat Conservation Plan (MSHCP) Website (http://www.tlma.co.riverside.ca.us

Santa Ana Regional Water Quality Control Board –Region 8, (SARWQCB): Water Quality Control Plan for the Santa Ana River Basin (8), September 1995, California State Water Resources Control Board Publication.

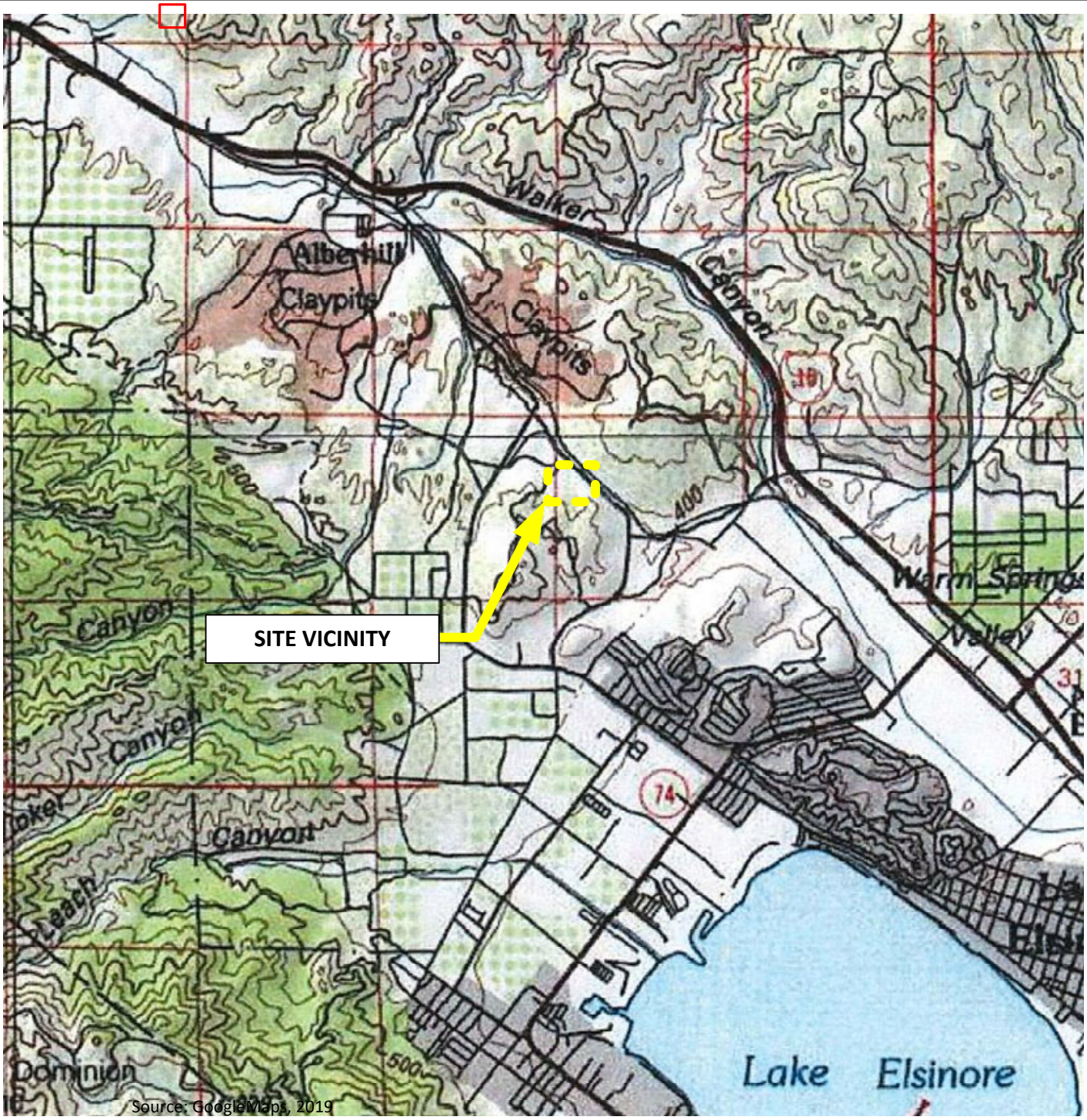
State Water Resources Control Board, Website, GeoTracker database, (http://www.geotracker. swrcb.ca.gov/).

United States Department of Agriculture (USDA), Natural Resources Conservation Center, Website, Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx).

United States Geological Survey (USGS) 7.5' Topographic Map, 1979, Alberhill, California Quadrangle.

United States Geological Survey (USGS) 7.5' Topographic Map, 2001, Alderhill, California Quadrangle.

FIGURES



Source: GoogleMaps, 2019

LEGEND

N

No Scale

Note: All Locations Are Approximate

VICINITY MAP

Empire Design
NWC Lake Road and Mountain Street
Lake Elsinore, Riverside County, California
Project 0719002

TA-Group DD, LLC
Diligent Diligence

FIGURE 1



N

0 125 ft 250 ft

Scale is Approximate

AERIAL SITE MAP

Empire Design
NWC Mountain Street and Lake Street
Lake Elsinore, Riverside County, California
Project 0719002

TA-Group DD, LLC

FIGURE 2

Source: Google Earth, 2019

APPENDIX A
RESUME OF ENVIRONMENTAL PROFESSIONAL

CURRICULUM VITAE
TIMOTHY A. LESTER, C.E.M.

Summary: As a founder and managing partner proving Environmental Consulting and related services since 1996, Mr. Lester provides has provided consulting and technical services as a Principal Scientist, Project Manager, expert witness for Due Diligence, Site Investigation, and Remediation at sites impacted by heavy metals, petroleum hydrocarbons, solvents, pesticides, PNA and PCB, and radionuclides (NORM). As a remediation specialist, he has hands on experience designing, installing, and managing large scale metals fixation, bioventing, soil vapor extraction, sparging, and free phase hydrocarbon recovery projects. His career in environmental investigation and remediation began in 1987, enhanced by four years of related experience in the geotechnical and petroleum exploration businesses. Mr. Lester has been an active participant on all phases of due diligence, site investigation, and remediation planning, cleanup strategy, feasibility evaluation, remedial implementation, and litigation support for a variety of industrial and commercial projects.

Employment History

1996 TO PRESENT — **FOUNDER/ EEI & TA-Group DD, LLC**

Mr. Lester has been the project manager and technical resource for major real estate investment trusts (REIT) and commercial developments, and has managed all environmental due diligence, investigation, and cleanup for an aggregate of over $400 million dollars in commercial properties. Additionally, Mr. Lester has managed all investigation, regulatory strategy, and cleanup at a number of fuel and solvent release sites in California, Oregon, Arizona, Nevada, New Mexico, and Washington related to former retail fuel release sites, and has managed and implemented soil and groundwater investigations at fuel and chlorinated solvent sites for other clients. Mr. Lester also was the primary environmental expert for a landfill chlorinated solvent case in Southern California, and has provided similar expert testimony on a number of environmental release cases.

1989 TO 1997 — **SR. PROJECT MANAGER, SR. GEOLOGIST, MARKETING MANAGERCLAYTON (FORMERLY MITTELHAUSER CORPORATION)**Actively managed southwest region Phase II investigations, remediation , and specialized regulatory projects. Evaluated investigation information and remedial alternatives while preparing Remedial Action Plans (RAP) for multi-contaminant impacted landfill site, numerous fuel impacted sites, a RCRA regulated utility remediation project, refinery bioventing projects, a California superfund townegas project, a bulk storage facility impoundment cleanup, and numerous other large remediation project sites. All RAPs were approved.

Promotions included Project to Senior Geologist, to Geoservices and Technology Division Manager. Technical services included managing remediation projects, designing and coordinating investigation projects, and developing regulatory and technical strategy for Southwest Region. Provided expert witness services to remediation projects involving soil and groundwater contamination. Conceptualized, designed, and implemented a variety of large scale industrial bioventing (refinery, Utility RCRA, Townegas, bulk storage) and soil vapor extraction projects.

1987 TO 1989 — **PROJECT MANAGER**

NACHANT ENVIRONMENTAL, INC. Promoted from staff to Project Geologist and Project Manager. Responsible for all phases of investigation and cleanup of sites primarily contaminated with fuel hydrocarbons, chlorinated hydrocarbons, and waste oils. Part of project team which developed, built, and implemented largest soil vapor extraction (1,000 cfm) project in state at that time.

1986 TO 1987 — **Geotechnical Technician and Geologist in Training** **Geosoils, Inc.**

1983 TO 1986 — **Exploration Technician** **ARCO Oil & Gas & ARCO Exploration**

Representative Projects

PG&E Bioventing Project, Morro Bay, CA. Prepared proposal, conceptual design, and all preliminary costing for $1.0M impoundment remediation project. Prepared Remedial Action Plan and met with regulators for this RCRA facility.

Mine Project, Mountain Pass, CA. Prepared proposal and all preliminary costing for $5.6M mine remediation project. Project included regulatory, design engineering, construction, and field remediation of RCRA hazardous and NORM waste. Largest single (annual) project ever performed by company.

School Phase I ESA, Orange County, CA: Provided oversight activities for a Phase I ESA under DTSC guidance for the Running Springs school site in Orange County, California. Avoided a PEA and attained a DTSC No Further Action letter for the School District. Currently providing Preliminary Endangerment Assessment services to the Val Verde School District, Riverside, California on a Middle School project.

Bioventing Project, So. California Refinery: Provided all conceptual design for push-pull bioventing system in a site characterized by complex fine grained sediments. Contaminants included VOC, fuels, PNA, and heavy oil. Wrote approved Remedial Action Plan (LARWQCB). Managed field installation of innovative high vacuum (clay target) system. Project value $400k.

Landfill Project, Palos Verdes, CA. Project Manager for all phases of regulatory strategy, Phase II investigations, remedial planning and design for site impacted by heavy metals, PCB, PNA, hydrocarbons, pesticides. Wrote approved RAP which utilized USEPA protocol risk assessment to reduce remediation to capping option; savings to $3.0M. Total project value $2.0M+

Scrap Metal Terminal, POLA, CA. For the largest scrap metal terminal in the western U.S., managed and implemented a Phase II investigation project for free phase hydrocarbons. Delineated occurrence and managed installation of borings, piezometers, and groundwater monitoring wells. Evaluated sites remedial options and prepared Remedial Action Plan (approved).

SVE Remediation Project, Santa Fe Springs, CA. Prepared proposal, prepared conceptual design, selected technology and equipment, managed field installation, and managed project for soil and groundwater investigation and cleanup project utilizing Soil Vapor Extraction in TCE, fuel, and PNA impacted soils. Dual nested system designed to remediate dual target fine grained and coarse grained target sediments. Closed site.

Bioventing Project, So. California State Superfund Site: Provided all conceptual design for appurtenants and push-pull biovent system, utilizing anhydrous ammonia nutrient feed. Wrote approved RAP (regional water quality control board and Cal-EPA) and coordinated final engineering . Managed installation of large, 20+ nested well (clay and sand) system. Project value $700k.

LITIGATION SUPPORT

As an Expert Witness, reviewed applicable soil contamination reports for a solvent release site at a former battery manufacturing site in the Los Angeles basin. Evaluated remedial alternantives, prepared conceptual remediation program, provided remedial cost estimates, and was deposed in Superior Court for the defendant. Testified in trial at Superior Court for the defendant. “Seventh Avenue Investment vs. Exide Corporation”.

As an Expert Witness in a Southern California TCE/PCE solvent case: Provided soil contamination evaluation, conceptual design and costing for Soil Vapor Extraction remediation of PCE and TCE impacted site in the Los Angeles Basin. Testified as expert witness for defense.

As an Expert Witness, evaluated historical landfill soil, data, and SWAT data for chlorinated solvent release at site and neighboring facilities. Determined range of costs for appropriate remedial options and evaluated remedial actions and costs prepared by others. Testified in Trial at Superior Court in the County of San Diego, for the plaintiffs in “Bay National Properties, et al. vs. County of San Diego, et al. for Daley and Heft.

As technical support for the development of remediation alternative costs and feasibility, representing the defendants (joint defense team), in “Cedar-Sinai Medical Center vs. Atlantic Richfield Co., et al., in a soil and groundwater solvent contamination case related to a suspected dry cleaner release. Evaluated historical release data to soil and groundwater, evaluated remediation and disposal practices, cost control, and regulatory options.

Reviewed prior consultant soil and groundwater investigation and feasibility reports for solvents, metals, fuels, and other contaminants for a large industrial property with documented soil and groundwater contamination. Worked as technical support for the evaluation of remedial feasibility, options, and implementation costs. Representing the defendant, California Steel Industries, in the Kaiser Steel Industries bankruptcy proceedings, for Morgan, Lewis, and Bockius.

Named as Expert Witness for a chlorinated solvent and RCRA release site in the City of Industry superfund site. Inspected property, conducted soil investigation, and evaluated historical data at the site. Wrote an approved Remedial Action Plan for the facility and prepared soil vapor extraction remediation cost and implementation guidelines. Case was settled prior to trial. Work conducted for McDermott, Will and Emory.

Education

Bachelor of Science, Geology, California State University Bakersfield
Various Graduate Courses in Geochemistry, Fate and Transport

Publications/Presentations

With C.E. Dial and D.J. Leu, "A Case Study of a refinery Bioventing Project", September, 1993, presented to the American Petroleum Institute, Baltimore, Maryland

"Vacuum Extraction, New Technologies and Wider Applications", May, 1989, presented at HAZMAT 1989, Anaheim, California

Lectures to Environmental Engineering classes at CSU Irvine, Winter, 1995: "Air Sparging" , and "Free Phase Recovery"

Certifications

Registered Environmental Assessor II No. 20047, State of California (FORMER/CA no longer uses this registration)
Certified Environmental Manager No. EM-1754, State of Nevada
HAZWOPER 40-hour OSHA Training
HAZWOPER Site Supervisor 8-hour Training

APPENDIX B
COUNTY OF RIVERSIDE PROPERTY INFORMATION/ PRELIMINARY TITLE REPORT

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later.

This map may reflect more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A ——— A	Cross section line
B ——— B	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
3776000mN	1000-meter Universal Transverse Mercator grid values, zone 11N
600000 FT	5000-foot grid ticks: California State Plane coordinate system, zone VI (FIPSZONE 0406), Lambert Conformal Conic projection
DX5510 X	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 28, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2037G

FIRM

FLOOD INSURANCE RATE MAP

RIVERSIDE COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 2037 OF 3805

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LAKE ELSINORE, CITY OF	060636	2037	G
RIVERSIDE COUNTY	060245	2037	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

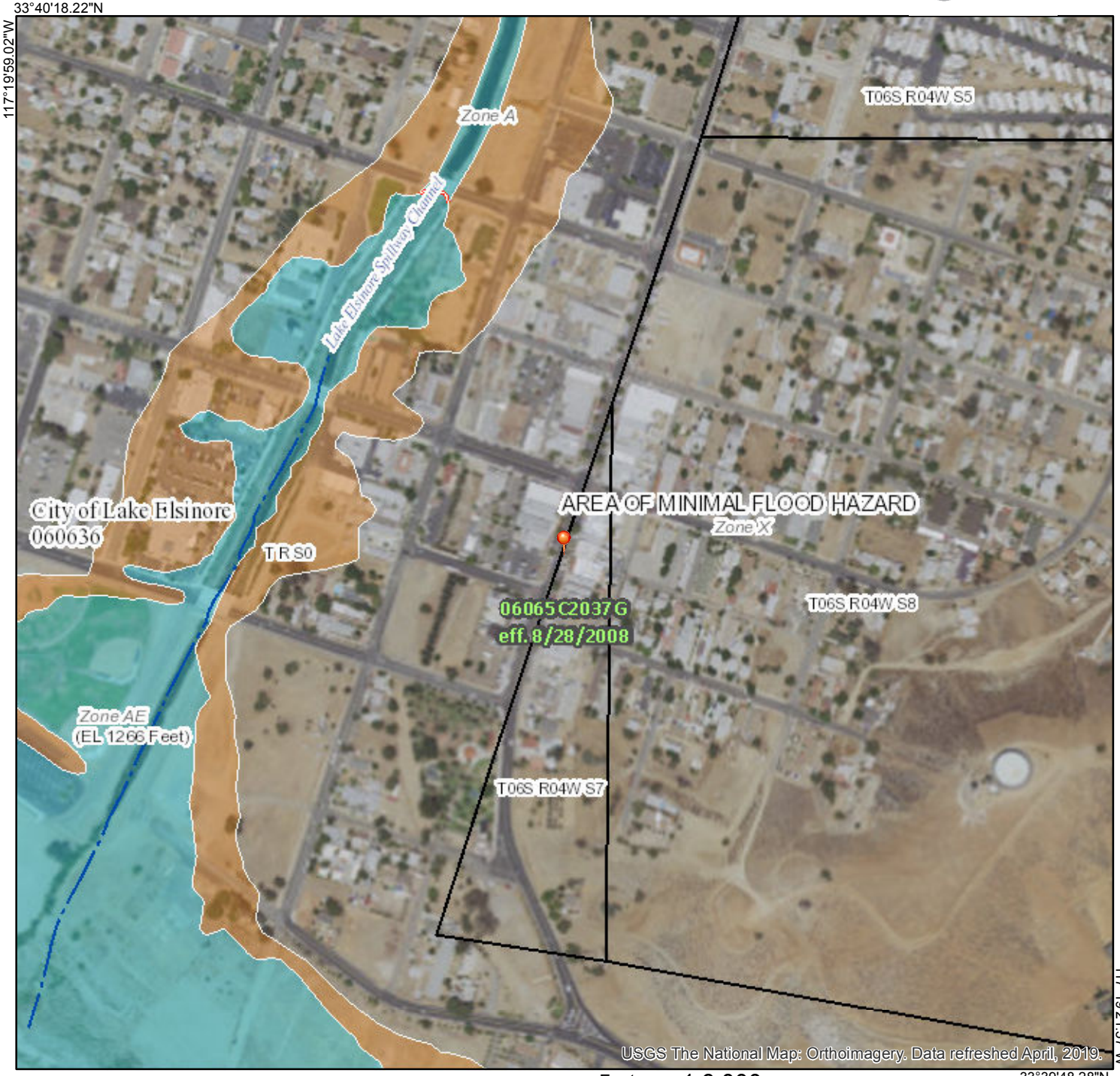
MAP NUMBER
06065C2037G

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/9/2019 at 1:05:43 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Commonwealth Land Title Company
4100 Newport Place Dr., Suite 120
Newport Beach, CA 92660
Phone: (949) 724-3140

Commonwealth Land Title
4100 Newport Place Drive Suite 120
Newport Beach, CA 92660

Attn: **Kelly Ralph**

Our File No: 09183129
Title Officer: Chris Maziar
e-mail: unit10@cltic.com
Phone: (949) 724-3170
Fax: (949) 258-5740

Your Reference No: Tiger Petroleum

Property Address: 28915 Lake Street, City Of Lake Elsinore, California

PRELIMINARY REPORT

Dated as of April 19, 2019 at 7:30 a.m.

In response to the application for a policy of title insurance referenced herein, Commonwealth Land Title Company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.
The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitation on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

The policy(s) of title insurance to be issued hereunder will be policy(s) of **Commonwealth Land Title Insurance Company.**

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered. It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Order No: 09183129-918-KRA-CM8

SCHEDULE A

The form of policy of title insurance contemplated by this report is:

ALTA Homeowner's Policy of Title Insurance (12-2-13)

ALTA Extended Loan Policy of Title Insurance (6-17-06)

The estate or interest in the land hereinafter described or referred to covered by this report is:

A FEE

Title to said estate or interest at the date hereof is vested in:

Lake Street Marketplace, LLC, a California limited liability company

The land referred to herein is situated in the County of Riverside, State of California, and is described as follows:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

Order No: 09183129-918-KRA-CM8

EXHIBIT "A"

All that certain real property situated in the County of Riverside, State of California, described as follows:

LOTS 1, 2, 3, 4 AND 5 OF COUNTRY CLUB ESTATES, UNIT NO. 3, IN THE CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 12, PAGE 23 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE COUNTY OF RIVERSIDE BY DEED RECORDED JULY 22, 1930 IN BOOK 867, PAGE 50 OF DEEDS, RECORDS OF RIVERSIDE COUNTY.

Assessor's Parcel Number: **389-030-014-6, 015-7, 016-8, 017-9, 018-0**

Order No: 09183129-918-KRA-CM8

SCHEDULE B – Section A

The following exceptions will appear in policies when providing standard coverage as outlined below:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

2. Any facts, rights, interests or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.

3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.

4. Any encroachment, encumbrance, violation, variation or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.

5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the Public Records.

6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

Order No: 09183129-918-KRA-CM8

SCHEDULE B – Section B

At the date hereof Exceptions to coverage in addition to the printed exceptions and exclusions in said policy form would be as follows:

A. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes to be levied for the fiscal year 2019-2020.

B. Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.:	389-030-014-6
Fiscal Year:	2018-2019
1st Installment:	$1,589.86, PAID
2nd Installment:	$1,589.86, OPEN (Delinquent after April 10)
Penalty and Cost:	$197.61
Homeowners Exemption:	$0.00
Code Area:	005-034

Affects: Lot 5

C. Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.:	389-030-015-7
Fiscal Year:	2018-2019
1st Installment:	$1,488.19, PAID
2nd Installment:	$1,488.19, OPEN (Delinquent after April 10)
Penalty and Cost:	$187.44
Homeowners Exemption:	$0.00
Code Area:	005-034

Affects: Lot 4

D. Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.:	389-030-016-8
Fiscal Year:	2018-2019
1st Installment:	$1,472.65, PAID
2nd Installment:	$1,472.65, OPEN (Delinquent after April 10)
Penalty and Cost:	$85.89
Homeowners Exemption:	$0.00
Code Area:	005-034

Affects: Lot 3

E. Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.:	389-030-017-9
Fiscal Year:	2018-2019
1st Installment:	$1,457.12, PAID
2nd Installment:	$1,457.12, OPEN (Delinquent after April 10)
Penalty and Cost:	$184.34
Homeowners Exemption:	$0.00
Code Area:	005-034

Affects: Lot 2

F. Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.:	389-030-018-0
Fiscal Year:	2018-2019
1st Installment:	$1,218.91, PAID
2nd Installment:	$1,218.91, OPEN (Delinquent after April 10)
Penalty and Cost:	$160.52
Homeowners Exemption:	$0.00
Code Area:	005-034

Affects: Lot 1

G. The lien of supplemental or escaped assessments of property taxes, if any, made pursuant to the provisions of Chapter 3.5 (commencing with Section 75) or Part 2, Chapter 3, Articles 3 and 4, respectively, of the Revenue and Taxation Code of the State of California as a result of the transfer of title to the vestee named in Schedule A or as a result of changes in ownership or new construction occurring prior to Date of Policy.

1. Water rights, claims or title to water, whether or not disclosed by the public records.

2. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	L.A. Wittliff and Leola M. Wittliff, et al
Purpose:	pipelines
Recording Date:	August 19, 1929
Recording No:	in Book 821, Page 364 of Deeds
Affects:	Lot 5

The exact location and extent of said easement is not disclosed of record.

3. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	California Electric Power Company, a Corporation
Purpose:	either or both pole lines, conduits or underground facilities
Recording Date:	March 4, 1947
Recording No:	in Book 820, Page 67 of Official Records
Affects:	Lot 5

4. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	Southern California Edison Company
Purpose:	either or both pole lines, conduits or underground facilities
Recording Date:	August 27, 1984
Recording No:	as Instrument No. 187360 of Official Records
Affects:	a portion of Lot 5

5. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	Southern California Edison Company
Purpose:	public utilities
Recording Date:	May 30, 1989
Recording No:	as Instrument No. 175008 of Official Records
Affects:	a portion of Lot 1

6. A deed of trust to secure an indebtedness in the amount shown below,

Amount:	$1,236,125.00
Dated:	September 11, 2007
Trustor/Grantor	Lake Street Marketplace, LLC, a California limited liability company
Trustee:	First American Title Insurance Company
Beneficiary:	J. Scott Fawcett and Anne E. Fawcett, Co-Trustees of the Fawcett Family Trust dated March 7, 2002
Loan No.:	Not Set Out
Recording Date:	September 14, 2007
Recording No:	as Instrument No. 2007-0583551 of Official Records

7. Declaration of covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, citizenship, immigration status, primary language, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the below document, which, among other things, may contain or provide for easements; assessments, liens and the subordination thereof; said covenants, conditions and restrictions provide that a violation thereof shall not defeat the lien of any mortgage or deed of trust made in good faith and for value:

Recording Date:	September 14, 2007
Recording No:	as Instrument No. 2007-0583552 of Official Records

8. Easement(s) in favor of the public over any existing roads lying within said Land.

9. Any rights of the parties in possession of a portion of, or all of, said Land, which rights are not disclosed by the public records.

   The Company will require, for review, a full and complete copy of any unrecorded agreement, contract, license and/or lease, together with all supplements, assignments and amendments thereto, before issuing any policy of title insurance without excepting this item from coverage.

   The Company reserves the right to except additional items and/or make additional requirements after reviewing said documents.

10. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other matters which a correct survey would disclose and which are not shown by the public records.

11. Any easements not disclosed by the public records as to matters affecting title to real property, whether or not said easements are visible and apparent.

12. Matters which may be disclosed by an inspection and/or by a correct ALTA/NSPS Land Title Survey of said Land that is satisfactory to the Company, and/or by inquiry of the parties in possession thereof.

END OF SCHEDULE B EXCEPTIONS

PLEASE REFER TO THE "NOTES AND REQUIREMENTS SECTION" WHICH FOLLOWS FOR INFORMATION NECESSARY TO COMPLETE THIS TRANSACTION

Order No: 09183129-918-KRA-CM8

REQUIREMENTS SECTION:

1. Prior to the close of escrow, the Company requires a Statement of Information to be completed by the following party(s),

   Party(s): J. Scott Fawcett

   The Company reserves the right to add additional items or make further requirements after review of the requested Statement of Information.

2. Due to the special requirements of SB 50 (California Public Resources Code Section 8560 et seq.), any transaction that includes the conveyance of title by an agency of the United States must be approved in advance by the Company's State Counsel, Regional Counsel, or one of their designees.

3. Unrecorded matters which may be disclosed by an Owner's Affidavit or Declaration. A form of the Owner's Affidavit/Declaration is attached to this Preliminary Report/Commitment. This Affidavit/Declaration is to be completed by the record owner of the land and submitted for review prior to the closing of this transaction. Your prompt attention to this requirement will help avoid delays in the closing of this transaction. Thank you.

   The Company reserves the right to add additional items or make further requirements after review of the requested Affidavit/Declaration.

4. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance from the entity named below:

   Limited Liability Company: Lake Street Marketplace, LLC, a California limited liability company

   a) A copy of its operating agreement, if any, and all amendments, supplements and/or modifications thereto, certified by the appropriate manager or member.

   b) If a domestic Limited Liability Company, a copy of its Articles of Organization and all amendments thereto with the appropriate filing stamps.

   c) If the Limited Liability Company is member-managed, a full and complete current list of members certified by the appropriate manager or member.

   d) A current dated certificate of good standing from the proper governmental authority of the state in which the entity is currently domiciled.

   e) If less than all members, or managers, as appropriate, will be executing the closing documents, furnish evidence of the authority of those signing.

   f) If Limited Liability Company is a Single Member Entity, a Statement of Information for the Single Member will be required.

   g) Each member and manager of the LLC without an Operating Agreement must execute in the presence of a notary public the Certificate of California LLC (Without an Operating Agreement) Status and Authority form.

5. The Company will require the following documents for review prior to the issuance of any title insurance predicated upon a conveyance or encumbrance by the corporation named below:

   Name of Corporation: Tiger Petroleum, Inc.

   a) A Copy of the corporation By-laws and Articles of Incorporation

   b) An original or certified copy of a resolution authorizing the transaction contemplated herein

   c) If the Articles and/or By-laws require approval by a 'parent' organization, a copy of the Articles and By-laws of the parent

   The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

6. The Company requires a Statement of Information from the parties named below in order to complete this report, based on the effect of documents, proceedings, liens, decrees, or other matters which do not specifically describe said Land, but which, if any do exist, may affect the title or impose liens or encumbrances thereon. After review of the requested Statement(s) of Information, the Company may have additional requirements before the issuance of any policy of title insurance.

   Buyer's name(s): Tiger Petroleum, Inc.

   The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

   NOTE: The Statement of Information is necessary to complete the search and examination of title under this order. Any title search includes matters that are indexed by name only, and having a completed Statement of Information assists the Company in the elimination of certain matters which appear to involve the parties but in fact affect another party with the same or similar name. Be assured that the Statement of Information is essential and will be kept strictly confidential to this file.

Order No: 09183129-918-KRA-CM8

INFORMATIONAL NOTES SECTION

1. The information on the attached plat is provided for your convenience as a guide to the general location of the subject property. The accuracy of this plat is not guaranteed, nor is it a part of any policy, report or guarantee to which it may be attached.

2. For wiring Instructions please contact your Title Officer or Title Company Escrow officer.

3. Notice: Please be aware that due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.

4. Pursuant to Government Code Section 27388.1, as amended and effective as of 1-1-2018, a Documentary Transfer Tax (DTT) Affidavit may be required to be completed and submitted with each document when DTT is being paid or when an exemption is being claimed from paying the tax. If a governmental agency is a party to the document, the form will not be required. DTT Affidavits may be available at a Tax Assessor-County Clerk-Recorder.

5. Note: The policy of title insurance will include an arbitration provision. The Company or the insured may demand arbitration. Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the insured arising out of or relating to this policy, any service of the Company in connection with its issuance or the breach of a policy provision or other obligation. Please ask your escrow or title officer for a sample copy of the policy to be issued if you wish to review the arbitration provisions and any other provisions pertaining to your Title Insurance coverage.

6. Due to the special requirements of SB 50 (California Public Resources Code Section 8560 et seq.), any transaction that includes the conveyance of title by an agency of the United States must be approved in advance by the Company's State Counsel, Regional Counsel, or one of their designees.

Typist: tga
Date Typed: April 30, 2019

ATTACHMENT ONE

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;
   d. improvements on the Land;
   e. land division; and
   f. environmental protection.
   This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and

b. in streets, alleys, or waterways that touch the Land.
This Exclusion does not limit the coverage described in Covered Risk 11 or 21.

7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1.00% % of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$ 10,000.00
Covered Risk 18:	1.00% % of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$ 5,000.00

2006 ALTA LOAN POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13 or 14); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

(Except as provided in Schedule B - Part II,(t(or T)his policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

(PART I

(The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.

4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:)

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

(The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. (Variable exceptions such as taxes, easements, CC&R's, etc. shown here.)

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (12-02-13)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

Notice of Available Discounts

Pursuant to Section 2355.3 in Title 10 of the California Code of Regulations Fidelity National Financial, Inc. and its subsidiaries ("FNF") must deliver a notice of each discount available under our current rate filing along with the delivery of escrow instructions, a preliminary report or commitment. Please be aware that the provision of this notice does not constitute a waiver of the consumer's right to be charged the filed rate. As such, your transaction may not qualify for the below discounts.

You are encouraged to discuss the applicability of one or more of the below discounts with a Company representative. These discounts are generally described below; consult the rate manual for a full description of the terms, conditions and requirements for such discount. These discounts only apply to transactions involving services rendered by the FNF Family of Companies. This notice only applies to transactions involving property improved with a one-to-four family residential dwelling.

FNF Underwritten Title Company	FNF Underwriter
LTC – Lawyers Title Company	CLTIC – Commonwealth Land Title Insurance Co.

Available Discounts

DISASTER LOANS (CLTIC)
The charge for a Lender's Policy (Standard or Extended coverage) covering the financing or refinancing by an owner of record, within 24 months of the date of a declaration of a disaster area by the government of the United States or the State of California on any land located in said area, which was partially or totally destroyed in the disaster, will be 50% of the appropriate title insurance rate.

EMPLOYEE RATE (LTC and CLTIC)
No charge shall be made to employees (including employees on approved retirement) of the Company or its underwritten, subsidiary or affiliated title companies for policies or escrow services in connection with financing, refinancing, sale or purchase of the employees' bona fide home property. Waiver of such charges is authorized only in connection with those costs which the employee would be obligated to pay, by established custom, as a party to the transaction.

Notice of Available Discounts Mod. 10/21/2011

Wire Fraud Alert

This Notice is not intended to provide legal or professional advice. If you have any questions, please consult with a lawyer.

All parties to a real estate transaction are targets for wire fraud and many have lost hundreds of thousands of dollars because they simply relied on the wire instructions received via email, without further verification. **If funds are to be wired in conjunction with this real estate transaction, we strongly recommend verbal verification of wire instructions through a known, trusted phone number prior to sending funds.**

In addition, the following non-exclusive self-protection strategies are recommended to minimize exposure to possible wire fraud.

- **NEVER RELY** on emails purporting to change wire instructions. Parties to a transaction rarely change wire instructions in the course of a transaction.
- **ALWAYS VERIFY** wire instructions, specifically the ABA routing number and account number, by calling the party who sent the instructions to you. DO NOT use the phone number provided in the email containing the instructions, use phone numbers you have called before or can otherwise verify. **Obtain the phone number of relevant parties to the transaction as soon as an escrow account is opened**. DO NOT send an email to verify as the email address may be incorrect or the email may be intercepted by the fraudster.
- **USE COMPLEX EMAIL PASSWORDS** that employ a combination of mixed case, numbers, and symbols. Make your passwords greater than eight (8) characters. Also, change your password often and do NOT reuse the same password for other online accounts.
- **USE MULTI-FACTOR AUTHENTICATION** for email accounts. Your email provider or IT staff may have specific instructions on how to implement this feature.

For more information on wire-fraud scams or to report an incident, please refer to the following links:

Federal Bureau of Investigation:
http://www.fbi.gov

Internet Crime Complaint Center:
http://www.ic3.gov

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FIDELITY NATIONAL FINANCIAL, INC.
PRIVACY NOTICE

Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, "FNF," "our," or "we") respect and are committed to protecting your privacy. This Privacy Notice explains how we collect, use, and protect personal information, when and to whom we disclose such information, and the choices you have about the use and disclosure of that information.

Types of Information Collected
We may collect two types of information from you: Personal Information and Browsing Information.

Personal Information. FNF may collect the following categories of Personal Information:

- contact information (*e.g.*, name, address, phone number, email address);
- demographic information (*e.g.*, date of birth, gender, marital status);
- identity information (*e.g.*, Social Security Number, driver's license, passport, or other government ID number);
- financial account information (*e.g.*, loan or bank account information); and
- other personal information necessary to provide products or services to you.

Browsing Information. FNF may automatically collect the following types of Browsing Information when you access an FNF website, online service, or application (each an "FNF Website") from your Internet browser, computer, and/or mobile device:

- Internet Protocol (IP) address and operating system;
- browser version, language, and type;
- domain name system requests; and
- browsing history on the FNF Website, such as date and time of your visit to the FNF Website and visits to the pages within the FNF Website

How Personal Information is Collected
We may collect Personal Information about you from:

- information we receive from you on applications or other forms;
- information about your transactions with FNF, our affiliates, or others; and
- information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

How Browsing Information is Collected
If you visit or use an FNF Website, Browsing Information may be collected during your visit. Like most websites, our servers automatically log each visitor to the FNF Website and may collect the Browsing Information described above. We use Browsing Information for system administration, troubleshooting, fraud investigation, and to improve our websites. Browsing Information generally does not reveal anything personal about you, though if you have created a user account for an FNF Website and are logged into that account, the FNF Website may be able to link certain browsing activity to your user account.

Other Online Specifics
Cookies. When you visit an FNF Website, a "cookie" may be sent to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer's hard drive. Information gathered using cookies helps us improve your user experience. For example, a cookie can help the website load properly or can customize the display page based on your browser type and user preferences. You can choose whether or not to accept cookies by changing your Internet browser settings. Be aware that doing so may impair or limit some functionality of the FNF Website.

Web Beacons. We use web beacons to determine when and how many times a page has been viewed. This information is used to improve our websites.

Do Not Track. Currently our FNF Websites do not respond to "Do Not Track" features enabled through your browser.

Links to Other Sites. FNF Websites may contain links to other websites. FNF is not responsible for the privacy practices or the content of any of those other websites. We advise you to read the privacy policy of every website you visit.

Use of Personal Information
FNF uses Personal Information for three main purposes:

- To provide products and services to you or in connection with a transaction involving you.
- To improve our products and services.
- To communicate with you about our, our affiliates', and third parties' products and services, jointly or independently.

When Information Is Disclosed
We may make disclosures of your Personal Information and Browsing Information in the following circumstances:

- to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure;
- to nonaffiliated service providers who provide or perform services or functions on our behalf and who agree to use the information only to provide such services or functions;

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- to nonaffiliated third party service providers with whom we perform joint marketing, pursuant to an agreement with them to jointly market financial products or services to you;
- to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order; or
- in the good-faith belief that such disclosure is necessary to comply with legal process or applicable laws, or to protect the rights, property, or safety of FNF, its customers, or the public.

The law does not require your prior authorization and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or Browsing Information with nonaffiliated third parties, except as required or permitted by law.

We reserve the right to transfer your Personal Information, Browsing Information, and any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of bankruptcy, reorganization, insolvency, receivership, or an assignment for the benefit of creditors. By submitting Personal Information and/or Browsing Information to FNF, you expressly agree and consent to the use and/or transfer of the foregoing information in connection with any of the above described proceedings.

Please see "**Choices With Your Information**" to learn the disclosures you can restrict.

Security of Your Information
We maintain physical, electronic, and procedural safeguards to guard your Personal Information. We limit access to nonpublic personal information about you to employees who need to know that information to do their job. When we provide Personal Information to others as discussed in this Privacy Notice, we expect that they process such information in compliance with our Privacy Notice and in compliance with applicable privacy laws.

Choices With Your Information
If you do not want FNF to share your information with our affiliates to directly market to you, you may send an "opt out" request by email, phone, or physical mail as directed at the end of this Privacy Notice. We do not share your Personal Information with nonaffiliates for their use to direct market to you.

Whether you submit Personal Information or Browsing Information to FNF is entirely up to you. If you decide not to submit Personal Information or Browsing Information, FNF may not be able to provide certain services or products to you.

For California Residents: We will not share your Personal Information and Browsing Information with nonaffiliated third parties, except as permitted by California law.

For Nevada Residents: You may be placed on our internal Do Not Call List by calling (888) 934-3354 or by contacting us via the information set forth at the end of this Privacy Notice. Nevada law requires that we also provide you with the following contact information: Bureau of Consumer Protection, Office of the Nevada Attorney General, 555 E. Washington St., Suite 3900, Las Vegas, NV 89101; Phone number: (702) 486-3132; email: BCPINFO@ag.state.nv.us.

For Oregon Residents: We will not share your Personal Information and Browsing Information with nonaffiliated third parties for marketing purposes, except after you have been informed by us of such sharing and had an opportunity to indicate that you do not want a disclosure made for marketing purposes.

For Vermont Residents: We will not share information about your creditworthiness to our affiliates and will not disclose your personal information, financial information, credit report, or health information to nonaffiliated third parties to market to you, other than as permitted by Vermont law, unless you authorize us to make those disclosures.

Information From Children
The FNF Websites are meant for adults and are not intended or designed to attract persons under the age of eighteen (18).We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

International Users
FNF's headquarters is located within the United States. If you reside outside the United States and choose to provide Personal Information or Browsing Information to us, please note that we may transfer that information outside of your country of residence for any of the purposes described in this Privacy Notice. By providing FNF with your Personal Information and/or Browsing Information, you consent to our collection, transfer, and use of such information in accordance with this Privacy Notice.

FNF Website Services for Mortgage Loans
Certain FNF companies provide services to mortgage loan servicers, including hosting websites that collect customer information on behalf of mortgage loan servicers (the "Service Websites"). The Service Websites may contain links to both this Privacy Notice and the mortgage loan servicer or lender's privacy notice. The sections of this Privacy Notice titled When Information is Disclosed, Choices with Your Information, and Accessing and Correcting Information do not apply to the Service Websites. The mortgage loan servicer or lender's privacy notice governs use, disclosure, and access to your Personal Information. FNF does not share Personal Information collected through the Service Websites, except (1) as required or authorized by contract with the mortgage loan servicer or lender, or (2) as required by law or in the good-faith belief that such disclosure is necessary to comply with a legal process or applicable law, to enforce this Privacy Notice, or to protect the rights, property, or safety of FNF or the public.

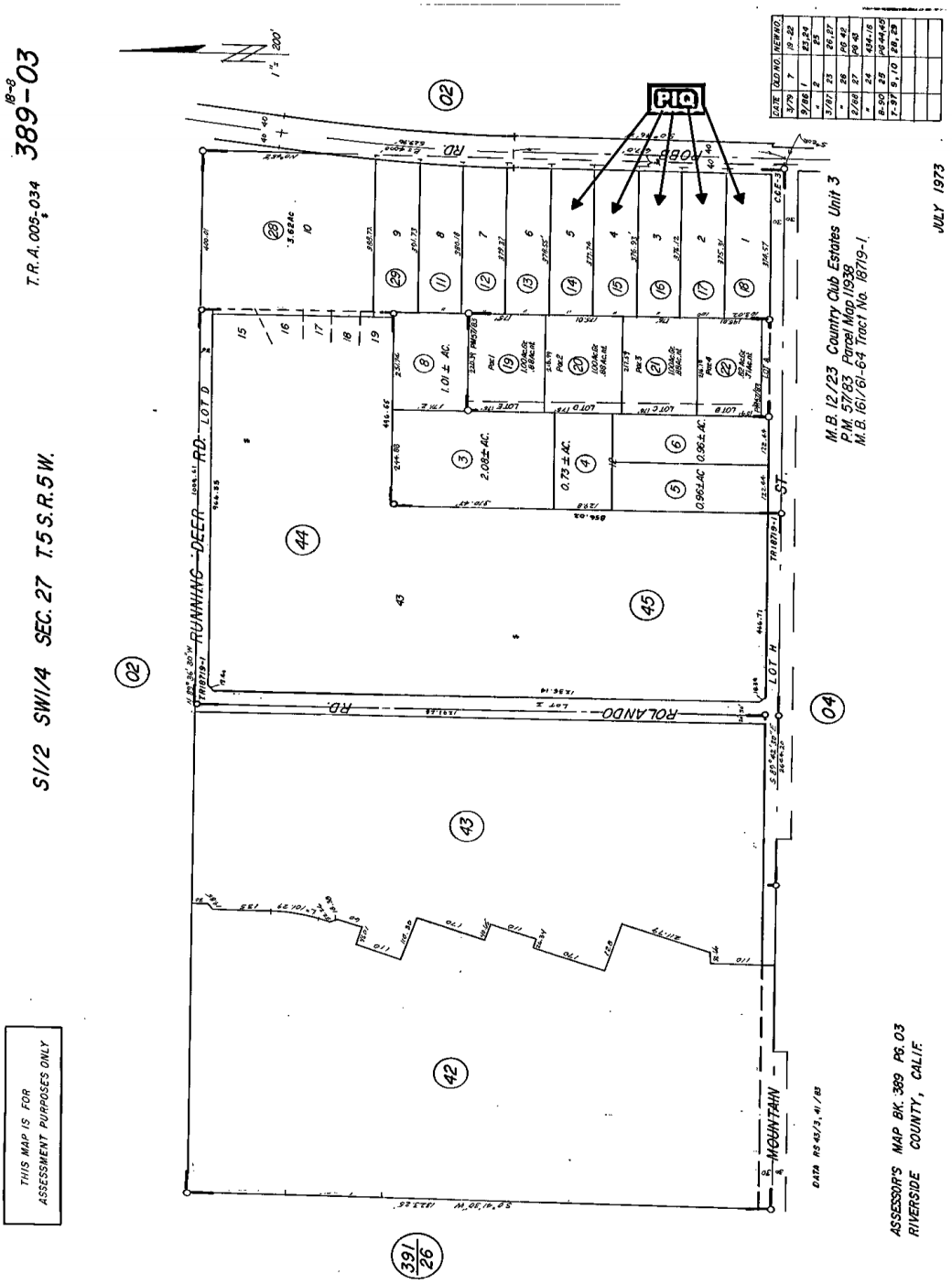
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Your Consent To This Privacy Notice; Notice Changes
By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of the information in accordance with this Privacy Notice. We may change this Privacy Notice at any time. The revised Privacy Notice, showing the new revision date, will be posted on the FNF Website. Each time you provide information to us following any amendment of this Privacy Notice, your provision of information to us will signify your assent to and acceptance of the terms of the revised Privacy Notice for all previously collected information and information collected from you in the future. We may use comments, information or feedback that you submit to us in any manner that we may choose without notice or compensation to you.

Accessing and Correcting Information; Contact Us
If you have questions, would like to access or correct your Personal Information, or want to opt-out of information sharing for affiliate marketing, send your requests via email to privacy@fnf.com, by phone to (888) 934-3354, or by mail to:

Fidelity National Financial, Inc.
601 Riverside Avenue
Jacksonville, Florida 32204
Attn: Chief Privacy Officer

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This map/plat is being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the Company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

OWNER'S DECLARATION

The undersigned hereby declares as follows:

1. (Fill in the applicable paragraph and strike the other)

   a. Declarant ("Owner") is the owner or lessee, as the case may be, of certain premises located at _____, further described as follows: See Preliminary Report/Commitment No. 09183129-918-KRA-CM8 for full legal description (the "Land").

   b. Declarant is the _____ of _____ ("Owner"), which is the owner or lessee, as the case may be, of certain premises located at _____, further described as follows: See Preliminary Report/Commitment No. 09183129-918-KRA-CM8 for full legal description (the "Land").

2. (Fill in the applicable paragraph and strike the other)

   a. During the period of six months immediately preceding the date of this declaration no work has been done, no surveys or architectural or engineering plans have been prepared, and no materials have been furnished in connection with the erection, equipment, repair, protection or removal of any building or other structure on the Land or in connection with the improvement of the Land in any manner whatsoever.

   b. During the period of six months immediately preceding the date of this declaration certain work has been done and materials furnished in connection with _____ upon the Land in the approximate total sum of $_____, but no work whatever remains to be done and no materials remain to be furnished to complete the construction in full compliance with the plans and specifications, nor are there any unpaid bills incurred for labor and materials used in making such improvements or repairs upon the Land, or for the services of architects, surveyors or engineers, except as follows:_____. Owner, by the undersigned Declarant, agrees to and does hereby indemnify and hold harmless Commonwealth Land Title Company against any and all claims arising therefrom.

3. Owner has not previously conveyed the Land; is not a debtor in bankruptcy (and if a partnership, the general partner thereof is not a debtor in bankruptcy); and has not received notice of any pending court action affecting the title to the Land.

4. Except as shown in the above-referenced Preliminary Report/Commitment, there are no unpaid or unsatisfied mortgages, deeds of trust, Uniform Commercial Code financing statements, regular assessments, or taxes that constitute a lien against the Land or that affect the Land but have not been recorded in the public records.

5. The Land is currently in use as _____ ; _____occupy/occupies the Land; and the following are all of the leases or other occupancy rights affecting the Land:

   _____

6. There are no other persons or entities that assert an ownership interest in the Land, nor are there unrecorded easements, claims of easement, or boundary disputes that affect the Land.

7. There are no outstanding options to purchase or rights of first refusal affecting the Land.

8. There are no material violations of any current, enforceable covenant affecting the Property and the Undersigned has received no written notice from any third party claiming that there is a present violation of any current, enforceable covenant affecting the Property.

This declaration is made with the intention that Commonwealth Land Title Company and Commonwealth Land Title Insurance Company (the "Company") and its policy issuing agents will rely upon it in issuing their title insurance policies and endorsements. Owner, by the undersigned Declarant, agrees to indemnify the Company against loss or damage (including attorneys fees, expenses, and costs) incurred by the Company as a result of any untrue statement made herein.

I declare under penalty of perjury that the foregoing is true and correct and that this declaration was executed on ____ at _____.

Signature: _____ Signature: _____

First American Title

First American Title Company

4 First American Way
Santa Ana, CA 92707
California Department of Insurance License No. 151

Colleen Klein
Evolution Escrow
3471 Via Lido, Suite 207
Newport Beach, CA 92663
Phone: (949)204-2194
Fax:

Customer Reference:	001037-CK
Order Number:	O-SA-5934798 (RBRW)
Title Officer:	Robert Baca/ Rizza Walker
Phone:	(714)250-3098
Fax No.:	(714)913-6389
E-Mail:	OCTitle25@firstam.com
Buyer:	Tiger Petroleum
Property:	7 Lake Street Lake Elsinore, CA

PRELIMINARY REPORT

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Exhibit A attached. *The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties*. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of April 29, 2019 at 7:30 A.M.

The form of Policy of title insurance contemplated by this report is:

ALTA/CLTA Homeowner's (EAGLE) Policy of Title Insurance (2013) and ALTA Ext Loan Policy 1056.06 (06-17-06) if the land described is an improved residential lot or condominium unit on which there is located a one-to-four family residence; or ALTA Standard Owner's Policy 2006 (WRE 06-17-06) and the ALTA Loan Policy 2006 (06-17-06) if the land described is an unimproved residential lot or condominium unit

A specific request should be made if another form or additional coverage is desired.

Title to said estate or interest at the date hereof is vested in:

Martin Jayson Miles, an Unmarried Man, and Martin G Miles and Patsy Miles, husband and wife, All as Joint Tenants

The estate or interest in the land hereinafter described or referred to covered by this Report is:

FEE

The Land referred to herein is described as follows:

(See attached Legal Description)

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. General and special taxes and assessments for the fiscal year 2019-2020, a lien not yet due or payable.

2. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

3. Any and all offers of dedications, conditions, restrictions, easements, notes and/or provisions shown or disclosed by the filed or recorded map referred to in the legal description.

4. An easement for ANCHOR and incidental purposes in the document recorded FEBRUARY 15, 1990 as INSTRUMENT NO. 90-58761 of Official Records.

5. A deed of trust to secure an original indebtedness of $48,750.00 recorded MARCH 04, 2003 as INSTRUMENT NO. 03-150987 OF OFFICIAL RECORDS.

Dated:	FEBRUARY 25, 2003
Trustor:	MARTIN JAYSON MILES, AN UNMARRIED MAN, AND MARTIN G MILES AND PATSY MILES, HUSBAND AND WIFE ALL AS JOINT TENANTS
Trustee:	CALIFORNIA RECONVEYANCE COMPANY
Beneficiary:	WASHINGTON MUTUAL BANK, FA, A FEDERAL ASSOCIATION

6. Any defects, liens, encumbrances or other matters which name parties with the same or similar names as MARTIN G. MILES. The name search necessary to ascertain the existence of such matters has not been completed. In order to complete this preliminary report or commitment, we will require a statement of information.

7. Water rights, claims or title to water, whether or not shown by the public records.

INFORMATIONAL NOTES

Note: The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than the certain dollar amount set forth in any applicable arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. If you desire to review the terms of the policy, including any arbitration clause that may be included, contact the office that issued this Commitment or Report to obtain a sample of the policy jacket for the policy that is to be issued in connection with your transaction.

1. General and special taxes and assessments for the fiscal year 2018-2019.

First Installment:	$445.90, PAID
Penalty:	$0.00
Second Installment:	$445.90, PAID
Penalty:	$0.00
Tax Rate Area:	005-034
A. P. No.:	389-030-012-4

The County Tax Collector could not verify the amounts shown above at this time. Please verify the amounts with the County Tax Collector prior to the close of the contemplated transaction.

2. The property covered by this report is vacant land.

3. According to the public records, there has been no conveyance of the land within a period of twenty-four months prior to the date of this report, except as follows:

None

NOTE to proposed insured lender only: No Private transfer fee covenant, as defined in Federal Housing Finance Agency Final Rule 12 CFR Part 1228, that was created and first appears in the Public Records on or after February 8, 2011, encumbers the Title except as follows: None

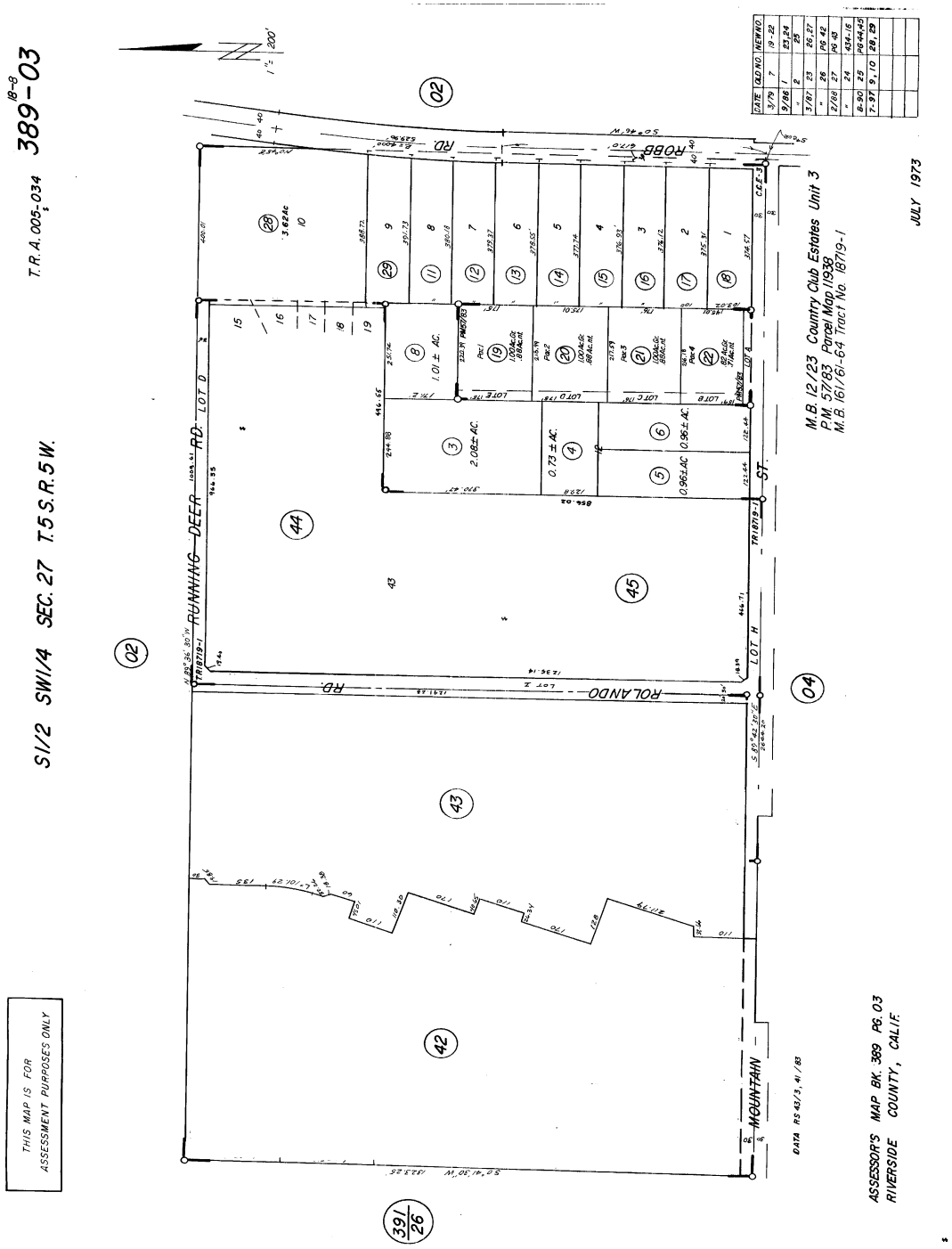
The map attached, if any, may or may not be a survey of the land depicted hereon. First American expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

LEGAL DESCRIPTION

Real property in the City of Lake Elsinore, County of Riverside, State of California, described as follows:

LOT 7 OF COUNTRY CLUB ESTATES, UNIT NO. 3, AS SHOWN BY MAP ON FILE IN BOOK 12, PAGE 23 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

APN: 389-030-012-4


389-03
T.R.A. 005-034
S1/2 SW1/4 SEC. 27 T.5 S.R.5 W.
JULY 1973
M.B. 12/23 Country Club Estates Unit 3
P.M. 57/83 Parcel Map 11938
M.B. 161/61-64 Tract No. 18719-1
ASSESSOR'S MAP BK. 389 PG. 03
RIVERSIDE COUNTY, CALIF.
THIS MAP IS FOR ASSESSMENT PURPOSES ONLY
RUNNING DEER RD.
ROLANDO RD.
MOUNTAIN
LOT D
LOT H
LOT A
ST.
02
04
42
43
44
45
39/26

NOTICE

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

EXHIBIT A
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)

CLTA STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public, records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;

d. improvements on the Land;
e. land division; and
f. environmental protection.
This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.

2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.
   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:
For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.
The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1% of Policy Amount Shown in Schedule A or $2,500 (whichever is less)	$10,000
Covered Risk 18:	1% of Policy Amount Shown in Schedule A or $5,000 (whichever is less)	$25,000
Covered Risk 19:	1% of Policy Amount Shown in Schedule A or $5,000 (whichever is less)	$25,000
Covered Risk 21:	1% of Policy Amount Shown in Schedule A or $2,500 (whichever is less)	$5,000

2006 ALTA LOAN POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.

4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

[Except as provided in Schedule B - Part II,[t[or T]his policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

[PART I

[The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:]

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 or 10); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.

4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
(a) a fraudulent conveyance or fraudulent transfer, or
(b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:
[The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. [Variable exceptions such as taxes, easements, CC&R's, etc. shown here.]

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (07-26-10)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

    (i) the occupancy, use, or enjoyment of the Land;
    (ii) the character, dimensions, or location of any improvement erected on the Land;
    (iii) the subdivision of land; or
    (iv) environmental protection;

    or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
    (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
(a) created, suffered, assumed, or agreed to by the Insured Claimant;
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the

Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.

7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.



Privacy Information
We Are Committed to Safeguarding Customer Information
In order to better serve your needs now and in the future, we may ask you to provide us with certain information. We understand that you may be concerned about what we will do with such information - particularly any personal or financial information. We agree that you have a right to know how we will utilize the personal information you provide to us. Therefore, together with our subsidiaries we have adopted this Privacy Policy to govern the use and handling of your personal information.

Applicability
This Privacy Policy governs our use of the information that you provide to us. It does not govern the manner in which we may use information we have obtained from any other source, such as information obtained from a public record or from another person or entity. First American has also adopted broader guidelines that govern our use of personal information regardless of its source. First American calls these guidelines its Fair Information Values.

Types of Information
Depending upon which of our services you are utilizing, the types of nonpublic personal information that we may collect include:
- Information we receive from you on applications, forms and in other communications to us, whether in writing, in person, by telephone or any other means;
- Information about your transactions with us, our affiliated companies, or others; and
- Information we receive from a consumer reporting agency.

Use of Information
We request information from you for our own legitimate business purposes and not for the benefit of any nonaffiliated party. Therefore, we will not release your information to nonaffiliated parties except: (1) as necessary for us to provide the product or service you have requested of us; or (2) as permitted by law. We may, however, store such information indefinitely, including the period after which any customer relationship has ceased. Such information may be used for any internal purpose, such as quality control efforts or customer analysis. We may also provide all of the types of nonpublic personal information listed above to one or more of our affiliated companies. Such affiliated companies include financial service providers, such as title insurers, property and casualty insurers, and trust and investment advisory companies, or companies involved in real estate services, such as appraisal companies, home warranty companies and escrow companies. Furthermore, we may also provide all the information we collect, as described above, to companies that perform marketing services on our behalf, on behalf of our affiliated companies or to other financial institutions with whom we or our affiliated companies have joint marketing agreements.

Former Customers
Even if you are no longer our customer, our Privacy Policy will continue to apply to you.

Confidentiality and Security
We will use our best efforts to ensure that no unauthorized parties have access to any of your information. We restrict access to nonpublic personal information about you to those individuals and entities who need to know that information to provide products or services to you. We will use our best efforts to train and oversee our employees and agents to ensure that your information will be handled responsibly and in accordance with this Privacy Policy and First American's Fair Information Values. We currently maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

Information Obtained Through Our Web Site
First American Financial Corporation is sensitive to privacy issues on the Internet. We believe it is important you know how we treat the information about you we receive on the Internet.
In general, you can visit First American or its affiliates' Web sites on the World Wide Web without telling us who you are or revealing any information about yourself. Our Web servers collect the domain names, not the e-mail addresses, of visitors. This information is aggregated to measure the number of visits, average time spent on the site, pages viewed and similar information. First American uses this information to measure the use of our site and to develop ideas to improve the content of our site.
There are times, however, when we may need information from you, such as your name and email address. When information is needed, we will use our best efforts to let you know at the time of collection how we will use the personal information. Usually, the personal information we collect is used only by us to respond to your inquiry, process an order or allow you to access specific account/profile information. If you choose to share any personal information with us, we will only use it in accordance with the policies outlined above.

Business Relationships
First American Financial Corporation's site and its affiliates' sites may contain links to other Web sites. While we try to link only to sites that share our high standards and respect for privacy, we are not responsible for the content or the privacy practices employed by other sites.

Cookies
Some of First American's Web sites may make use of "cookie" technology to measure site activity and to customize information to your personal tastes. A cookie is an element of data that a Web site can send to your browser, which may then store the cookie on your hard drive.
FirstAm.com uses stored cookies. The goal of this technology is to better serve you when visiting our site, save you time when you are here and to provide you with a more meaningful and productive Web site experience.

Fair Information Values
Fairness We consider consumer expectations about their privacy in all our businesses. We only offer products and services that assure a favorable balance between consumer benefits and consumer privacy.
Public Record We believe that an open public record creates significant value for society, enhances consumer choice and creates consumer opportunity. We actively support an open public record and emphasize its importance and contribution to our economy.
Use We believe we should behave responsibly when we use information about a consumer in our business. We will obey the laws governing the collection, use and dissemination of data.
Accuracy We will take reasonable steps to help assure the accuracy of the data we collect, use and disseminate. Where possible, we will take reasonable steps to correct inaccurate information. When, as with the public record, we cannot correct inaccurate information, we will take all reasonable steps to assist consumers in identifying the source of the erroneous data so that the consumer can secure the required corrections.
Education We endeavor to educate the users of our products and services, our employees and others in our industry about the importance of consumer privacy. We will instruct our employees on our fair information values and on the responsible collection and use of data. We will encourage others in our industry to collect and use information in a responsible manner.
Security We will maintain appropriate facilities and systems to protect against unauthorized access to and corruption of the data we maintain.

First American Title

First American Title Company

4 First American Way
Santa Ana, CA 92707
California Department of Insurance License No. 151

Colleen Klein
Evolution Escrow
3471 Via Lido, Suite 207
Newport Beach, CA 92663
Phone: (949)204-2194
Fax:

Customer Reference:	001036-CK
Order Number:	O-SA-5934746 (RBRW)
Title Officer:	Robert Baca/ Rizza Walker
Phone:	(714)250-3098
Fax No.:	(714)913-6389
E-Mail:	OCTitle25@firstam.com
Buyer:	Tiger Petroleum
Property:	28875 Robb Road Lake Elsinore, CA 92530

PRELIMINARY REPORT

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Exhibit A attached. *The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties*. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of April 29, 2019 at 7:30 A.M.

The form of Policy of title insurance contemplated by this report is:

ALTA/CLTA Homeowner's (EAGLE) Policy of Title Insurance (2013) and ALTA Ext Loan Policy 1056.06 (06-17-06) if the land described is an improved residential lot or condominium unit on which there is located a one-to-four family residence; or ALTA Standard Owner's Policy 2006 (WRE 06-17-06) and the ALTA Loan Policy 2006 (06-17-06) if the land described is an unimproved residential lot or condominium unit

A specific request should be made if another form or additional coverage is desired.

Title to said estate or interest at the date hereof is vested in:

Randy E. Haapala and Julie Haapala, Trustee of The Haapala Family Revocable Trust Dated May 10, 2018

The estate or interest in the land hereinafter described or referred to covered by this Report is:

FEE

The Land referred to herein is described as follows:

(See attached Legal Description)

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. General and special taxes and assessments for the fiscal year 2019-2020, a lien not yet due or payable.

2. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

3. An easement for A RIGHT OF WAY 10 FEET IN WIDTH and incidental purposes in the document recorded August 09, 1929 in Book 821 of Deeds, Page 364.

   The location of the easement cannot be determined from record information.

4. Any lien, assessment, and/or violation or enforcement of any law, ordinance, permit or governmental regulation arising from the document entitled NOTICE OF ADMINISTRATIVE PROCEEDINGS recorded JANUARY 17, 1991 as INSTRUMENT NO. 91-18960 of Official Records.

5. Lien for REHABILITATION, REPAIR OR DEMOLITION in favor of CITY OF LAKE ELSINORE
   Against: GEORGE & CHERYL JOHNSON
   Amount: $9,157.50
   Recorded: NOVEMBER 10, 1992 as INSTRUMENT NO. 92-429378 of Official Records.

6. Rights of parties in possession and rights of tenant(s) in the Land, including rights of all parties claiming by, through or under said tenant(s).

   We will require an approved declaration signed by the seller/seller's authorized agent and the buyer prior to close of this transaction.

7. Rights of the public in and to that portion of the land lying within any Road, Street, Alley or Highway.

8. Water rights, claims or title to water, whether or not shown by the public records.

Prior to the issuance of any policy of title insurance, the Company will require:

9. With respect to the trust referred to in the vesting:
   a. A certification pursuant to Section 18100.5 of the California Probate Code in a form satisfactory to the Company.
   b. Copies of those excerpts from the original trust documents and amendments thereto which designate the trustee and confer upon the trustee the power to act in the pending transaction.
   c. Other requirements which the Company may impose following its review of the material required herein and other information which the Company may require.

INFORMATIONAL NOTES

Note: The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than the certain dollar amount set forth in any applicable arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. If you desire to review the terms of the policy, including any arbitration clause that may be included, contact the office that issued this Commitment or Report to obtain a sample of the policy jacket for the policy that is to be issued in connection with your transaction.

1. General and special taxes and assessments for the fiscal year 2018-2019.

First Installment:	$170.30, PAID
Penalty:	$0.00
Second Installment:	$170.30, PAID
Penalty:	$0.00
Tax Rate Area:	005-034
A. P. No.:	389-030-013-5

2. The property covered by this report is vacant land.

3. According to the public records, there has been no conveyance of the land within a period of twenty four months prior to the date of this report, except as follows:

   A document recorded AUGUST 23, 2018 as INSTRUMENT NO. 18-339282 OF OFFICIAL RECORDS
   From: RANDY E. HAAPALA AND JULIE HAAPALA, HUSBAND AND WIFE AS JOINT TENANTS
   To: RANDY E. HAAPALA AND JULIE HAAPALA , TRUSTEE OF THE HAAPALA FAMILY REVOCABLE TRUST DATED MAY 10, 2018

4. We find no outstanding voluntary liens of record affecting subject property. Disclosure should be made concerning the existence of any unrecorded lien or other indebtedness which could give rise to any possible security interest in the subject property.

   NOTE to proposed insured lender only: No Private transfer fee covenant, as defined in Federal Housing Finance Agency Final Rule 12 CFR Part 1228, that was created and first appears in the Public Records on or after February 8, 2011, encumbers the Title except as follows: None

The map attached, if any, may or may not be a survey of the land depicted hereon. First American expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

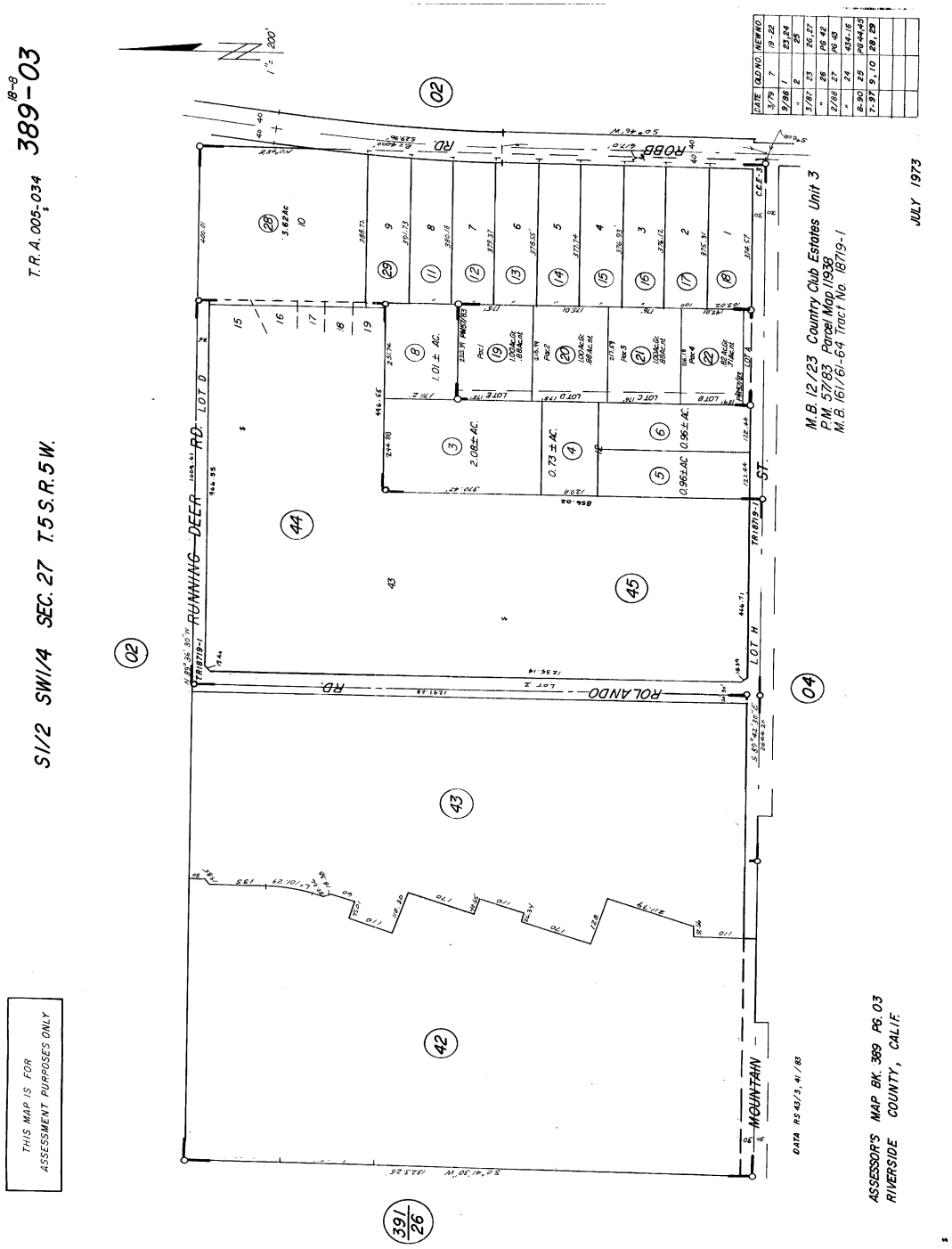
LEGAL DESCRIPTION

Real property in the City of Lake Elsinore, County of Riverside, State of California, described as follows:

LOT 6 OF COUNTRY CLUB ESTATES UNIT NO. 3, CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA AS SHOWN BY MAP ON FILE IN BOOK 12, PAGE 23 OF MAPS, RIVERSIDE COUNTY RECORDER.

EXCEPTING THEREFROM ALL OIL, GAS, MINERALS, AND OTHER HYDROCARBON SUBSTANCES IN AND UNDER THE ABOVE SAID DESCRIBED LAND, PREVIOUSLY RESERVED AS OF RECORD

APN: 389-030-013-5


389-03
T.R.A. 005-034
S1/2 SW1/4 SEC. 27 T.5 S.R.5 W.
JULY 1973
M.B. 12/23 Country Club Estates Unit 3
P.M. 57/83 Parcel Map 11938
M.B. 161/61-64 Tract No. 18719-1
ASSESSOR'S MAP BK. 389 PG. 03
RIVERSIDE COUNTY, CALIF.
THIS MAP IS FOR ASSESSMENT PURPOSES ONLY
RUNNING DEER RD.
ROLANDO RD.
MOUNTAIN
LOT D
LOT H
LOT I
ST.
02
04
42
43
44
45
39/26

NOTICE

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

EXHIBIT A
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)

CLTA STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public, records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;

d. improvements on the Land;
e. land division; and
f. environmental protection.
This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.

2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.
   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:
For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.
The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1% of Policy Amount Shown in Schedule A or $2,500 (whichever is less)	$10,000
Covered Risk 18:	1% of Policy Amount Shown in Schedule A or $5,000 (whichever is less)	$25,000
Covered Risk 19:	1% of Policy Amount Shown in Schedule A or $5,000 (whichever is less)	$25,000
Covered Risk 21:	1% of Policy Amount Shown in Schedule A or $2,500 (whichever is less)	$5,000

2006 ALTA LOAN POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.

4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

[Except as provided in Schedule B - Part II,[t[or T]his policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

[PART I

[The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:]

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 or 10); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.

4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
(a) a fraudulent conveyance or fraudulent transfer, or
(b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:
[The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. [Variable exceptions such as taxes, easements, CC&R's, etc. shown here.]

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (07-26-10)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

    (i) the occupancy, use, or enjoyment of the Land;
    (ii) the character, dimensions, or location of any improvement erected on the Land;
    (iii) the subdivision of land; or
    (iv) environmental protection;

    or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
    (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
(a) created, suffered, assumed, or agreed to by the Insured Claimant;
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the

Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.

7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.



Privacy Information
We Are Committed to Safeguarding Customer Information
In order to better serve your needs now and in the future, we may ask you to provide us with certain information. We understand that you may be concerned about what we will do with such information - particularly any personal or financial information. We agree that you have a right to know how we will utilize the personal information you provide to us. Therefore, together with our subsidiaries we have adopted this Privacy Policy to govern the use and handling of your personal information.

Applicability
This Privacy Policy governs our use of the information that you provide to us. It does not govern the manner in which we may use information we have obtained from any other source, such as information obtained from a public record or from another person or entity. First American has also adopted broader guidelines that govern our use of personal information regardless of its source. First American calls these guidelines its Fair Information Values.

Types of Information
Depending upon which of our services you are utilizing, the types of nonpublic personal information that we may collect include:
- Information we receive from you on applications, forms and in other communications to us, whether in writing, in person, by telephone or any other means;
- Information about your transactions with us, our affiliated companies, or others; and
- Information we receive from a consumer reporting agency.

Use of Information
We request information from you for our own legitimate business purposes and not for the benefit of any nonaffiliated party. Therefore, we will not release your information to nonaffiliated parties except: (1) as necessary for us to provide the product or service you have requested of us; or (2) as permitted by law. We may, however, store such information indefinitely, including the period after which any customer relationship has ceased. Such information may be used for any internal purpose, such as quality control efforts or customer analysis. We may also provide all of the types of nonpublic personal information listed above to one or more of our affiliated companies. Such affiliated companies include financial service providers, such as title insurers, property and casualty insurers, and trust and investment advisory companies, or companies involved in real estate services, such as appraisal companies, home warranty companies and escrow companies. Furthermore, we may also provide all the information we collect, as described above, to companies that perform marketing services on our behalf, on behalf of our affiliated companies or to other financial institutions with whom we or our affiliated companies have joint marketing agreements.

Former Customers
Even if you are no longer our customer, our Privacy Policy will continue to apply to you.

Confidentiality and Security
We will use our best efforts to ensure that no unauthorized parties have access to any of your information. We restrict access to nonpublic personal information about you to those individuals and entities who need to know that information to provide products or services to you. We will use our best efforts to train and oversee our employees and agents to ensure that your information will be handled responsibly and in accordance with this Privacy Policy and First American's Fair Information Values. We currently maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

Information Obtained Through Our Web Site
First American Financial Corporation is sensitive to privacy issues on the Internet. We believe it is important you know how we treat the information about you we receive on the Internet.
In general, you can visit First American or its affiliates' Web sites on the World Wide Web without telling us who you are or revealing any information about yourself. Our Web servers collect the domain names, not the e-mail addresses, of visitors. This information is aggregated to measure the number of visits, average time spent on the site, pages viewed and similar information. First American uses this information to measure the use of our site and to develop ideas to improve the content of our site.
There are times, however, when we may need information from you, such as your name and email address. When information is needed, we will use our best efforts to let you know at the time of collection how we will use the personal information. Usually, the personal information we collect is used only by us to respond to your inquiry, process an order or allow you to access specific account/profile information. If you choose to share any personal information with us, we will only use it in accordance with the policies outlined above.

Business Relationships
First American Financial Corporation's site and its affiliates' sites may contain links to other Web sites. While we try to link only to sites that share our high standards and respect for privacy, we are not responsible for the content or the privacy practices employed by other sites.

Cookies
Some of First American's Web sites may make use of "cookie" technology to measure site activity and to customize information to your personal tastes. A cookie is an element of data that a Web site can send to your browser, which may then store the cookie on your hard drive.
FirstAm.com uses stored cookies. The goal of this technology is to better serve you when visiting our site, save you time when you are here and to provide you with a more meaningful and productive Web site experience.

Fair Information Values
Fairness We consider consumer expectations about their privacy in all our businesses. We only offer products and services that assure a favorable balance between consumer benefits and consumer privacy.
Public Record We believe that an open public record creates significant value for society, enhances consumer choice and creates consumer opportunity. We actively support an open public record and emphasize its importance and contribution to our economy.
Use We believe we should behave responsibly when we use information about a consumer in our business. We will obey the laws governing the collection, use and dissemination of data.
Accuracy We will take reasonable steps to help assure the accuracy of the data we collect, use and disseminate. Where possible, we will take reasonable steps to correct inaccurate information. When, as with the public record, we cannot correct inaccurate information, we will take all reasonable steps to assist consumers in identifying the source of the erroneous data so that the consumer can secure the required corrections.
Education We endeavor to educate the users of our products and services, our employees and others in our industry about the importance of consumer privacy. We will instruct our employees on our fair information values and on the responsible collection and use of data. We will encourage others in our industry to collect and use information in a responsible manner.
Security We will maintain appropriate facilities and systems to protect against unauthorized access to and corruption of the data we maintain.

APPENDIX C
HISTORICAL AERIAL PHOTOGRAPHS/TOPOGRAPHIC MAPS/ CITY DIRECTORY REPORT/SANBORN MAP REPORT

ENVIRONMENTAL RISK INFORMATION SERVICES

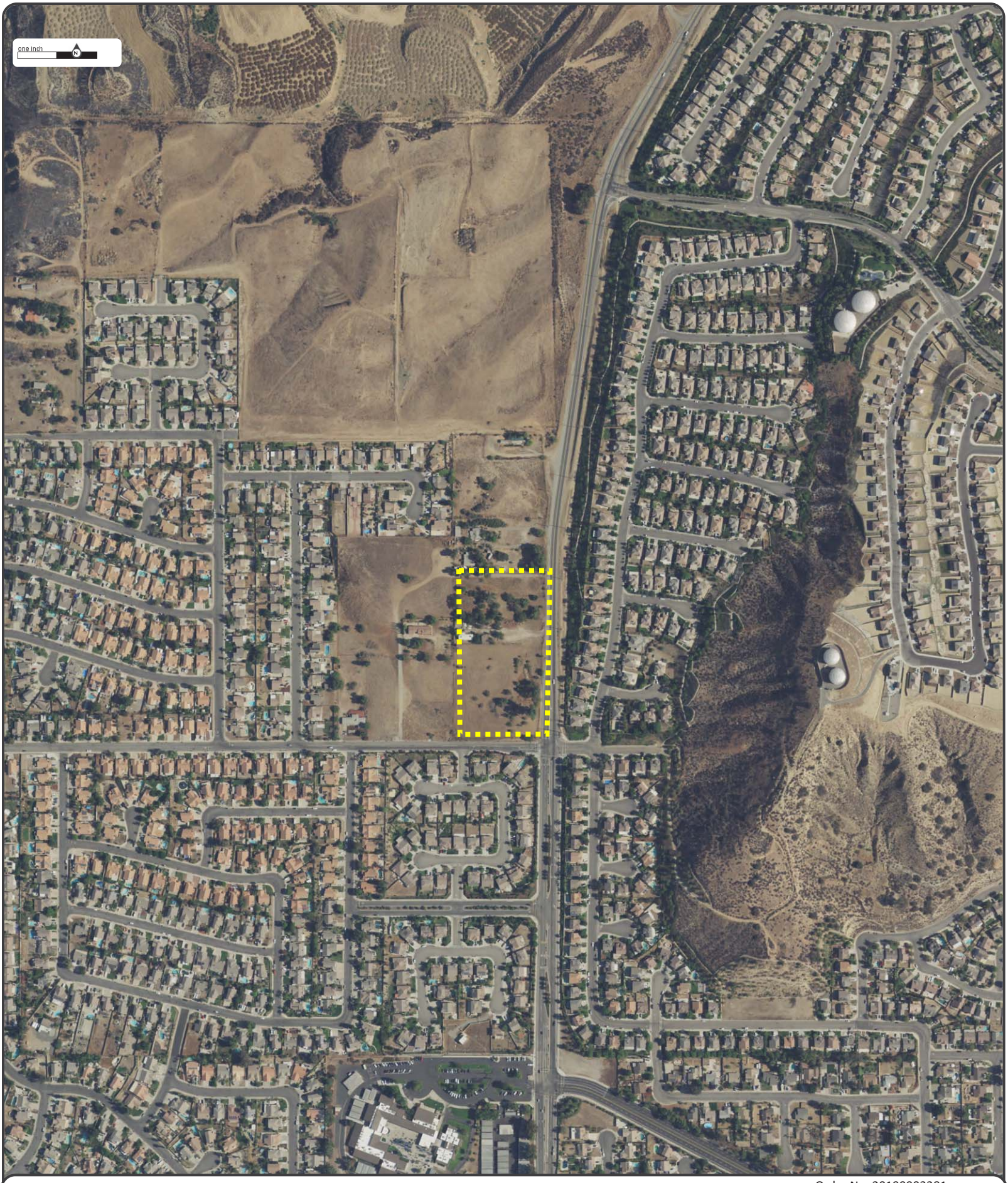
HISTORICAL AERIALS

Project Property:	*Empire Design Lake/Mountain* *NWC Mountain & Lake Street* *Lake Elsinore, CA 92530*
Project No:	*0719002*
Requested By:	*TA-Group DD, LLC*
Order No:	*20190903281*
Date Completed:	*September 4, 2019*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Search Results Summary

Year	Source	Scale	Comment
2018	**NAIP** - National Agriculture Information Program	1"=500'	
2016	**NAIP** - National Agriculture Information Program	1"=500'	
2014	**NAIP** - National Agriculture Information Program	1"=500'	
2012	**NAIP** - National Agriculture Information Program	1"=500'	
2010	**NAIP** - National Agriculture Information Program	1"=500'	
2006	**NAIP** - National Agriculture Information Program	1"=500'	
2005	**NAIP** - National Agriculture Information Program	1"=500'	
2002	**USGS** - US Geological Survey	1"=500'	
1994	**USGS** - US Geological Survey	1"=500'	
1985	**NHAP** - National High Altitude Photography	1"=500'	
1981	**USGS** - US Geological Survey	1"=500'	
1974	**USGS** - US Geological Survey	1"=500'	
1967	**ASCS** - Agriculture and Soil Conservation Service	1"=500'	
1962	**FAIRCHILD** - Private Company	1"=500'	
1953	**ASCS** - Agriculture and Soil Conservation Service	1"=500'	
1938	**ASCS** - Agriculture and Soil Conservation Service	1"=500'	



Year: **2018**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

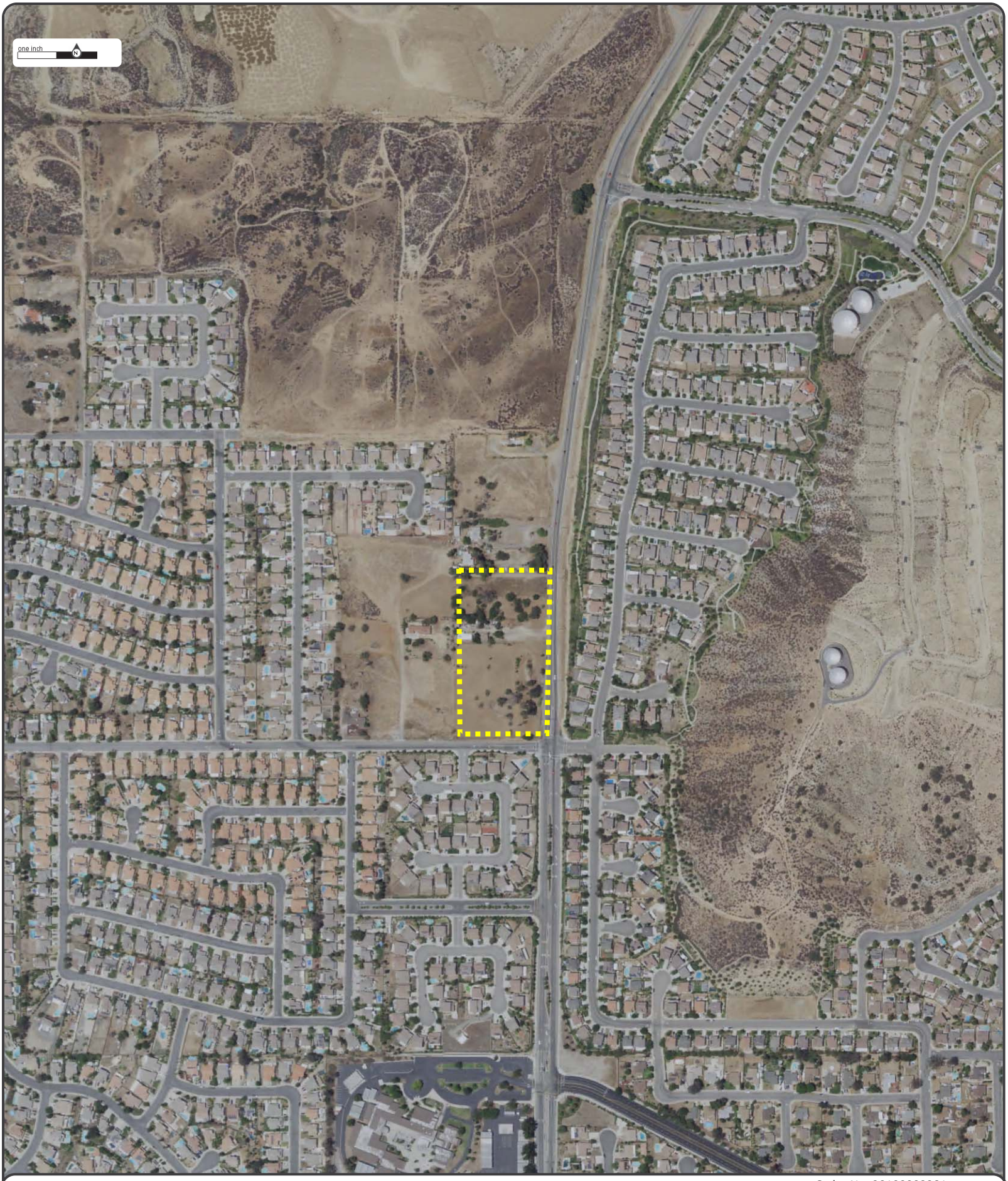
Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

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Year: **2016**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

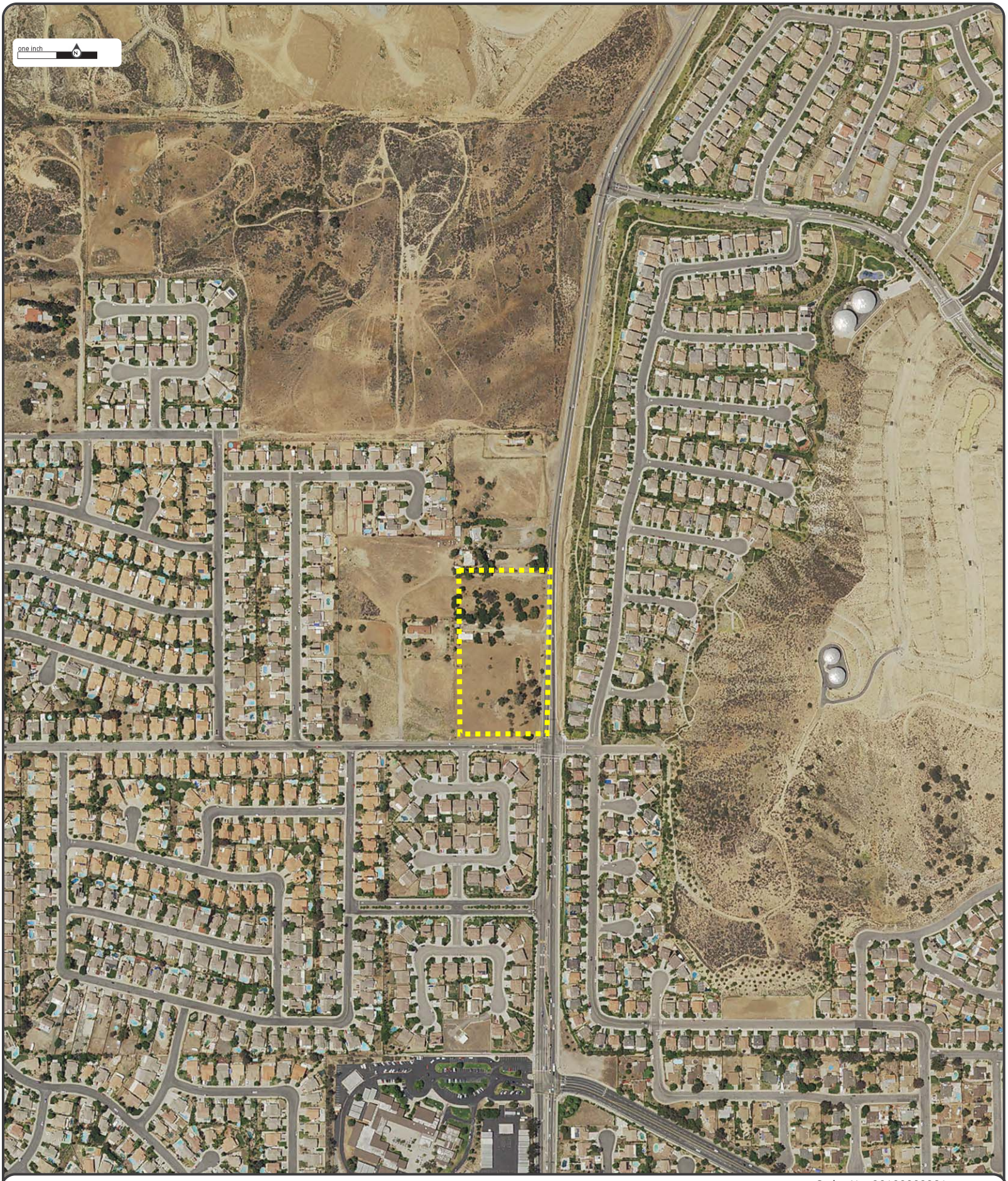
Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204



Year: **2014**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

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Year: **2012**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

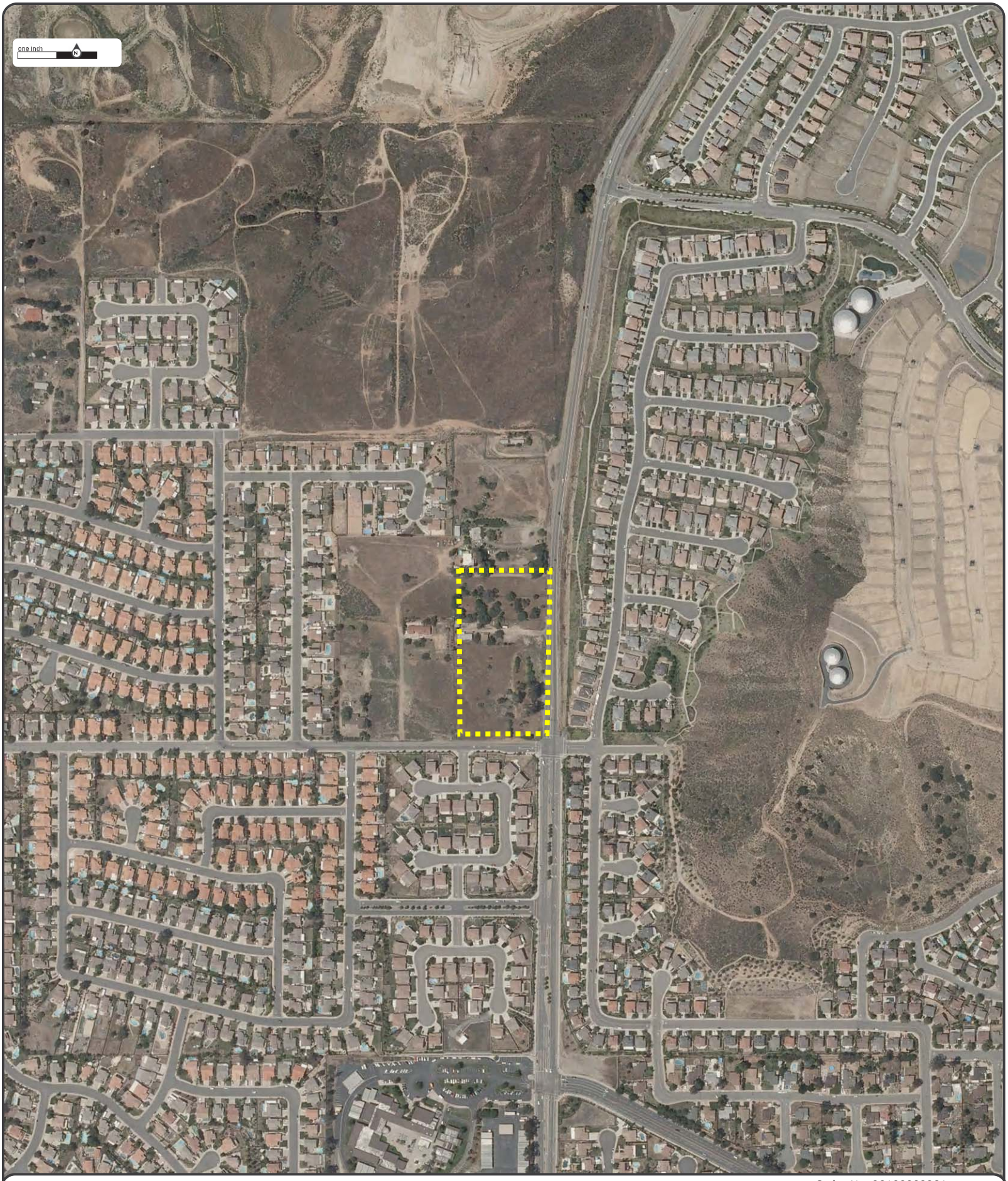
Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

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Year: **2010**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

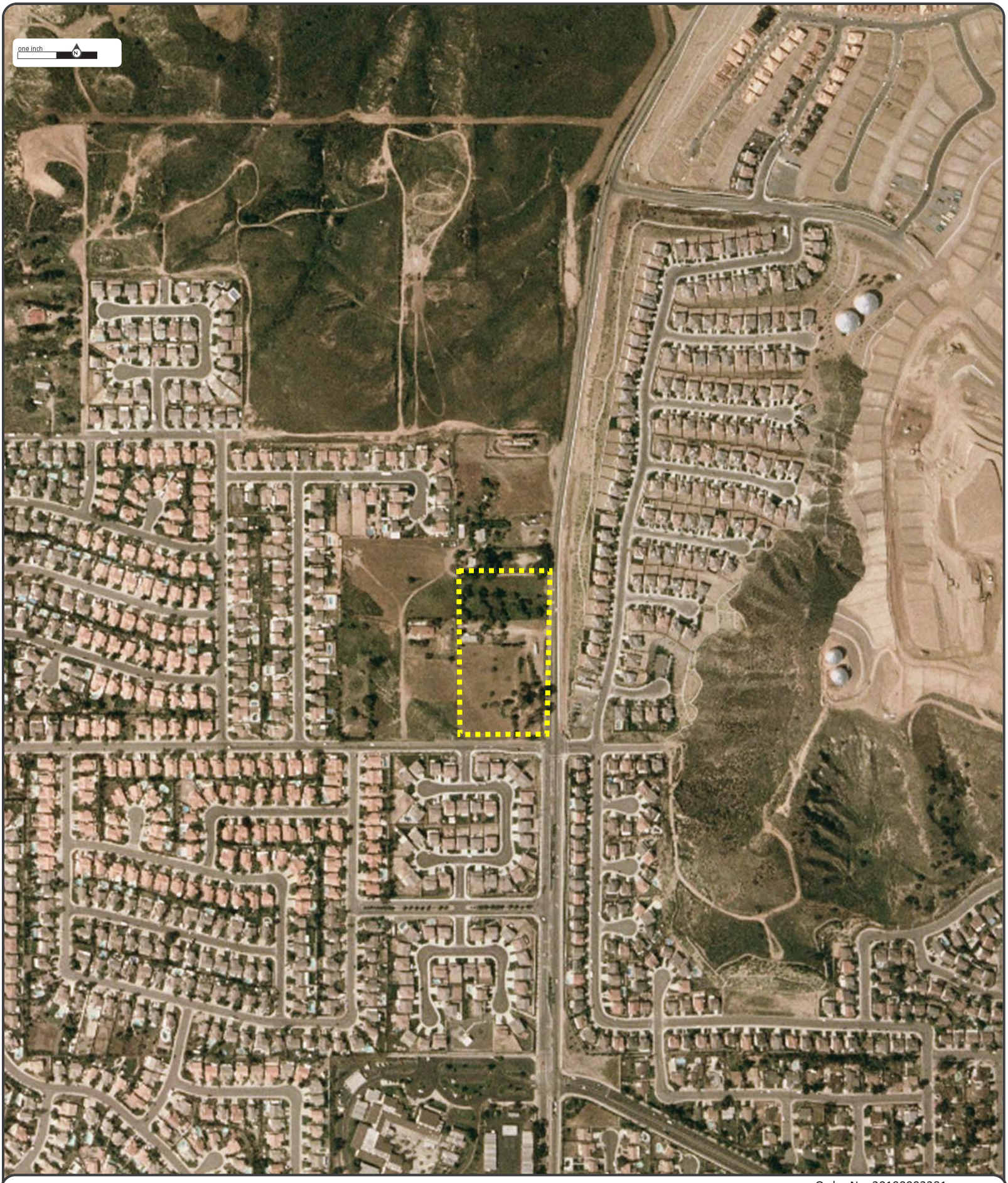
Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

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Year: **2006**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

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Year: **2005**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204



Year: **2002**
Source: **USGS**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204



Year: **1994**
Source: **USGS**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

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Order No: 20190903281

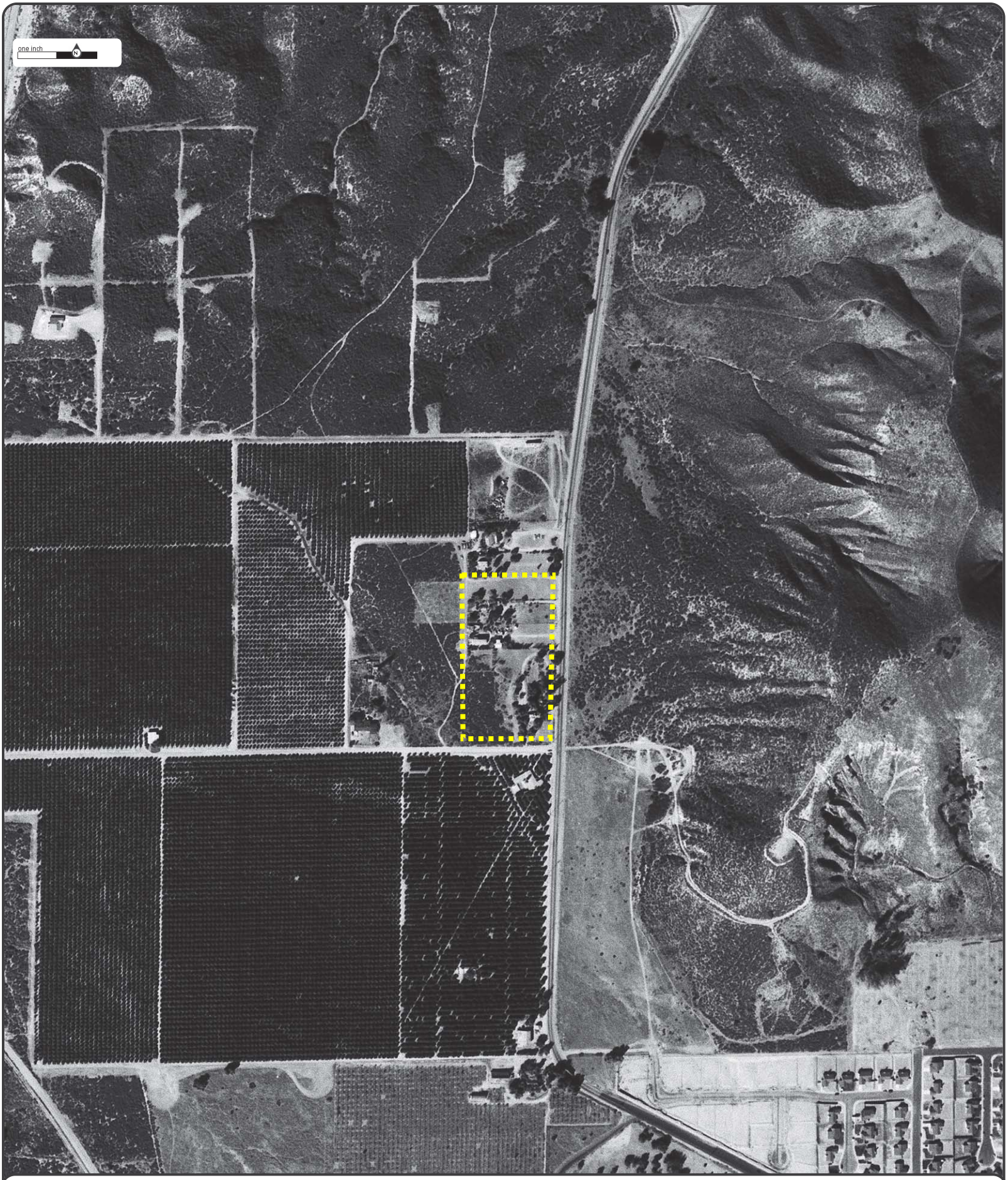
Year: **1985**
Source: **NHAP**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

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Order No: 20190903281

Year: **1981**
Source: **USGS**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

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Order No: 20190903281

Year: **1974**
Source: **USGS**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

ERIS
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Year: **1967**
Source: **ASCS**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

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Year: **1962**
Source: **FAIRCHILD**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

Order No: 20190903281

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

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Order No: 20190903281

Year: **1953**
Source: **ASCS**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

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Order No: 20190903281

Year: **1938**
Source: **ASCS**
Scale: **1" to 500'**
Comments:

Site Address: NWC Mountain & Lake Street Lake Elsinore CA
Approx Center: 33.69965 / -117.3907

N

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ENVIRONMENTAL RISK INFORMATION SERVICES

TOPOGRAPHIC MAPS

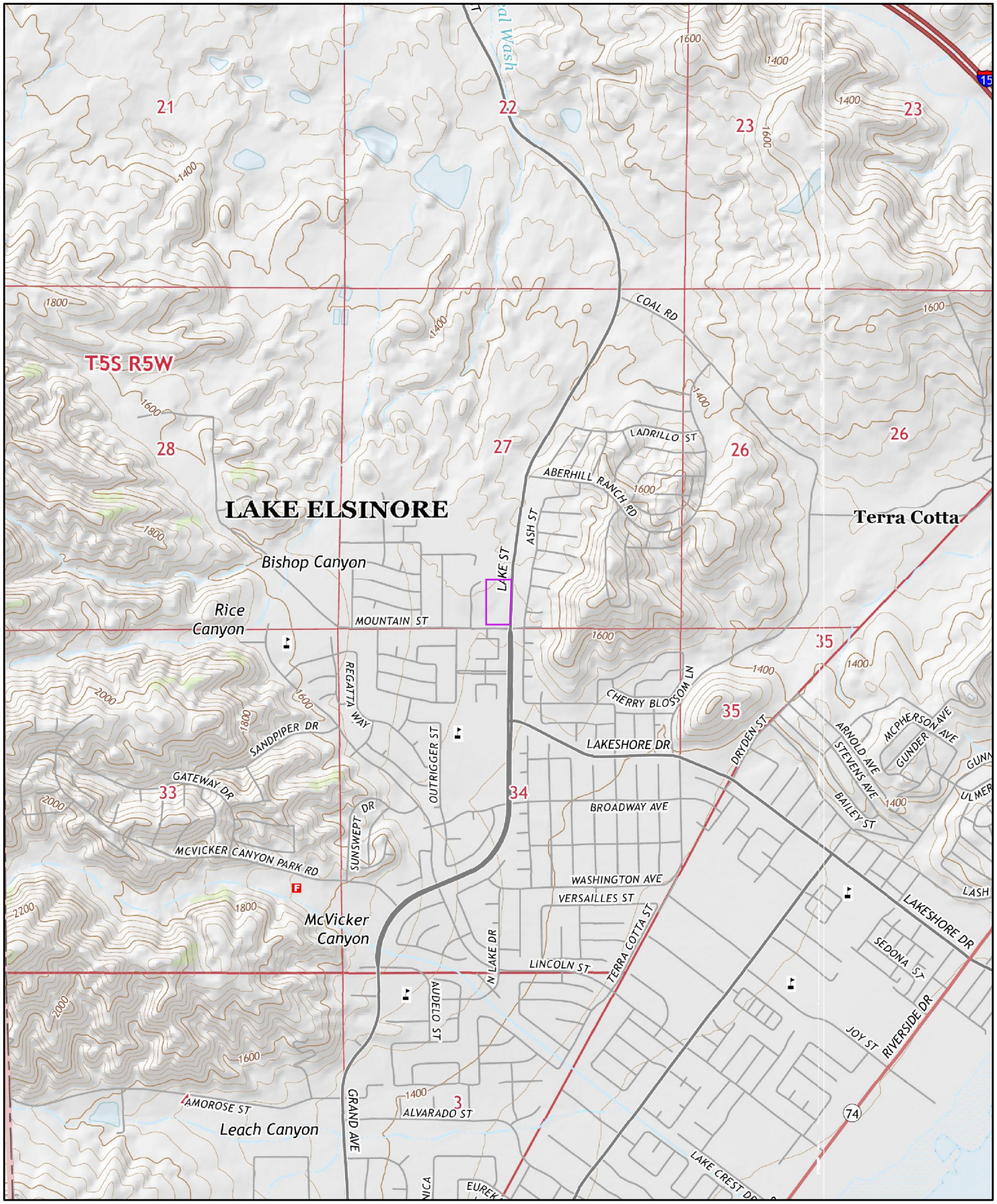
Project Property:	Empire Design Lake/Mountain NWC Mountain & Lake Street Lake Elsinore CA 92530
Requested By:	0719002
Order No:	20190903281
Date Completed:	September 04, 2019

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We have searched USGS collections of current topographic maps and historical topographic maps for the project property. Below is a list of maps found for the project property and adjacent area. Maps are from 7.5 and 15 minute topographic map series, if available.

Year	Map Series
2015	7.5
1997	7.5
1988	7.5
1982	7.5
1974	7.5
1973	7.5
1954	7.5

Topographic Maps included in this report are produced by the USGS and are to be used for research purposes including a phase I report. Maps are not to be resold as commercial property.
No warranty of Accuracy or Liability for ERIS: The information contained in this report has been produced by ERIS Information Inc.(in the US) and ERIS Information Limited Partnership (in Canada), both doing business as 'ERIS', using Topographic Maps produced by the USGS. This maps contained herein does not purport to be and does not constitute a guarantee of the accuracy of the information contained herein. Although ERIS has endeavored to present you with information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.



2015

0 0.2 0.4 0.8 Miles

Order No. 20190903281

Quadrangle(s): Alberhill,CA

Source: USGS 7.5 Minute Topographic Map

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES



1997

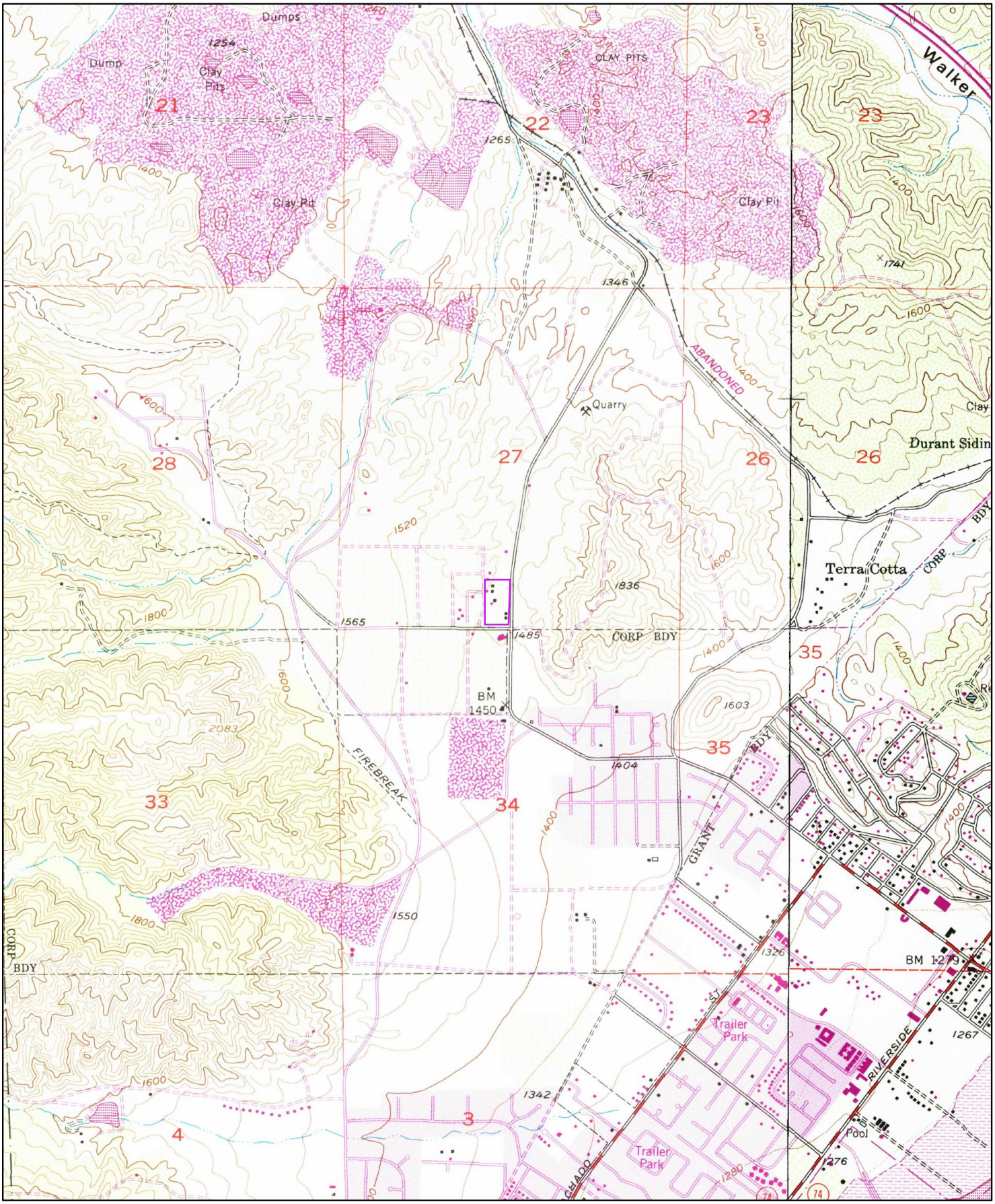
0 0.2 0.4 0.8 Miles

Order No. 20190903281

Quadrangle(s): Alberhill,CA

Source: USGS 7.5 Minute Topographic Map

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES



1988

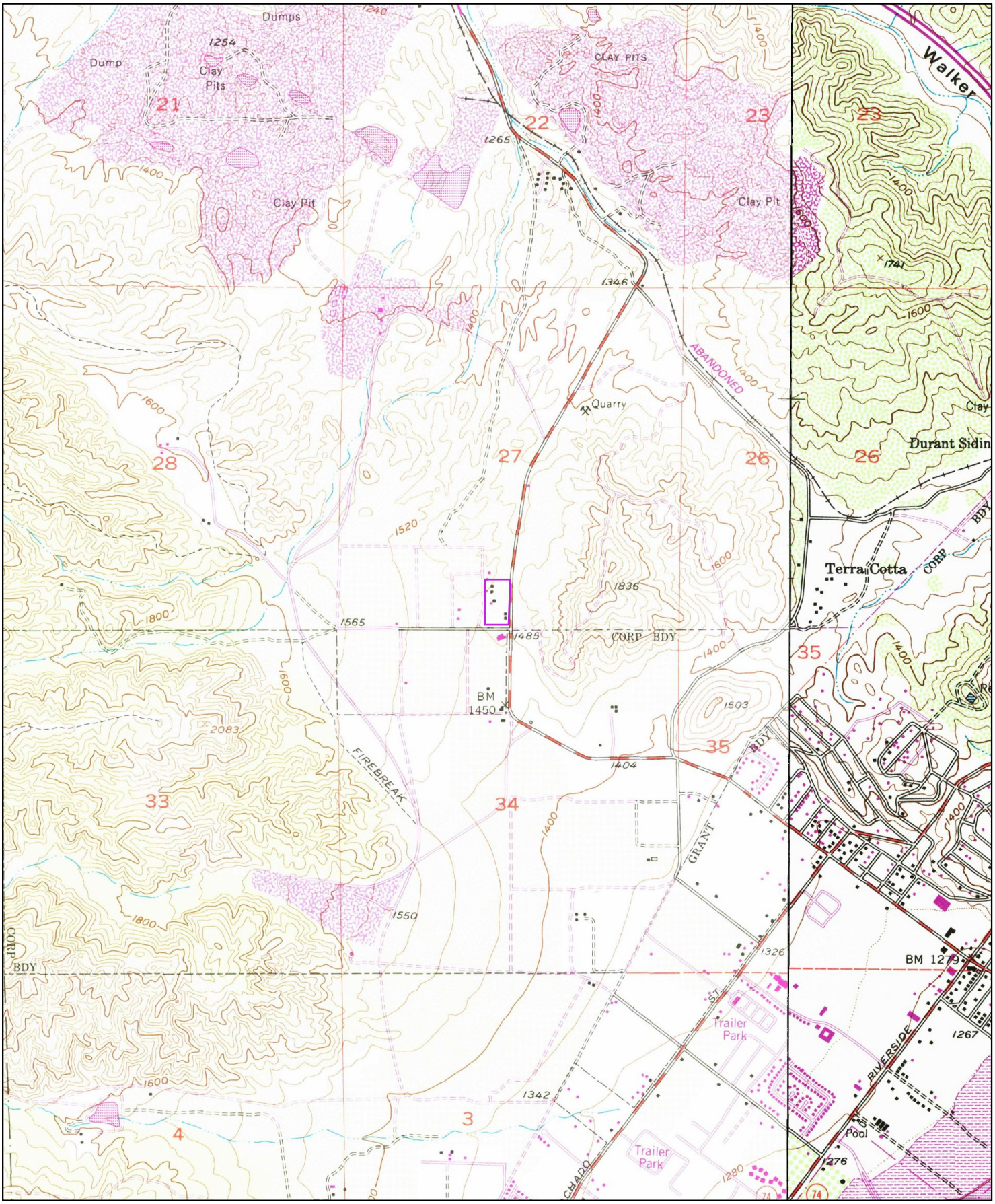
0 0.2 0.4 0.8 Miles

Order No. 20190903281

Quadrangle(s): Alberhill,CA

Source: USGS 7.5 Minute Topographic Map

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES



1982

0 0.2 0.4 0.8 Miles

Order No. 20190903281

Quadrangle(s): Alberhill,CA

Source: USGS 7.5 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



1974

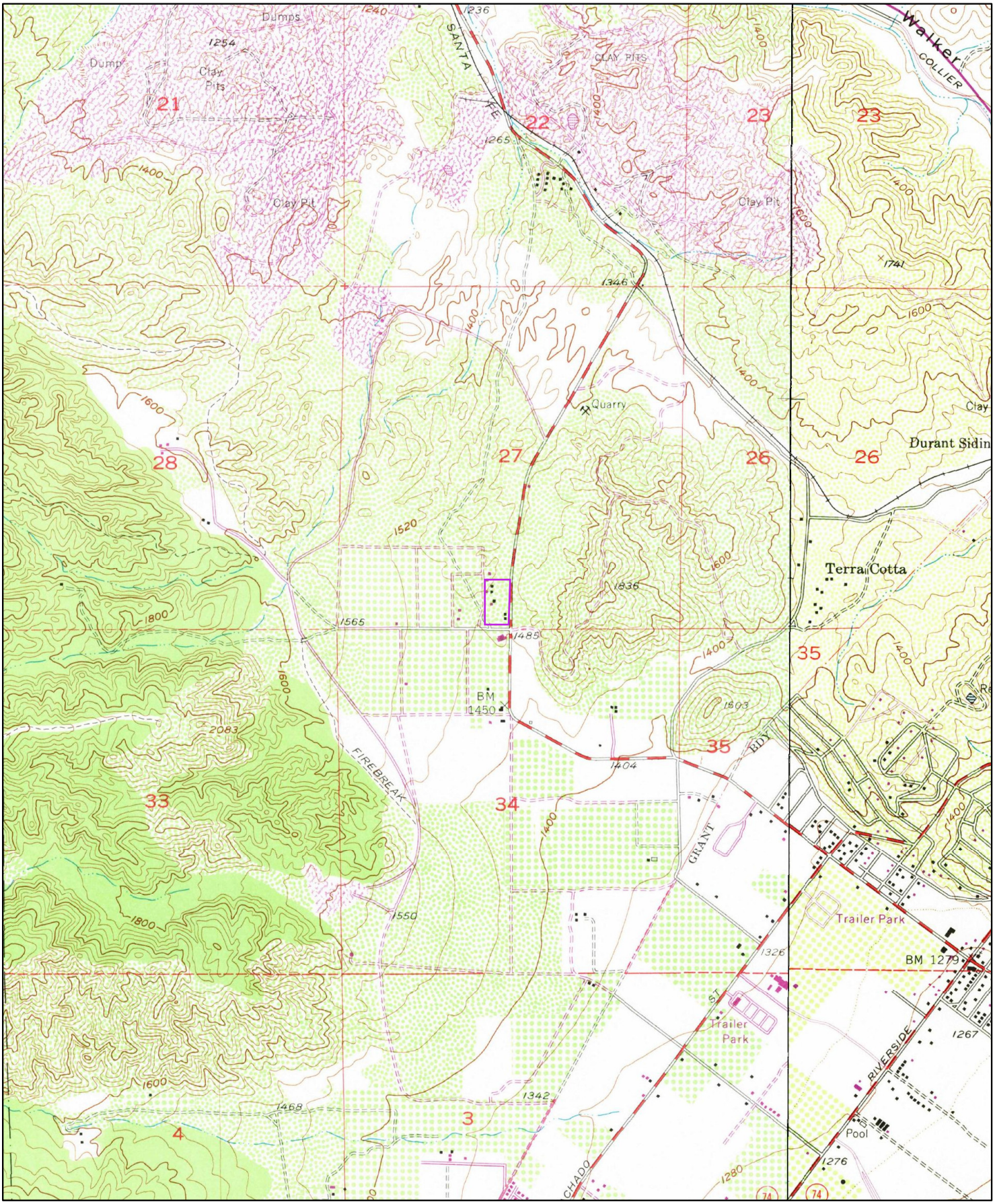
0 0.2 0.4 0.8 Miles

Order No. 20190903281

Quadrangle(s): Alberhill,CA

Source: USGS 7.5 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



1973

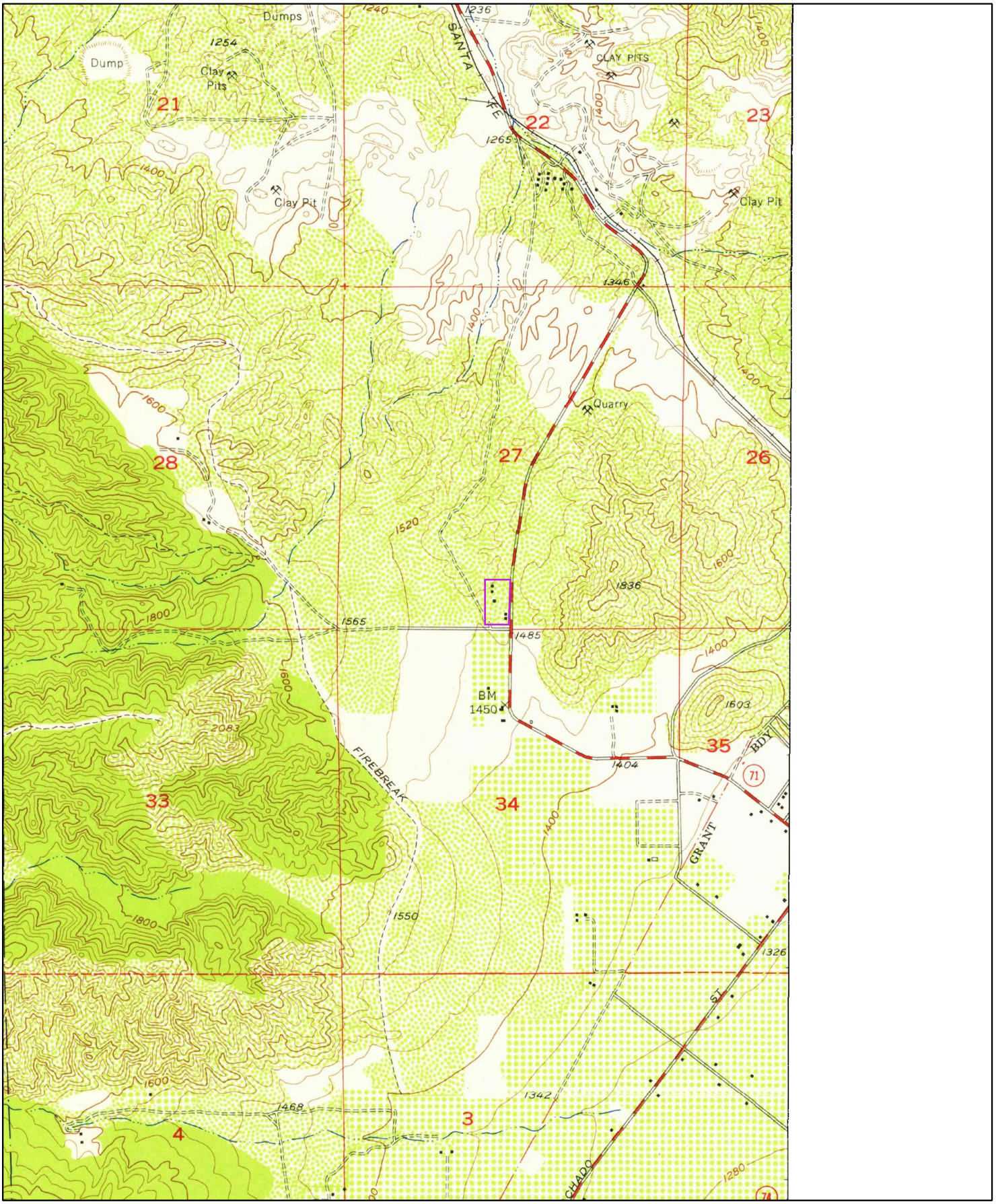
0 0.2 0.4 0.8 Miles

Order No. 20190903281

Quadrangle(s): Alberhill,CA

Source: USGS 7.5 Minute Topographic Map

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES



1954

0 0.2 0.4 0.8 Miles

Order No. 20190903281

Quadrangle(s): Alberhill,CA

Source: USGS 7.5 Minute Topographic Map

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES

ENVIRONMENTAL RISK INFORMATION SERVICES

CITY DIRECTORY

Project Property:	*Empire Design Lake/Mountain* *NWC Mountain & Lake Street* *Lake Elsinore, CA 92530*
Project No:	*0719002*
Requested By:	*TA-Group DD, LLC*
Order No:	*20190903281*
Date Completed:	*September 6, 2019*

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September 6, 2019
RE: CITY DIRECTORY RESEARCH
Empire Design Lake/Mountain
NWC Mountain & Lake Street Lake Elsinore, CA

Thank you for contacting ERIS for an City Directory Search for the site described above. Our staff has conducted a reverse listing City Directory search to determine prior occupants of the subject site and adjacent properties. We have provided the nearest addresses(s) when adjacent addresses are not listed. If we have searched a range of addresses, all addresses in that range found in the Directory are included.

Note: Reverse Listing Directories generally are focused on more highly developed areas. Newly developed areas may be covered in the more recent years, but the older directories will tend to cover only the "central" parts of the city. To complete the search, we have either utilized the ACPL, Library of Congress, State Archives, and/or a regional library or history center as well as multiple digitized directories. These do not claim to be a complete collection of all reverse listing city directories produced.

ERIS has made every effort to provide accurate and complete information but shall not be held liable for missing, incomplete or inaccurate information. To complete this search we used the general range(s) below to search for relevant findings. If you believe there are additional addresses or streets that require searching please contact us at 866-517-5204.

Search Criteria:

26000-30000 of Lake Street
28000-30000 of stoneridge terrace

Search Results Summary

Date	Source	Comment
2018	DIGITAL BUSINESS DIRECTORY	
2012	DIGITAL BUSINESS DIRECTORY	
2006-2007	HAINES	
2001	HAINES	
1996	HAINES	
1991	HAINES	
1986	HAINES	
1971	HAINES	

2018 LAKE STREET

SOURCE: DIGITAL BUSINESS DIRECTORY

28251 **PACIFIC AGGREGATES INC**...*Concrete Mixe*
28251 **PACIFIC AGGREGATES INC**...*Concrete-read*
28251 **PACIFIC AGGREGATES INC**...*Sand & Gravel*
28251 **PACIFIC AGGREGATES INC**...*Aggregates-co*
29291 **TERRA COTTA MIDDLE SCHOOL**...*Schoolsuni*
29291 **TERRA COTTA MIDDLE SCHOOL**...*Schools*

2018 STONERIDGE TERRACE

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND FOR THIS YEAR...

2012
SOURCE: DIGITAL BUSINESS DIRECTORY

LAKE STREET

28251 **PACIFIC AGGREGATES INC**...*Aggregates-co*
29291 **TERRA COTTA MIDDLE SCHOOL**...*Schools*

2012
SOURCE: DIGITAL BUSINESS DIRECTORY

STONERIDGE TERRACE

NO LISTING FOUND FOR THIS YEAR...

X RUNNING DEER RD

28769	XXXX	00

X MOUNTAIN ST

28891	● GUTIERREZ Martin	00
28915	XXXX	00
29291	★ LAKE ELSN UNFD SC DST TRRA	951-674-0641
	★ TERRA COTTA MIDDLE SCHOOL	951-674-0641

29018	● GONZALEZ Eloy	00	3
29020	● STUBBS Robert	00	5
29021	● ULTRERAS Jorge	00	4
29022	DEGANGE Gabrielle	951-674-5866	5
	● WILSON Dennis	00	5
29023	● WILSON John	00	1
29024	● DAO James	00	+ 6
29025	● CABRERA Ty	00	3
29026	● GORSETH Peggy	00	1
29027	● JAMES Brian	00	3
29028	● MUNOZ Felipe	00	5
29029	● MORENO Bert	00	3
29030	● BARROWS Norberto	00	1
29031	● SMITH Michael	00	2
29032	● DIAZ Gerald	00	
29033	● BOTELLO Norma	951-609-9834	+ 6
29034	● DILUCCIA Anthony	00	
29035	● RANDOLPH Theodore	00	
29036	● HELMER Scott	00	
29037	● HOFFMANN Keith	00	+
29038	● MAYS Glen	00	
29039	● MURRAY Steven	00	
29040	● SODHI Manjit	00	
29041	● CHENEY David	00	●
29042	● VILLANUEVA L	951-609-2188	
29043	● GAMBITO Remedios	00	+
29044	● HANSEN Mark	00	
29045	● SAGE James	00	
29046	● MILLUM Thomas	00	
29047	● HITCHCOCK Jeaneen	00	+
29048	● TORRES Edgar	00	+
29049	● SKAGGS Ronald	00	

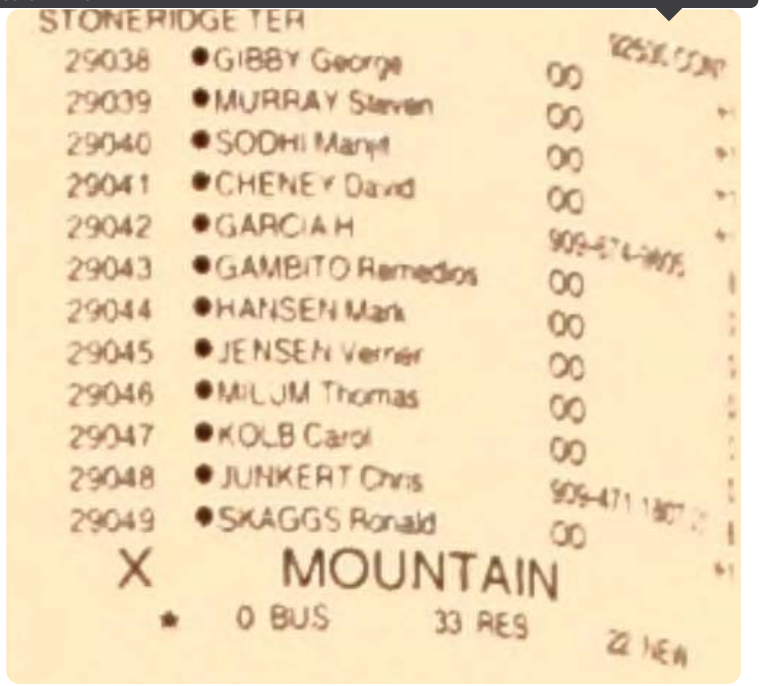
X MOUNTAIN ST

27115	* CSM TRUCKING	909-674-1609
X	MOUNTAIN	
X	MANGO	
X	OUTRIGGER	
29291	* LAKE ELSN SC MDL TERRA COTTA	909-674-0641
	* TERRA COTTA MIDDLE SCHOOL	909-674-0641

29018	RANGEL Earl	909-245-7885
	● WELDON Stephen	OO
29320	● BROWN George	OO
29321	● ULTRERAS Jorge	OO
29322	● BERGERON Terry	OO
29323	● WILSON John	OO
29324	● ADAMOWICZ Linda	OO
29325	● DURAN Eliza	909-674-4110
29326	● GORSETH Ronald	OO
29327	● STEINHOFF Mark	OO
29328	● ROBINSON John	OO
29329	● PIOVET Nelson	OO
29330	● BARRON Norberto	OO
29331	● FRAUSTO Fernando	OO
29332	● DIAZ Gerard	OO
29333	● GILDEN Walter	OO
29334	● DILUCCIA Anthony	OO
29335	● RANDOLPH Theodore	OO
29336	● HOLM Darrel	909-245-3448
	● HOLM Jackie	909-245-3448
29337	● MECHTT Matthew	OO

2001
SOURCE: HAINES

STONERIDGE TERRACE - B


STONERIDGE TER

29038 ●GIBBY George 00

29039 ●MURRAY Steven 00

29040 ●SODHI Manjit 00

29041 ●CHENEY David 00

29042 ●GARCIA H 00

29043 ●GAMBITO Remedios 00

29044 ●HANSEN Mark 00

29045 ●JENSEN Verner 00

29046 ●MILJM Thomas 00

29047 ●KOLB Carol 00

29048 ●JUNKERT Chris 00

29049 ●SKAGGS Ronald 00

X MOUNTAIN

★ 0 BUS 33 RES 22 NEA

1996
SOURCE: HAINES

LAKE STREET

NO LISTINGS IN RANGE

1996 *SOURCE: HAINES*

STONERIDGE TERRACE

NO LISTINGS IN RANGE

1991 *SOURCE: HAINES*

LAKE STREET

NO LISTINGS IN RANGE

1991
SOURCE: HAINES

STONERIDGE TERRACE

STREET NOT LISTED

1986
SOURCE: HAINES

LAKE STREET

NO LISTINGS IN RANGE

1986
SOURCE: HAINES

STONERIDGE TERRACE

STREET NOT LISTED

1971
SOURCE: HAINES

LAKE STREET

NO LISTINGS IN RANGE

--- END REPORT ---

STREET NOT LISTED

APPENDIX D
ENVIRONMENTAL RECORDS SEARCH

ENVIRONMENTAL RISK INFORMATION SERVICES

DATABASE REPORT

Project Property:	*Empire Design Lake/Mountain* *NWC Mountain & Lake Street* *Lake Elsinore CA 92530*
Project No:	*0719002*
Report Type:	*Database Report*
Order No:	*20190903281*
Requested by:	*TA-Group DD, LLC*
Date Completed:	*September 4, 2019*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

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Executive Summary

Property Information:

Project Property:		*Empire Design Lake/Mountain* *NWC Mountain & Lake Street Lake Elsinore CA 92530*
Project No:		*0719002*
Coordinates:		
	Latitude:	*33.699653*
	Longitude:	*-117.390747*
	UTM Northing:	*3,728,923.43*
	UTM Easting:	*463,788.77*
	UTM Zone:	*UTM Zone 11S*
Elevation:		*1,509 FT*

Order Information:

Order No:	*20190903281*
Date Requested:	*September 3, 2019*
Requested by:	*TA-Group DD, LLC*
Report Type:	*Database Report*

Historicals/Products:

Aerial Photographs	*Historical Aerials (Boundaries)*
City Directory Search	*CD - 2 Street Search*
ERIS Xplorer	*ERIS Xplorer*
Excel Add-On	*Excel Add-On*
Fire Insurance Maps	*US Fire Insurance Maps*
Topographic Map	*Topographic Maps*

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	.5	0	0	0	0	-	0
SEMS	Y	.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	.5	0	0	0	0	-	0
ODI	Y	.5	0	0	0	0	-	0
CERCLIS	Y	.5	0	0	0	0	-	0
IODI	Y	.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	.5	0	0	0	0	-	0
RCRA LQG	Y	.25	0	0	0	-	-	0
RCRA SQG	Y	.25	0	0	0	-	-	0
RCRA CESQG	Y	.25	0	0	0	-	-	0
RCRA NON GEN	Y	.25	0	0	0	-	-	0
FED ENG	Y	.5	0	0	0	0	-	0
FED INST	Y	.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	.5	0	0	0	0	-	0
FEMA UST	Y	.25	0	0	0	-	-	0
REFN	Y	.25	0	0	0	-	-	0
BULK TERMINAL	Y	.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
State								
RESPONSE	Y	1	0	0	0	0	0	0
ENVIROSTOR	Y	1	0	0	0	0	0	0
DELISTED ENVS	Y	1	0	0	0	0	0	0
SWF/LF	Y	.5	0	0	0	0	-	0
HWP	Y	1	0	0	0	0	0	0
SWAT	Y	.5	0	0	0	0	-	0
LDS	Y	.5	0	0	0	0	-	0
LUST	Y	.5	0	0	1	0	-	1
DELISTED LST	Y	.5	0	0	0	0	-	0
SWRCB SWF	Y	.5	0	0	0	0	-	0
UST	Y	.25	0	0	0	-	-	0
UST CLOSURE	Y	.5	0	0	0	0	-	0
HHSS	Y	.25	0	2	0	-	-	2
AST	Y	.25	0	0	0	-	-	0
DELISTED TNK	Y	.25	0	0	0	-	-	0
CERS TANK	Y	.25	0	0	0	-	-	0
LUR	Y	.5	0	0	0	0	-	0
HLUR	Y	.5	0	0	0	0	-	0
DEED	Y	.5	0	0	0	0	-	0
VCP	Y	.5	0	0	0	0	-	0
CLEANUP SITES	Y	.5	0	0	0	0	-	0
DELISTED CTNK	Y	.25	0	0	0	-	-	0
HIST TANK	Y	.25	0	1	0	-	-	1
Tribal								
INDIAN LUST	Y	.5	0	0	0	0	-	0
INDIAN UST	Y	.25	0	0	0	-	-	0
DELISTED ILST	Y	.5	0	0	0	0	-	0
DELISTED IUST	Y	.25	0	0	0	-	-	0
County								
DELISTED COUNTY	Y	.25	0	0	2	-	-	2
RIVERSIDE LOP	Y	.5	0	2	0	0	-	2
UST RIVERSIDE	Y	.25	0	0	0	-	-	0
UST SANTACLARA	Y	.25	0	0	0	-	-	0
Additional Environmental Records								
Federal								
PFAS NPL	Y	.5	0	0	0	0	-	0
FINDS/FRS	Y	PO	0	4	-	-	-	4

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
TRIS	Y	PO	0	-	-	-	-	0
PFAS TRI	Y	.5	0	0	0	0	-	0
HMIRS	Y	.125	0	0	-	-	-	0
NCDL	Y	.125	0	0	-	-	-	0
TSCA	Y	.125	0	0	-	-	-	0
HIST TSCA	Y	.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	.25	0	0	0	-	-	0
DELISTED FED DRY	Y	.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	.25	0	1	0	-	-	1
ALT FUELS	Y	.25	0	0	0	-	-	0
SSTS	Y	.25	0	0	0	-	-	0
PCB	Y	.5	0	0	0	0	-	0
State								
DRYCLEANERS	Y	.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	.25	0	0	0	-	-	0
DRYC GRANT	Y	.25	0	0	0	-	-	0
PFAS	Y	.5	0	0	0	0	-	0
PFAS GW	Y	.5	0	0	0	0	-	0
HWSS CLEANUP	Y	.5	0	0	0	0	-	0
DTSC HWF	Y	.5	0	0	0	0	-	0
INSP COMP ENF	Y	1	0	0	0	0	0	0
SCH	Y	1	0	0	0	0	0	0
CHMIRS	Y	PO	0	1	-	-	-	1
HAZNET	Y	PO	0	1	-	-	-	1
HIST CHMIRS	Y	PO	0	-	-	-	-	0
HIST MANIFEST	Y	PO	0	-	-	-	-	0
HIST CORTESE	Y	.5	0	0	0	0	-	0
CDO/CAO	Y	.5	0	0	0	0	-	0
CERS HAZ	Y	.125	0	0	-	-	-	0
DELISTED HAZ	Y	.5	0	0	0	0	-	0
GEOTRACKER	Y	.125	0	0	-	-	-	0
WASTE DISCHG	Y	.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
EMISSIONS	Y	.25	0	0	0	-	-	0
CDL	Y	.125	0	0	-	-	-	0
Tribal	***No Tribal additional environmental record sources available for this State.***							
County								
RIVERSIDE HWG	Y	.125	0	0	-	-	-	0
RIVERSIDE HZH	Y	.125	0	0	-	-	-	0
Total:			0	12	3	0	0	15

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	HAZNET	1X GEORGE AND SHERYL JOHNSON	28875 ROBB ROAD LAKE ELISNORE CA 925300000	NE	0.00 / 18.01	9	19
2	FINDS/FRS	EVMWD ALBERHILL LIFTSTATION	28670 LAKE ST LAKE ELSINORE CA 92530	NE	0.01 / 35.02	12	19
3	FINDS/FRS	TRACT NO. 30811	MOUNTAIN & LAKE LAKE ELSINORE CA 92688	SSE	0.01 / 57.63	-18	20
3	FINDS/FRS	TRACT NO. 19750	LAKE & MOUNTAIN LAKE ELSINORE CA 92530	SSE	0.01 / 57.63	-18	20
4	CHMIRS	So. Calif Edison	Lake St. & Mountain Lake Elsinore CA	SSE	0.01 / 72.46	-18	21
5	FINDS/FRS	TRACT NO. 28214-1 ALBERHILL RN	NEC LAKE ST & MOUNTAIN ST LAKE ELSINORE CA 92530	SSE	0.01 / 77.21	-22	21
6	HHSS	TEEPEE RANCH STORE	29251 ROBB RD LAKE ELSINORE CA 92330	NNE	0.03 / 134.17	13	22
6	HIST TANK	TEEPEE RANCH STORE	29251 ROBB RD. LAKE ELSINORE CA	NNE	0.03 / 134.17	13	22
7	RIVERSIDE LOP	City of Lake Elsinore	29051 Robb Rd Lake Elsinore CA	NNE	0.05 / 255.40	11	22
			***Site ID*	*Status Desc:*** 911099 | CLOSED/ACTION COMPLETED			
7	RIVERSIDE LOP	City of Lake Elsinore	29051 Robb Rd Lake Elsinore CA	NNE	0.05 / 255.40	11	22
			***Site ID*	*Status Desc:*** 92342 | CLOSED/ACTION COMPLETED			
8	MINES	PACIFIC AGGREGATES INC	Lake Elsinore CA	NNE	0.10 / 529.13	-3	23
9	HHSS	ELSINORE READY MIX CO INC	28251 ROBB ROAD LAKE STREET LAKE ELSINORE CA 92330	NNE	0.11 / 596.22	-18	108

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
10	DELISTED COUNTY	Wyroc Materials, Inc	31000 Lake St Lake Elsinore CA 92530	S	0.21 / 1,127.15	-56	108
11	DELISTED COUNTY	Verizon Global/Robb Rd RSU4	28556 Meadow Brook Lake Elsinore CA 92530	S	0.22 / 1,180.09	-50	108
12	LUST	CITY OF LAKE ELSINORE	29051 ROBB ROAD LAKE ELSINORE CA 92530	S	0.25 / 1,305.54	-54	108
			***Global ID*	*Status*	*Status Date:*** T0606500258 | COMPLETED - CASE CLOSED | 1994-11-25 00:00:00		

Executive Summary: Summary by Data Source

Standard

State

LUST - Leaking Underground Fuel Tank Reports

A search of the LUST database, dated Jul 17, 2019 has found that there are 1 LUST site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
CITY OF LAKE ELSINORE	29051 ROBB ROAD LAKE ELSINORE CA 92530	S	0.25 / 1,305.54	12

Global ID* | *Status* | *Status Date: *T0606500258* | *COMPLETED - CASE CLOSED* | *1994-11-25 00:00:00*

HHSS - Historical Hazardous Substance Storage Information Database

A search of the HHSS database, dated Aug 27, 2015 has found that there are 2 HHSS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
TEEPEE RANCH STORE	29251 ROBB RD LAKE ELSINORE CA 92330	NNE	0.03 / 134.17	6

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ELSINORE READY MIX CO INC	28251 ROBB ROAD LAKE STREET LAKE ELSINORE CA 92330	NNE	0.11 / 596.22	9

HIST TANK - Historical Hazardous Substance Storage Container Information - Facility Summary

A search of the HIST TANK database, dated May 27, 1988 has found that there are 1 HIST TANK site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
TEEPEE RANCH STORE	29251 ROBB RD. LAKE ELSINORE CA	NNE	0.03 / 134.17	6

County

DELISTED COUNTY - Delisted County Records

A search of the DELISTED COUNTY database, dated Aug 27, 2019 has found that there are 2 DELISTED COUNTY site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Wyroc Materials, Inc	31000 Lake St Lake Elsinore CA 92530	S	0.21 / 1,127.15	10
Verizon Global/Robb Rd RSU4	28556 Meadow Brook Lake Elsinore CA 92530	S	0.22 / 1,180.09	11

RIVERSIDE LOP - Riverside County - Local Oversight Program List

A search of the RIVERSIDE LOP database, dated Aug 26, 2019 has found that there are 2 RIVERSIDE LOP site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
City of Lake Elsinore	29051 Robb Rd Lake Elsinore CA	NNE	0.05 / 255.40	7
	Site ID* | *Status Desc: *911099* | *CLOSED/ACTION COMPLETED*			
City of Lake Elsinore	29051 Robb Rd Lake Elsinore CA	NNE	0.05 / 255.40	7
	Site ID* | *Status Desc: *92342* | *CLOSED/ACTION COMPLETED*			

Non Standard

Federal

FINDS/FRS - Facility Registry Service/Facility Index

A search of the FINDS/FRS database, dated Apr 23, 2019 has found that there are 4 FINDS/FRS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
EVMWD ALBERHILL LIFTSTATION	28670 LAKE ST LAKE ELSINORE CA 92530	NE	0.01 / 35.02	2

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
TRACT NO. 19750	LAKE & MOUNTAIN LAKE ELSINORE CA 92530	SSE	0.01 / 57.63	3
TRACT NO. 30811	MOUNTAIN & LAKE LAKE ELSINORE CA 92688	SSE	0.01 / 57.63	3
TRACT NO. 28214-1 ALBERHILL RN	NEC LAKE ST & MOUNTAIN ST LAKE ELSINORE CA 92530	SSE	0.01 / 77.21	5

MINES - Mines Master Index File

A search of the MINES database, dated May 3, 2019 has found that there are 1 MINES site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
PACIFIC AGGREGATES INC	Lake Elsinore CA	NNE	0.10 / 529.13	8

State

CHMIRS - California Hazardous Material Incident Report System (CHMIRS)

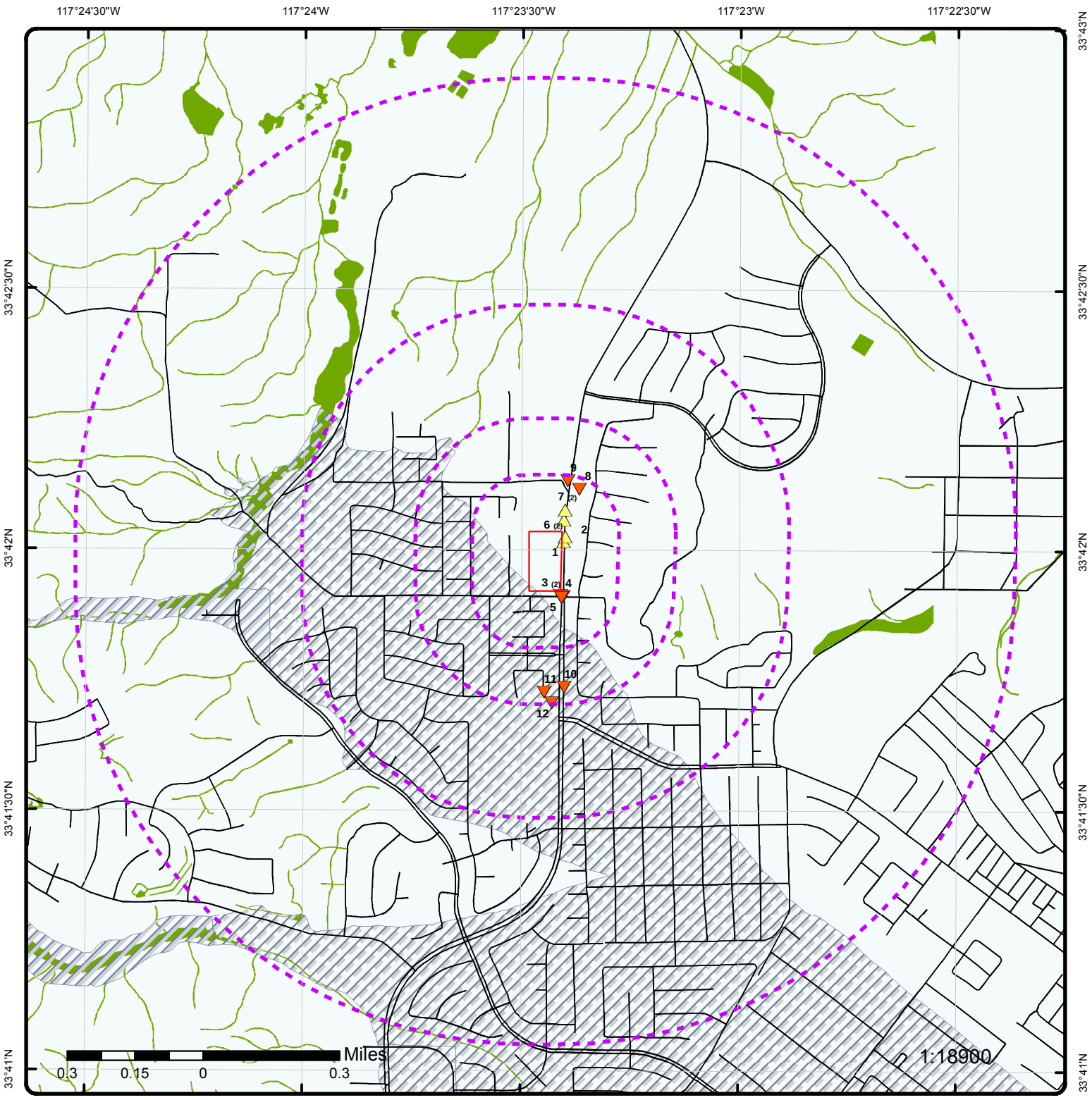
A search of the CHMIRS database, dated Apr 2, 2019 has found that there are 1 CHMIRS site(s) within approximately 0.02 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
So. Calif Edison	Lake St. & Mountain Lake Elsinore CA	SSE	0.01 / 72.46	4

HAZNET - Hazardous Waste Manifest Data

A search of the HAZNET database, dated Oct 24, 2016 has found that there are 1 HAZNET site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
1X GEORGE AND SHERYL JOHNSON	28875 ROBB ROAD LAKE ELISNORE CA 925300000	NE	0.00 / 18.01	1



Map : 1 Mile Radius

Order No: 20190903281

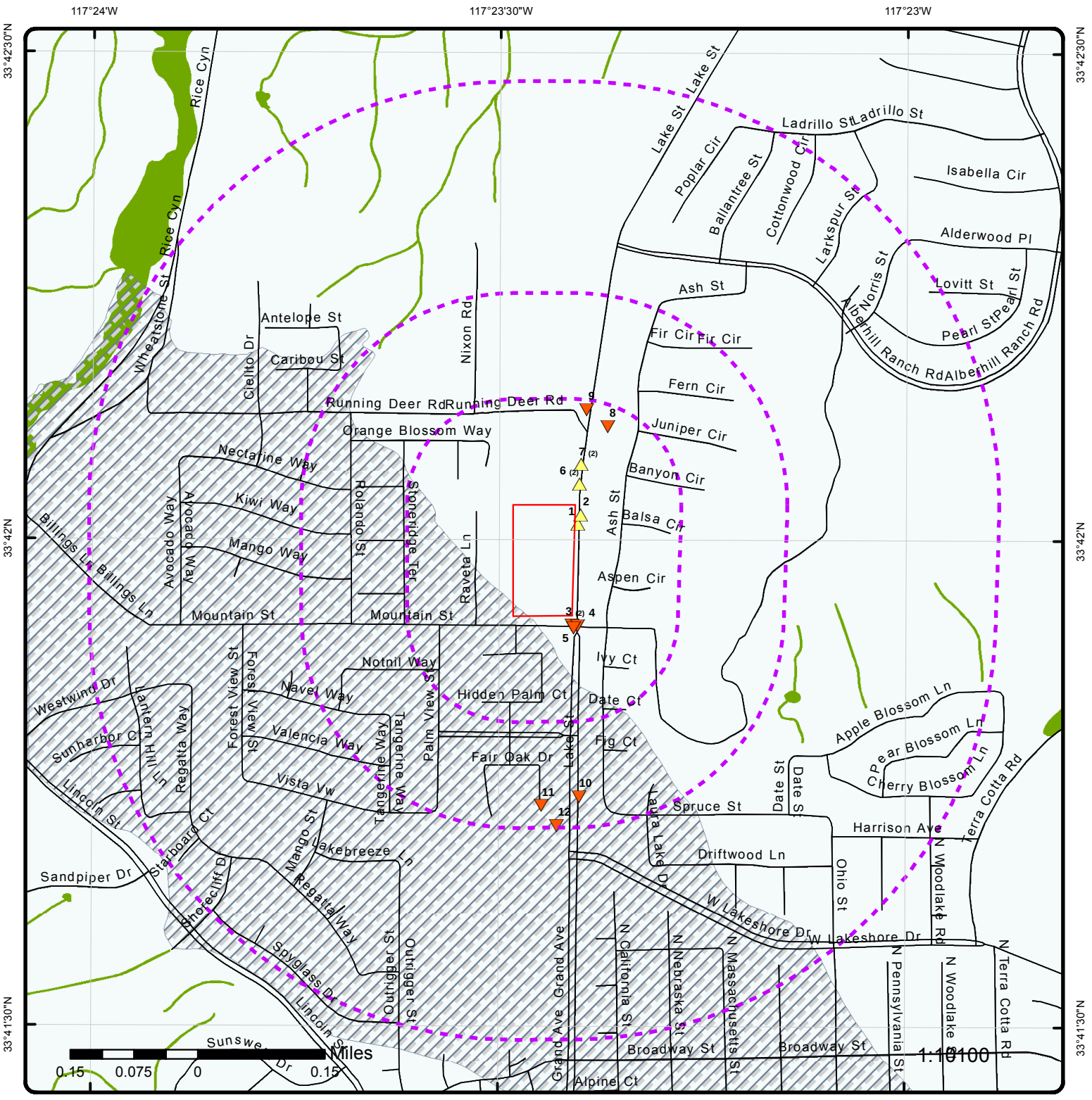
Address: NWC Mountain & Lake Street, Lake Elsinore, CA, 92530

ENVIRONMENTAL RISK INFORMATION SERVICES

- Project Property
- **Buffer Outline**
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- County Boundary
- Rails
- Major Highways
- Major Highways Ramps
- Major Roads
- Major Roads Ramps
- Secondary Roads
- Secondary Roads Ramps
- Local Roads and Ramps
- State Boundary
- National Priority List Sites
- National Wetland
- Indian Reserve Land
- Historic Fill
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- State Brownfield Sites
- State Brownfield Areas
- State Superfund Areas:Dept. of Defense
- State Superfund Areas:NPL
- WQARF Areas
- Federal Lands: Dept. of Defense (owned/administered areas)

Source: © 2016 ESRI

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Map : 0.5 Mile Radius

Order No: 20190903281

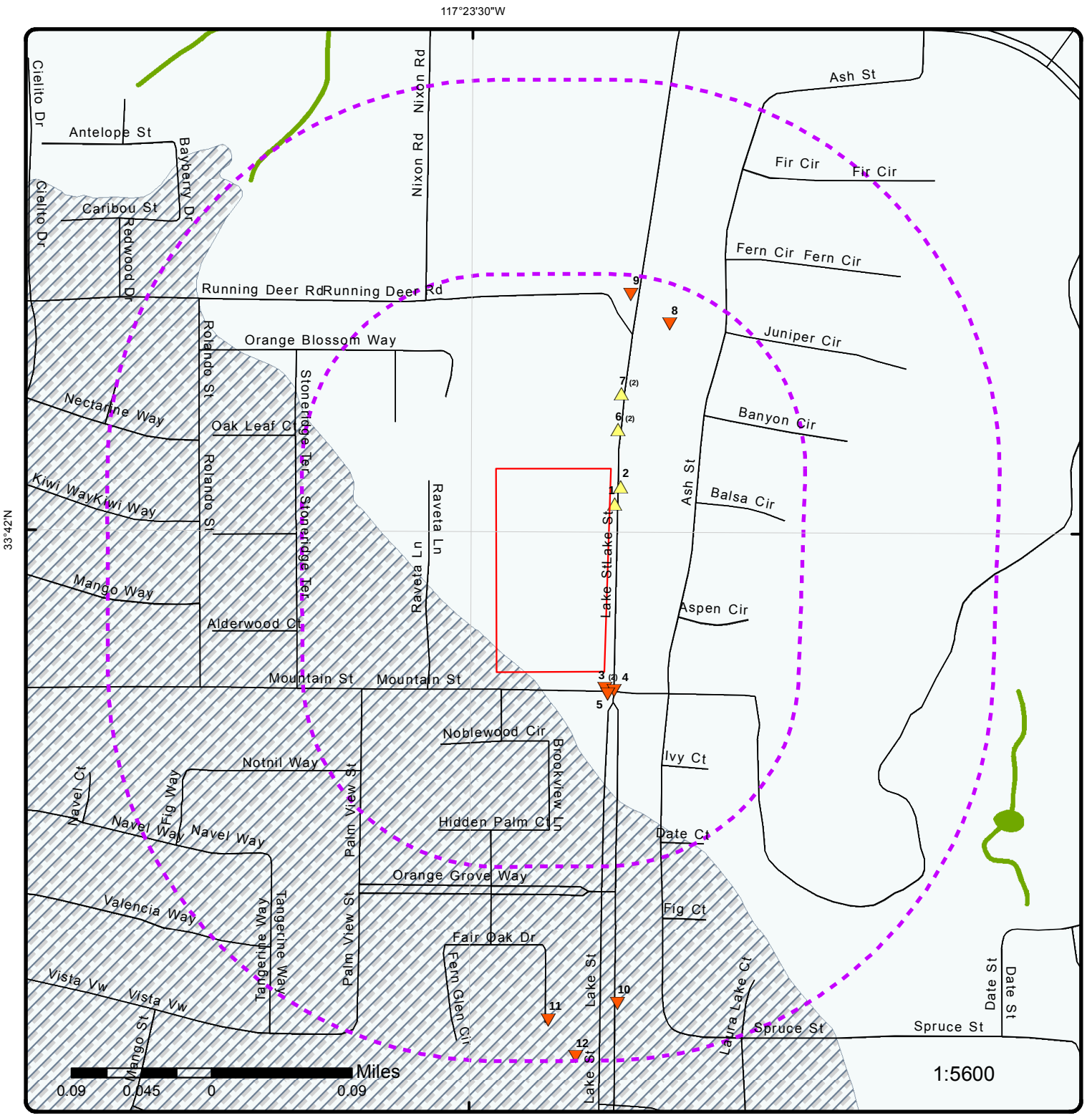
Address: NWC Mountain & Lake Street, Lake Elsinore, CA, 92530

ENVIRONMENTAL RISK INFORMATION SERVICES

- Project Property
- **Buffer Outline**
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- County Boundary
- Rails
- Major Highways
- Major Highways Ramps
- Major Roads
- Major Roads Ramps
- Secondary Roads
- Secondary Roads Ramps
- Local Roads and Ramps
- State Boundary
- National Priority List Sites
- National Wetland
- Indian Reserve Land
- Historic Fill
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- State Brownfield Sites
- State Brownfield Areas
- State Superfund Areas:Dept. of Defense
- State Superfund Areas:NPL
- WQARF Areas
- Federal Lands: Dept. of Defense (owned/administered areas)

Source: © 2016 ESRI

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Map : 0.25 Mile Radius

Order No: 20190903281

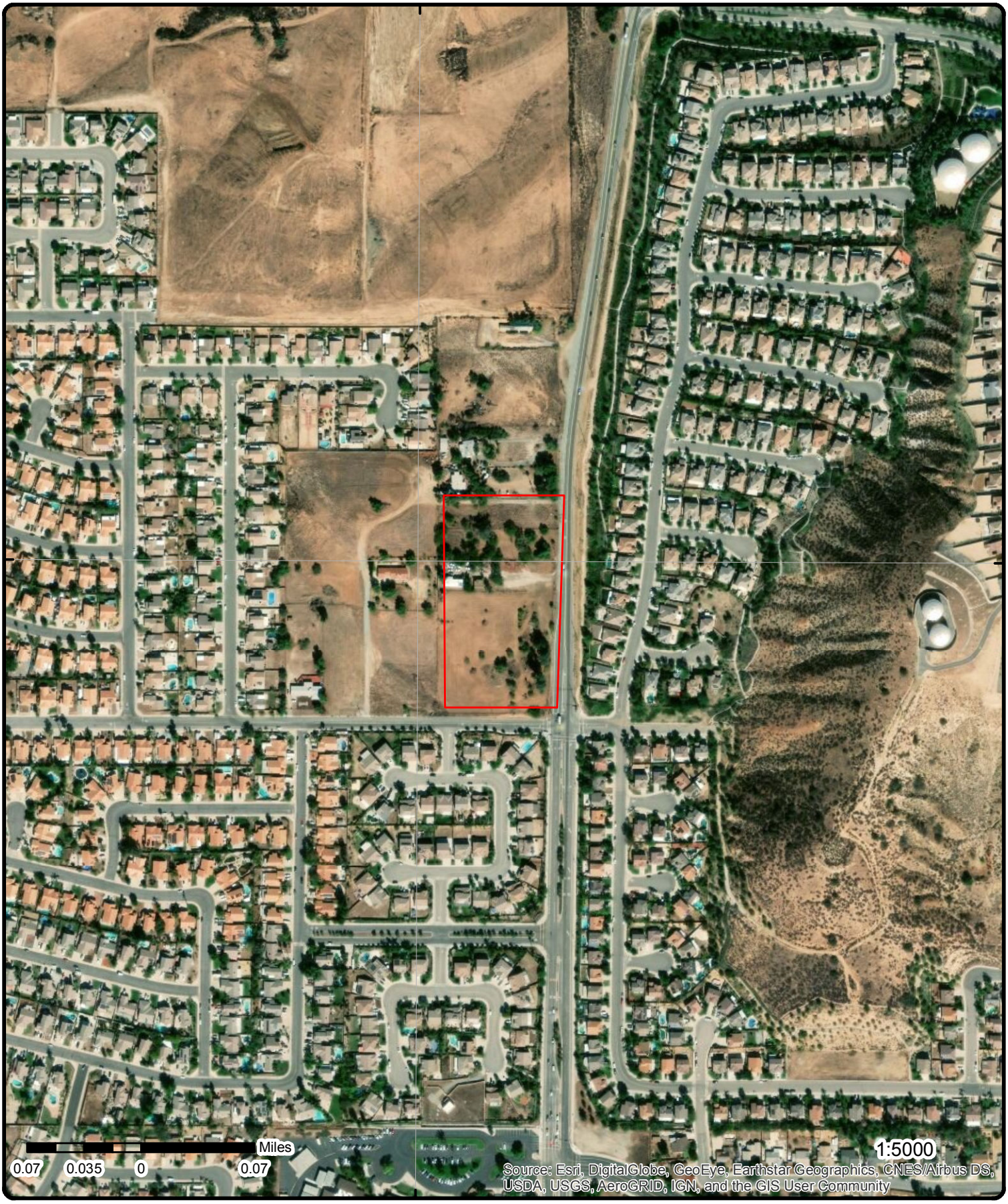
Address: NWC Mountain & Lake Street, Lake Elsinore, CA, 92530

ENVIRONMENTAL RISK INFORMATION SERVICES

Project Property	Rails	State Boundary	FWS Special Designation Areas
Buffer Outline	Major Highways	National Priority List Sites	State Brownfield Sites
Eris Sites with Higher Elevation	Major Highways Ramps	National Wetland	State Brownfield Areas
Eris Sites with Same Elevation	Major Roads	Indian Reserve Land	State Superfund Areas:Dept. of Defense
Eris Sites with Lower Elevation	Major Roads Ramps	Historic Fill	State Superfund Areas:NPL
Eris Sites with Unknown Elevation	Secondary Roads	100 Year Flood Zone	WQARF Areas
County Boundary	Secondary Roads Ramps	500 Year Flood Zone	Federal Lands: Dept. of Defense (owned/administered areas)
	Local Roads and Ramps		

Source: © 2016 ESRI

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Aerial (2018)

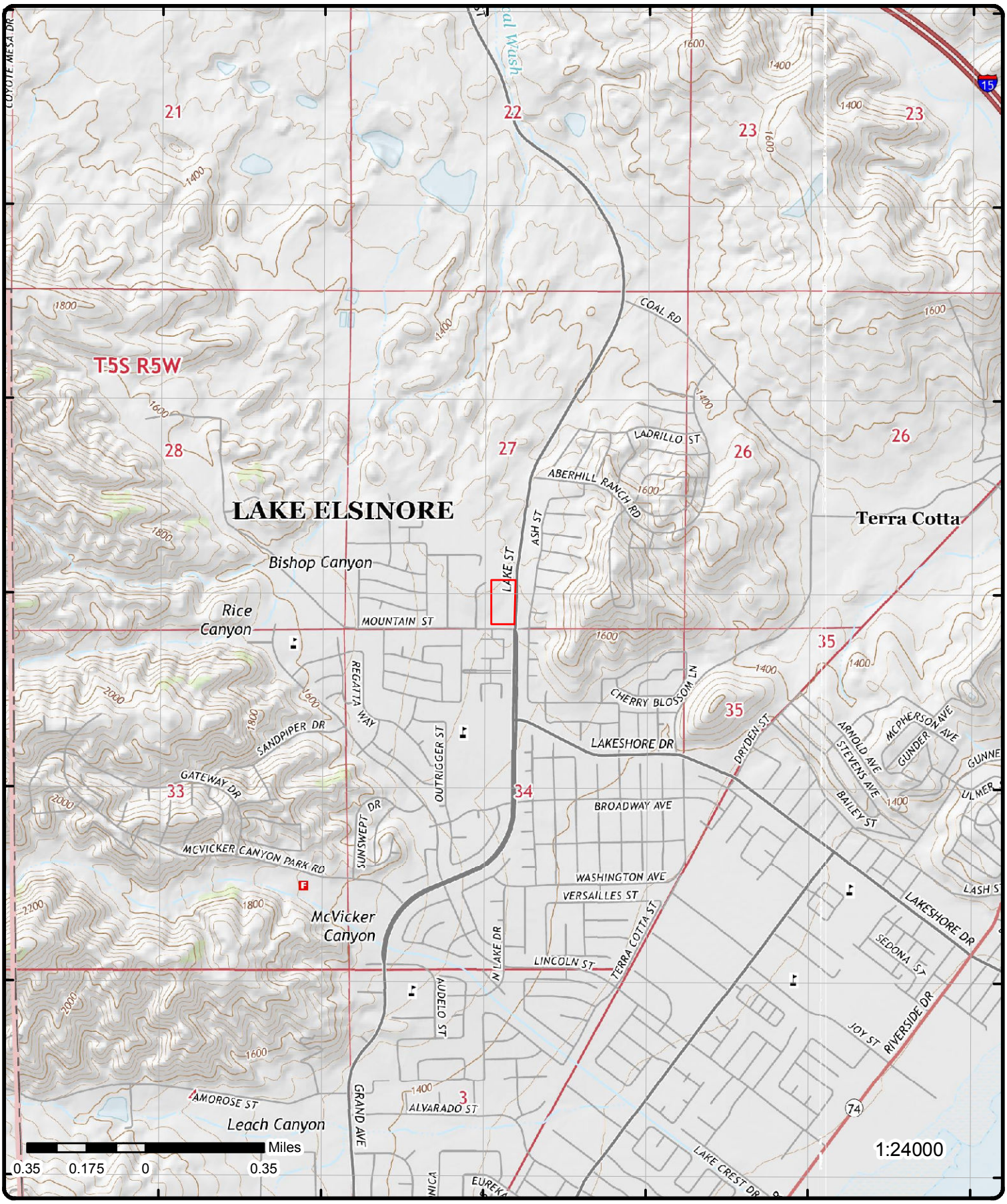
Order No: 20190903281

Address: NWC Mountain & Lake Street, Lake Elsinore, CA, 92530

Source: ESRI World Imagery

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ENVIRONMENTAL RISK INFORMATION SERVICES

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Topographic Map (2015)

Address: NWC Mountain & Lake Street, Lake Elsinore, CA, 92530

Quadrangle(s): Lake Elsinore,CA; Alberhill,CA;

Source: USGS Topographic Map

Order No: 20190903281

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES

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Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 1	NE	0.00 / 18.01	1,517.81 / 9	1X GEORGE AND SHERYL JOHNSON 28875 ROBB ROAD LAKE ELISNORE CA 925300000	HAZNET

SIC Code:		**Mailing City:**	LAKE ELSINORE
NAICS Code:		**Mailing State:**	CA
EPA ID:	CAC000702872	**Mailing Zip:**	925304109
Create Date:	12/27/1991	**Region Code:**	4
Fac Act Ind:	No	**Owner Name:**	GEORGE AND SHERYL JOHNSON
Inact Date:	10/25/2000	**Owner Addr 1:**	--
County Code:	33	**Owner Addr 2:**	
County Name:	Riverside	**Owner City:**	--
Mail Name:		**Owner State:**	99
Mailing Addr 1:	130 S MAIN ST	**Owner Zip:**	--
Mailing Addr 2:		**Owner Phone:**	0000000000
Owner Fax:			

Contact Information

--	--
Contact Name:	CAROL GORDON
Street Address 1:	--
Street Address 2:	
City:	--
State:	99
Zip:	--
Phone:	7146743124
--	--

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
2	1 of 1	NE	0.01 / 35.02	1,521.02 / 12	EVMWD ALBERHILL LIFTSTATION 28670 LAKE ST LAKE ELSINORE CA 92530	FINDS/FRS

Registry ID:	110064887289
FIPS Code:	
HUC Code:	
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	10-OCT-2015 06:49:11
Update Date:	
Interest Types:	STATE MASTER
SIC Codes:	4971
SIC Code Descriptions:	IRRIGATION SYSTEMS
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No.:	
Census Block Code:	
EPA Region Code:	09
County Name:	RIVERSIDE
US/Mexico Border Ind:	
Latitude:	33.703969
Longitude:	-117.389535

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: http://ofmpub.epa.gov/enviro/fii_query_detail.disp_program_facility?p_registry_id=110064887289
Program Acronyms:

CA-ENVIROVIEW:28935

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	1 of 2	SSE	0.01 / 57.63	1,490.28 / -18	TRACT NO. 30811 MOUNTAIN & LAKE LAKE ELSINORE CA 92688	FINDS/FRS

Registry ID: 110066736599
FIPS Code:
HUC Code:
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 14-OCT-2015 12:48:05
Update Date:
Interest Types: STATE MASTER
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor:
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No.:
Census Block Code:
EPA Region Code: 09
County Name: RIVERSIDE COUNTY
US/Mexico Border Ind:
Latitude:
Longitude:
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: http://ofmpub.epa.gov/enviro/fii_query_detail.disp_program_facility?p_registry_id=110066736599
Program Acronyms:

CA-ENVIROVIEW:331237

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	2 of 2	SSE	0.01 / 57.63	1,490.28 / -18	TRACT NO. 19750 LAKE & MOUNTAIN LAKE ELSINORE CA 92530	FINDS/FRS

Registry ID: 110065376532
FIPS Code:
HUC Code:
Site Type Name: STATIONARY
Location Description:
Supplemental Location:
Create Date: 13-OCT-2015 07:54:05
Update Date:
Interest Types: STATE MASTER
SIC Codes:
SIC Code Descriptions:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

NAICS Codes:
NAICS Code Descriptions:
Conveyor:
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No.:
Census Block Code:
EPA Region Code: 09
County Name: RIVERSIDE COUNTY
US/Mexico Border Ind:
Latitude:
Longitude:
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: http://ofmpub.epa.gov/enviro/fii_query_detail.disp_program_facility?p_registry_id=110065376532
Program Acronyms:

CA-ENVIROVIEW:330949

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	1 of 1	SSE	0.01 / 72.46	1,490.61 / -18	So. Calif Edison Lake St. & Mountain Lake Elsinore CA	CHMIRS

Control No:
Notified Date Time:
County: Riverside County
URL:
Notified Date: 7/11/200307:22:10 PM
Year: 2003

California Hazardous Material Incident Report System (as of 1997 to 2005)

Contained: Unknown
Substance: Mineral Oil
Incident Date: 7/11/200312:00:00 AM
No of Injuries: 0
No of Fatals: 0
No of Evacs: 0
Cleanup: Reporting Party
Water: Unknown
Water Way:
City: Lake Elsinore
County: Riverside County
Zip:
Site: Road
Bbls: 0
Cups: 0
Cuft: 0
Gals: 500
Grams: 0
Lbs: 0
Liters: 0
Oz: 0
Pts: 0
Qts: 0
Sheen: 0
Tons: 0
Unknown: 0
Admin Agency: Riverside County Environmental Health
Location: Lake St. & Mountain
Description: Large Transformer was shot with a gun. Transformer is a 1998 unit with no PCB, however, So. Cal Edison will test for PCB

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
5	1 of 1	SSE	0.01 / 77.21	1,487.03 / -22	TRACT NO. 28214-1 ALBERHILL RN NEC LAKE ST & MOUNTAIN ST LAKE ELSINORE CA 92530	FINDS/FRS

Registry ID: 110066393183
FIPS Code:
HUC Code:
Site Type Name: STATIONARY
Location Description:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Supplemental Location:
Create Date: 14-OCT-2015 11:18:11
Update Date:
Interest Types: STATE MASTER
SIC Codes:
SIC Code Descriptions:
NAICS Codes:
NAICS Code Descriptions:
Conveyor:
Federal Facility Code:
Federal Agency Name:
Tribal Land Code:
Tribal Land Name:
Congressional Dist No.:
Census Block Code:
EPA Region Code: 09
County Name: RIVERSIDE COUNTY
US/Mexico Border Ind:
Latitude:
Longitude:
Reference Point:
Coord Collection Method:
Accuracy Value:
Datum: NAD83
Source:
Facility Detail Rprt URL: http://ofmpub.epa.gov/enviro/fii_query_detail.disp_program_facility?p_registry_id=110066393183
Program Acronyms:

CA-ENVIROVIEW:331022

6	1 of 2	NNE	0.03 / 134.17	1,521.99 / 13	TEEPEE RANCH STORE 29251 ROBB RD LAKE ELSINORE CA 92330	HHSS

County:
Pdf File Url: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001f9e2.pdf

---

6	2 of 2	NNE	0.03 / 134.17	1,521.99 / 13	TEEPEE RANCH STORE 29251 ROBB RD. LAKE ELSINORE CA	HIST TANK

Owner Name: TEE PEE RANCH--CHARLES O. PEAS
Owner Street: 29051 ROBB RD.,
Owner City: LAKE ELSINORE
Owner State: CA
Owner Zip: 92330
No of Containers: 3
County: RIVERSIDE
Facility State: CA
Facility Zip: 92330

7	1 of 2	NNE	0.05 / 255.40	1,519.66 / 11	City of Lake Elsinore 29051 Robb Rd Lake Elsinore CA	RIVERSIDE LOP

Site ID: 911099
Status Code: 9
Status Desc: CLOSED/ACTION COMPLETED
Case Type Code: S
Case Type Desc: SOIL ONLY IS IMPACTED
Closed Code: Y
Closed Desc: CLOSED SITE
Employee: Brown

7	2 of 2	NNE	0.05 / 255.40	1,519.66 / 11	City of Lake Elsinore 29051 Robb Rd Lake Elsinore CA	RIVERSIDE LOP

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site ID:	92342	**Closed Code:**	Y
Status Code:	9	**Closed Desc:**	CLOSED SITE
Status Desc:	CLOSED/ACTION COMPLETED	**Employee:**	Winters
Case Type Code:	A		
Case Type Desc:	AN AQUIFER USED FOR DRINKING WATER SUPPLY HAS BEEN CONTAMINATED		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
8	1 of 1	NNE	0.10 / 529.13	1,506.07 / -3	PACIFIC AGGREGATES INC Lake Elsinore CA	MINES

Mine ID:	0405635	**SIC:**	144200
Entity Name:	PACIFIC AGGREGATES PITS	**Secondary SIC 1:**	000000
Status Code:	1	**Secondary SIC 2:**	000000
Mine Status:	Full-Time Permanent	**Secondary SIC 3:**	000000
Status Date:	20050730	**Secondary SIC 4:**	000000
Operation Class:	2	**Secondary SIC 5:**	000000
Company Type:	Corporation	**Mines Prim SIC CD:**	144200
Assess Ctrl No:	000483373	**Primary SIC:**	Construction Sand and Gravel
Current Mine Name:	Pacific Aggregates Pits	**Primary SIC CD 1:**	1442
Current Mine Type:	Surface	**Primary SIC CD SFX:**	00
Current Mine Status:	Active	**Secondary SIC CD:**	
Current Status Dt:	07/30/2005	**Secondary SIC:**	
Current Controller ID:	M00595	**Secondary SIC CD 1:**	
Curr Controller Name:	David H Murdock	**Sec SIC CD Sfx:**	
Curr Cont Begin Dt:	04/16/2005	**Primary Canvass CD:**	5
Curr Operator ID:	0063043	**Primary Canvass:**	SandAndGravel
Curr Operator Name:	Pacific Aggregates Inc	**Sec Canvass CD:**	
Coal Metal Ind:	M	**Secondary Canvass:**	
Mines State:	CA	**Lat Deg:**	33
No of Shops:	0	**Lat Min:**	42
No of Plants:	0	**Lat Sec:**	07
No of Pits:	000	**Long Deg:**	117
Current 103I:	Never Had 103I Status	**Long Min:**	23
Current 103I Dt:		**Long Sec:**	22
Portable Operation:	No	**Longitude:**	117.389722
Portable FIPS St CD:		**Latitude:**	33.702222
Days Per Week:	5	**County Code:**	065
Hours Per Shift:	8	**State Code:**	06
Prod Shifts Per Day:	1	**District:**	M7
Maint Shifts Per Day:	1	**BOM State CD:**	04
No Employees:	30	**FIPS Cnty CD:**	065
Part48 Training:	Yes	**FIPS Cnty Nm:**	Riverside
Avg Mine Height:		**Cong Dist CD:**	
Mine Gas Ctgry CD:		**Contact Title:**	Compliance Manager
Methane Liberation:		**Street:**	28251 Lake Street
No Producing Pits:		**Po Box:**	
No Non-Prod Pits:		**City:**	Lake Elsinore
No Tailing Ponds:	0	**State Abbr:**	CA
Pillar Recovery Used:	No	**FIPS State CD:**	06
Highwall Miner Used:	No	**State:**	California
Multiple Pits:	No	**Zip CD:**	92530
Miners Rep Ind:	No	**Country:**	USA
Safety Committee Ind:	Yes	**Province:**	
Miles from Office:	42	**Postal CD:**	
Directions to Mine:	28251 Robb Road South from I-15 & Lake Street Exit	**Primary SIC CD:**	Construction Sand and Gravel
Office CD:	M7831	**State Abbrev:**	CA
Office Name:	San Bernardino CA Field Office		
Status Description:	The mine is actively being worked.		
Source File Desc:	Master Index File;MINES Data Set		

Violation Details

Event No:	1142916	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/13/2009

Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	NoLikelihood	**Orig Term Due Dt:**	11/19/2008
Controller ID:	M00595	**Last Action Dt:**	02/18/2009
Inj Illness:	NoLostDays	**Orig Term Due Tm:**	1300
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	11/19/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	HighNegligence	**Latest Term Due Tm:**	1300
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/19/2008
Violation No:	6440086	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1300
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/19/2008	**Part Section:**	50.20(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1150	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/19/2009	**Docket No:**	
Violation Occur Dt:	12/04/2007	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	13		

Violation Details

Event No:	1128476	**Amount Paid:**	838
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0930
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	0930
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/31/2006
Violation No:	6397013	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1045
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0930	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	838	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	838	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133939	**Amount Paid:**	9122
Initial Viol No:		**Contractor ID:**	

Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/11/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Highly	**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	04/30/2008
Inj Illness:	Fatal	**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	2	**Latest Term Due Dt:**	
Inspection Begin Dt:	10/15/2007	**Cal Yr:**	2007
Negligence:	ModNegligence	**Latest Term Due Tm:**	
Inspection End Dt:	10/18/2007	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/15/2007
Violation No:	7964563	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1345
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/15/2007	**Part Section:**	56.15005
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1334	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/17/2008	**Docket No:**	
Violation Occur Dt:	10/15/2007	**Section of Act 2:**	
Proposed Penalty:	9122	**Docket Stat Cd:**	
Violator Violation Cnt:	45	**Contested Ind:**	No
Amount Due:	9122	**Contested Dt:**	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1133408	**Amount Paid:**	524
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	11/01/2006
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	LostDays	**Orig Term Due Tm:**	1500
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/01/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1500
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/01/2006
Violation No:	6397804	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	1030
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/01/2006	**Part Section:**	56.11001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0830	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	11/01/2006	**Section of Act 2:**	
Proposed Penalty:	524	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	524	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1133990	**Amount Paid:**	308

Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	05/13/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	03/28/2008
Controller ID:	M00595	**Last Action Dt:**	06/16/2008
Inj Illness:	Permanent	**Orig Term Due Tm:**	1530
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	03/28/2008
Inspection Begin Dt:	03/25/2008	**Cal Yr:**	2008
Negligence:	ModNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	04/02/2008	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	04/02/2008
Violation No:	6440120	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1108
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	03/27/2008	**Part Section:**	56.14112(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1310	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	06/19/2008	**Docket No:**	
Violation Occur Dt:	03/27/2008	**Section of Act 2:**	
Proposed Penalty:	308	**Docket Stat Cd:**	
Violator Violation Cnt:	25	**Contested Ind:**	No
Amount Due:	308	**Contested Dt:**	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1152588	**Amount Paid:**	392
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/17/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	12/14/2011
Controller ID:	M00595	**Last Action Dt:**	02/28/2012
Inj Illness:	Fatal	**Orig Term Due Tm:**	1130
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	12/14/2011
Inspection Begin Dt:	12/12/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	1130
Inspection End Dt:	12/15/2011	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	12/14/2011
Violation No:	8607391	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1125
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/14/2011	**Part Section:**	56.4603(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1122	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/23/2012	**Docket No:**	
Violation Occur Dt:	12/14/2011	**Section of Act 2:**	
Proposed Penalty:	392	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	392	**Contested Dt:**	
Violator Insp Day Cnt:	10		

Violation Details

Event No:	6595607	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/17/2015
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	12/23/2014
Controller ID:	M00595	**Last Action Dt:**	04/28/2015
Inj Illness:	Fatal	**Orig Term Due Tm:**	1230
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	12/23/2014
Inspection Begin Dt:	12/18/2014	**Cal Yr:**	2014
Negligence:	ModNegligence	**Latest Term Due Tm:**	1230
Inspection End Dt:	12/31/2014	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	12/31/2014
Violation No:	8788235	**Fiscal Yr:**	2015
Enforcement Area:		**Termination Time:**	0836
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/23/2014	**Part Section:**	56.12028
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0630	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/25/2015	**Docket No:**	
Violation Occur Dt:	12/23/2014	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	2	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	6		

Violation Details

Event No:	1152588	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/17/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	12/15/2011
Controller ID:	M00595	**Last Action Dt:**	02/28/2012
Inj Illness:	Fatal	**Orig Term Due Tm:**	1700
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	12/15/2011
Inspection Begin Dt:	12/12/2011	**Cal Yr:**	2011
Negligence:	LowNegligence	**Latest Term Due Tm:**	1700
Inspection End Dt:	12/15/2011	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	12/15/2011
Violation No:	8607393	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1430
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/15/2011	**Part Section:**	56.13001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1320	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/23/2012	**Docket No:**	
Violation Occur Dt:	12/15/2011	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1142916	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	01/13/2009
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	NoLikelihood	***Orig Term Due Dt:***	11/19/2008
Controller ID:	M00595	***Last Action Dt:***	02/18/2009
Inj Illness:	NoLostDays	***Orig Term Due Tm:***	1300
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	0	***Latest Term Due Dt:***	11/19/2008
Inspection Begin Dt:	11/13/2008	***Cal Yr:***	2008
Negligence:	HighNegligence	***Latest Term Due Tm:***	1300
Inspection End Dt:	11/19/2008	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	11/19/2008
Violation No:	6440089	***Fiscal Yr:***	2009
Enforcement Area:		***Termination Time:***	1300
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	11/19/2008	***Part Section:***	50.20(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1222	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	02/19/2009	***Docket No:***	
Violation Occur Dt:	05/18/2008	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	11	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1142916	***Amount Paid:***	127
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	12/16/2008
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	11/14/2008
Controller ID:	M00595	***Last Action Dt:***	02/09/2009
Inj Illness:	Permanent	***Orig Term Due Tm:***	0800
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	11/14/2008
Inspection Begin Dt:	11/13/2008	***Cal Yr:***	2008
Negligence:	ModNegligence	***Latest Term Due Tm:***	0800
Inspection End Dt:	11/19/2008	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	11/14/2008
Violation No:	6440081	***Fiscal Yr:***	2009
Enforcement Area:		***Termination Time:***	0540
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	11/13/2008	***Part Section:***	56.14107(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1400	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	01/21/2009	***Docket No:***	
Violation Occur Dt:	11/13/2008	***Section of Act 2:***	
Proposed Penalty:	127	***Docket Stat Cd:***	
Violator Violation Cnt:	17	***Contested Ind:***	No
Amount Due:	127	***Contested Dt:***	
Violator Insp Day Cnt:	12		

Violation Details

Event No:	1152131	***Amount Paid:***	873
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	02/16/2010
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	01/04/2010
Controller ID:	M00595	***Last Action Dt:***	03/11/2010
Inj Illness:	LostDays	***Orig Term Due Tm:***	1530
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	01/04/2010
Inspection Begin Dt:	12/30/2009	***Cal Yr:***	2009
Negligence:	ModNegligence	***Latest Term Due Tm:***	1530
Inspection End Dt:	01/06/2010	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	01/04/2010
Violation No:	6484993	***Fiscal Yr:***	2010
Enforcement Area:		***Termination Time:***	1410
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	12/30/2009	***Part Section:***	56.14107(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1215	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	03/25/2010	***Docket No:***	
Violation Occur Dt:	12/30/2009	***Section of Act 2:***	
Proposed Penalty:	873	***Docket Stat Cd:***	
Violator Violation Cnt:	22	***Contested Ind:***	No
Amount Due:	873	***Contested Dt:***	
Violator Insp Day Cnt:	10		

Violation Details

Event No:	1152588	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	01/17/2012
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	12/15/2011
Controller ID:	M00595	***Last Action Dt:***	02/28/2012
Inj Illness:	Fatal	***Orig Term Due Tm:***	1700
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	12/15/2011
Inspection Begin Dt:	12/12/2011	***Cal Yr:***	2011
Negligence:	ModNegligence	***Latest Term Due Tm:***	1700
Inspection End Dt:	12/15/2011	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	12/15/2011
Violation No:	8607392	***Fiscal Yr:***	2012
Enforcement Area:		***Termination Time:***	1502
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	12/15/2011	***Part Section:***	56.12004
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	1146	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	02/23/2012	***Docket No:***	
Violation Occur Dt:	12/15/2011	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1133408	***Amount Paid:***	440
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	12/14/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	11/03/2006
Controller ID:	M00595	***Last Action Dt:***	02/24/2007
Inj Illness:	Fatal	***Orig Term Due Tm:***	1200
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	11/03/2006
Inspection Begin Dt:	10/31/2006	***Cal Yr:***	2006
Negligence:	LowNegligence	***Latest Term Due Tm:***	1200
Inspection End Dt:	11/02/2006	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	11/02/2006
Violation No:	6397806	***Fiscal Yr:***	2007
Enforcement Area:		***Termination Time:***	0850
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	11/01/2006	***Part Section:***	56.12040
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1000	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	01/28/2007	***Docket No:***	
Violation Occur Dt:	11/01/2006	***Section of Act 2:***	
Proposed Penalty:	440	***Docket Stat Cd:***	
Violator Violation Cnt:	31	***Contested Ind:***	No
Amount Due:	440	***Contested Dt:***	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	6595607	***Amount Paid:***	0
Initial Viol No:		***Contractor ID:***	D118
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	02/17/2015
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Court Decision
Likelihood:	NoLikelihood	***Orig Term Due Dt:***	12/23/2014
Controller ID:		***Last Action Dt:***	05/01/2018
Inj Illness:	NoLostDays	***Orig Term Due Tm:***	0940
Controller Name:		***Coal Metal Ind:***	M
No Affected:	0	***Latest Term Due Dt:***	12/23/2014
Inspection Begin Dt:	12/18/2014	***Cal Yr:***	2014
Negligence:	LowNegligence	***Latest Term Due Tm:***	0940
Inspection End Dt:	12/31/2014	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	12/23/2014
Violation No:	8788238	***Fiscal Yr:***	2015
Enforcement Area:		***Termination Time:***	0941
Violator ID:	D118	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	T. S. Construction	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Contractor	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	12/23/2014	***Part Section:***	50.30(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	0937	***Section of Act 1:***	104(a)
Final Ord Issue Dt:		***Docket No:***	
Violation Occur Dt:	07/16/2014	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	1	***Contested Ind:***	No
Amount Due:	0	***Contested Dt:***	

Violator Insp Day Cnt: 9

Violation Details

Event No:	1142916	**Amount Paid:**	108
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/13/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	11/18/2008
Controller ID:	M00595	**Last Action Dt:**	02/18/2009
Inj Illness:	Permanent	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/18/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/18/2008
Violation No:	6440084	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1115
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/18/2008	**Part Section:**	56.12034
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0956	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/19/2009	**Docket No:**	
Violation Occur Dt:	11/18/2008	**Section of Act 2:**	
Proposed Penalty:	108	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	108	**Contested Dt:**	
Violator Insp Day Cnt:	14		

Violation Details

Event No:	1128439	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	02/14/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0825
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/14/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0825
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/14/2006
Violation No:	6381302	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0820
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/14/2006	**Part Section:**	56.14112(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0810	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/14/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No

Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133408	**Amount Paid:**	247
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	10/31/2006
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	LostDays	**Orig Term Due Tm:**	1110
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	10/31/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	LowNegligence	**Latest Term Due Tm:**	1110
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/31/2006
Violation No:	6391000	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	1101
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/31/2006	**Part Section:**	56.16005
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1100	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	10/31/2006	**Section of Act 2:**	
Proposed Penalty:	247	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	247	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1128476	**Amount Paid:**	142
Initial Viol No:		**Contractor ID:**	P164
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	08/24/2006
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	
Controller ID:		**Last Action Dt:**	09/22/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/07/2006
Violation No:	6397027	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1400
Violator ID:	P164	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Clairemont Equipment Rentals & Sales Service	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/05/2006	**Part Section:**	46.8(a)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1315	**Section of Act 1:**	104(g)(1)
Final Ord Issue Dt:	10/08/2006	**Docket No:**	
Violation Occur Dt:	06/05/2006	**Section of Act 2:**	
Proposed Penalty:	142	**Docket Stat Cd:**	

Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	142	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128228	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/19/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	08/17/2005
Controller ID:	M00595	**Last Action Dt:**	03/08/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/17/2005
Inspection Begin Dt:	08/15/2005	**Cal Yr:**	2005
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	08/18/2005	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	09/29/2005
Violation No:	6376870	**Fiscal Yr:**	2005
Enforcement Area:		**Termination Time:**	0640
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/16/2005	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1050	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/12/2006	**Docket No:**	
Violation Occur Dt:	08/16/2005	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128439	**Amount Paid:**	144
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	02/08/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	1055
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/08/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1055
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/13/2006
Violation No:	6381281	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0945
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1040	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	

Proposed Penalty:	144	***Docket Stat Cd:***	
Violator Violation Cnt:	0	***Contested Ind:***	No
Amount Due:	144	***Contested Dt:***	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133990	***Amount Paid:***	207
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	05/13/2008
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	03/26/2008
Controller ID:	M00595	***Last Action Dt:***	06/16/2008
Inj Illness:	LostDays	***Orig Term Due Tm:***	1530
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	03/26/2008
Inspection Begin Dt:	03/25/2008	***Cal Yr:***	2008
Negligence:	ModNegligence	***Latest Term Due Tm:***	1530
Inspection End Dt:	04/02/2008	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	03/27/2008
Violation No:	6440116	***Fiscal Yr:***	2008
Enforcement Area:		***Termination Time:***	0930
Violator ID:	0063043	***Fiscal Qtr:***	2
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	03/25/2008	***Part Section:***	56.14100(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1413	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	06/19/2008	***Docket No:***	
Violation Occur Dt:	03/25/2008	***Section of Act 2:***	
Proposed Penalty:	207	***Docket Stat Cd:***	
Violator Violation Cnt:	25	***Contested Ind:***	No
Amount Due:	207	***Contested Dt:***	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	6595607	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	02/17/2015
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	12/23/2014
Controller ID:	M00595	***Last Action Dt:***	04/28/2015
Inj Illness:	Fatal	***Orig Term Due Tm:***	0855
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	12/23/2014
Inspection Begin Dt:	12/18/2014	***Cal Yr:***	2014
Negligence:	ModNegligence	***Latest Term Due Tm:***	0855
Inspection End Dt:	12/31/2014	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	12/23/2014
Violation No:	8788236	***Fiscal Yr:***	2015
Enforcement Area:		***Termination Time:***	0850
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	12/23/2014	***Part Section:***	56.16006
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	0843	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	03/25/2015	***Docket No:***	

Violation Occur Dt:	12/23/2014	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	2	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	6		

Violation Details

Event No:	1133408	**Amount Paid:**	350
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	11/02/2006
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	LostDays	**Orig Term Due Tm:**	0900
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/02/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0900
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/02/2006
Violation No:	6397807	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	0830
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/01/2006	**Part Section:**	56.9300(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1015	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	11/01/2006	**Section of Act 2:**	
Proposed Penalty:	350	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	350	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1133990	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	05/13/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	04/04/2008
Controller ID:	M00595	**Last Action Dt:**	06/16/2008
Inj Illness:	LostDays	**Orig Term Due Tm:**	1530
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/04/2008
Inspection Begin Dt:	03/25/2008	**Cal Yr:**	2008
Negligence:	LowNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	04/02/2008	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	04/14/2008
Violation No:	6440121	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1217
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	03/27/2008	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1421	**Section of Act 1:**	104(a)

Final Ord Issue Dt:	06/19/2008	**Docket No:**	
Violation Occur Dt:	03/27/2008	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	25	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1133888	**Amount Paid:**	1111
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	11/12/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	10/03/2008
Controller ID:	M00595	**Last Action Dt:**	12/30/2008
Inj Illness:	Fatal	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	10/08/2008
Inspection Begin Dt:	10/01/2008	**Cal Yr:**	2008
Negligence:	HighNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	10/02/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/14/2008
Violation No:	6440783	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	0931
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/01/2008	**Part Section:**	56.12028
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1115	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	12/19/2008	**Docket No:**	
Violation Occur Dt:	10/01/2008	**Section of Act 2:**	
Proposed Penalty:	1111	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	1111	**Contested Dt:**	
Violator Insp Day Cnt:	10		

Violation Details

Event No:	1147415	**Amount Paid:**	285
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	05/12/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	04/09/2009
Controller ID:	M00595	**Last Action Dt:**	06/15/2009
Inj Illness:	Permanent	**Orig Term Due Tm:**	1500
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/09/2009
Inspection Begin Dt:	04/09/2009	**Cal Yr:**	2009
Negligence:	ModNegligence	**Latest Term Due Tm:**	1500
Inspection End Dt:	04/15/2009	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/13/2009
Violation No:	6441435	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1039
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	04/09/2009	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed

Violation Issue Time:	1040	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	06/18/2009	**Docket No:**	
Violation Occur Dt:	04/09/2009	**Section of Act 2:**	
Proposed Penalty:	285	**Docket Stat Cd:**	
Violator Violation Cnt:	26	**Contested Ind:**	No
Amount Due:	285	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1160148	**Amount Paid:**	176
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	09/13/2011
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	08/03/2011
Controller ID:	M00595	**Last Action Dt:**	11/08/2011
Inj Illness:	Permanent	**Orig Term Due Tm:**	1100
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/04/2011
Inspection Begin Dt:	08/03/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	08/04/2011	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	08/04/2011
Violation No:	8607414	**Fiscal Yr:**	2011
Enforcement Area:		**Termination Time:**	0607
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/03/2011	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0728	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	10/21/2011	**Docket No:**	
Violation Occur Dt:	08/03/2011	**Section of Act 2:**	
Proposed Penalty:	176	**Docket Stat Cd:**	
Violator Violation Cnt:	6	**Contested Ind:**	No
Amount Due:	176	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1128228	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/19/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	08/24/2005
Controller ID:	M00595	**Last Action Dt:**	03/08/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/24/2005
Inspection Begin Dt:	08/15/2005	**Cal Yr:**	2005
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	08/18/2005	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	09/29/2005
Violation No:	6376876	**Fiscal Yr:**	2005
Enforcement Area:		**Termination Time:**	0650
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/17/2005	**Part Section:**	56.14100(b)

Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0655	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/12/2006	**Docket No:**	
Violation Occur Dt:	08/17/2005	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133939	**Amount Paid:**	1026
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	11/13/2007
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	10/15/2007
Controller ID:	M00595	**Last Action Dt:**	01/16/2008
Inj Illness:	LostDays	**Orig Term Due Tm:**	1415
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	10/16/2007
Inspection Begin Dt:	10/15/2007	**Cal Yr:**	2007
Negligence:	ModNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	10/18/2007	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/17/2007
Violation No:	7964564	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1238
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/15/2007	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1415	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	12/20/2007	**Docket No:**	
Violation Occur Dt:	10/15/2007	**Section of Act 2:**	
Proposed Penalty:	1026	**Docket Stat Cd:**	
Violator Violation Cnt:	45	**Contested Ind:**	No
Amount Due:	1026	**Contested Dt:**	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1152724	**Amount Paid:**	117
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/15/2011
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	01/24/2011
Controller ID:	M00595	**Last Action Dt:**	04/27/2011
Inj Illness:	LostDays	**Orig Term Due Tm:**	1100
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	01/24/2011
Inspection Begin Dt:	01/21/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	1100
Inspection End Dt:	01/25/2011	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	01/25/2011
Violation No:	8555113	**Fiscal Yr:**	2011
Enforcement Area:		**Termination Time:**	0735
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	

Violation Issue Dt:	01/24/2011	**Part Section:**	56.12030
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0950	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/21/2011	**Docket No:**	
Violation Occur Dt:	01/24/2011	**Section of Act 2:**	
Proposed Penalty:	117	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	117	**Contested Dt:**	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1160786	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	06/17/2014
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	05/02/2014
Controller ID:	M00595	**Last Action Dt:**	07/08/2014
Inj Illness:	LostDays	**Orig Term Due Tm:**	0700
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/02/2014
Inspection Begin Dt:	05/01/2014	**Cal Yr:**	2014
Negligence:	HighNegligence	**Latest Term Due Tm:**	0700
Inspection End Dt:	05/02/2014	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/02/2014
Violation No:	8689958	**Fiscal Yr:**	2014
Enforcement Area:		**Termination Time:**	0646
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/01/2014	**Part Section:**	56.4104(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0706	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	07/21/2014	**Docket No:**	
Violation Occur Dt:	05/01/2014	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	6	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	6		

Violation Details

Event No:	1128439	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	02/14/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	1000
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/14/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1000
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/15/2006
Violation No:	6381303	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1100
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	

Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	02/14/2006	***Part Section:***	56.9300(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0915	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	04/26/2006	***Docket No:***	
Violation Occur Dt:	02/14/2006	***Section of Act 2:***	
Proposed Penalty:	60	***Docket Stat Cd:***	
Violator Violation Cnt:	0	***Contested Ind:***	No
Amount Due:	60	***Contested Dt:***	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128439	***Amount Paid:***	60
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	03/16/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	02/14/2006
Controller ID:	M00595	***Last Action Dt:***	07/10/2006
Inj Illness:	LostDays	***Orig Term Due Tm:***	0730
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	02/14/2006
Inspection Begin Dt:	02/07/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	0730
Inspection End Dt:	02/15/2006	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	02/15/2006
Violation No:	6381299	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1305
Violator ID:	0063043	***Fiscal Qtr:***	2
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	02/14/2006	***Part Section:***	56.14100(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0655	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	04/26/2006	***Docket No:***	
Violation Occur Dt:	02/14/2006	***Section of Act 2:***	
Proposed Penalty:	60	***Docket Stat Cd:***	
Violator Violation Cnt:	0	***Contested Ind:***	No
Amount Due:	60	***Contested Dt:***	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133408	***Amount Paid:***	524
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	12/14/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	11/03/2006
Controller ID:	M00595	***Last Action Dt:***	02/24/2007
Inj Illness:	LostDays	***Orig Term Due Tm:***	0600
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	11/03/2006
Inspection Begin Dt:	10/31/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	0600
Inspection End Dt:	11/02/2006	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	11/15/2006
Violation No:	6397813	***Fiscal Yr:***	2007
Enforcement Area:		***Termination Time:***	1055
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	

Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/02/2006	**Part Section:**	56.11001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1130	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	11/02/2006	**Section of Act 2:**	
Proposed Penalty:	524	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	524	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1152588	**Amount Paid:**	243
Initial Viol No:		**Contractor ID:**	U799
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	06/20/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	12/14/2011
Controller ID:		**Last Action Dt:**	07/08/2012
Inj Illness:	Fatal	**Orig Term Due Tm:**	1040
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	12/14/2011
Inspection Begin Dt:	12/12/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	1040
Inspection End Dt:	12/15/2011	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	12/14/2011
Violation No:	8607389	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1025
Violator ID:	U799	**Fiscal Qtr:**	1
Special Assess:	Yes	**Termination Type:**	Terminated
Violator Name:	Neal Trucking	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/14/2011	**Part Section:**	56.14131(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1019	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	07/26/2012	**Docket No:**	
Violation Occur Dt:	12/14/2011	**Section of Act 2:**	
Proposed Penalty:	243	**Docket Stat Cd:**	
Violator Violation Cnt:	1	**Contested Ind:**	No
Amount Due:	243	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133408	**Amount Paid:**	963
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	11/05/2006
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	Fatal	**Orig Term Due Tm:**	0900
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/05/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0900
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/15/2006
Violation No:	6397812	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	1035
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No

Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/02/2006	**Part Section:**	56.14205
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1100	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	11/02/2006	**Section of Act 2:**	
Proposed Penalty:	963	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	963	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1128439	**Amount Paid:**	203
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	02/14/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0530
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/14/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	0530
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/14/2006
Violation No:	6381298	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0600
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/14/2006	**Part Section:**	56.15004
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0520	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/14/2006	**Section of Act 2:**	
Proposed Penalty:	203	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	203	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128439	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	02/14/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0735
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/14/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0735
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/14/2006
Violation No:	6381300	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0730
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated

Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/14/2006	**Part Section:**	56.14112(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0720	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/14/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133939	**Amount Paid:**	1530
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	11/13/2007
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	10/16/2007
Controller ID:	M00595	**Last Action Dt:**	01/16/2008
Inj Illness:	Permanent	**Orig Term Due Tm:**	1530
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	10/16/2007
Inspection Begin Dt:	10/15/2007	**Cal Yr:**	2007
Negligence:	ModNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	10/18/2007	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/16/2007
Violation No:	7964565	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1050
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/15/2007	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1510	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	12/20/2007	**Docket No:**	
Violation Occur Dt:	10/15/2007	**Section of Act 2:**	
Proposed Penalty:	1530	**Docket Stat Cd:**	
Violator Violation Cnt:	45	**Contested Ind:**	No
Amount Due:	1530	**Contested Dt:**	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	6595607	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	D118
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/26/2015
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	12/24/2014
Controller ID:		**Last Action Dt:**	03/18/2015
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	12/24/2014
Inspection Begin Dt:	12/18/2014	**Cal Yr:**	2014
Negligence:	LowNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	12/31/2014	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	12/31/2014
Violation No:	8788237	**Fiscal Yr:**	2015
Enforcement Area:		**Termination Time:**	1059
Violator ID:	D118	**Fiscal Qtr:**	1

Special Assess:	Yes	**Termination Type:**	Terminated
Violator Name:	T. S. Construction	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/23/2014	**Part Section:**	56.14101(a)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0933	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/05/2015	**Docket No:**	
Violation Occur Dt:	12/23/2014	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1142916	**Amount Paid:**	1203
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/13/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	11/18/2008
Controller ID:	M00595	**Last Action Dt:**	02/18/2009
Inj Illness:	Fatal	**Orig Term Due Tm:**	1100
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/18/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	ModNegligence	**Latest Term Due Tm:**	1100
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/18/2008
Violation No:	6440085	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1055
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/18/2008	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1050	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/19/2009	**Docket No:**	
Violation Occur Dt:	11/18/2008	**Section of Act 2:**	
Proposed Penalty:	1203	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	1203	**Contested Dt:**	
Violator Insp Day Cnt:	14		

Violation Details

Event No:	1128228	**Amount Paid:**	99
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	10/12/2005
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	08/16/2005
Controller ID:	M00595	**Last Action Dt:**	11/09/2005
Inj Illness:	Permanent	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/16/2005
Inspection Begin Dt:	08/15/2005	**Cal Yr:**	2005
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	08/18/2005	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	08/16/2005
Violation No:	6376869	**Fiscal Yr:**	2005
Enforcement Area:		**Termination Time:**	1430

Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/16/2005	**Part Section:**	56.9300(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1010	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/11/2006	**Docket No:**	
Violation Occur Dt:	08/16/2005	**Section of Act 2:**	
Proposed Penalty:	99	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	99	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/01/2006
Violation No:	6397001	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1220
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0600	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1142916	**Amount Paid:**	634
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/16/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	11/13/2008
Controller ID:	M00595	**Last Action Dt:**	02/09/2009
Inj Illness:	Permanent	**Orig Term Due Tm:**	1115
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/13/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	ModNegligence	**Latest Term Due Tm:**	1115
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/13/2008
Violation No:	6440079	**Fiscal Yr:**	2009

Enforcement Area:		**Termination Time:**	1150
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/13/2008	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1015	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/21/2009	**Docket No:**	
Violation Occur Dt:	11/13/2008	**Section of Act 2:**	
Proposed Penalty:	634	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	634	**Contested Dt:**	
Violator Insp Day Cnt:	12		

Violation Details

Event No:	1128439	**Amount Paid:**	107
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	02/13/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/13/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/14/2006
Violation No:	6381295	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0345
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/13/2006	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1125	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/13/2006	**Section of Act 2:**	
Proposed Penalty:	107	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	107	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	6595607	**Amount Paid:**	117
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/17/2015
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	12/18/2014
Controller ID:	M00595	**Last Action Dt:**	04/28/2015
Inj Illness:	LostDays	**Orig Term Due Tm:**	1300
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	12/18/2014
Inspection Begin Dt:	12/18/2014	**Cal Yr:**	2014
Negligence:	ModNegligence	**Latest Term Due Tm:**	1300
Inspection End Dt:	12/31/2014	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	12/31/2014

Violation No:	8788234	**Fiscal Yr:**	2015
Enforcement Area:		**Termination Time:**	0851
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/18/2014	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1242	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/25/2015	**Docket No:**	
Violation Occur Dt:	12/18/2014	**Section of Act 2:**	
Proposed Penalty:	117	**Docket Stat Cd:**	
Violator Violation Cnt:	3	**Contested Ind:**	No
Amount Due:	117	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128439	**Amount Paid:**	629
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	8	**Latest Term Due Dt:**	
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/10/2006
Violation No:	6381289	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0830
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	46.5(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1405	**Section of Act 1:**	104(g)(1)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	629	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	629	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1160615	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	U799
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	08/22/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/28/2012
Controller ID:		**Last Action Dt:**	09/11/2012
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/28/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2

Written Notice:		**Termination Dt:**	06/28/2012
Violation No:	8689434	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1056
Violator ID:	U799	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Neal Trucking	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/27/2012	**Part Section:**	56.4200(b)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1223	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	09/27/2012	**Docket No:**	
Violation Occur Dt:	06/27/2012	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	2	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1147415	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	06/16/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	04/15/2009
Controller ID:	M00595	**Last Action Dt:**	07/20/2009
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/15/2009
Inspection Begin Dt:	04/09/2009	**Cal Yr:**	2009
Negligence:	LowNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	04/15/2009	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/15/2009
Violation No:	6441437	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1110
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	04/14/2009	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0946	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	07/23/2009	**Docket No:**	
Violation Occur Dt:	04/14/2009	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	26	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	13		

Violation Details

Event No:	1133938	**Amount Paid:**	181
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	11/13/2007
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	01/16/2008
Inj Illness:	LostDays	**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	5	**Latest Term Due Dt:**	
Inspection Begin Dt:	10/04/2007	**Cal Yr:**	2007
Negligence:	LowNegligence	**Latest Term Due Tm:**	

Inspection End Dt:	10/04/2007	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/04/2007
Violation No:	7964561	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1430
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/04/2007	**Part Section:**	46.7(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0900	**Section of Act 1:**	104(g)(1)
Final Ord Issue Dt:	12/20/2007	**Docket No:**	
Violation Occur Dt:	10/04/2007	**Section of Act 2:**	
Proposed Penalty:	181	**Docket Stat Cd:**	
Violator Violation Cnt:	45	**Contested Ind:**	No
Amount Due:	181	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1128476	**Amount Paid:**	838
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0830
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	0830
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/31/2006
Violation No:	6397007	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0900
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0810	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	838	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	838	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128439	**Amount Paid:**	629
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	8	**Latest Term Due Dt:**	
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006

Negligence:	HighNegligence	**Latest Term Due Tm:**	
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/09/2006
Violation No:	6381291	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0840
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	46.8(a)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1450	**Section of Act 1:**	104(g)(1)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	629	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	629	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128439	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	02/08/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	1600
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/08/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1600
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/15/2006
Violation No:	6381293	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1115
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	56.14110
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1530	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128228	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	10/12/2005
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	08/17/2005
Controller ID:	M00595	**Last Action Dt:**	11/09/2005
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/17/2005

Inspection Begin Dt:	08/15/2005	**Cal Yr:**	2005
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	08/18/2005	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	08/17/2005
Violation No:	6376871	**Fiscal Yr:**	2005
Enforcement Area:		**Termination Time:**	0950
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/16/2005	**Part Section:**	56.14101(a)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1055	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/11/2006	**Docket No:**	
Violation Occur Dt:	08/16/2005	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1142916	**Amount Paid:**	425
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/16/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	11/13/2008
Controller ID:	M00595	**Last Action Dt:**	02/09/2009
Inj Illness:	LostDays	**Orig Term Due Tm:**	0930
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/13/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	ModNegligence	**Latest Term Due Tm:**	0930
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/13/2008
Violation No:	6440078	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	0920
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/13/2008	**Part Section:**	56.9300(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0900	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/21/2009	**Docket No:**	
Violation Occur Dt:	11/13/2008	**Section of Act 2:**	
Proposed Penalty:	425	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	425	**Contested Dt:**	
Violator Insp Day Cnt:	12		

Violation Details

Event No:	1128439	**Amount Paid:**	107
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	02/08/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1000
Controller Name:	David H Murdock	**Coal Metal Ind:**	M

No Affected:	1	**Latest Term Due Dt:**	02/08/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1000
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/08/2006
Violation No:	6381280	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1000
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	56.12008
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0950	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	107	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	107	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128476	**Amount Paid:**	614
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	06/05/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/05/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/06/2006
Violation No:	6397025	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1230
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/05/2006	**Part Section:**	56.14201(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1130	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	06/05/2006	**Section of Act 2:**	
Proposed Penalty:	614	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	614	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1152724	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/15/2011
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	01/21/2011
Controller ID:	M00595	**Last Action Dt:**	04/27/2011
Inj Illness:	LostDays	**Orig Term Due Tm:**	1300

Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	01/21/2011
Inspection Begin Dt:	01/21/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	1300
Inspection End Dt:	01/25/2011	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	01/21/2011
Violation No:	8555112	**Fiscal Yr:**	2011
Enforcement Area:		**Termination Time:**	1005
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	01/21/2011	**Part Section:**	56.4203
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0930	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/21/2011	**Docket No:**	
Violation Occur Dt:	01/21/2011	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1128439	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	02/08/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	1140
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/20/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0600
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	03/03/2006
Violation No:	6381284	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0835
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1125	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128228	**Amount Paid:**	99
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	10/12/2005
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	08/16/2005
Controller ID:	M00595	**Last Action Dt:**	11/09/2005

Inj Illness:	Permanent	***Orig Term Due Tm:***	1200
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	08/16/2005
Inspection Begin Dt:	08/15/2005	***Cal Yr:***	2005
Negligence:	ModNegligence	***Latest Term Due Tm:***	1200
Inspection End Dt:	08/18/2005	***Cal Qtr:***	3
Written Notice:		***Termination Dt:***	08/16/2005
Violation No:	6376872	***Fiscal Yr:***	2005
Enforcement Area:		***Termination Time:***	1500
Violator ID:	0063043	***Fiscal Qtr:***	4
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	08/16/2005	***Part Section:***	56.9300(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1120	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	03/11/2006	***Docket No:***	
Violation Occur Dt:	08/16/2005	***Section of Act 2:***	
Proposed Penalty:	99	***Docket Stat Cd:***	
Violator Violation Cnt:	0	***Contested Ind:***	No
Amount Due:	99	***Contested Dt:***	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133990	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	05/13/2008
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	NoLikelihood	***Orig Term Due Dt:***	04/03/2008
Controller ID:	M00595	***Last Action Dt:***	06/16/2008
Inj Illness:	NoLostDays	***Orig Term Due Tm:***	1530
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	0	***Latest Term Due Dt:***	04/03/2008
Inspection Begin Dt:	03/25/2008	***Cal Yr:***	2008
Negligence:	ModNegligence	***Latest Term Due Tm:***	1530
Inspection End Dt:	04/02/2008	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	04/02/2008
Violation No:	6440125	***Fiscal Yr:***	2008
Enforcement Area:		***Termination Time:***	0955
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	04/02/2008	***Part Section:***	46.9(c)(1)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0950	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	06/19/2008	***Docket No:***	
Violation Occur Dt:	04/02/2008	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	25	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	10		

Violation Details

Event No:	6595305	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	9HZ
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/25/2013
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	06/21/2013

Controller ID:		**Last Action Dt:**	09/03/2013
Inj Illness:	Permanent	**Orig Term Due Tm:**	0800
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/21/2013
Inspection Begin Dt:	06/19/2013	**Cal Yr:**	2013
Negligence:	HighNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	06/20/2013	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	07/01/2013
Violation No:	8698312	**Fiscal Yr:**	2013
Enforcement Area:		**Termination Time:**	1504
Violator ID:	9HZ	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Transamerican Soil Serv Inc	**Sig Sub:**	No
Primary or Mill:	Mill	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/20/2013	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1030	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	09/16/2013	**Docket No:**	
Violation Occur Dt:	06/20/2013	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1152131	**Amount Paid:**	190
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/16/2010
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	01/04/2010
Controller ID:	M00595	**Last Action Dt:**	03/11/2010
Inj Illness:	LostDays	**Orig Term Due Tm:**	1530
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	01/04/2010
Inspection Begin Dt:	12/30/2009	**Cal Yr:**	2009
Negligence:	ModNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	01/06/2010	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	01/04/2010
Violation No:	6484992	**Fiscal Yr:**	2010
Enforcement Area:		**Termination Time:**	1400
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/30/2009	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1145	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/25/2010	**Docket No:**	
Violation Occur Dt:	12/30/2009	**Section of Act 2:**	
Proposed Penalty:	190	**Docket Stat Cd:**	
Violator Violation Cnt:	22	**Contested Ind:**	No
Amount Due:	190	**Contested Dt:**	
Violator Insp Day Cnt:	10		

Violation Details

Event No:	1128476	**Amount Paid:**	375
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid

Likelihood:	Reasonably	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0800
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/31/2006
Violation No:	6397006	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0900
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0745	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	375	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	375	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1152347	**Amount Paid:**	1304
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	06/15/2010
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	04/30/2010
Controller ID:	M00595	**Last Action Dt:**	07/14/2010
Inj Illness:	Permanent	**Orig Term Due Tm:**	0900
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/30/2010
Inspection Begin Dt:	04/30/2010	**Cal Yr:**	2010
Negligence:	ModNegligence	**Latest Term Due Tm:**	0900
Inspection End Dt:	05/05/2010	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/30/2010
Violation No:	8560245	**Fiscal Yr:**	2010
Enforcement Area:		**Termination Time:**	0920
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	04/30/2010	**Part Section:**	56.14109(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0845	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	07/22/2010	**Docket No:**	
Violation Occur Dt:	04/30/2010	**Section of Act 2:**	
Proposed Penalty:	1304	**Docket Stat Cd:**	
Violator Violation Cnt:	20	**Contested Ind:**	No
Amount Due:	1304	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1133408	**Amount Paid:**	614
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation

Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	11/02/2006
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	Permanent	**Orig Term Due Tm:**	0900
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/02/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0900
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/02/2006
Violation No:	6397803	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	0915
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/31/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1245	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	10/31/2006	**Section of Act 2:**	
Proposed Penalty:	614	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	614	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1128439	**Amount Paid:**	144
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	02/08/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	1220
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/08/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1220
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/13/2006
Violation No:	6381286	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1010
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1210	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	144	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	144	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1152588	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	U799
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/25/2012

Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	12/14/2011
Controller ID:		***Last Action Dt:***	02/06/2012
Inj Illness:	Fatal	***Orig Term Due Tm:***	1130
Controller Name:		***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	12/14/2011
Inspection Begin Dt:	12/12/2011	***Cal Yr:***	2011
Negligence:	ModNegligence	***Latest Term Due Tm:***	1130
Inspection End Dt:	12/15/2011	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	01/05/2012
Violation No:	8607390	***Fiscal Yr:***	2012
Enforcement Area:		***Termination Time:***	0950
Violator ID:	U799	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Neal Trucking	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Contractor	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	12/14/2011	***Part Section:***	56.14132(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	1035	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	02/29/2012	***Docket No:***	
Violation Occur Dt:	12/14/2011	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	1	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133408	***Amount Paid:***	2793
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	12/14/2006
Replaced by Ord No:	6397811	***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	11/01/2006
Controller ID:	M00595	***Last Action Dt:***	02/24/2007
Inj Illness:	LostDays	***Orig Term Due Tm:***	1500
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	11/01/2006
Inspection Begin Dt:	10/31/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	1500
Inspection End Dt:	11/02/2006	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	
Violation No:	6397809	***Fiscal Yr:***	2007
Enforcement Area:		***Termination Time:***	
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	ReplacedByOrder
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	11/01/2006	***Part Section:***	56.11001
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1100	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	01/28/2007	***Docket No:***	
Violation Occur Dt:	11/01/2006	***Section of Act 2:***	
Proposed Penalty:	2793	***Docket Stat Cd:***	
Violator Violation Cnt:	31	***Contested Ind:***	No
Amount Due:	2793	***Contested Dt:***	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1128476	***Amount Paid:***	60
Initial Viol No:		***Contractor ID:***	

Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0700
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0700
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/31/2006
Violation No:	6397003	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0700
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.16006
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0645	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1142916	**Amount Paid:**	117
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/13/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	NoLikelihood	**Orig Term Due Dt:**	11/19/2008
Controller ID:	M00595	**Last Action Dt:**	02/18/2009
Inj Illness:	NoLostDays	**Orig Term Due Tm:**	1300
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	11/19/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	HighNegligence	**Latest Term Due Tm:**	1300
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/19/2008
Violation No:	6440087	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1300
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/19/2008	**Part Section:**	50.20(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1205	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/19/2009	**Docket No:**	
Violation Occur Dt:	01/30/2008	**Section of Act 2:**	
Proposed Penalty:	117	**Docket Stat Cd:**	
Violator Violation Cnt:	23	**Contested Ind:**	No
Amount Due:	117	**Contested Dt:**	
Violator Insp Day Cnt:	13		

Violation Details

Event No:	1128228	**Amount Paid:**	124

Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	10/12/2005
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	08/17/2005
Controller ID:	M00595	**Last Action Dt:**	11/09/2005
Inj Illness:	Fatal	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/17/2005
Inspection Begin Dt:	08/15/2005	**Cal Yr:**	2005
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	08/18/2005	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	08/17/2005
Violation No:	6376874	**Fiscal Yr:**	2005
Enforcement Area:		**Termination Time:**	1050
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/17/2005	**Part Section:**	56.14131(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0645	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/11/2006	**Docket No:**	
Violation Occur Dt:	08/17/2005	**Section of Act 2:**	
Proposed Penalty:	124	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	124	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/01/2006
Violation No:	6397009	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1300
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	47.41(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0835	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133939	***Amount Paid:***	308
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	11/13/2007
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	10/17/2007
Controller ID:	M00595	***Last Action Dt:***	01/16/2008
Inj Illness:	Fatal	***Orig Term Due Tm:***	1530
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	10/17/2007
Inspection Begin Dt:	10/15/2007	***Cal Yr:***	2007
Negligence:	LowNegligence	***Latest Term Due Tm:***	1530
Inspection End Dt:	10/18/2007	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	10/18/2007
Violation No:	7964569	***Fiscal Yr:***	2008
Enforcement Area:		***Termination Time:***	1300
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	10/16/2007	***Part Section:***	56.14101(a)(2)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1205	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	12/20/2007	***Docket No:***	
Violation Occur Dt:	10/16/2007	***Section of Act 2:***	
Proposed Penalty:	308	***Docket Stat Cd:***	
Violator Violation Cnt:	45	***Contested Ind:***	No
Amount Due:	308	***Contested Dt:***	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1128476	***Amount Paid:***	60
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/13/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	05/31/2006
Controller ID:	M00595	***Last Action Dt:***	08/14/2006
Inj Illness:	Permanent	***Orig Term Due Tm:***	1005
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/31/2006
Inspection Begin Dt:	05/30/2006	***Cal Yr:***	2006
Negligence:	HighNegligence	***Latest Term Due Tm:***	1005
Inspection End Dt:	06/07/2006	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	05/31/2006
Violation No:	6397014	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1120
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/31/2006	***Part Section:***	56.14107(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0950	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	
Violation Occur Dt:	05/31/2006	***Section of Act 2:***	
Proposed Penalty:	60	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	60	***Contested Dt:***	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1160615	***Amount Paid:***	392
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	01/15/2013
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	06/26/2012
Controller ID:	M00595	***Last Action Dt:***	01/29/2013
Inj Illness:	LostDays	***Orig Term Due Tm:***	1330
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	06/26/2012
Inspection Begin Dt:	06/26/2012	***Cal Yr:***	2012
Negligence:	ModNegligence	***Latest Term Due Tm:***	1330
Inspection End Dt:	07/03/2012	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	06/27/2012
Violation No:	8689433	***Fiscal Yr:***	2012
Enforcement Area:		***Termination Time:***	0846
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	06/26/2012	***Part Section:***	56.20003(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	1129	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	02/21/2013	***Docket No:***	
Violation Occur Dt:	06/26/2012	***Section of Act 2:***	
Proposed Penalty:	392	***Docket Stat Cd:***	
Violator Violation Cnt:	14	***Contested Ind:***	No
Amount Due:	392	***Contested Dt:***	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1152588	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	01/17/2012
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	12/13/2011
Controller ID:	M00595	***Last Action Dt:***	02/28/2012
Inj Illness:	Fatal	***Orig Term Due Tm:***	1100
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	12/13/2011
Inspection Begin Dt:	12/12/2011	***Cal Yr:***	2011
Negligence:	ModNegligence	***Latest Term Due Tm:***	1100
Inspection End Dt:	12/15/2011	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	12/15/2011
Violation No:	8607388	***Fiscal Yr:***	2012
Enforcement Area:		***Termination Time:***	1404
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	12/12/2011	***Part Section:***	56.12006
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	1240	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	02/23/2012	***Docket No:***	
Violation Occur Dt:	12/12/2011	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1142916	***Amount Paid:***	2106
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	12/16/2008
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	11/13/2008
Controller ID:	M00595	***Last Action Dt:***	02/09/2009
Inj Illness:	Permanent	***Orig Term Due Tm:***	1345
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	11/13/2008
Inspection Begin Dt:	11/13/2008	***Cal Yr:***	2008
Negligence:	HighNegligence	***Latest Term Due Tm:***	1345
Inspection End Dt:	11/19/2008	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	11/13/2008
Violation No:	6440080	***Fiscal Yr:***	2009
Enforcement Area:		***Termination Time:***	1330
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	11/13/2008	***Part Section:***	56.14112(a)(1)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1245	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	01/21/2009	***Docket No:***	
Violation Occur Dt:	11/13/2008	***Section of Act 2:***	
Proposed Penalty:	2106	***Docket Stat Cd:***	
Violator Violation Cnt:	17	***Contested Ind:***	No
Amount Due:	2106	***Contested Dt:***	
Violator Insp Day Cnt:	12		

Violation Details

Event No:	1152347	***Amount Paid:***	873
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	06/15/2010
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	05/04/2010
Controller ID:	M00595	***Last Action Dt:***	07/14/2010
Inj Illness:	LostDays	***Orig Term Due Tm:***	1230
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/04/2010
Inspection Begin Dt:	04/30/2010	***Cal Yr:***	2010
Negligence:	ModNegligence	***Latest Term Due Tm:***	1230
Inspection End Dt:	05/05/2010	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	05/04/2010
Violation No:	8560246	***Fiscal Yr:***	2010
Enforcement Area:		***Termination Time:***	1250
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/04/2010	***Part Section:***	56.20003(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1140	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	07/22/2010	***Docket No:***	
Violation Occur Dt:	05/04/2010	***Section of Act 2:***	
Proposed Penalty:	873	***Docket Stat Cd:***	
Violator Violation Cnt:	20	***Contested Ind:***	No
Amount Due:	873	***Contested Dt:***	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1160148	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	09/13/2011
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	08/04/2011
Controller ID:	M00595	***Last Action Dt:***	11/08/2011
Inj Illness:	Permanent	***Orig Term Due Tm:***	1200
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	08/04/2011
Inspection Begin Dt:	08/03/2011	***Cal Yr:***	2011
Negligence:	ModNegligence	***Latest Term Due Tm:***	1200
Inspection End Dt:	08/04/2011	***Cal Qtr:***	3
Written Notice:		***Termination Dt:***	08/04/2011
Violation No:	8607417	***Fiscal Yr:***	2011
Enforcement Area:		***Termination Time:***	0812
Violator ID:	0063043	***Fiscal Qtr:***	4
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	08/04/2011	***Part Section:***	56.14100(c)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	0700	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	10/21/2011	***Docket No:***	
Violation Occur Dt:	08/04/2011	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	6	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1128476	***Amount Paid:***	838
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/13/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	05/31/2006
Controller ID:	M00595	***Last Action Dt:***	08/14/2006
Inj Illness:	Permanent	***Orig Term Due Tm:***	0930
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/31/2006
Inspection Begin Dt:	05/30/2006	***Cal Yr:***	2006
Negligence:	HighNegligence	***Latest Term Due Tm:***	0930
Inspection End Dt:	06/07/2006	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	05/31/2006
Violation No:	6397012	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1015
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/31/2006	***Part Section:***	56.14107(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0915	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	
Violation Occur Dt:	05/31/2006	***Section of Act 2:***	
Proposed Penalty:	838	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	838	***Contested Dt:***	

Violator Insp Day Cnt: 5

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/05/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1245
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/05/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1245
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/05/2006
Violation No:	6397026	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1300
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/05/2006	**Part Section:**	47.41(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1225	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	06/05/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128439	**Amount Paid:**	177
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	02/14/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	0520
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/14/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0520
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/15/2006
Violation No:	6381297	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1105
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/14/2006	**Part Section:**	56.17001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0505	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/14/2006	**Section of Act 2:**	
Proposed Penalty:	177	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No

Amount Due:	177	***Contested Dt:***	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133990	***Amount Paid:***	308
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	05/13/2008
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	03/28/2008
Controller ID:	M00595	***Last Action Dt:***	06/16/2008
Inj Illness:	Permanent	***Orig Term Due Tm:***	1530
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	03/28/2008
Inspection Begin Dt:	03/25/2008	***Cal Yr:***	2008
Negligence:	ModNegligence	***Latest Term Due Tm:***	1530
Inspection End Dt:	04/02/2008	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	04/02/2008
Violation No:	6440119	***Fiscal Yr:***	2008
Enforcement Area:		***Termination Time:***	1107
Violator ID:	0063043	***Fiscal Qtr:***	2
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	03/27/2008	***Part Section:***	56.14112(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1249	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	06/19/2008	***Docket No:***	
Violation Occur Dt:	03/27/2008	***Section of Act 2:***	
Proposed Penalty:	308	***Docket Stat Cd:***	
Violator Violation Cnt:	25	***Contested Ind:***	No
Amount Due:	308	***Contested Dt:***	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1133408	***Amount Paid:***	614
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	12/14/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	11/04/2006
Controller ID:	M00595	***Last Action Dt:***	02/24/2007
Inj Illness:	Permanent	***Orig Term Due Tm:***	0900
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	11/04/2006
Inspection Begin Dt:	10/31/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	0900
Inspection End Dt:	11/02/2006	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	11/15/2006
Violation No:	6397814	***Fiscal Yr:***	2007
Enforcement Area:		***Termination Time:***	1115
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	11/02/2006	***Part Section:***	56.14107(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1200	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	01/28/2007	***Docket No:***	
Violation Occur Dt:	11/02/2006	***Section of Act 2:***	
Proposed Penalty:	614	***Docket Stat Cd:***	

Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	614	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1152131	**Amount Paid:**	176
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/16/2010
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	01/05/2010
Controller ID:	M00595	**Last Action Dt:**	03/11/2010
Inj Illness:	LostDays	**Orig Term Due Tm:**	1530
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	01/05/2010
Inspection Begin Dt:	12/30/2009	**Cal Yr:**	2010
Negligence:	ModNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	01/06/2010	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	01/05/2010
Violation No:	6484994	**Fiscal Yr:**	2010
Enforcement Area:		**Termination Time:**	0800
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	01/04/2010	**Part Section:**	56.12034
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1415	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/25/2010	**Docket No:**	
Violation Occur Dt:	01/04/2010	**Section of Act 2:**	
Proposed Penalty:	176	**Docket Stat Cd:**	
Violator Violation Cnt:	22	**Contested Ind:**	No
Amount Due:	176	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1152131	**Amount Paid:**	176
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/16/2010
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	01/05/2010
Controller ID:	M00595	**Last Action Dt:**	03/11/2010
Inj Illness:	LostDays	**Orig Term Due Tm:**	1500
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	01/05/2010
Inspection Begin Dt:	12/30/2009	**Cal Yr:**	2010
Negligence:	ModNegligence	**Latest Term Due Tm:**	1500
Inspection End Dt:	01/06/2010	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	01/05/2010
Violation No:	6484995	**Fiscal Yr:**	2010
Enforcement Area:		**Termination Time:**	1230
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	01/05/2010	**Part Section:**	56.14112(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0950	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/25/2010	**Docket No:**	
Violation Occur Dt:	01/05/2010	**Section of Act 2:**	

Proposed Penalty:	176	***Docket Stat Cd:***	
Violator Violation Cnt:	22	***Contested Ind:***	No
Amount Due:	176	***Contested Dt:***	
Violator Insp Day Cnt:	10		

Violation Details

Event No:	6595305	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	U799
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/24/2013
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	NoLikelihood	***Orig Term Due Dt:***	06/20/2013
Controller ID:		***Last Action Dt:***	08/19/2013
Inj Illness:	NoLostDays	***Orig Term Due Tm:***	1001
Controller Name:		***Coal Metal Ind:***	M
No Affected:	0	***Latest Term Due Dt:***	06/20/2013
Inspection Begin Dt:	06/19/2013	***Cal Yr:***	2013
Negligence:	HighNegligence	***Latest Term Due Tm:***	1001
Inspection End Dt:	06/20/2013	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	06/20/2013
Violation No:	8698311	***Fiscal Yr:***	2013
Enforcement Area:		***Termination Time:***	1001
Violator ID:	U799	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Neal Trucking	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Contractor	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	06/20/2013	***Part Section:***	50.30(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	1000	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/31/2013	***Docket No:***	
Violation Occur Dt:	06/20/2013	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	3	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128476	***Amount Paid:***	60
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/13/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	05/31/2006
Controller ID:	M00595	***Last Action Dt:***	08/14/2006
Inj Illness:	LostDays	***Orig Term Due Tm:***	1200
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/31/2006
Inspection Begin Dt:	05/30/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	1200
Inspection End Dt:	06/07/2006	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	06/01/2006
Violation No:	6397008	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1250
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/31/2006	***Part Section:***	56.12021
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0825	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	

Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128439	**Amount Paid:**	144
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	02/08/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/08/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/13/2006
Violation No:	6381285	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1005
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1140	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	144	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	144	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1160615	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	U799
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	08/22/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/28/2012
Controller ID:		**Last Action Dt:**	09/11/2012
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	07/03/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	07/03/2012
Violation No:	8689435	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1109
Violator ID:	U799	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Neal Trucking	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/27/2012	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1225	**Section of Act 1:**	104(a)

Final Ord Issue Dt:	09/27/2012	**Docket No:**	
Violation Occur Dt:	06/26/2012	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	2	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1160615	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	1BP
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	08/22/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/28/2012
Controller ID:		**Last Action Dt:**	09/24/2012
Inj Illness:	LostDays	**Orig Term Due Tm:**	1400
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/28/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	HighNegligence	**Latest Term Due Tm:**	1400
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	07/03/2012
Violation No:	8689439	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1122
Violator ID:	1BP	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Corona Clay Co	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/28/2012	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0930	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	09/28/2012	**Docket No:**	
Violation Occur Dt:	06/28/2012	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128228	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/19/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	08/24/2005
Controller ID:	M00595	**Last Action Dt:**	03/08/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/24/2005
Inspection Begin Dt:	08/15/2005	**Cal Yr:**	2005
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	08/18/2005	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	09/29/2005
Violation No:	6376875	**Fiscal Yr:**	2005
Enforcement Area:		**Termination Time:**	0650
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/17/2005	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed

Violation Issue Time:	0650	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/12/2006	**Docket No:**	
Violation Occur Dt:	08/17/2005	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1133408	**Amount Paid:**	1402
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	11/01/2006
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	Fatal	**Orig Term Due Tm:**	1400
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/01/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1400
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/02/2006
Violation No:	6397810	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	1430
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/01/2006	**Part Section:**	56.15020
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1115	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	11/01/2006	**Section of Act 2:**	
Proposed Penalty:	1402	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	1402	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1142916	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/13/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	11/18/2008
Controller ID:	M00595	**Last Action Dt:**	02/18/2009
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/18/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/18/2008
Violation No:	6440083	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	0650
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/18/2008	**Part Section:**	56.12004

Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0640	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/19/2009	**Docket No:**	
Violation Occur Dt:	11/18/2008	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	14		

Violation Details

Event No:	1128439	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	02/13/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/13/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/14/2006
Violation No:	6381294	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0830
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/13/2006	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1055	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/13/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1147415	**Amount Paid:**	285
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	05/12/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	04/09/2009
Controller ID:	M00595	**Last Action Dt:**	06/15/2009
Inj Illness:	Permanent	**Orig Term Due Tm:**	1500
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/09/2009
Inspection Begin Dt:	04/09/2009	**Cal Yr:**	2009
Negligence:	ModNegligence	**Latest Term Due Tm:**	1500
Inspection End Dt:	04/15/2009	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/13/2009
Violation No:	6441434	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1033
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	

Violation Issue Dt:	04/09/2009	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0955	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	06/18/2009	**Docket No:**	
Violation Occur Dt:	04/09/2009	**Section of Act 2:**	
Proposed Penalty:	285	**Docket Stat Cd:**	
Violator Violation Cnt:	26	**Contested Ind:**	No
Amount Due:	285	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1128476	**Amount Paid:**	614
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	06/05/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	1030
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/05/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1030
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/06/2006
Violation No:	6397022	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1100
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/05/2006	**Part Section:**	56.11002
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1000	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	06/05/2006	**Section of Act 2:**	
Proposed Penalty:	614	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	614	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133939	**Amount Paid:**	3784
Initial Viol No:	7964566	**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/12/2008
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	03/26/2008
Inj Illness:	LostDays	**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	
Inspection Begin Dt:	10/15/2007	**Cal Yr:**	2007
Negligence:	HighNegligence	**Latest Term Due Tm:**	
Inspection End Dt:	10/18/2007	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/18/2007
Violation No:	7964567	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1437
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	

Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/16/2007	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1359	**Section of Act 1:**	104(d)(1)
Final Ord Issue Dt:	03/20/2008	**Docket No:**	
Violation Occur Dt:	10/16/2007	**Section of Act 2:**	
Proposed Penalty:	3784	**Docket Stat Cd:**	
Violator Violation Cnt:	45	**Contested Ind:**	No
Amount Due:	3784	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1100
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	1100
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/07/2006
Violation No:	6397016	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1200
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.14101(a)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1035	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133990	**Amount Paid:**	308
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	05/13/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	03/26/2008
Controller ID:	M00595	**Last Action Dt:**	06/16/2008
Inj Illness:	Permanent	**Orig Term Due Tm:**	1530
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	03/26/2008
Inspection Begin Dt:	03/25/2008	**Cal Yr:**	2008
Negligence:	ModNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	04/02/2008	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	03/27/2008
Violation No:	6440117	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	0800
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	

Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	03/25/2008	**Part Section:**	56.14112(a)(1)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1441	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	06/19/2008	**Docket No:**	
Violation Occur Dt:	03/25/2008	**Section of Act 2:**	
Proposed Penalty:	308	**Docket Stat Cd:**	
Violator Violation Cnt:	25	**Contested Ind:**	No
Amount Due:	308	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1160615	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	1BP
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	08/22/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/28/2012
Controller ID:		**Last Action Dt:**	09/24/2012
Inj Illness:	Fatal	**Orig Term Due Tm:**	1400
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/28/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	ModNegligence	**Latest Term Due Tm:**	1400
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	07/03/2012
Violation No:	8689437	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1116
Violator ID:	1BP	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Corona Clay Co	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/28/2012	**Part Section:**	56.14132(b)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0920	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	09/28/2012	**Docket No:**	
Violation Occur Dt:	06/28/2012	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1152131	**Amount Paid:**	176
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/16/2010
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	01/05/2010
Controller ID:	M00595	**Last Action Dt:**	03/11/2010
Inj Illness:	LostDays	**Orig Term Due Tm:**	1500
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	01/05/2010
Inspection Begin Dt:	12/30/2009	**Cal Yr:**	2010
Negligence:	ModNegligence	**Latest Term Due Tm:**	1500
Inspection End Dt:	01/06/2010	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	01/05/2010
Violation No:	6484996	**Fiscal Yr:**	2010
Enforcement Area:		**Termination Time:**	1130
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No

Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	01/05/2010	**Part Section:**	56.15001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1100	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/25/2010	**Docket No:**	
Violation Occur Dt:	01/05/2010	**Section of Act 2:**	
Proposed Penalty:	176	**Docket Stat Cd:**	
Violator Violation Cnt:	22	**Contested Ind:**	No
Amount Due:	176	**Contested Dt:**	
Violator Insp Day Cnt:	10		

Violation Details

Event No:	1152725	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	U799
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/23/2011
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	NoLikelihood	**Orig Term Due Dt:**	01/27/2011
Controller ID:		**Last Action Dt:**	04/12/2011
Inj Illness:	NoLostDays	**Orig Term Due Tm:**	1200
Controller Name:		**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	01/27/2011
Inspection Begin Dt:	01/27/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	01/27/2011	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	01/27/2011
Violation No:	8555115	**Fiscal Yr:**	2011
Enforcement Area:		**Termination Time:**	1130
Violator ID:	U799	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Neal Trucking	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	01/27/2011	**Part Section:**	46.9(c)(3)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1045	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/29/2011	**Docket No:**	
Violation Occur Dt:	01/27/2011	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1147415	**Amount Paid:**	285
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	06/16/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	04/14/2009
Controller ID:	M00595	**Last Action Dt:**	07/20/2009
Inj Illness:	Permanent	**Orig Term Due Tm:**	0700
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/14/2009
Inspection Begin Dt:	04/09/2009	**Cal Yr:**	2009
Negligence:	ModNegligence	**Latest Term Due Tm:**	0700
Inspection End Dt:	04/15/2009	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/14/2009
Violation No:	6441436	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	0932
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated

Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	04/13/2009	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1105	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	07/23/2009	**Docket No:**	
Violation Occur Dt:	04/13/2009	**Section of Act 2:**	
Proposed Penalty:	285	**Docket Stat Cd:**	
Violator Violation Cnt:	26	**Contested Ind:**	No
Amount Due:	285	**Contested Dt:**	
Violator Insp Day Cnt:	12		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/01/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/01/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/05/2006
Violation No:	6397019	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0940
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.14132(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1135	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128228	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	10/12/2005
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	08/19/2005
Controller ID:	M00595	**Last Action Dt:**	11/09/2005
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/19/2005
Inspection Begin Dt:	08/15/2005	**Cal Yr:**	2005
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	08/18/2005	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	08/18/2005
Violation No:	6376873	**Fiscal Yr:**	2005
Enforcement Area:		**Termination Time:**	0845
Violator ID:	0063043	**Fiscal Qtr:**	4

Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/16/2005	**Part Section:**	56.15001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1235	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/11/2006	**Docket No:**	
Violation Occur Dt:	08/16/2005	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1152724	**Amount Paid:**	117
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/15/2011
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	01/24/2011
Controller ID:	M00595	**Last Action Dt:**	04/27/2011
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	01/24/2011
Inspection Begin Dt:	01/21/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	01/25/2011	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	01/25/2011
Violation No:	8555114	**Fiscal Yr:**	2011
Enforcement Area:		**Termination Time:**	0730
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	01/24/2011	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1030	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/21/2011	**Docket No:**	
Violation Occur Dt:	01/24/2011	**Section of Act 2:**	
Proposed Penalty:	117	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	117	**Contested Dt:**	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	1128439	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	02/14/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0810
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/14/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0810
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/14/2006
Violation No:	6381301	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0820

Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/14/2006	**Part Section:**	56.14112(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0755	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/14/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1142916	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/13/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	NoLikelihood	**Orig Term Due Dt:**	11/19/2008
Controller ID:	M00595	**Last Action Dt:**	02/18/2009
Inj Illness:	NoLostDays	**Orig Term Due Tm:**	1300
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	11/19/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	HighNegligence	**Latest Term Due Tm:**	1300
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/19/2008
Violation No:	6440088	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1300
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/19/2008	**Part Section:**	50.20(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1215	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/19/2009	**Docket No:**	
Violation Occur Dt:	04/30/2008	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	11	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/05/2006
Violation No:	6397018	**Fiscal Yr:**	2006

Enforcement Area:		***Termination Time:***	0930
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/31/2006	***Part Section:***	56.14100(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1125	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	
Violation Occur Dt:	05/31/2006	***Section of Act 2:***	
Proposed Penalty:	60	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	60	***Contested Dt:***	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128476	***Amount Paid:***	60
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/13/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	05/31/2006
Controller ID:	M00595	***Last Action Dt:***	08/14/2006
Inj Illness:	LostDays	***Orig Term Due Tm:***	0930
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/31/2006
Inspection Begin Dt:	05/30/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	0930
Inspection End Dt:	06/07/2006	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	05/31/2006
Violation No:	6397011	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1000
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/31/2006	***Part Section:***	56.20003(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0900	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	
Violation Occur Dt:	05/31/2006	***Section of Act 2:***	
Proposed Penalty:	60	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	60	***Contested Dt:***	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128439	***Amount Paid:***	177
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	03/16/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	02/08/2006
Controller ID:	M00595	***Last Action Dt:***	07/10/2006
Inj Illness:	Fatal	***Orig Term Due Tm:***	1400
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	02/08/2006
Inspection Begin Dt:	02/07/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	1400
Inspection End Dt:	02/15/2006	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	02/08/2006

Violation No:	6381288	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1430
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	56.18002(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1320	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	177	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	177	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/05/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	1015
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/05/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1015
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/05/2006
Violation No:	6397021	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1045
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/05/2006	**Part Section:**	56.12018
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0945	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	06/05/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1160615	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	1BP
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	08/22/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/28/2012
Controller ID:		**Last Action Dt:**	09/24/2012
Inj Illness:	LostDays	**Orig Term Due Tm:**	1400
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/28/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	HighNegligence	**Latest Term Due Tm:**	1400
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2

Written Notice:		**Termination Dt:**	07/03/2012
Violation No:	8689438	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1120
Violator ID:	1BP	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Corona Clay Co	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/28/2012	**Part Section:**	56.4200(b)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0928	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	09/28/2012	**Docket No:**	
Violation Occur Dt:	06/28/2012	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1147415	**Amount Paid:**	499
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	06/16/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	04/15/2009
Controller ID:	M00595	**Last Action Dt:**	07/20/2009
Inj Illness:	LostDays	**Orig Term Due Tm:**	0600
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/15/2009
Inspection Begin Dt:	04/09/2009	**Cal Yr:**	2009
Negligence:	HighNegligence	**Latest Term Due Tm:**	0600
Inspection End Dt:	04/15/2009	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/16/2009
Violation No:	6441438	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1108
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	04/14/2009	**Part Section:**	56.11001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1015	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	07/23/2009	**Docket No:**	
Violation Occur Dt:	04/14/2009	**Section of Act 2:**	
Proposed Penalty:	499	**Docket Stat Cd:**	
Violator Violation Cnt:	26	**Contested Ind:**	No
Amount Due:	499	**Contested Dt:**	
Violator Insp Day Cnt:	13		

Violation Details

Event No:	1133939	**Amount Paid:**	
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	
Likelihood:		**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	
Inj Illness:		**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	
Inspection Begin Dt:	10/15/2007	**Cal Yr:**	2007
Negligence:		**Latest Term Due Tm:**	

Inspection End Dt:	10/18/2007	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/15/2007
Violation No:	7964562	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1335
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/15/2007	**Part Section:**	
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1334	**Section of Act 1:**	107(a)
Final Ord Issue Dt:		**Docket No:**	
Violation Occur Dt:	10/15/2007	**Section of Act 2:**	
Proposed Penalty:		**Docket Stat Cd:**	
Violator Violation Cnt:		**Contested Ind:**	No
Amount Due:		**Contested Dt:**	
Violator Insp Day Cnt:			

Violation Details

Event No:	1160148	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	09/13/2011
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	08/04/2011
Controller ID:	M00595	**Last Action Dt:**	11/08/2011
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/04/2011
Inspection Begin Dt:	08/03/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	08/04/2011	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	08/04/2011
Violation No:	8607416	**Fiscal Yr:**	2011
Enforcement Area:		**Termination Time:**	0614
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/03/2011	**Part Section:**	56.12008
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1111	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	10/21/2011	**Docket No:**	
Violation Occur Dt:	08/03/2011	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	6	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1128439	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	02/14/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	0515
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/14/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006

Negligence:	LowNegligence	**Latest Term Due Tm:**	0515
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/14/2006
Violation No:	6381296	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0515
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/14/2006	**Part Section:**	47.41(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0450	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/14/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1147415	**Amount Paid:**	150
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	06/16/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	04/15/2009
Controller ID:	M00595	**Last Action Dt:**	07/20/2009
Inj Illness:	LostDays	**Orig Term Due Tm:**	0900
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/15/2009
Inspection Begin Dt:	04/09/2009	**Cal Yr:**	2009
Negligence:	ModNegligence	**Latest Term Due Tm:**	0900
Inspection End Dt:	04/15/2009	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/15/2009
Violation No:	6441439	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1105
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	04/14/2009	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1058	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	07/23/2009	**Docket No:**	
Violation Occur Dt:	04/14/2009	**Section of Act 2:**	
Proposed Penalty:	150	**Docket Stat Cd:**	
Violator Violation Cnt:	26	**Contested Ind:**	No
Amount Due:	150	**Contested Dt:**	
Violator Insp Day Cnt:	13		

Violation Details

Event No:	1142916	**Amount Paid:**	190
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/13/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	NoLikelihood	**Orig Term Due Dt:**	11/19/2008
Controller ID:	M00595	**Last Action Dt:**	02/18/2009
Inj Illness:	NoLostDays	**Orig Term Due Tm:**	1300
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	11/19/2008

Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	HighNegligence	**Latest Term Due Tm:**	1300
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/19/2008
Violation No:	6440090	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1300
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/19/2008	**Part Section:**	50.20(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1230	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/19/2009	**Docket No:**	
Violation Occur Dt:	06/28/2008	**Section of Act 2:**	
Proposed Penalty:	190	**Docket Stat Cd:**	
Violator Violation Cnt:	19	**Contested Ind:**	No
Amount Due:	190	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1133939	**Amount Paid:**	687
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	11/13/2007
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	10/17/2007
Controller ID:	M00595	**Last Action Dt:**	01/16/2008
Inj Illness:	LostDays	**Orig Term Due Tm:**	1530
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	10/17/2007
Inspection Begin Dt:	10/15/2007	**Cal Yr:**	2007
Negligence:	HighNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	10/18/2007	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/17/2007
Violation No:	7964570	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1306
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/16/2007	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1239	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	12/20/2007	**Docket No:**	
Violation Occur Dt:	10/16/2007	**Section of Act 2:**	
Proposed Penalty:	687	**Docket Stat Cd:**	
Violator Violation Cnt:	45	**Contested Ind:**	No
Amount Due:	687	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1133408	**Amount Paid:**	
Initial Viol No:	6397809	**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	
Likelihood:		**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	
Inj Illness:		**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M

No Affected:	0	**Latest Term Due Dt:**	
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:		**Latest Term Due Tm:**	
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/02/2006
Violation No:	6397811	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	1220
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/02/2006	**Part Section:**	56.11001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1000	**Section of Act 1:**	104(b)
Final Ord Issue Dt:		**Docket No:**	
Violation Occur Dt:	11/02/2006	**Section of Act 2:**	
Proposed Penalty:		**Docket Stat Cd:**	
Violator Violation Cnt:		**Contested Ind:**	No
Amount Due:		**Contested Dt:**	
Violator Insp Day Cnt:			

Violation Details

Event No:	1142916	**Amount Paid:**	127
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/16/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	11/13/2008
Controller ID:	M00595	**Last Action Dt:**	02/09/2009
Inj Illness:	Permanent	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/13/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/13/2008
Violation No:	6440077	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	0940
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/13/2008	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0806	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/21/2009	**Docket No:**	
Violation Occur Dt:	11/13/2008	**Section of Act 2:**	
Proposed Penalty:	127	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	127	**Contested Dt:**	
Violator Insp Day Cnt:	12		

Violation Details

Event No:	1128476	**Amount Paid:**	1238
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	06/05/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	1500

Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/05/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	1500
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/07/2006
Violation No:	6397028	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1120
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/05/2006	**Part Section:**	46.11(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1400	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	06/05/2006	**Section of Act 2:**	
Proposed Penalty:	1238	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	1238	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133939	**Amount Paid:**	3405
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/12/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	10/16/2007
Controller ID:	M00595	**Last Action Dt:**	03/26/2008
Inj Illness:	LostDays	**Orig Term Due Tm:**	1415
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	10/24/2007
Inspection Begin Dt:	10/15/2007	**Cal Yr:**	2007
Negligence:	HighNegligence	**Latest Term Due Tm:**	1530
Inspection End Dt:	10/18/2007	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	10/18/2007
Violation No:	7964566	**Fiscal Yr:**	2008
Enforcement Area:		**Termination Time:**	1435
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/16/2007	**Part Section:**	56.20003(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1338	**Section of Act 1:**	104(d)(1)
Final Ord Issue Dt:	03/20/2008	**Docket No:**	
Violation Occur Dt:	10/16/2007	**Section of Act 2:**	
Proposed Penalty:	3405	**Docket Stat Cd:**	
Violator Violation Cnt:	45	**Contested Ind:**	No
Amount Due:	3405	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006

Inj Illness:	Permanent	**Orig Term Due Tm:**	1030
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	1030
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/31/2006
Violation No:	6397015	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1130
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1015	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133408	**Amount Paid:**	2003
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	Fatal	**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/06/2006
Violation No:	6397816	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	1715
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/02/2006	**Part Section:**	46.6(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1500	**Section of Act 1:**	104(g)(1)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	11/02/2006	**Section of Act 2:**	
Proposed Penalty:	2003	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	2003	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1133408	**Amount Paid:**	614
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	11/02/2006

Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	Permanent	**Orig Term Due Tm:**	0900
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/02/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0900
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/02/2006
Violation No:	6397802	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	0900
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	10/31/2006	**Part Section:**	56.14107(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1230	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	10/31/2006	**Section of Act 2:**	
Proposed Penalty:	614	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	614	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1128439	**Amount Paid:**	0
Initial Viol No:		**Contractor ID:**	F621
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/23/2006
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	Uncollectable
Likelihood:	Reasonably	**Orig Term Due Dt:**	
Controller ID:		**Last Action Dt:**	11/28/2018
Inj Illness:	Fatal	**Orig Term Due Tm:**	
Controller Name:		**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/14/2006
Violation No:	6381292	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0700
Violator ID:	F621	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Randy Conner Welding	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Contractor	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	46.8(a)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1515	**Section of Act 1:**	104(g)(1)
Final Ord Issue Dt:	05/07/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	254	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	254	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1160615	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/15/2013
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid

Likelihood:	Unlikely	**Orig Term Due Dt:**	06/28/2012
Controller ID:	M00595	**Last Action Dt:**	01/29/2013
Inj Illness:	Permanent	**Orig Term Due Tm:**	0800
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/28/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/28/2012
Violation No:	8689436	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	0744
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/27/2012	**Part Section:**	56.11012
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1255	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/21/2013	**Docket No:**	
Violation Occur Dt:	06/27/2012	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	14	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	10		

Violation Details

Event No:	1128439	**Amount Paid:**	500
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Order
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	5	**Latest Term Due Dt:**	
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/10/2006
Violation No:	6381290	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0835
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	46.6(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1430	**Section of Act 1:**	104(g)(1)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	500	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	500	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1160615	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/15/2013
Replaced by Ord No:		**Cit Ord Safe:**	Citation

Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/27/2012
Controller ID:	M00595	**Last Action Dt:**	01/29/2013
Inj Illness:	LostDays	**Orig Term Due Tm:**	0800
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/27/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/27/2012
Violation No:	8689432	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	0805
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/26/2012	**Part Section:**	56.11001
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0958	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/21/2013	**Docket No:**	
Violation Occur Dt:	06/26/2012	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	14	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/31/2006
Violation No:	6397002	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1225
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.14132(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0615	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133408	**Amount Paid:**	1402
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006

Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	11/01/2006
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	Fatal	**Orig Term Due Tm:**	1400
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/01/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1400
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/02/2006
Violation No:	6397808	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	0955
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/01/2006	**Part Section:**	56.9300(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1045	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	11/01/2006	**Section of Act 2:**	
Proposed Penalty:	1402	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	1402	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1128476	**Amount Paid:**	1238
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	06/06/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	1400
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/06/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	1400
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/07/2006
Violation No:	6397029	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1140
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/06/2006	**Part Section:**	56.14100(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1345	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	06/06/2006	**Section of Act 2:**	
Proposed Penalty:	1238	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	1238	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1160148	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	

Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	09/13/2011
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	08/03/2011
Controller ID:	M00595	**Last Action Dt:**	11/08/2011
Inj Illness:	Fatal	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/04/2011
Inspection Begin Dt:	08/03/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	0800
Inspection End Dt:	08/04/2011	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	08/04/2011
Violation No:	8607415	**Fiscal Yr:**	2011
Enforcement Area:		**Termination Time:**	0555
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/03/2011	**Part Section:**	56.12008
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0952	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	10/21/2011	**Docket No:**	
Violation Occur Dt:	08/03/2011	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	6	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1128476	**Amount Paid:**	838
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	05/31/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	0730
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	05/31/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	HighNegligence	**Latest Term Due Tm:**	0730
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/31/2006
Violation No:	6397005	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0900
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/31/2006	**Part Section:**	56.9300(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0715	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	838	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	838	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133990	**Amount Paid:**	308

Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	05/13/2008
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	03/28/2008
Controller ID:	M00595	***Last Action Dt:***	06/16/2008
Inj Illness:	Permanent	***Orig Term Due Tm:***	1530
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	03/28/2008
Inspection Begin Dt:	03/25/2008	***Cal Yr:***	2008
Negligence:	ModNegligence	***Latest Term Due Tm:***	1530
Inspection End Dt:	04/02/2008	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	03/27/2008
Violation No:	6440118	***Fiscal Yr:***	2008
Enforcement Area:		***Termination Time:***	1455
Violator ID:	0063043	***Fiscal Qtr:***	2
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	03/27/2008	***Part Section:***	56.14112(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1035	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	06/19/2008	***Docket No:***	
Violation Occur Dt:	03/27/2008	***Section of Act 2:***	
Proposed Penalty:	308	***Docket Stat Cd:***	
Violator Violation Cnt:	25	***Contested Ind:***	No
Amount Due:	308	***Contested Dt:***	
Violator Insp Day Cnt:	8		

Violation Details

Event No:	6595305	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	08/13/2013
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	06/20/2013
Controller ID:	M00595	***Last Action Dt:***	09/04/2013
Inj Illness:	LostDays	***Orig Term Due Tm:***	1000
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	06/20/2013
Inspection Begin Dt:	06/19/2013	***Cal Yr:***	2013
Negligence:	LowNegligence	***Latest Term Due Tm:***	1000
Inspection End Dt:	06/20/2013	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	06/20/2013
Violation No:	8698310	***Fiscal Yr:***	2013
Enforcement Area:		***Termination Time:***	0655
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Mill	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	06/19/2013	***Part Section:***	56.14100(c)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	1055	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	09/19/2013	***Docket No:***	
Violation Occur Dt:	06/19/2013	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	5	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	6		

Violation Details

Event No:	1152588	***Amount Paid:***	100
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	01/17/2012
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	12/12/2011
Controller ID:	M00595	***Last Action Dt:***	02/28/2012
Inj Illness:	LostDays	***Orig Term Due Tm:***	1300
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	12/12/2011
Inspection Begin Dt:	12/12/2011	***Cal Yr:***	2011
Negligence:	LowNegligence	***Latest Term Due Tm:***	1300
Inspection End Dt:	12/15/2011	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	12/12/2011
Violation No:	8607386	***Fiscal Yr:***	2012
Enforcement Area:		***Termination Time:***	1215
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	12/12/2011	***Part Section:***	56.16005
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	1209	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	02/23/2012	***Docket No:***	
Violation Occur Dt:	12/12/2011	***Section of Act 2:***	
Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1160786	***Amount Paid:***	117
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	06/17/2014
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	05/01/2014
Controller ID:	M00595	***Last Action Dt:***	07/08/2014
Inj Illness:	LostDays	***Orig Term Due Tm:***	1500
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/01/2014
Inspection Begin Dt:	05/01/2014	***Cal Yr:***	2014
Negligence:	ModNegligence	***Latest Term Due Tm:***	1500
Inspection End Dt:	05/02/2014	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	05/01/2014
Violation No:	8689959	***Fiscal Yr:***	2014
Enforcement Area:		***Termination Time:***	1250
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/01/2014	***Part Section:***	56.14100(c)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	
Violation Issue Time:	1236	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	07/21/2014	***Docket No:***	
Violation Occur Dt:	05/01/2014	***Section of Act 2:***	
Proposed Penalty:	117	***Docket Stat Cd:***	
Violator Violation Cnt:	6	***Contested Ind:***	No
Amount Due:	117	***Contested Dt:***	
Violator Insp Day Cnt:	6		

Violation Details

Event No:	1133939	***Amount Paid:***	1026
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	11/13/2007
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	10/16/2007
Controller ID:	M00595	***Last Action Dt:***	01/16/2008
Inj Illness:	LostDays	***Orig Term Due Tm:***	1130
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	10/23/2007
Inspection Begin Dt:	10/15/2007	***Cal Yr:***	2007
Negligence:	ModNegligence	***Latest Term Due Tm:***	1530
Inspection End Dt:	10/18/2007	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	10/18/2007
Violation No:	7964568	***Fiscal Yr:***	2008
Enforcement Area:		***Termination Time:***	1428
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	10/16/2007	***Part Section:***	56.20003(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1109	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	12/20/2007	***Docket No:***	
Violation Occur Dt:	10/16/2007	***Section of Act 2:***	
Proposed Penalty:	1026	***Docket Stat Cd:***	
Violator Violation Cnt:	45	***Contested Ind:***	No
Amount Due:	1026	***Contested Dt:***	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1128439	***Amount Paid:***	107
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	03/16/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	02/09/2006
Controller ID:	M00595	***Last Action Dt:***	07/10/2006
Inj Illness:	LostDays	***Orig Term Due Tm:***	1100
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	02/09/2006
Inspection Begin Dt:	02/07/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	1100
Inspection End Dt:	02/15/2006	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	02/17/2006
Violation No:	6381287	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	0900
Violator ID:	0063043	***Fiscal Qtr:***	2
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	02/08/2006	***Part Section:***	56.12028
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1245	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	04/26/2006	***Docket No:***	
Violation Occur Dt:	02/08/2006	***Section of Act 2:***	
Proposed Penalty:	107	***Docket Stat Cd:***	
Violator Violation Cnt:	0	***Contested Ind:***	No
Amount Due:	107	***Contested Dt:***	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128476	***Amount Paid:***	60
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/13/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	06/05/2006
Controller ID:	M00595	***Last Action Dt:***	08/14/2006
Inj Illness:	Permanent	***Orig Term Due Tm:***	1100
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	06/05/2006
Inspection Begin Dt:	05/30/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	1100
Inspection End Dt:	06/07/2006	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	06/06/2006
Violation No:	6397023	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1120
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	06/05/2006	***Part Section:***	56.14107(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1030	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	
Violation Occur Dt:	06/05/2006	***Section of Act 2:***	
Proposed Penalty:	60	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	60	***Contested Dt:***	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133990	***Amount Paid:***	308
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	05/13/2008
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	03/26/2008
Controller ID:	M00595	***Last Action Dt:***	06/16/2008
Inj Illness:	Permanent	***Orig Term Due Tm:***	1530
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	03/26/2008
Inspection Begin Dt:	03/25/2008	***Cal Yr:***	2008
Negligence:	ModNegligence	***Latest Term Due Tm:***	1530
Inspection End Dt:	04/02/2008	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	03/25/2008
Violation No:	6440115	***Fiscal Yr:***	2008
Enforcement Area:		***Termination Time:***	1402
Violator ID:	0063043	***Fiscal Qtr:***	2
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	03/25/2008	***Part Section:***	56.14112(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1343	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	06/19/2008	***Docket No:***	
Violation Occur Dt:	03/25/2008	***Section of Act 2:***	
Proposed Penalty:	308	***Docket Stat Cd:***	
Violator Violation Cnt:	25	***Contested Ind:***	No
Amount Due:	308	***Contested Dt:***	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1133408	***Amount Paid:***	440
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	12/14/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	10/31/2006
Controller ID:	M00595	***Last Action Dt:***	02/24/2007
Inj Illness:	Fatal	***Orig Term Due Tm:***	1500
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	10/31/2006
Inspection Begin Dt:	10/31/2006	***Cal Yr:***	2006
Negligence:	LowNegligence	***Latest Term Due Tm:***	1500
Inspection End Dt:	11/02/2006	***Cal Qtr:***	4
Written Notice:		***Termination Dt:***	10/31/2006
Violation No:	6397801	***Fiscal Yr:***	2007
Enforcement Area:		***Termination Time:***	1415
Violator ID:	0063043	***Fiscal Qtr:***	1
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	10/31/2006	***Part Section:***	56.12032
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1130	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	01/28/2007	***Docket No:***	
Violation Occur Dt:	10/31/2006	***Section of Act 2:***	
Proposed Penalty:	440	***Docket Stat Cd:***	
Violator Violation Cnt:	31	***Contested Ind:***	No
Amount Due:	440	***Contested Dt:***	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1128439	***Amount Paid:***	144
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	03/16/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	02/08/2006
Controller ID:	M00595	***Last Action Dt:***	07/10/2006
Inj Illness:	Permanent	***Orig Term Due Tm:***	1130
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	02/08/2006
Inspection Begin Dt:	02/07/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	1130
Inspection End Dt:	02/15/2006	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	02/13/2006
Violation No:	6381283	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1000
Violator ID:	0063043	***Fiscal Qtr:***	2
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	02/08/2006	***Part Section:***	56.14107(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1110	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	04/26/2006	***Docket No:***	
Violation Occur Dt:	02/08/2006	***Section of Act 2:***	
Proposed Penalty:	144	***Docket Stat Cd:***	
Violator Violation Cnt:	0	***Contested Ind:***	No
Amount Due:	144	***Contested Dt:***	

Violator Insp Day Cnt: 0

Violation Details

Event No:	1128439	**Amount Paid:**	144
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	03/16/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	02/08/2006
Controller ID:	M00595	**Last Action Dt:**	07/10/2006
Inj Illness:	Permanent	**Orig Term Due Tm:**	1105
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	02/08/2006
Inspection Begin Dt:	02/07/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1105
Inspection End Dt:	02/15/2006	**Cal Qtr:**	1
Written Notice:		**Termination Dt:**	02/13/2006
Violation No:	6381282	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	0955
Violator ID:	0063043	**Fiscal Qtr:**	2
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	02/08/2006	**Part Section:**	56.14109(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1055	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	04/26/2006	**Docket No:**	
Violation Occur Dt:	02/08/2006	**Section of Act 2:**	
Proposed Penalty:	144	**Docket Stat Cd:**	
Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	144	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1128476	**Amount Paid:**	614
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	06/05/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	Fatal	**Orig Term Due Tm:**	1130
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/05/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1130
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/06/2006
Violation No:	6397024	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1155
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/05/2006	**Part Section:**	56.14201(b)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1100	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	06/05/2006	**Section of Act 2:**	
Proposed Penalty:	614	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No

Amount Due:	614	***Contested Dt:***	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128476	***Amount Paid:***	375
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/13/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	05/31/2006
Controller ID:	M00595	***Last Action Dt:***	08/14/2006
Inj Illness:	Permanent	***Orig Term Due Tm:***	1130
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/31/2006
Inspection Begin Dt:	05/30/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	1130
Inspection End Dt:	06/07/2006	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	05/31/2006
Violation No:	6397017	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1130
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/31/2006	***Part Section:***	56.18002(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1050	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	
Violation Occur Dt:	05/31/2006	***Section of Act 2:***	
Proposed Penalty:	375	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	375	***Contested Dt:***	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1133422	***Amount Paid:***	107
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	02/13/2007
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	01/03/2007
Controller ID:	M00595	***Last Action Dt:***	04/09/2007
Inj Illness:	LostDays	***Orig Term Due Tm:***	1630
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	01/03/2007
Inspection Begin Dt:	01/03/2007	***Cal Yr:***	2007
Negligence:	ModNegligence	***Latest Term Due Tm:***	1630
Inspection End Dt:	01/03/2007	***Cal Qtr:***	1
Written Notice:		***Termination Dt:***	01/04/2007
Violation No:	6397857	***Fiscal Yr:***	2007
Enforcement Area:		***Termination Time:***	1215
Violator ID:	0063043	***Fiscal Qtr:***	2
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	01/03/2007	***Part Section:***	56.11002
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	1600	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	03/30/2007	***Docket No:***	
Violation Occur Dt:	01/03/2006	***Section of Act 2:***	
Proposed Penalty:	107	***Docket Stat Cd:***	

Violator Violation Cnt:	0	**Contested Ind:**	No
Amount Due:	107	**Contested Dt:**	
Violator Insp Day Cnt:	0		

Violation Details

Event No:	1152588	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/17/2012
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	12/12/2011
Controller ID:	M00595	**Last Action Dt:**	02/28/2012
Inj Illness:	Permanent	**Orig Term Due Tm:**	1300
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	12/12/2011
Inspection Begin Dt:	12/12/2011	**Cal Yr:**	2011
Negligence:	LowNegligence	**Latest Term Due Tm:**	1300
Inspection End Dt:	12/15/2011	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	12/12/2011
Violation No:	8607387	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	1215
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/12/2011	**Part Section:**	56.16006
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1211	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/23/2012	**Docket No:**	
Violation Occur Dt:	12/12/2011	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1160615	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/15/2013
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/26/2012
Controller ID:	M00595	**Last Action Dt:**	01/29/2013
Inj Illness:	LostDays	**Orig Term Due Tm:**	1030
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/26/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	ModNegligence	**Latest Term Due Tm:**	1030
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/26/2012
Violation No:	8689431	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	0949
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/26/2012	**Part Section:**	56.20002(a)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0940	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/21/2013	**Docket No:**	
Violation Occur Dt:	06/26/2012	**Section of Act 2:**	

Proposed Penalty:	100	***Docket Stat Cd:***	
Violator Violation Cnt:	14	***Contested Ind:***	No
Amount Due:	100	***Contested Dt:***	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1128476	***Amount Paid:***	60
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/13/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Unlikely	***Orig Term Due Dt:***	05/31/2006
Controller ID:	M00595	***Last Action Dt:***	08/14/2006
Inj Illness:	LostDays	***Orig Term Due Tm:***	0730
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/31/2006
Inspection Begin Dt:	05/30/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	0730
Inspection End Dt:	06/07/2006	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	05/31/2006
Violation No:	6397004	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	0730
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	No
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/31/2006	***Part Section:***	56.14132(a)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0700	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	
Violation Occur Dt:	05/31/2006	***Section of Act 2:***	
Proposed Penalty:	60	***Docket Stat Cd:***	
Violator Violation Cnt:	8	***Contested Ind:***	No
Amount Due:	60	***Contested Dt:***	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1128476	***Amount Paid:***	375
Initial Viol No:		***Contractor ID:***	
Mine Name:	Pacific Aggregates Pits	***Bill Print Dt:***	07/13/2006
Replaced by Ord No:		***Cit Ord Safe:***	Citation
Mine Type:	Surface	***Last Action Cd:***	Paid
Likelihood:	Reasonably	***Orig Term Due Dt:***	05/31/2006
Controller ID:	M00595	***Last Action Dt:***	08/14/2006
Inj Illness:	Permanent	***Orig Term Due Tm:***	0905
Controller Name:	David H Murdock	***Coal Metal Ind:***	M
No Affected:	1	***Latest Term Due Dt:***	05/31/2006
Inspection Begin Dt:	05/30/2006	***Cal Yr:***	2006
Negligence:	ModNegligence	***Latest Term Due Tm:***	0905
Inspection End Dt:	06/07/2006	***Cal Qtr:***	2
Written Notice:		***Termination Dt:***	05/31/2006
Violation No:	6397010	***Fiscal Yr:***	2006
Enforcement Area:		***Termination Time:***	1000
Violator ID:	0063043	***Fiscal Qtr:***	3
Special Assess:	No	***Termination Type:***	Terminated
Violator Name:	Pacific Aggregates Inc	***Sig Sub:***	Yes
Primary or Mill:	Primary	***Vacate Dt:***	
Violator Type CD:	Operator	***Section of Act:***	
Right to Conf Dt:		***Vacate Time:***	
Violation Issue Dt:	05/31/2006	***Part Section:***	56.14112(b)
Asmt Generated Ind:	No	***Assess Case Stat Cd:***	Closed
Violation Issue Time:	0850	***Section of Act 1:***	104(a)
Final Ord Issue Dt:	08/27/2006	***Docket No:***	

Violation Occur Dt:	05/31/2006	**Section of Act 2:**	
Proposed Penalty:	375	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	375	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	1160615	**Amount Paid:**	873
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	01/15/2013
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/26/2012
Controller ID:	M00595	**Last Action Dt:**	01/29/2013
Inj Illness:	Fatal	**Orig Term Due Tm:**	1500
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/26/2012
Inspection Begin Dt:	06/26/2012	**Cal Yr:**	2012
Negligence:	HighNegligence	**Latest Term Due Tm:**	1500
Inspection End Dt:	07/03/2012	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/27/2012
Violation No:	8689430	**Fiscal Yr:**	2012
Enforcement Area:		**Termination Time:**	0703
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/26/2012	**Part Section:**	56.14110
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0926	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	02/21/2013	**Docket No:**	
Violation Occur Dt:	06/26/2012	**Section of Act 2:**	
Proposed Penalty:	873	**Docket Stat Cd:**	
Violator Violation Cnt:	14	**Contested Ind:**	No
Amount Due:	873	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1142916	**Amount Paid:**	2106
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/16/2008
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	11/13/2008
Controller ID:	M00595	**Last Action Dt:**	02/09/2009
Inj Illness:	Permanent	**Orig Term Due Tm:**	0830
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/13/2008
Inspection Begin Dt:	11/13/2008	**Cal Yr:**	2008
Negligence:	HighNegligence	**Latest Term Due Tm:**	0830
Inspection End Dt:	11/19/2008	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/13/2008
Violation No:	6440076	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	0825
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/13/2008	**Part Section:**	56.14112(a)(1)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0753	**Section of Act 1:**	104(a)

Final Ord Issue Dt:	01/21/2009	**Docket No:**	
Violation Occur Dt:	11/13/2008	**Section of Act 2:**	
Proposed Penalty:	2106	**Docket Stat Cd:**	
Violator Violation Cnt:	17	**Contested Ind:**	No
Amount Due:	2106	**Contested Dt:**	
Violator Insp Day Cnt:	12		

Violation Details

Event No:	1133408	**Amount Paid:**	228
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/13/2007
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	NoLikelihood	**Orig Term Due Dt:**	11/08/2006
Controller ID:	M00595	**Last Action Dt:**	04/09/2007
Inj Illness:	NoLostDays	**Orig Term Due Tm:**	0900
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	11/08/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0900
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/06/2006
Violation No:	6397815	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	1710
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	11/02/2006	**Part Section:**	46.9(b)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	1400	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/30/2007	**Docket No:**	
Violation Occur Dt:	11/02/2006	**Section of Act 2:**	
Proposed Penalty:	228	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	228	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1160148	**Amount Paid:**	176
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	09/13/2011
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	08/03/2011
Controller ID:	M00595	**Last Action Dt:**	11/08/2011
Inj Illness:	Permanent	**Orig Term Due Tm:**	0550
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	08/03/2011
Inspection Begin Dt:	08/03/2011	**Cal Yr:**	2011
Negligence:	ModNegligence	**Latest Term Due Tm:**	0550
Inspection End Dt:	08/04/2011	**Cal Qtr:**	3
Written Notice:		**Termination Dt:**	08/03/2011
Violation No:	8607413	**Fiscal Yr:**	2011
Enforcement Area:		**Termination Time:**	0550
Violator ID:	0063043	**Fiscal Qtr:**	4
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	08/03/2011	**Part Section:**	56.15004
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	

Violation Issue Time:	0541	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	10/21/2011	**Docket No:**	
Violation Occur Dt:	08/03/2011	**Section of Act 2:**	
Proposed Penalty:	176	**Docket Stat Cd:**	
Violator Violation Cnt:	6	**Contested Ind:**	No
Amount Due:	176	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1128476	**Amount Paid:**	60
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/13/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	06/05/2006
Controller ID:	M00595	**Last Action Dt:**	08/14/2006
Inj Illness:	LostDays	**Orig Term Due Tm:**	0930
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	06/05/2006
Inspection Begin Dt:	05/30/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	0930
Inspection End Dt:	06/07/2006	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	06/05/2006
Violation No:	6397020	**Fiscal Yr:**	2006
Enforcement Area:		**Termination Time:**	1000
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	06/05/2006	**Part Section:**	56.4201(a)(2)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0915	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/27/2006	**Docket No:**	
Violation Occur Dt:	06/05/2006	**Section of Act 2:**	
Proposed Penalty:	60	**Docket Stat Cd:**	
Violator Violation Cnt:	8	**Contested Ind:**	No
Amount Due:	60	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	6595607	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	07/14/2015
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	NoLikelihood	**Orig Term Due Dt:**	05/18/2015
Controller ID:	M00595	**Last Action Dt:**	07/29/2015
Inj Illness:	NoLostDays	**Orig Term Due Tm:**	1315
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	05/18/2015
Inspection Begin Dt:	12/18/2014	**Cal Yr:**	2015
Negligence:	ModNegligence	**Latest Term Due Tm:**	1315
Inspection End Dt:	12/31/2014	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	05/18/2015
Violation No:	8788286	**Fiscal Yr:**	2015
Enforcement Area:		**Termination Time:**	1305
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	05/18/2015	**Part Section:**	50.20(a)

Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	1300	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	08/16/2015	**Docket No:**	
Violation Occur Dt:	11/24/2014	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	3	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	5		

Violation Details

Event No:	6595607	**Amount Paid:**	100
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	02/17/2015
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	NoLikelihood	**Orig Term Due Dt:**	12/18/2014
Controller ID:	M00595	**Last Action Dt:**	04/28/2015
Inj Illness:	NoLostDays	**Orig Term Due Tm:**	0905
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	0	**Latest Term Due Dt:**	12/18/2014
Inspection Begin Dt:	12/18/2014	**Cal Yr:**	2014
Negligence:	ModNegligence	**Latest Term Due Tm:**	0905
Inspection End Dt:	12/31/2014	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	12/18/2014
Violation No:	8788233	**Fiscal Yr:**	2015
Enforcement Area:		**Termination Time:**	0906
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	12/18/2014	**Part Section:**	50.10(d)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	
Violation Issue Time:	0903	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	03/25/2015	**Docket No:**	
Violation Occur Dt:	06/03/2014	**Section of Act 2:**	
Proposed Penalty:	100	**Docket Stat Cd:**	
Violator Violation Cnt:	1	**Contested Ind:**	No
Amount Due:	100	**Contested Dt:**	
Violator Insp Day Cnt:	9		

Violation Details

Event No:	1133408	**Amount Paid:**	963
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	12/14/2006
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	11/02/2006
Controller ID:	M00595	**Last Action Dt:**	02/24/2007
Inj Illness:	Fatal	**Orig Term Due Tm:**	1200
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	11/02/2006
Inspection Begin Dt:	10/31/2006	**Cal Yr:**	2006
Negligence:	ModNegligence	**Latest Term Due Tm:**	1200
Inspection End Dt:	11/02/2006	**Cal Qtr:**	4
Written Notice:		**Termination Dt:**	11/02/2006
Violation No:	6397805	**Fiscal Yr:**	2007
Enforcement Area:		**Termination Time:**	0930
Violator ID:	0063043	**Fiscal Qtr:**	1
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	

Violation Issue Dt:	11/01/2006	**Part Section:**	56.12005
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0900	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	01/28/2007	**Docket No:**	
Violation Occur Dt:	11/01/2006	**Section of Act 2:**	
Proposed Penalty:	963	**Docket Stat Cd:**	
Violator Violation Cnt:	31	**Contested Ind:**	No
Amount Due:	963	**Contested Dt:**	
Violator Insp Day Cnt:	11		

Violation Details

Event No:	1152347	**Amount Paid:**	263
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	06/15/2010
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Unlikely	**Orig Term Due Dt:**	04/30/2010
Controller ID:	M00595	**Last Action Dt:**	07/14/2010
Inj Illness:	Permanent	**Orig Term Due Tm:**	1100
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/30/2010
Inspection Begin Dt:	04/30/2010	**Cal Yr:**	2010
Negligence:	ModNegligence	**Latest Term Due Tm:**	1100
Inspection End Dt:	05/05/2010	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/30/2010
Violation No:	8560244	**Fiscal Yr:**	2010
Enforcement Area:		**Termination Time:**	1120
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	No
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	
Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	04/30/2010	**Part Section:**	56.14112(a)(1)
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0740	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	07/22/2010	**Docket No:**	
Violation Occur Dt:	04/30/2010	**Section of Act 2:**	
Proposed Penalty:	263	**Docket Stat Cd:**	
Violator Violation Cnt:	20	**Contested Ind:**	No
Amount Due:	263	**Contested Dt:**	
Violator Insp Day Cnt:	7		

Violation Details

Event No:	1147415	**Amount Paid:**	946
Initial Viol No:		**Contractor ID:**	
Mine Name:	Pacific Aggregates Pits	**Bill Print Dt:**	05/12/2009
Replaced by Ord No:		**Cit Ord Safe:**	Citation
Mine Type:	Surface	**Last Action Cd:**	Paid
Likelihood:	Reasonably	**Orig Term Due Dt:**	04/09/2009
Controller ID:	M00595	**Last Action Dt:**	06/15/2009
Inj Illness:	LostDays	**Orig Term Due Tm:**	1030
Controller Name:	David H Murdock	**Coal Metal Ind:**	M
No Affected:	1	**Latest Term Due Dt:**	04/09/2009
Inspection Begin Dt:	04/09/2009	**Cal Yr:**	2009
Negligence:	ModNegligence	**Latest Term Due Tm:**	1030
Inspection End Dt:	04/15/2009	**Cal Qtr:**	2
Written Notice:		**Termination Dt:**	04/13/2009
Violation No:	6441433	**Fiscal Yr:**	2009
Enforcement Area:		**Termination Time:**	1030
Violator ID:	0063043	**Fiscal Qtr:**	3
Special Assess:	No	**Termination Type:**	Terminated
Violator Name:	Pacific Aggregates Inc	**Sig Sub:**	Yes
Primary or Mill:	Primary	**Vacate Dt:**	
Violator Type CD:	Operator	**Section of Act:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Right to Conf Dt:		**Vacate Time:**	
Violation Issue Dt:	04/09/2009	**Part Section:**	56.20011
Asmt Generated Ind:	No	**Assess Case Stat Cd:**	Closed
Violation Issue Time:	0930	**Section of Act 1:**	104(a)
Final Ord Issue Dt:	06/18/2009	**Docket No:**	
Violation Occur Dt:	04/09/2009	**Section of Act 2:**	
Proposed Penalty:	946	**Docket Stat Cd:**	
Violator Violation Cnt:	26	**Contested Ind:**	No
Amount Due:	946	**Contested Dt:**	
Violator Insp Day Cnt:	11		

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9 | **1 of 1** | **NNE** | **0.11 / 596.22** | **1,490.97 / -18** | **ELSINORE READY MIX CO INC**
28251 ROBB ROAD LAKE STREET
LAKE ELSINORE CA 92330 | **HHSS**

County:
Pdf File Url: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001f641.pdf

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10 | **1 of 1** | **S** | **0.21 / 1,127.15** | **1,452.29 / -56** | **Wyroc Materials, Inc**
31000 Lake St
Lake Elsinore CA 92530 | **DELISTED COUNTY**

Original Source Facility ID:
Original Source Name: Riverside County Disclosure Facility List
Record Date: 18-MAY-2016

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11 | **1 of 1** | **S** | **0.22 / 1,180.09** | **1,458.18 / -50** | **Verizon Global/Robb Rd RSU4**
28556 Meadow Brook
Lake Elsinore CA 92530 | **DELISTED COUNTY**

Original Source Facility ID:
Original Source Name: Riverside County Disclosure Facility List
Record Date: 17-FEB-2016

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12 | **1 of 1** | **S** | **0.25 / 1,305.54** | **1,454.37 / -54** | **CITY OF LAKE ELSINORE**
29051 ROBB ROAD
LAKE ELSINORE CA 92530 | **LUST**

Global ID:	T0606500258	**County:**	RIVERSIDE
Status:	COMPLETED - CASE CLOSED	**Latitude:**	33.6951065762379
Status Date:	1994-11-25 00:00:00	**Longitude:**	-117.390463576721
Case Type:	LUST CLEANUP SITE		

Date Source: LUST Cleanup Sites from GeoTracker Search; LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No:	083302002T	**Potential COC:**	Gasoline
Local Case No:	911099	**How Discovered:**	Tank Closure
Begin Date:	1991-10-31 00:00:00	**Stop Method:**	
Lead Agency:	RIVERSIDE COUNTY LOP	**Stop Description:**	
Local Agency:	RIVERSIDE COUNTY LOP	**Case Worker:**	RIV
CUF Case:	NO	**File Location:**	

Potential Media of Concern: Soil
How Discovered Description:
Calwater Watershed Name: San Jacinto Valley - Elsinore Valley - Elsinore (802.31)
DWR GW Subbasin Name: Elsinore - Elsinore Valley (8-004.01)
Disadvantaged Community:
Site History:

Regulatory Activity

Action Type: ENFORCEMENT
Date : 1994-11-25 00:00:00
Action: Closure/No Further Action Letter

Action Type: ENFORCEMENT
Date : 1994-11-24 00:00:00
Action: File review - #RCDEH uploaded site file 5/15/2015

Action Type: REMEDIATION
Date : 1993-07-01 00:00:00
Action: In Situ Physical/Chemical Treatment (other than SVE)

Action Type: RESPONSE
Date : 1991-11-25 00:00:00
Action: Unauthorized Release Form

Action Type: Other
Date : 1991-11-25 00:00:00
Action: Leak Reported

Action Type: Other
Date : 1991-11-05 00:00:00
Action: Leak Discovery

Action Type: Other
Date : 1991-10-31 00:00:00
Action: Leak Stopped

Regulatory Contacts

Contact Type: Local Agency Caseworker
Contact Name: Riverside County LOP
City: RIVERSIDE
Organization Name: RIVERSIDE COUNTY LOP
Address: 3880 LEMON ST SUITE 200
Email:
Phone No: 9519558980

Contact Type: Regional Board Caseworker
Contact Name: CARL BERNHARDT
City: RIVERSIDE
Organization Name: SANTA ANA RWQCB (REGION 8)
Address: 3737 MAIN STREET, SUITE 500
Email: carl.bernhardt@waterboards.ca.gov
Phone No: 9517824495

Status History

Status: Completed - Case Closed
Status Date: 1994-11-25 00:00:00

Status: Open - Site Assessment
Status Date: 1992-01-06 00:00:00

Status: Open - Case Begin Date
Status Date: 1991-10-31 00:00:00

LUST Cleanup Sites from GeoTracker Search - Regulatory Profile(as of Apr 9, 2019)

Site Facility Name: CITY OF LAKE ELSINORE
Site Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Project Status:
Potential COC: GASOLINE
WDR Place Type:
WDR File:
WDR Order:
File Location:
Designated Beneficial Use: MUN, AGR, PROC
Address: 29051 ROBB ROAD
City: LAKE ELSINORE
Zip: 92530
County: RIVERSIDE
CUF Claim:
CUF Priority Assig:
CUF Amount Paid:

Project Oversight Agencies:
Report Link: http://geotracker.waterboards.ca.gov/profile_report?global_id=T0606500258
Cleanup Status Detail: COMPLETED - CASE CLOSED AS OF 11/25/1994
Cleanup History Link: http://geotracker.waterboards.ca.gov/profile_report_include?global_id=T0606500258&tabname=regulatoryhistory
Potential Media of Concern: SOIL
User Defined Beneficial Use:
DWR GW Sub Basin: Elsinore - Elsinore Valley (8-004.01)
Calwater Watershed Name: San Jacinto Valley - Elsinore Valley - Elsinore (802.31)
Post Closure Site Management:
Future Land Use:
Cleanup Oversight Agencies: RIVERSIDE COUNTY LOP (LEAD) - CASE #: 911099
CASEWORKER: Riverside County LOP
SANTA ANA RWQCB (REGION 8) - CASE #: 083302002T
CASEWORKER: CARL BERNHARDT
Site History:

No site history available

LUST Cleanup Sites from GeoTracker Search - Cleanup Status History(as of Apr 9, 2019)

Status: Completed - Case Closed
Date : 11/25/1994

Status: Open - Site Assessment
Date : 1/6/1992

Status: Open - Case Begin Date
Date : 10/31/1991

LUST Cleanup Sites from GeoTracker Search - Cleanup Action(as of Apr 9, 2019)

Action Type: IN SITU PHYSICAL/CHEMICAL TREATMENT (OTHER THAN SVE)
Begin Date: 7/1/1993
Phase: Soil
End Date: 11/22/1993
Contaminant Mass Removed:
Description:

LUST Cleanup Sites from GeoTracker Search - Regulatory Activities(as of Apr 9, 2019)

Action Type: Other Regulatory Actions
Action Date: 11/25/1994
Received Issue Date: 11/25/1994
Action: Closure/No Further Action Letter
Doc Link:
Title Description Comments:

CLOSURE LETTER ISSUED BY THE CO. OF RIV. ENV. HEALTH DEPT.

Action Type: Other Regulatory Actions
Action Date: 11/24/1994
Received Issue Date: 11/24/1994
Action: File review - #RCDEH uploaded site file 5/15/2015
Doc Link: http://geotracker.waterboards.ca.gov/view_documents?global_id=T0606500258&enforcement_id=6245105&temptable=ENFORCEMENT
Title Description Comments:

RCDEH uploaded site file 5/15/2015

Action Type: Response Requested - Other
Action Date: 11/25/1991
Received Issue Date: 11/25/1991
Action: Unauthorized Release Form
Doc Link:

Title Description Comments:

Unauthorized Release Form

Action Type: Cleanup Action
Action Date: 7/1/1993
Received Issue Date:
Action: In Situ Physical/Chemical Treatment (other than SVE)
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 11/25/1991
Received Issue Date:
Action: Leak Reported
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 11/5/1991
Received Issue Date:
Action: Leak Discovery
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 10/31/1991
Received Issue Date:
Action: Leak Stopped
Doc Link:
Title Description Comments:

LUST Cleanup Sites from GeoTracker Search - Documents(as of Apr 9, 2019)

Document Type: Site Documents
Document Date: 11/24/1994
Type: FILE REVIEW
Title: RCDEH UPLOADED SITE FILE 5/15/2015
Title Link: http://geotracker.waterboards.ca.gov/view_documents?global_id=T0606500258&enforcement_id=6245105
Size :
Submitted By: LINDA SHURLOW (REGULATOR)
Submitted:

Unplottable Summary

Total: 2 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
CHMIRS	Southern California Gas	Mountain St. between Ginger Root Way and Lake St.	Lake Elsinore CA	92530	821858553
HAZNET	KS MACHANICAL	1 MI W ON LAKE ST	LAKE ELSINORE CA	92530	826276279

Unplottable Report

Site: ***Southern California Gas***
Mountain St. between Ginger Root Way and Lake St. Lake Elsinore CA 92530 CHMIRS

Control No:		***Notified Date:***	9/16/2013 14:10
Notified Date Time:		***Year:***	2013
County:	Riverside County		
URL:			

California Hazardous Material Incident Report System (as of 2006 to 2015)

Contained:	No	***3 Ves >= 300 Tons:***	No
1 Substance:	Natural Gas	***Incident Date:***	9/16/2013
1 Measure:	Unknown	***Incident Time:***	1340
1 Other:		***Spill Site:***	Residence
1 Quantity:	UNK	***Injuries?:***	No
1 Type:	VAPOR	***No of Injuries:***	
1 Pipeline:	No	***Fatals?:***	No
1 Vessel >= 300 Tons:	No	***No of Fatals:***	
2 Substance:		***Evacs?:***	No
2 Quantity:		***No of Evacs:***	
2 Measure:		***Cleanup:***	Unrecoverable
2 Type:		***Site:***	
2 Other:		***Cause:***	Other
2 Pipeline:	No	***Cause Other:***	Leak
2 Vessel >= 300 Tons:	No	***Dog No:***	
3 Substance:		***Water:***	No
3 Quantity:		***Water Way:***	
3 Measure:		***City:***	Lake Elsinore
3 Type:		***County:***	Riverside County
3 Other:		***Zip:***	92530
3 Pipeline:	No		

Admin Agency: Riverside County Environmental Health
Notification Area: AA/CUPA,DFG-OSPR,DTSC,RWQCB,US EPA,USFWS,AIR RESOURCES BD,Co/WP,Co/Hlth,Co/E-Hlth
Location: Mountain St. between Ginger Root Way and Lake St.
Description: Caller states: There is a heavy smell of natural gas due to a leak on a 4" natural gas line which is causing the release. The release is still on going. No evacuations.

Spill Report View

Amount 1:	UNK	***Creation Date:***	09/16/2013 02:10 PM
Amount 2:		***Received By:***	
Amount 3:		***Admin Agency:***	Riverside County Environmental Health
Type:		***Admin Agency 2:***	
Water:	VAPOR	***Additional County:***	
On Scene:		***Phone No:***	
Other on Scene:		***Ext:***	
Other Notified:		***Pag Cell:***	
Document Title:	SPILL Report		
Spill Site:			
Cause Desc for Other:	Leak		
Person Notifying Cal OES:			

Site: ***KS MACHANICAL***
1 MI W ON LAKE ST LAKE ELSINORE CA 92530 HAZNET

SIC Code:		***Mailing City:***	LAKE ELSINORE
NAICS Code:		***Mailing State:***	CA
EPA ID:	CAC002624197	***Mailing Zip:***	92530
Create Date:	11/26/2007	***Region Code:***	4

Fac Act Ind:	No	***Owner Name:***	KS MACHANICAL
Inact Date:	5/25/2008	***Owner Addr 1:***	600 CENTRAL AVE STE F
County Code:	33	***Owner Addr 2:***	
County Name:	Riverside	***Owner City:***	LAKE ELSINORE
Mail Name:		***Owner State:***	CA
Mailing Addr 1:	600 CENTRAL AVE STE F	***Owner Zip:***	92530
Mailing Addr 2:		***Owner Phone:***	9512452565
Owner Fax:			

Contact Information

--	--
Contact Name:	HOLLY MILLER
Street Address 1:	600 CENTRAL AVE STE F
Street Address 2:	
City:	LAKE ELSINORE
State:	CA
Zip:	92530
Phone:	9512452565
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Tanner Information

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Generator EPA ID:	CAC002624197
Generator County Code:	33
Generator County:	Riverside
TSD EPA ID:	CAD008444481
TSD County Code:	
TSD County:	
State Waste Code:	291
State Waste Code Desc.:	Latex waste
Method Code:	H141
Method Description:	STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons:	0.417
Year:	2008
--	--
Generator EPA ID:	CAC002624197
Generator County Code:	33
Generator County:	Riverside
TSD EPA ID:	CAD008444481
TSD County Code:	
TSD County:	
State Waste Code:	352
State Waste Code Desc.:	Other organic solids
Method Code:	H141
Method Description:	STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons:	0.45
Year:	2008
--	--
Generator EPA ID:	CAC002624197
Generator County Code:	33
Generator County:	Riverside
TSD EPA ID:	CAD980884183
TSD County Code:	34
TSD County:	Sacramento
State Waste Code:	331
State Waste Code Desc.:	Off-specification, aged or surplus organics
Method Code:	H061
Method Description:	FUEL BLENDING PRIOR TO ENERGY RECOVERY AT ANOTHER SITE
Tons:	0.3325
Year:	2008
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Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List: NPL

National Priorities List (Superfund)-NPL: EPA's (United States Environmental Protection Agency) list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action.

Government Publication Date: Jun 11, 2019

National Priority List - Proposed: PROPOSED NPL

Includes sites proposed (by the EPA, the state, or concerned citizens) for addition to the NPL due to contamination by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.

Government Publication Date: Jun 11, 2019

Deleted NPL: DELETED NPL

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Government Publication Date: Jun 11, 2019

SEMS List 8R Active Site Inventory: SEMS

The Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted.

Government Publication Date: Jun 11, 2019

SEMS List 8R Archive Sites: SEMS ARCHIVE

The Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

Government Publication Date: Jun 11, 2019

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Jun 3, 2019

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Government Publication Date: Jun 3, 2019

RCRA Generator List: RCRA LQG

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Jun 3, 2019

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Jun 3, 2019

RCRA Conditionally Exempt and Very Small Quantity Generators List: RCRA CESQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Conditionally Exempt and Very Small Quantity Generators (VSQG and CESQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG and CESQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Jun 3, 2019

RCRA Non-Generators: RCRA NON GEN

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Jun 3, 2019

Federal Engineering Controls-ECs: FED ENG

Engineering controls (ECs) encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Sep 20, 2018

Federal Institutional Controls- ICs: FED INST

Institutional controls are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's (United States Environmental Protection Agency) expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

Government Publication Date: Sep 20, 2018

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Mar 21, 2019

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 11, 2019

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Petroleum Refineries: REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Jul 17, 2018

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

Government Publication Date: Jan 18, 2019

LIEN on Property: SEMS LIEN

The EPA Superfund Enterprise Management System (SEMS) provides LIEN information on properties under the EPA Superfund Program.

Government Publication Date: Jun 11, 2019

Superfund Decision Documents: SUPERFUND ROD

This database contains a listing of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD), along with other associated memos and files. This information is maintained and made available by the US EPA (Environmental Protection Agency).

Government Publication Date: Jun 11, 2019

State

State Response Sites: RESPONSE

A list of identified confirmed release sites where the Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. This database is state equivalent NPL.

Government Publication Date: Jun 14, 2019

EnviroStor Database: ENVIROSTOR

The EnviroStor Data Management System is made available by the Department of Toxic Substances Control (DTSC). Includes Corrective Action sites, Tiered Permit sites, Historical Sites and Evaluation/Investigation sites. This database is state equivalent CERCLIS.

Government Publication Date: Jun 14, 2019

Delisted State Response Sites: DELISTED ENVS

Sites removed from the list of State Response Sites made available by the EnviroStor Data Management System, Department of Toxic Substances Control (DTSC).

Government Publication Date: Jun 14, 2019

Solid Waste Information System (SWIS): SWF/LF

The Solid Waste Information System (SWIS) database made available by the Department of Resources Recycling and Recovery (CalRecycle) contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

Government Publication Date: Aug 19, 2019

EnviroStor Hazardous Waste Facilities: HWP

A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database.

Government Publication Date: Jun 14, 2019

Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report: SWAT

In a 1993 Memorandum of Understanding, the State Water Resources Control Board (SWRCB) agreed to submit a comprehensive report on the Solid Waste Assessment Test (SWAT) Program to the California Integrated Waste Management Board (CIWMB). This report summarizes the work completed to date on the SWAT Program, and addresses both the impacts that leakage from solid waste disposal sites (SWDS) may have upon waters of the State and the actions taken to address such leakage.

Government Publication Date: Dec 31, 1995

Land Disposal Sites: LDS

Land Disposal Sites in GeoTracker, the State Water Resources Control Board (SWRCB)'s data management system. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.

Government Publication Date: Jul 17, 2019

Leaking Underground Fuel Tank Reports: LUST

List of Leaking Underground Storage Tanks within the Cleanup Sites data in GeoTracker database. GeoTracker is the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense and Site Cleanup Program) as well as permitted facilities such as operating Underground Storage Tanks. The Leak Prevention Program that overlooks LUST sites is the SWRCB in California's Environmental Protection Agency.

Government Publication Date: Jul 17, 2019

Delisted Leaking Storage Tanks: DELISTED LST

List of Leaking Underground Storage Tanks (LUST) cleanup sites removed from GeoTracker, the State Water Resources Control Board (SWRCB)'s database system, as well as sites removed from the SWRCB's list of UST Case closures.

Government Publication Date: Jul 17, 2019

Solid Waste Disposal Sites with Waste Constituents Above Hazardous Waste Levels: SWRCB SWF

This is a list of solid waste disposal sites identified by California State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit.

Government Publication Date: Sep 20, 2006

Permitted Underground Storage Tank (UST) in GeoTracker: UST

List of Permitted Underground Storage Tank (UST) sites made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA).

Government Publication Date: Jul 17, 2019

Proposed Closure of Underground Storage Tank Cases: UST CLOSURE

List of UST cases that are being considered for closure by either the California Environmental Protection Agency, State Water Resources Control Board or the Executive Director that have been posted for a 60-day public comment period.

Government Publication Date: Jun 17, 2019

Historical Hazardous Substance Storage Information Database: HHSS

The Historical Hazardous Substance Storage database contains information collected in the 1980s from facilities that stored hazardous substances. The information was originally collected on paper forms, was later transferred to microfiche, and recently indexed as a searchable database. When using this database, please be aware that it is based upon self-reported information submitted by facilities which has not been independently verified. It is unlikely that every facility responded to the survey and the database should not be expected to be a complete inventory of all facilities that were operating at that time. This database is maintained by the California State Water Resources Control Board's (SWRCB) Geotracker.

Government Publication Date: Aug 27, 2015

Aboveground Storage Tanks: AST

A statewide list from 2009 of aboveground storage tanks (ASTs) made available by the Cal FIRE Office of the State Fire Marshal (OSFM). This list is no longer maintained or updated by the Cal FIRE OSFM.

Government Publication Date: Aug 31, 2009

Delisted Storage Tanks: DELISTED TNK

This database contains a list of storage tank sites that were removed by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA) and the Cal FIRE Office of State Fire Marshal (OSFM).

Government Publication Date: Jul 17, 2019

California Environmental Reporting System (CERS) Tanks: CERS TANK

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Aug 19, 2019

Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions: LUR

The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents land use restrictions that are active. Some sites have multiple land use restrictions.

Government Publication Date: Jun 14, 2019

Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions: HLUR

The Department of Toxic Substances Control (DTSC) Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Government Publication Date: Apr 17, 2019

Deed Restrictions and Land Use Restrictions: DEED

List of Deed Restrictions, Land Use Restrictions and Covenants in GeoTracker made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency. A deed restriction (land use covenant) may be required to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

Government Publication Date: Jul 17, 2019

Voluntary Cleanup Program: VCP

List of sites in the Voluntary Cleanup Program made available by the Department of Toxic Substances and Control (DTSC). The Voluntary Cleanup Program was designed to respond to lower priority sites. Under the Voluntary Cleanup Program, DTSC enters site-specific agreements with project proponents for DTSC oversight of site assessment, investigation, and/or removal or remediation activities, and the project proponents agree to pay DTSC's reasonable costs for those services.

Government Publication Date: Jun 14, 2019

GeoTracker Cleanup Program Sites: CLEANUP SITES

A list of Cleanup Program sites in the state of California made available by The State Water Resources Control Board (SWRCB) of the California Environmental Protection Agency (EPA). SWRCB tracks leaking underground storage tank cleanups as well as other water board cleanups.

Government Publication Date: Jul 17, 2019

Delisted California Environmental Reporting System (CERS) Tanks: DELISTED CTNK

This database contains a list of Aboveground Petroleum Storage and Underground Storage Tank sites that were removed from in the California Environmental Protection Agency (CalEPA) Regulated Site Portal.

Government Publication Date: Aug 19, 2019

Historical Hazardous Substance Storage Container Information - Facility Summary: HIST TANK

The State Water Resources Control Board maintained the Hazardous Substance Storage Containers listing and inventory in th 1980s. This facility summary lists historic tank sites where the following container types were present: farm motor vehicle fuel tanks; waste tanks; sumps; pits, ponds, lagoons, and others; and all other product tanks. This set, published in May 1988, lists facility and owner information, as well as the number of containers. This data is historic and will not be updated.

Government Publication Date: May 27, 1988

Tribal

Leaking Underground Storage Tanks (LUSTs) on Indian Lands: INDIAN LUST

LUSTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Dec 31, 2017

Underground Storage Tanks (USTs) on Indian Lands: INDIAN UST

USTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Dec 31, 2017

Delisted Tribal Leaking Storage Tanks: DELISTED ILST

Leaking Underground Storage Tank facilities which have been removed from the Regional Tribal LUST lists made available by the EPA.

Government Publication Date: Oct 14, 2017

Delisted Tribal Underground Storage Tanks: DELISTED IUST

Underground Storage Tank facilities which have been removed from the Regional Tribal UST lists made available by the EPA.

Government Publication Date: Oct 14, 2017

County

Delisted County Records: DELISTED COUNTY

Records removed from county or CUPA databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.

Government Publication Date: Aug 27, 2019

Riverside County - Local Oversight Program List: RIVERSIDE LOP

A list of Leaking Underground Storage Tank (LUST) facilities in Riverside County. This list is made available by Riverside County Department of Environmental Health. Environmental Cleanup Program provides oversight of assessments and cleanups at properties that have been, or may have been, contaminated with hazardous substances from LUSTs or releases associated with other commercial/industrial use.

Government Publication Date: Aug 26, 2019

Riverside County - Underground Storage Tanks List: UST RIVERSIDE

A list of registered Underground Storage Tank (UST) sites in Riverside County. This list is made available by Riverside County Department of Environmental Health. The Hazardous Materials Management Branch (HMMB) regulates and oversees the inspections of constructions, repairs, upgrades, system operation and removal of UST systems.

Government Publication Date: Aug 26, 2019

Santa Clara County - Underground Storage Tanks: UST SANTACLARA

List of underground storage tanks made available by the County of Santa Clara's Hazardous Materials Compliance Division.

Government Publication Date: Aug 14, 2019

Additional Environmental Record Sources

Federal

PFOA/PFOS Contaminated Sites: PFAS NPL

List of sites where PFOA or PFOS contaminants have been found in drinking water or soil. Made available by the Federal Environmental Protection Agency (EPA).

Government Publication Date: Nov 15, 2018

Facility Registry Service/Facility Index: FINDS/FRS

The US Environmental Protection Agency (EPA)'s Facility Registry System (FRS) is a centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, data collected from EPA's Central Data Exchange registrations and data management personnel.

Government Publication Date: Apr 23, 2019

Toxics Release Inventory (TRI) Program: TRIS

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Dec 31, 2017

Perfluorinated Alkyl Substances (PFAS) Releases: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a Per- or polyfluorinated alkyl substance (PFAS) included in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances. The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Government Publication Date: Dec 31, 2017

Hazardous Materials Information Reporting System: HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

Government Publication Date: Jan 8, 2019

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department") provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Jul 18, 2018

Toxic Substances Control Act: TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

Government Publication Date: Jun 30, 2017

Hist TSCA: HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP

Early in the cleanup process, the Environmental Protection Agency (EPA) conducts a search to find the potentially responsible parties (PRPs). EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site.

Government Publication Date: Jun 11, 2019

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS

The Integrated Compliance Information System (ICIS) is a system that provides information for the Federal Enforcement and Compliance (FE&C) and the National Pollutant Discharge Elimination System (NPDES) programs. The FE&C component supports the Environmental Protection Agency's (EPA) Civil Enforcement and Compliance program activities. These activities include Compliance Assistance, Compliance Monitoring and Enforcement. The NPDES program supports tracking of NPDES permits, limits, discharge monitoring data and other program reports.

Government Publication Date: Nov 18, 2016

Drycleaner Facilities: FED DRYCLEANERS

A list of drycleaner facilities from the Integrated Compliance Information System (ICIS). The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: May 29, 2018

Delisted Drycleaner Facilities: DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: May 29, 2018

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DoD) is responsible for an environmental restoration. This list is published by the U.S. Army Corps of Engineers.

Government Publication Date: Oct 23, 2018

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: Nov 1, 2018

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) contains mine identification numbers issued by the Department of Labor Mine Safety and Health Administration (MSHA) for mines active or opened since 1971. Note that addresses may or may not correspond with the physical location of the mine itself.

Government Publication Date: May 3, 2019

Alternative Fueling Stations: ALT FUELS

List of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE). The National Renewable Energy Laboratory (NREL) obtains information about new stations from trade media, Clean Cities coordinators, a Submit New Station form on the Station Locator website, and through collaborating with infrastructure equipment and fuel providers, original equipment manufacturers (OEMs), and industry groups.

Government Publication Date: Jun 26, 2019

Registered Pesticide Establishments: SSTS

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

Government Publication Date: Sep 1, 2018

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Mar 20, 2019

State

Dry Cleaning Facilities: DRYCLEANERS

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, linen supply, commercial laundry, dry cleaning and pressing machines - Coin Operated Laundry and Dry Cleaning. This is provided by the Department of Toxic Substance Control.

Government Publication Date: Jul 16, 2019

Delisted Drycleaners: DELISTED DRYCLEANERS

Sites removed from the list of drycleaner related facilities that have EPA ID numbers, made available by the California Department of Toxic Substance Control.

Government Publication Date: Jul 16, 2019

Non-Toxic Dry Cleaning Incentive Program: DRYC GRANT

A list of grant recipients of the Non-Toxic Dry Cleaning Incentive Program made available by the California Air Resources Board (CARB). The program provides grants to eligible dry cleaning businesses to assist them in transitioning away from PERC machines to alternative non-toxic and non-smog forming technologies.

Government Publication Date: Feb 28, 2018

Per- and Polyfluoroalkyl Substances (PFAS): PFAS

List of sites from the State Water Resources Control Board (SWRCB)'s GeoTracker at which the potential contaminants of concern include Per- and Polyfluoroalkyl Substances (PFAS).

Government Publication Date: Jul 17, 2019

PFOA/PFOS Groundwater: PFAS GW

A list of water wells from the Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System with the groundwater chemical perfluorooctanoic acid (PFOA) (NL = 0.014 UG/L) or perfluorooctanoic sulfonate (PFOS) (NL = 0l013 UG/L). The GAMA Groundwater Information System search is made available by California Water Boards.

Government Publication Date: Jul 12, 2019

Hazardous Waste and Substances Site List - Site Cleanup: HWSS CLEANUP

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. This list is published by California Department of Toxic Substance Control.

Government Publication Date: Apr 23, 2019

List of Hazardous Waste Facilities Subject to Corrective Action: DTSC HWF

This is a list of hazardous waste facilities identified in Health and Safety Code (HSC) § 25187.5. These facilities are those where Department of Toxic Substances Control (DTSC) has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

Government Publication Date: Jul 18, 2016

EnviroStor Inspection, Compliance, and Enforcement: INSP COMP ENF

A list of permitted facilities with inspections and enforcements tracked in the Department of Toxic Substance Control (DTSC) EnviroStor.

Government Publication Date: Jul 16, 2019

School Property Evaluation Program Sites: SCH

A list of sites registered with The Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup (SPEC) Division. SPEC is responsible for assessing, investigating and cleaning up proposed school sites. The Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school.

Government Publication Date: Jun 14, 2019

California Hazardous Material Incident Report System (CHMIRS): CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS). This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Apr 2, 2019

Hazardous Waste Manifest Data: HAZNET

A list of hazardous waste manifests received each year by Department of Toxic Substances Control (DTSC). The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Oct 24, 2016

Historical California Hazardous Material Incident Report System (CHMIRS): HIST CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS) prior to 1993. This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jan 1, 1993

Historical Hazardous Waste Manifest Data: HIST MANIFEST

A list of historic hazardous waste manifests received by the Department of Toxic Substances Control (DTSC) from year the 1980 to 1992. The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Dec 31, 1992

Historical Cortese List: HIST CORTESE

List of sites which were once included on the Cortese list. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements for providing information about the location of hazardous sites.

Government Publication Date: Nov 13, 2008

Cease and Desist Orders and Cleanup and Abatement Orders: CDO/CAO

The California Environment Protection Agency "Cortese List" of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO). This list contains many CDOs and CAOs that do NOT concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials, but the Water Boards' database does not distinguish between these types of orders.

Government Publication Date: Feb 16, 2012

California Environmental Reporting System (CERS) Hazardous Waste Sites: CERS HAZ

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Aug 19, 2019

Delisted Environmental Reporting System (CERS) Hazardous Waste Sites: DELISTED HAZ

This database contains a list of sites that were removed from the California Environmental Protection Agency (CalEPA) in the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator.

Government Publication Date: Nov 29, 2018

Sites in GeoTracker: GEOTRACKER

GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. This is a list of sites in GeoTracker that aren't otherwise categorized as LUST, Land Disposal Sites (LDS), Cleanup Sites, or sites having Waste Discharge Requirements (WDR). This listing includes program types such as Underground Injection Control (UIC), Confined Animal Facilities (CAF), Irrigated Lands Regulatory Program, plans, and non-case information.

Government Publication Date: Jul 17, 2019

Waste Discharge Requirements: WASTE DISCHG

List of sites in California State Water Resources Control Board (SWRCB) Waste Discharge Requirements (WDRs) Program in California, made available by the SWRCB via GeoTracker. The WDR program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Government Publication Date: Jul 17, 2019

Toxic Pollutant Emissions Facilities: EMISSIONS

A list of criteria and toxic pollutant emissions data for facilities in California made available by the California Environmental Protection Agency - Air Resources Board (ARB). Risk data may be based on previous inventory submittals. The toxics data are submitted to the ARB by the local air districts as requirement of the Air Toxics "Hot Spots" Program. This program requires emission inventory updates every four years.

Government Publication Date: Dec 31, 2017

Clandestine Drug Lab Sites: CDL

The Department of Toxic Substances Control (DTSC) maintains a listing of drug lab sites. DTSC is responsible for removal and disposal of hazardous substances discovered by law enforcement officials while investigating illegal/clandestine drug laboratories.

Government Publication Date: Jun 30, 2018

Tribal

No Tribal additional environmental record sources available for this State.

County

Riverside County - Hazardous Waste Generator Sites List: RIVERSIDE HWG

A list of Hazardous Waste Generator Sites in the County of Riverside. This list is made available by Riverside County Department of Environmental Health which has been designated as the CUPA for the County.

Government Publication Date: Aug 26, 2019

Riverside County - Disclosure Facility List: RIVERSIDE HZH

A list of facilities disclosed to Riverside County Department of Environmental Health (DEH). This list is made available by Riverside County DEH which has been designated as the CUPA for the County. A business is required to establish and submit a Business Plan if the facility handles hazardous material equal to or greater than 55 gallons, 500 pounds or 200 cubic feet at any time during the year.

Government Publication Date: Aug 26, 2019

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

APPENDIX E
ASTM QUESTIONNAIRRES

EDR#4589.01

ASTM E1527-13
OWNER/LANDLORD/OCCUPANT INTERVIEW QUESTIONS

Project Number / Name: 0719002 / Empire Design Group
Assessor Parcel Number (APN): 389-030-012 through 389-030-018
Project Address: NWC Mountain St. and Lake St.
Lake Elsinore, Riverside County California

1. What is/are the Current Use(s) of the Property, to the best of your knowledge?

RESIDENTIAL / VACANT

2. What was/were the Past Use(s) of the Property, to the best of your knowledge?

RESIDENTIAL / VACANT

3. Are there now or were there ever present any aboveground storage tanks, underground storage tanks or vent pipes, fill pipes or accessways indicating underground storage tanks?

NO

4. Are there any areas of the site with strong, pungent, or noxious odors?

NO

5. Are there any areas of standing surface water, including Pools or sumps?

NO

6. Are there any Hazardous Substances and/or Petroleum Product Containers currently stored on site?

NO

7. Are there any unlabelled Drums or any Unidentified Substance Containers stored on the property?

NO

8. Is there any Electrical or hydraulic equipment known to contain PCBs or likely to contain PCBs?

NO

9. Do you know of any spills or other chemical releases that have taken place at the property?

NO

10. Do you know of any environmental cleanups that have taken place at the property?

NO

11. Are you aware of any deed restrictions or other activity or land use restrictions that have been placed on the property as a result of an environmental issue?

NO

12. Are you aware of any environmental liens, unresolved notices of violation, or litigation related to a contamination issue at the property?

NO

13. Are you aware of any previous assessments conducted at the subject property?

NO

Preparer:

Name: GREG HANN - ARCHITECT

Address: P.O. BOX 944 MURRIETA CA 92564

Signature:

Date: 9/3/2019

EDG# 4589.01

TA-Group DD, LLC

ASTM E1527-13
USER SPECIFIC QUESTIONNAIRE

Project Number / Name: 0719002 / Empire Design Group
Assessor Parcel Number (APN): 389-030-012 through 389-030-018
Project Address: NWC Mountain St. and Lake St.
Lake Elsinore, Riverside County California

In order to comply with the ASTM E1527-13 Standard and qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "*Brownfields Amendments*"), the *user* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. These inquiries must also be conducted by EPA Brownfield Assessment and Characterization grantees. The *user* should provide the following information to the *environmental professional*. Failure to conduct these inquiries could result in a determination that "*all appropriate inquiries*" is not complete. Please provide the following information (if available). Your answers will be incorporated into the final Phase I ESA under the section "User-supplied Information."

(1.) Environmental cleanup liens that are filed or recorded against the property (40 CFR 312.25).
Did a search of *recorded land title records* (or judicial records where appropriate, see NOTE below) identify any environmental liens filed or recorded against the *property* under federal, tribal, state or local law? (NOTE - In certain jurisdictions, federal, tribal, state, or local statutes, or regulations specify that environmental liens and AULs be filed in judicial records rather than in land title records. In such cases judicial records must be searched for environmental liens and AULs.

No

(2.) Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).
Did a search of *recorded land title records* (or judicial records where appropriate, see NOTE above) identify any AULs, such as *engineering controls*, land use restrictions, or *institutional controls* that are in place at the *property* and/or have been filed or recorded against the *property* under federal, tribal, state or local law?

No

(3.) Specialized knowledge or experience of the person seeking to qualify for the Landowner Liability Protections (LLP - 40 CFR 312.28).
As the *user* of this *ESA* do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an adjoining *property* so that you would have specialized knowledge of the chemicals and processes used by this type of business? (self-explanatory)

No

(4.) Relationship of the purchase price to the fair market value of the *property* if it were not contaminated (40 CFR 312.29).
Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*?

YES

(5.) Commonly known or *reasonably ascertainable* information about the *property* (40 CFR 312.30).
Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example, as *user*,

(a.) Do you know the past uses of the *property*?

NO

(b.) Do you know of specific chemicals that are present or once were present at the *property*?

NO

(c.) Do you know of spills or other chemical releases that have taken place at the *property*?

NO

(d.) Do you know of any environmental cleanups that have taken place at the *property*?

NO

(6.) The degree of obviousness of the presence of likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).
As the *user* of this *ESA*, based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of contamination at the *property*?

NO

In addition, certain information should be collected, if available, and provided to the *environmental professional* selected to conduct the Phase I. This information is intended to assist the *environmental professional* but is not necessarily required to qualify for one of the *LLPs*. The information includes:

(a) the reason why the Phase I is required,

CITY OF LK. ELSINORE CUP REQ. (CEQA)

(b) the type of *property* and type of *property* transaction, for example, sale, purchase, exchange, etc.,

SALE

(c) the complete and correct address for the *property* (a map or other documentation showing *property* location and boundaries is helpful),

* NWC Mountain and Lake Streets, Lake Elsinore, CA 92530
APN: 389-030-012, 013, 014, 015, 016, 017, 018

(d) the scope of services desired for the Phase I (including whether any parties to the *property* transaction may have a required standard scope of services on whether any considerations beyond the requirements of Practice E 1527 are to be considered),

NO

(e) identification of all parties who will rely on the Phase I *report*,

CITY OF LK. ELSINORE

(f) identification of the site contact and how the contact can be reached,

* Danny Singh / Tiger Petroleum, Inc.
Cell 949-630-5345

(g) any special terms and conditions which must be agreed upon by the *environmental professional*, and

NO

(h) any other knowledge or experience with the *property* that may be pertinent to the *environmental professional* (for example, copies of any available prior *environmental site assessment reports*, documents, correspondence, etc., concerning the *property* and its environmental condition).

* YES

Preparer:

Name: GREG HANN - ARCHITECT

Address: P.O. BOX 944
MURRIETA, CA 92564

Signature:

Date: 9/3/2019

APN: 389-030-012 thru 389-030-018
NWC Mountain Street and Lake Street, Lake Elsinore, CA 92530



ED6# 4589.01

TA-GROUP DD, LLC

Diligent Diligence

ASTM E2600-15
VAPOR ENCROACHMENT SCREENING – USER QUESTIONNAIRE

Project Number / Name: 0719002 / Empire Design Group
Assessor Parcel Number (APN): 389-030-012 through 389-030-018
Project Address: NWC Mountain St. and Lake St.
Lake Elsinore, Riverside County California

1. Property type: [X] Commercial [ ] Industrial [ ] Multi-Tenant [ ] Vacant Land
2. Are there any buildings/ structures on the property? Yes [X] No [ ] Unknown [ ]
If yes, type construction TYPE 5 WOOD FRAMED
3. Will buildings/structures be constructed on the property in the future? Yes [X] No [ ] Unknown [ ]
If yes, type construction TYPE 5 WOOD FRAMED
4. If buildings exist or are proposed, do/will they have elevators? Yes [ ] No [X]
5. Type of level below grade (existing or proposed)? [ ] Full Basement [ ] Crawl Space [X] Slab on grade
[ ] Parking Garage [ ] Multi-level
6. Ventilation in level below grade? Yes [ ] No [ ] Unknown [X]
7. Sump pumps, floor drains, or trenches (existing or proposed)? Yes [ ] No [ ] Unknown [X]
8. Radon or methane mitigation system installed? Yes [ ] No [ ] Unknown [X]
9. Heating system type (existing or proposed)? (CHECK ALL THAT APPLY)
[ ] Hot Air Circulation [ ] Electric Baseboard [ ] Hot Air Radiation [ ] Heat Pump [ ] Hot Water Radiation
[ ] Wood Stove [ ] Kerosene Heater [ ] Steam Radiation [ ] Fireplace [ ] Coal Furnace [ ] Radiant Floor Heat
[X] Hot Water Circulation [ ] Fuel Oil Furnace [ ] Gas Furnace [ ] Other
10. Type of fuel energy (existing or proposed)? (CHECK ALL THAT APPLY)
[X] Natural Gas [X] Electric [ ] Propane [ ] Fuel Oil [ ] Kerosene [ ] Wood [ ] Coal [ ] Solar [ ] Other
11. Have there ever been any environmental problems at the property? Yes [ ] No [X] Unknown [ ]
If yes, describe)_____

12. Does/will a gas station or dry cleaner operate anywhere on the property? Yes [X] No [ ] Unknown [ ]

13. Do any tenants use hazardous chemicals in relatively large quantities on the property? Yes [X] No [ ] Unknown [ ]

If yes, describe PETROLEUM / GAS / PETROL / DIESEL

14. Have any tenants ever complained about odors in the building or experienced health-related problems that may have been associated with the building? Yes [ ] No [X] Unknown [ ]

15. Are the operations (or proposed operations to be performed) on the property OSHA regulated? Yes [ ] No [X] Unknown [ ]

16. Are there any existing or proposed underground storage tanks (USTs) or above ground storage tanks (ASTs)? Yes. [X] No [ ] Unknown [ ]

17. Are there any sensitive receptors (for example, children, elderly, people in poor health, and so forth) that occupy or will occupy the property? Yes [ ] No [X] Unknown [ ]

Preparer:

Name: GREG HANN - ARCHITECT

Address: P.O. BOX 944 AURIEKA CA 92564

Signature:

Date: 9/3/2019

APPENDIX G
PHOTOGRAPHIC LOG



Photo 1: View N along Lake St from SE corner



Photo 2: View West at Residential Driveway



Photo 3: View E from NW corner



Photo 4: View W from NE corner



Photo 5: North end main residence



Photo 6: Sheds North of residence



Photo 7: Shed contents



Photo 8: Shed contents – paint cans



Photo 9: Wells Southeast of homes



Photo 10: Trash East of homes



Photo 11: Vacant residence East of main house



Photo 12: Second house interior



Photo 13: Home remnants Southeast corner



Photo 14: South side of house with water tank structure



Photo 15: View Southeast through site



Photo 16: View East thru Southwest corner



Photo 17: View Northwest through site



Photo 18: View North through Western end of site



Photo 17: View West through South end



Photo 18: View Northeast through site

Appendix J

Preliminary Water Quality Management Plan

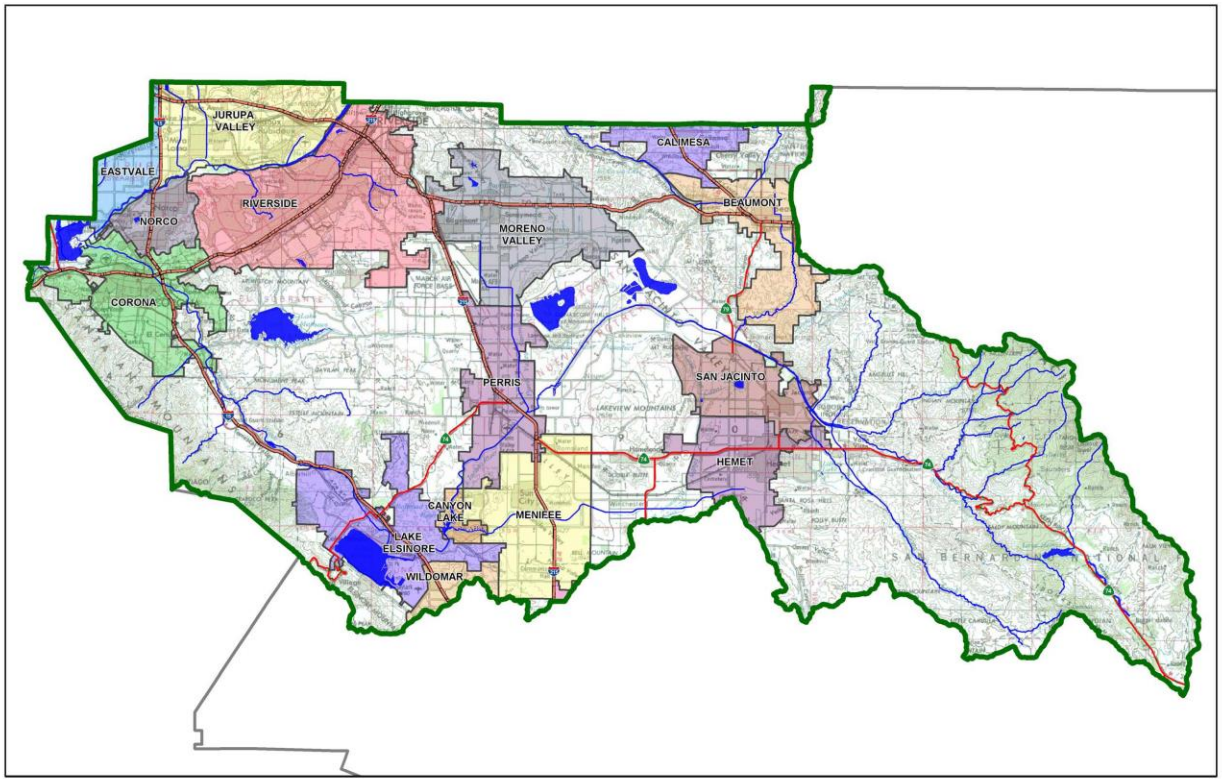
Project Specific Water Quality Management Plan

*A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County*

Project Title: Commercial Retail Lake Elsinore

Development No: TBD

Design Review/Case No: TBD



☒ **Preliminary**
☐ **Final**

Original Date Prepared: 10/04/2019

Revision Date(s): N/A

Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**
Template revised June 30, 2016

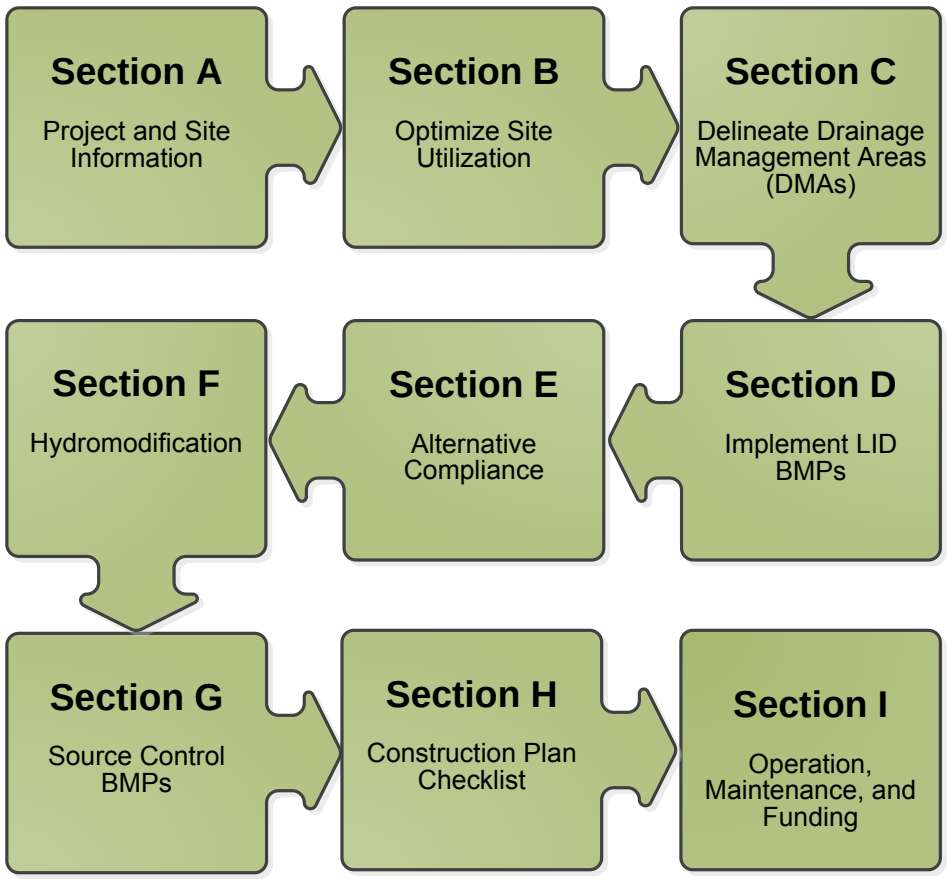
Contact Information:

Prepared for:
Empire Design Group, Inc., 24861 Washington Avenue, Murrieta, CA 92562, (951) 696-1490

Prepared by:
Plump Engineering, Inc., 914 E. Katella Avenue, Anaheim, CA 92805, (714) 385-1835

A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well-prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Empire Design Group by Plump Engineering Inc. for the Commercial Retail Lake Elsinore project.

This WQMP is intended to comply with the requirements of City of Lke Elsinore for Ordinance No.754 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under Riverside County Water Quality Ordinance (Municipal Code Section754.2).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature	Date
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Commercial
Planning Area:	General Commercial (C-2)
Community Name:	Lake Elsinore
Development Name:	General Commercial

PROJECT LOCATION
Latitude & Longitude (DMS): 33.698980, -117.390858
Project Watershed and Sub-Watershed: Santa Ana
Gross Acres: 5.630
APN(s): 389-030-012 through -018
Map Book and Page No.: Book 12, page 23 of maps, records of Riverside County, Califirnia

PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	General Commercial
Proposed or Potential SIC Code(s)	TBD
Area of Impervious Project Footprint (SF)	2,919.52
Total Area of proposed Impervious Surfaces within the Project Footprint (SF)/or Replacement	190,215.5
Does the project consist of offsite road improvements?	☐ Y ☒ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N

EXISTING SITE CHARACTERISTICS	
Total area of existing Impervious Surfaces within the Project limits Footprint (SF)	2,919.52
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☐ Y ☒ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	
What is the Water Quality Design Storm Depth for the project?	0.80 inches

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling
- BMP Locations (Lat/Long)

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
West Elsinore MDP - Lines C and C1	N/A	N/A	N/A
Lake Elsinore	Nutrients, Organic Enrichment/Low Dissolved Oxygen, PCBs (Polychrinated biphenyls), Sediment Toxicity. Unknown Toxicity	All	REC1, REC2, WARM, WILD

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☐ Y	☒ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* Grading Permit	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Consideration of "highest and best use" of the discharge should also be considered. For example, Lake Elsinore is evaporating faster than runoff from natural precipitation can recharge it. Requiring infiltration of 85% of runoff events for projects tributary to Lake Elsinore would only exacerbate current water quality problems associated with Pollutant concentration due to lake water evaporation. In cases where rainfall events have low potential to recharge Lake Elsinore (i.e. no hydraulic connection between groundwater to Lake Elsinore, or other factors), requiring infiltration of Urban Runoff from projects is counterproductive to the overall watershed goals. Project proponents, in these cases, would be allowed to discharge Urban Runoff, provided they used equally effective filtration-based BMPs.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

The existing condition is a vacant undeveloped lot with some vegetation. The proposed will be fully developed as commercial. The new development will consist of four (4) retail buildings (13,200 SF), two (2) restaurants with drive-thru (5,840 SF), and a gas station with car wash (12,164 SF). The drainage pattern of the southwest corner of the property will mostly remain the same as the existing condition. Run-off from the site will be treated by the biofiltration with underdrain. Overflow from the biofiltration system will discharge to the curb and gutter on Mountain Street and flow to the existing 6'x5' RCB catch basin on Lake Street.

Did you identify and protect existing vegetation? If so, how? If not, why?

The existing site is undeveloped land covered with grass, and brush. Trees are found on the east side of the property along Lake Street. The entire area of the new development will be disturbed, removing existing vegetation. The proposed project will include drought tolerant landscaping.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

The existing infiltration rate of the site is 0 in/hr per the soils report (Appendix 3). The proposed biofiltration with underdrain will be utilized to treat the stormwater runoff.

Did you identify and minimize impervious area? If so, how? If not, why?

Roughly 28% of the project site will be developed for landscaping and the biofiltration with underdrain. The biofiltration system shall be designed to retain and treat a designated volume of stormwater runoff.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

The proposed grading and drainage are designed to maintain a similar flow pattern to the existing conditions. Landscaping along the east and south side of the property will prevent flow towards Lake Street and Mountain Street. Based on the elevation on the north side of the property runoff will flow away from the adjacent properties. The proposed drainage pattern will direct runoff to the infiltration trench located at the southwest corner of the property for treatment. Overflow from the infiltration trench will be directed to the curb and gutter on Mountain Street.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1][2]	Area (Sq. Ft.)	DMA Type
DMA 1	Mix surface (Commercial Development)	103,673	Type "D"
DMA 2	Mix surface (Commercial Development)	141,570	Type "D"

[1]*Reference Table 2-1 in the WQMP Guidance Document to populate this column*
[2]*If multi-surface provide back-up*

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
N/A			

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				**Type 'C' DMAs that are draining to the Self-Retaining Area**		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]
N/A						

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					**Receiving Self-Retaining DMA**		
DMA Name/ ID	Area (square feet)	Post-project surface type	Impervious fraction	Product		Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]	DMA name /ID	[D]	[C]/[D]
N/A							

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA-1	TC-32, Biofiltration with Underdrain
DMA-2	TC-32, Biofiltration with Underdrain

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site; proceed to section D.3

If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: DMA-1, DMA2		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identifies other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☒Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: N/A

Type of Landscaping (Conservation Design or Active Turf): Conservative Design with native plants

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: N/A

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
N/A	N/A

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: N/A

Project Type: Commercial

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: N/A

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	**Projected number of toilet users (Step 1)**
N/A	N/A

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

None

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
N/A	N/A

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA-1	☐	☐	☐	☒	☐
DMA-2	☐	☐	☐	☒	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First**,** calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second**,** design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	**DMA Area (square feet)**	**Post-Project Surface Type**	**Effective Impervious Fraction, I_f**	**DMA Runoff Factor**	**DMA Areas x Runoff Factor**	***Enter BMP Name / Identifier Here***		
	[A]		[B]	[C]	[A] x [C]			
DMA-1	103,673	Mixed surface types	0.6832	0.479	49,659			
DMA-2	*141,570*	*Mixed surface types*	*0.7069*	*0.5*	*70,785*			
						Design Storm Depth (in)	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	A_T = 245,364				Σ= 120,444	0.8	8029.6	18,900*

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

*Volume provided to accommodate 100yr storm event (18,900 cf)

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☒ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☒ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☒ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☒	☐	☐	☒	☐	☒	☒

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
N/A	N/A
Total Credit Percentage[1]	

[1]*Cannot Exceed 50%*
[2]*Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ ID	**DMA Area (square feet)**	**Post-Project Surface Type**	**Effective Impervious Fraction, I_f**	**DMA Runoff Factor**	**DMA Area x Runoff Factor**		***Enter BMP Name / Identifier Here***		
	[A]		[B]	[C]	[A] x [C]				
						Design Storm Depth (in)	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	N/A					N/A	N/A	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the , must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
Biofiltration with Underdrain	Bacterial Indicators	High
Biofiltration with Underdrain	Metals	High
Biofiltration with Underdrain	Toxic Organic Compounds	High
Biofiltration with Underdrain	Trash and Debris	High
Biofiltration with Underdrain	Oil and Grease	High

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.

[2] Cross Reference Table E.1 above to populate this column.

[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

APPENDIX E
BMP POLLUTANT REMOVAL EFFECTIVENESS

BMP Pollutant Removal Effectiveness [1]

Pollutant of Concern	Harvest and Use [8]	Infiltration BMPs [3]	Bioretention	Extended Detention Basins [2]	Sand Filter Basin [7]
Sediment	H	H	H	M	H
Nutrient	H	H	[5]	M [4]	L [6]
Trash	H	H	H	H	H
Metal	H	H	H	M	M
Bacteria	H	H	H	M	M
Oil & Grease	H	H	H	M	H
Organic Compounds	H	H	H	M	H
Pesticides	H	H	H	U	U

Abbreviations:

L: Low removal efficiency M: Medium removal efficiency H: High removal efficiency U: Unknown

Notes:

(1) Periodic performance assessment and updating of this table may be performed based on updated information from studies from the District, CASQA, Caltrans or others. These effectiveness ratings are based on the specific BMP designs incorporated into this manual.

(2) Effectiveness based upon total 72-hour drawdown time.

(3) Includes infiltration basins, infiltration trenches, and permeable pavements.

(4) Medium for soil types A & B only. Low for soil types C & D.

(5) Removal rating is dependent on the soil media depth. L=Min. 18” deep, M= Min. 24” deep, H=Max. 30"-36" deep.

(6) Medium where sand filter layer is increased to 36”.

(7) Considered to be a Treatment Control BMP. See the WQMP to determine if this BMP can be used.

(8) Cisterns, when associated with an adequate and reliable (year-round) demand for non-potable use of captured storm water (see the applicable WQMP for any specific requirements), have a High effectiveness at removing all pollutants from stormwater runoff. If there is inadequate demand to reliably drain the cistern through a non-potable use throughout the year, pollutant removal effectiveness will be Low.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration	N/A	N/A	N/A
Volume (Cubic Feet)	N/A	N/A	N/A

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Susceptibility Maps.

Does the project qualify for this HCOC Exemption? ☒ Y ☐ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

Runoff from the site will be treated by the biofiltration with underdrain. Overflow during high storm events will flow offsite to the curb and gutter on Mountain Street. Flow from the site will reach the 6'W x 5'H RCB catch basin on Lake Street.

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. ***Identify Pollutant Sources*:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. ***Note Locations on Project-Specific WQMP Exhibit*:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. ***Prepare a Table and Narrative*:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. ***Identify Operational Source Control BMPs:*** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-Site storm drain inlets	Locations of inlets	Maintain and periodically repaint or replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees, or operators. See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at

		www.cabmphandbooks.com Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
Landscape/ Outdoor Pest	Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. Show self-retaining landscape areas, if any. Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.
Fuel Dispensing Areas	Fueling areas shall have impermeable floors (i.e., Portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each	The property owner shall dry sweep the fueling area routinely. See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

	direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area 1.] The canopy [or cover] shall not drain onto the fueling area.	
Miscellaneous Drain or Wash Water or Other Sources -Roofing, gutters, and trim.		Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.
P. Plazas, sidewalks, and parking lots.		Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.
Vehicle and Equipment Cleaning	Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shutoff to discourage such use). (3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities shall be designed such that no runoff from the facility is	Describe operational measures to implement the following (if applicable): Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ Car dealerships and similar may rinse cars with water only.

	discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall	
Food Service	For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ Provide this brochure to new site owners, lessees, and operators.

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	BMP Location (Lat/Long)
TC-32	Biofiltration with Underdrain	WQMP, Sheet C02	33.698760,-117.390526
TC-32	Biofiltration with underdrain	WQMP, Sheet C02	33.699196,-117.390463

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: Refer to Appendix 9 for BMP Operation and Maintance Plan Requirements.

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☐ Y ☒ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

R 07 W | R 06 W | R 05 W | R 04 W | R 03 W | R 02 W | R 01 W | R 01 E | R 02 E | R 03 E | R 04 E | R 05 E

T 01 S
T 02 S
T 03 S
T 04 S
T 05 S
T 06 S
T 07 S
T 08 S

06	05	04	03	02	01
07	08	09	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

0.85 MiraLoma
0.61 Riverside North
0.54 Riverside South
0.68 PigeonPass
0.66 MorenoEast
0.85 Beaumont
0.88 PradoDam
0.51 Woodcrest
0.50 LakeMathews
0.68 PerrisReservoir
0.87 VistaGrandeGS
0.70 SanJacintoNWS
1.18 Idyllwild
0.58 SunCity
0.68 Winchester
0.90 HurkeyCreek
0.70 ElsinoreNWS
1.11 ElCarisoStation
0.77 WildomarLaCresta
0.52 SkinnerLake
0.65 Anza
0.77 SantaRosaPlateau
1.00 TemeculaNWS
0.64 AguangaValley

Santa Ana River Watershed
Santa Margarita Watershed

JURUPA VALLEY | EASTVALE | NORCO | CORONA | RIVERSIDE | MORENO VALLEY | CALIMESA | BEAUMONT | SAN JACINTO | PERRIS | CANYON LAKE | LAKE ELSINORE | WILDOMAR | MENIFEE | HEMET | MURRIETA | TEMECULA

N

Rain Gage Locations

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Isohyetal Map for the 85th Percentile 24 hour Storm Event

July 2011

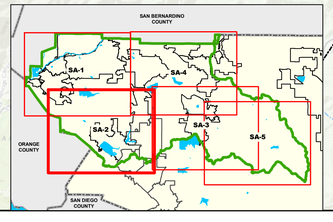
NPDES MUNICIPAL PERMIT
SANTA ANA RIVER WATERSHED
EXHIBIT SA-2
(LAKE ELSINORE, CANYON LAKE, PERRIS, MENIFEE, WILDOMAR AREAS)

- CITY MS4 FACILITIES
- COUNTY MS4 FACILITIES
- RCFC&WCD MS4 FACILITIES
- OTHER FACILITIES
- MAJOR OUTFALL SITES
- SAR CORE MONITORING STATIONS
- SANTA ANA RIVER WATERSHED BOUNDARY
- SANTA MARGARITA RIVER MS4 PERMIT AREA BOUNDARY
- LANDFILL SITES
- SEWAGE TREATMENT PLANTS
- SANTA ANA RIVER/SAN JACINTO RIVER
- BLUE LINE STREAMS
- RIVERSIDE COUNTY BOUNDARY
- INCORPORATED AREAS
- FREEWAYS/HIGHWAYS
- PRIMARY STREETS

N

0 0.5 1 1.5 2 MILES

UPDATED NOVEMBER 2017



CORONA
PERRIS
LAKE ELSINORE
CANYON LAKE
MENIFEE
WILDOMAR

RIVERSIDE COUNTY
ORANGE COUNTY

SEE FOOTNOTE 1

SEE FOOTNOTE 1

FOOTNOTE:
1) MS4 PERMIT AREA REMOVED FROM REGION 8 BASED ON JURISDICTIONAL AREA SWAP AGREEMENT BETWEEN REGION 8 AND REGION 9

The graphical and tabular information shown on this document may be derived from a variety of public agency and/or private commercial sources such as Riverside County Transportation and Land Management Agency, Thomas Brothers Mapping, the Stephen P. Teale Data Center, GIS Technology Center, State of California, the United States Geologic Survey and the United States National Atlas. These sources may possess varying levels of accuracy and precision and this product is meant only as a guide to the relative position and scale of the depicted features. This GIS document is in no case to be interpreted as fundamental or decisive for purposes of land surveying, field engineering, plan drafting, code enforcement, land boundary determination and/or land acquisition.

SAR 2017 AnnRpt - MS4 Maps_Map2.mxd

WEST ELSINORE

MASTER DRAINAGE PLAN

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

APRIL 1986

PRELIMINARY
SUBJECT TO REVISION

SCALE 1"=500'

0 250 500 750 1000

LEGEND

- DRAINAGE BOUNDARY
- PROPOSED STORM DRAIN
- PROPOSED OPEN CHANNEL
- EXISTING FACILITY
- Q=10 — 10 YEAR FLOW IN CFS
- Q=100 — 100 YEAR FLOW IN CFS

NOTES

1. DIGITAL EXHIBIT MAP CREATED DEC. 2014
2. SATELLITE IMAGERY CREATED IN 2013

McVICKER CANYON DEBRIS BASIN
STORAGE VOLUME = 154 AC - FT
100 YR. MAX. RELEASE = 2595 CFS
R/W = 17.3 AC

EXISTING LEACH CANYON DEBRIS BASIN

LAKE ELSINORE CITY LIMITS
COUNTY OF RIVERSIDE

200' FLOODWAY EASEMENT AS PER TR 10828

EXISTING FOUR CORNERS STORM DRAIN

EXISTING LINCOLN ST DRAIN

EXISTING LEACH CANYON CHANNEL

EXISTING SOUTH RIVERSIDE CHANNEL

EXISTING LAGUNA STORM DRAIN

EXISTING FACILITY (BLOCK WALL CHANNEL) b=30 d=2'

PROPOSED BLOCKWALL CHANNEL b=5' d=2'

DAYLIGHT CHANNEL b=12' d=varies ss=3:1 Q=890

100 YR FLOODPLAIN

CONNECT TO EX TRIPLE RCB

6'W X 5'H RCB

TRAINING DIKE

INLET STRUCTURE

EX LEVEES

LINE A
LINE A-1
LINE A-2
LINE A-3
LINE A-4
LINE B
LINE B-1
LINE B-2
LINE B-3
LINE C
LINE C-1
LINE D
LINE D-1
LINE D-2
LINE D-3
LINE D-4
LINE D-5

LINCOLN ST
LAKESHORE DR
GRAND AVE
MEVICKER CANYON PARK RD
HIGHLAND ST
TERRA COTTA ST
LE GAYE ST
TEAKWOOD ST
MACHADO ST
ALVARADO ST
LAGUNA AVE
RIVERSIDE DR
JOY ST

Impaired Water Bodies

Listing a water body as impaired in California is governed by the Water Quality Control Policy for developing California's Clean Water Act Section 303(d) Listing Policy. The State and Regional Water Boards assess water quality data for California's waters every two years to determine if they contain pollutants at levels that exceed protective water quality criteria and standards. This biennial assessment is required under Section 303(d) of the Federal Clean Water Act.

⋙ Fact Sheet - "2010 Integrated Report on Water Quality with Web-Based Interactive Map," April 2010

Please allow time for the information below to appear. Tabs will be available to navigate to various topics.

2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report) — Statewide

2010 Integrated Report | Map | 303(d) List | References | Data Download | Draft Reports | Contact Us

2010 INTEGRATED REPORT — ALL ASSESSED WATERS

Zoom to county: All

Show county

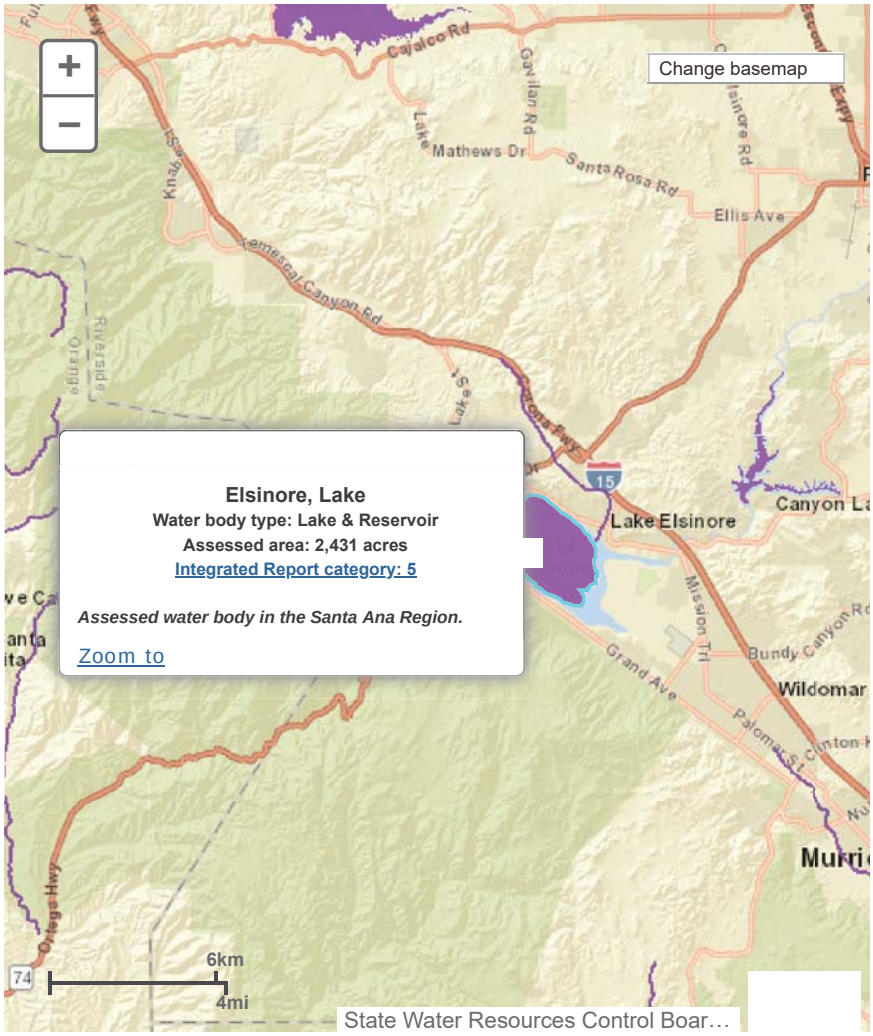
Zoom to Regional Board: All

Show Regional Board

Map Help

Zoom to water body: *(Filter: All)*

Filter list by: Reset list



Elsinore, Lake
Water body type: Lake & Reservoir
Assessed area: 2,431 acres
Integrated Report category: 5

Assessed water body in the Santa Ana Region.

Zoom to

Elsinore, Lake Close
Pollutant assessments

Pollutants	Listing Decision / Report Link / Potential Sources / Schedule / *Comments*
Mercury	Do Not List on 303(d) list (TMDL required list) / 28442 / n/a /
Nutrients	List on 303(d) list (being addressed by USEPA approved TMDL) / 20368 / n/a / USEPA TMDL approval: 2005
Organic Enrichment/Low Dissolved Oxygen	List on 303(d) list (being addressed by USEPA approved TMDL) / 20369 / n/a / USEPA TMDL approval: 2005
PCBs (Polychlorinated biphenyls)	List on 303(d) list (TMDL required list) / 19173 / n/a / Est. TMDL

REGION	WATER BODY NAME	WATER TYPE	WATERSHED CALWATER/ USGS HUC	POLLUTANT POTENTIAL SOURCES	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS	DATE
				• Copper Source Unknown	9.6 Miles	2010	5A	2021
				• Lead Source Unknown	9.6 Miles	2010	5A	2021
				• Zinc Source Unknown	9.6 Miles	2010	5A	2021
8	Cucamonga Creek Reach 2 (Mountain Reach)	River & Stream	80124020 / 18070203	• pH Source Unknown	13 Miles	2010	5A	2021
8	East Garden Grove Wintersburg Channel	River & Stream	80111000 / 18070201	• Ammonia (Unionized) Source Unknown	2.9 Miles	2010	5A	2021
8	Elsinore, Lake	Lake & Reservoir	80231000 / 18070202	• Nutrients Unknown Nonpoint Source	2431 Acres	1994	5B	2005
				• Organic Enrichment/Low Dissolved Oxygen Unknown Nonpoint Source	2431 Acres	1994	5B	2005
				• PCBs (Polychlorinated biphenyls) Source Unknown	2431 Acres	2006	5A	2019
				• Sediment Toxicity Source Unknown	2431 Acres	2010	5A	2021
				• Unknown Toxicity Source Unknown	2431 Acres	1994	5A	2007
8	Fulmor, Lake	Lake & Reservoir	80221000 / 18070202	• Pathogens Unknown Nonpoint Source	4.2 Acres	1998	5A	2019

Appendix 2: Construction Plans

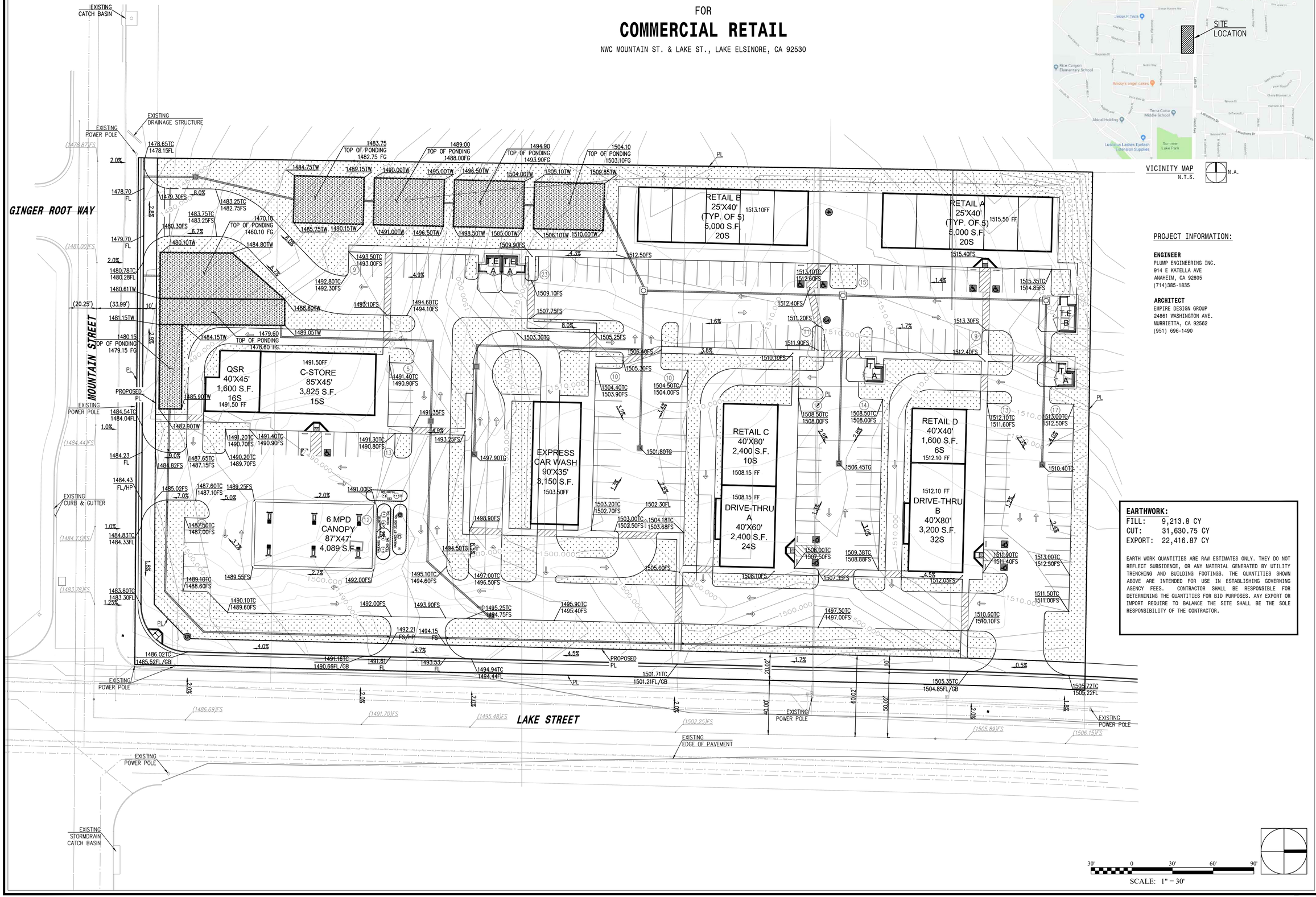
Grading and Drainage Plans

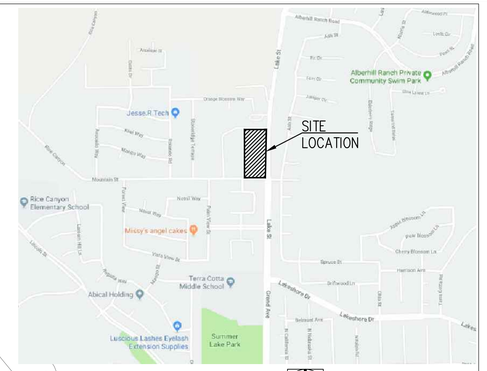
CONCEPTUAL GRADING PLANS

FOR

COMMERCIAL RETAIL

NWC MOUNTAIN ST. & LAKE ST., LAKE ELSINORE, CA 92530





VICINITY MAP N.T.S. N.A.

PROJECT INFORMATION:

ENGINEER
PLUMP ENGINEERING INC.
914 E KATELLA AVE
ANAHEIM, CA 92805
(714)385-1835

ARCHITECT
EMPIRE DESIGN GROUP
24861 WASHINGTON AVE.
MURRIETTA, CA 92562
(951) 696-1490

EARTHWORK:

FILL:	9,213.8 CY
CUT:	31,630.75 CY
EXPORT:	22,416.87 CY

EARTH WORK QUANTITIES ARE RAW ESTIMATES ONLY. THEY DO NOT REFLECT SUBSIDENCE, OR ANY MATERIAL GENERATED BY UTILITY TRENCHING AND BUILDING FOOTINGS. THE QUANTITIES SHOWN ABOVE ARE INTENDED FOR USE IN ESTABLISHING GOVERNING AGENCY FEES. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE QUANTITIES FOR BID PURPOSES. ANY EXPORT OR IMPORT REQUIRE TO BALANCE THE SITE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

30' 0 30' 60' 90'

SCALE: 1" = 30'

PLUMP ENGINEERING INC.
CONSULTING ENGINEERS IN CIVIL, SURVEYING, AND STRUCTURAL ENGINEERING
914 E. KATELLA AVENUE
ANAHEIM, CALIFORNIA 92805
(714) 385-1835, FAX (714) 385-1834

ARCHITECT:
EMPIRE DESIGN GROUP Inc.
24861 Washington Ave.
Murrieta, Calif. 92562
Tel 951-696-1490 Fax 951-696-1443

CLIENT:
TIGER PETROLEUM, INC.

COMMERCIAL RETAIL
APN: 389-030-014,015,016,017,018
NWC MOUNTAIN ST. & LAKE ST.
LAKE ELSINORE, CA 92530

ENGINEER OF RECORD:
TRYFON TRYFONOPOULOS, PE
914 E KATELLA AVE.
ANAHEIM, CA 92805
(714)385-1835

SEAL:
REGISTERED PROFESSIONAL ENGINEER
TRYFON P. TRYFONOPOULOS
NO. 65859
EXP.12/31/19
CIVIL
STATE OF CALIFORNIA

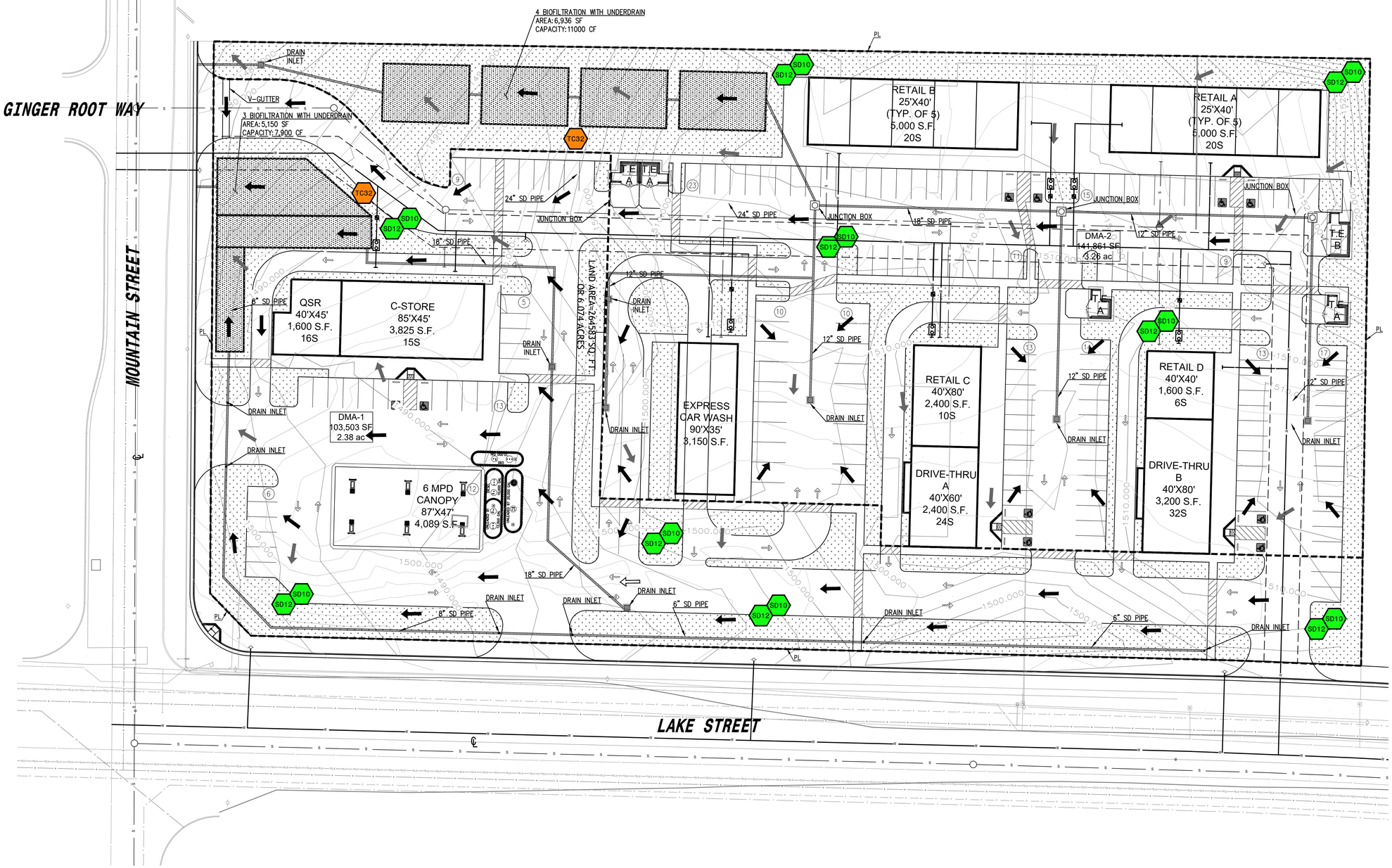
Date: 10-04-2019
Project Number: 1908033

NO.	DATE	REVISION DESCRIPTION

DESIGNED BY: TT
CHECKED BY: TT
DRAWN BY: AA/JT/NA

DRAWING TITLE:
GRADING PLAN

SHEET NO:
C01



LEGEND:

- PROPOSED LANDSCAPE AREA
- EXISTING FLOW DIRECTION
- PROPOSED FLOW DIRECTION
- DMA BOUNDARY
- DMA-X X,XXX SF XX.XX ac — DMA INFORMATION

SOURCE CONTROL BMP'S:

- SD10 — SITE DESIGN & LANDSCAPE PLANNING
- SD12 — EFFICIENT IRRIGATION
- SD21 — ALTERNATIVE BUILDING MATERIALS

NON STRUCTURAL CONTROL BMP'S:

- N4 — EDUCATION FOR PROPERTY OWNERS, TENANTS AND OCCUPANTS (ENTIRE SITE)

TREATMENT CONTROL BMP'S:

- TC32 — BIOFILTRATION WITH UNDERDRAIN

30' 0 30' 60' 90'

SCALE: 1" = 30'

PLUMP ENGINEERING INC.
CONSULTING ENGINEERS IN CIVIL, SURVEYING AND STRUCTURAL ENGINEERING
914 E. KATELLA AVENUE
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ARCHITECT:
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CLIENT:
TIGER PETROLEUM, INC.

COMMERCIAL RETAIL
APN: 389-030-014,015,016,017,018
NWC MOUNTAIN ST. & LAKE ST.
LAKE ELSINORE, CA 92530

ENGINEER OF RECORD:
TRYFON TRYFONOPOULOS, PE
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ANAHEIM, CA 92805
(714)385-1835

SEAL:
REGISTERED PROFESSIONAL ENGINEER
TRYFON P. TRYFONOPOULOS
NO. 65859
EXP.12/31/19
CIVIL
STATE OF CALIFORNIA

Date: 10-04-2019
Project Number: 1908033

NO.	DATE	REVISION DESCRIPTION

DESIGNED BY: TT
CHECKED BY: TT
DRAWN BY: AA/JT/NA

DRAWING TITLE:
WQMP

SHEET NO:
C02

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

Earth Strata Geotechnical Services, Inc.
Geotechnical, Environmental and Materials Testing Consultants

September 3, 2019

Project No. 192805-10A

Empire Design Group, Inc.
24861 Washington Avenue
P.O. Box 944
Murrieta, CA 92562

Subject: **Preliminary Geotechnical Interpretive Report, Proposed Commercial Development, Assessor's Parcel Number 389-030-012 through -018, Located at 28915 Lake Street, City of Lake Elsinore, Riverside County, California**

Earth Strata Geotechnical Services is pleased to present our updated preliminary geotechnical interpretive report for the proposed commercial development, Assessor's Parcel Number 389-030-012 through -018, located at 28915 Lake Street in the City of Lake Elsinore, Riverside County, California. This work was performed in accordance with the scope of work described in our proposal, dated August 9, 2019. The purpose of this study is to evaluate the nature, distribution, engineering properties, and geologic strata underlying the site with respect to the proposed development.

Earth Strata Geotechnical Services appreciates the opportunity to offer our consultation and advice on this project. In the event that you have any questions, please do not hesitate to contact the undersigned at your earliest convenience.

Respectfully submitted,

EARTH STRATA GEOTECHNICAL SERVICES

Stephen M. Poole, PE, GE
Principal Engineer

Aaron G. Wood, PG, CEG
Principal Geologist

SMP/AGW/jf

Distribution: (2) Addressee

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Attachments:

Figure 1 – Vicinity Map (Page 2)
Figure 2 – Regional Geologic Map (Page 5)
APPENDIX A – References (Rear of Text)
APPENDIX B – Exploratory Logs (Rear of Text)
APPENDIX C – Laboratory Procedures and Test Results (Rear of Text)
APPENDIX D – Seismicity (Rear of Text)
APPENDIX E – General Earthwork and Grading Specifications (Rear of Text)
Figure 3 – County Fault Map (Rear of Text)
Plate 1 – Geotechnical Map (In Pocket)

INTRODUCTION

Earth Strata Geotechnical Services is pleased to present our updated preliminary geotechnical interpretive report for the proposed development. The purpose of this study was to evaluate the nature, distribution, engineering properties, and geologic strata underlying the site with respect to the proposed development, and then provide preliminary grading and foundation design recommendations based on the plans and previous geotechnical reports you provided. The general location of the subject property is indicated on the Vicinity Map, Figure 1. The plans you provided were used as the base map to show geologic conditions within the subject site, see Geotechnical Map, Plate 1.

SITE DESCRIPTION

The subject property is located at 28915 Lake Street in the City of Lake Elsinore, Riverside County, California. The approximate location of the site is shown on the Vicinity Map, Figure 1.

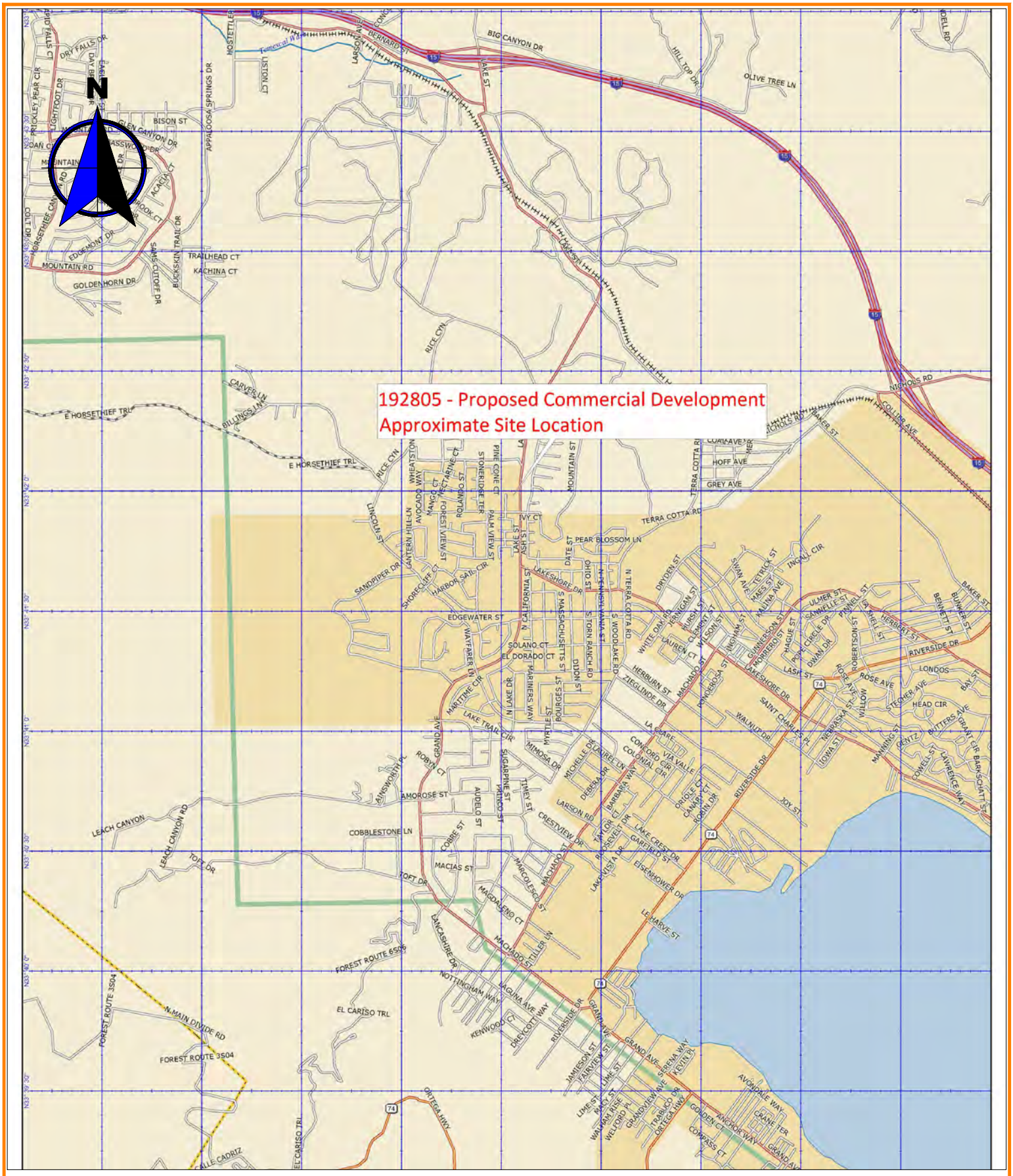
The subject property is comprised of approximately 4.15 acres of undeveloped land. The site has not been graded. Topographic relief at the subject property is relatively low with the terrain being generally sloping to flat. Elevations at the site range from approximately 1,480 to 1,520 feet above mean sea level (msl), for a difference of about 40± feet across the entire site. Drainage within the subject property generally flows to the east.

The site is currently bordered by residential development to the north, east, south, and west. Most of the vegetation on the site consists of moderate amounts of annual weeds/grasses, along with small to large trees scattered throughout the subject sites.

PROPOSED DEVELOPMENT AND GRADING

The proposed commercial development is expected to consist of concrete, wood or steel framed one- and/or two-story structures utilizing slab on grade construction with associated streets, landscape areas, and utilities. The current development plans include six (6) commercial buildings and one (1) gas station canopy positioned across seven (7) parcels.

The plans provided by you were utilized in our exploration and form the base for our Geotechnical Map.



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PROPOSED COMMERCIAL DEVELOPMENT		192805-10A
VICINITY MAP	SCALE 1:40,625	
	AUG 2019	FIGURE 1

FIELD EXPLORATION AND LABORATORY TESTING

Field Exploration

Previous subsurface exploration for the proposed commercial development was performed on November 16, 2007 by Leighton Consulting, Inc. A truck mounted hollow-stem-auger drill rig was utilized to drill seven (7) borings throughout the parcels to a maximum depth of 30 feet. In addition, subsurface exploration performed by Earth Strata Geotechnical Services within our subject sites was performed on August 23, 2019 for additional exploratory excavations. A truck mounted hollow-stem-auger drill rig was utilized to drill three (3) borings throughout the site to a maximum depth of 16.5 feet. An underground utilities clearance was obtained from Underground Service Alert of Southern California, prior to the subsurface exploration.

Earth materials encountered during exploration were classified and logged in general accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) of ASTM D 2488. Upon completion of laboratory testing, exploratory logs and sample descriptions may have been reconciled to reflect laboratory test results with regard to ASTM D 2487.

Associated with the subsurface exploration was the collection of bulk (disturbed) samples and relatively undisturbed samples of earth materials for laboratory testing and analysis. The relatively undisturbed samples were obtained with a 3 inch outside diameter modified California split-spoon sampler lined with 1-inch-high brass rings. Samples obtained using a hollow stem auger drill rig, were mechanically driven with successive 30 inch drops of a 140-pound automatic trip safety hammer. The blow count per one-foot increment was recorded in the boring logs. The central portions of the driven samples were placed in sealed containers and transported to our laboratory for testing and analysis. The approximate exploratory locations are shown on Plate 1 and descriptive logs are presented in Appendix B.

Laboratory Testing

Atterberg Limits, maximum dry density/optimum moisture content, direct shear tests, expansion potential, R-value, collapse potential, pH, resistivity, sulfate content, chloride content, and in-situ density/moisture content were determined for selected undisturbed and bulk samples of earth materials, considered representative of those encountered. An evaluation of the test data is reflected throughout the Conclusions and Recommendations section of this report. A brief description of laboratory test criteria and summaries of test data are presented in Appendix C.

FINDINGS

Regional Geology

Regionally, the site is located in the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges are characterized by northwest trending steep mountain ranges separated by sediment filled elongated valleys. The dominant structural geologic features reflect the northwest trend of the province. Associated with and subparallel to the San Andreas Fault are the San Jacinto Fault, Newport-Inglewood, and the Whittier-Elsinore Fault. The Santa Ana Mountains abut the west side of the Elsinore Fault while the Perris Block forms the other side of the fault zone to the east. The Perris Block is bounded to the east by the San Jacinto Fault. The northern perimeter of the Los Angeles basin forms part of a northerly dipping

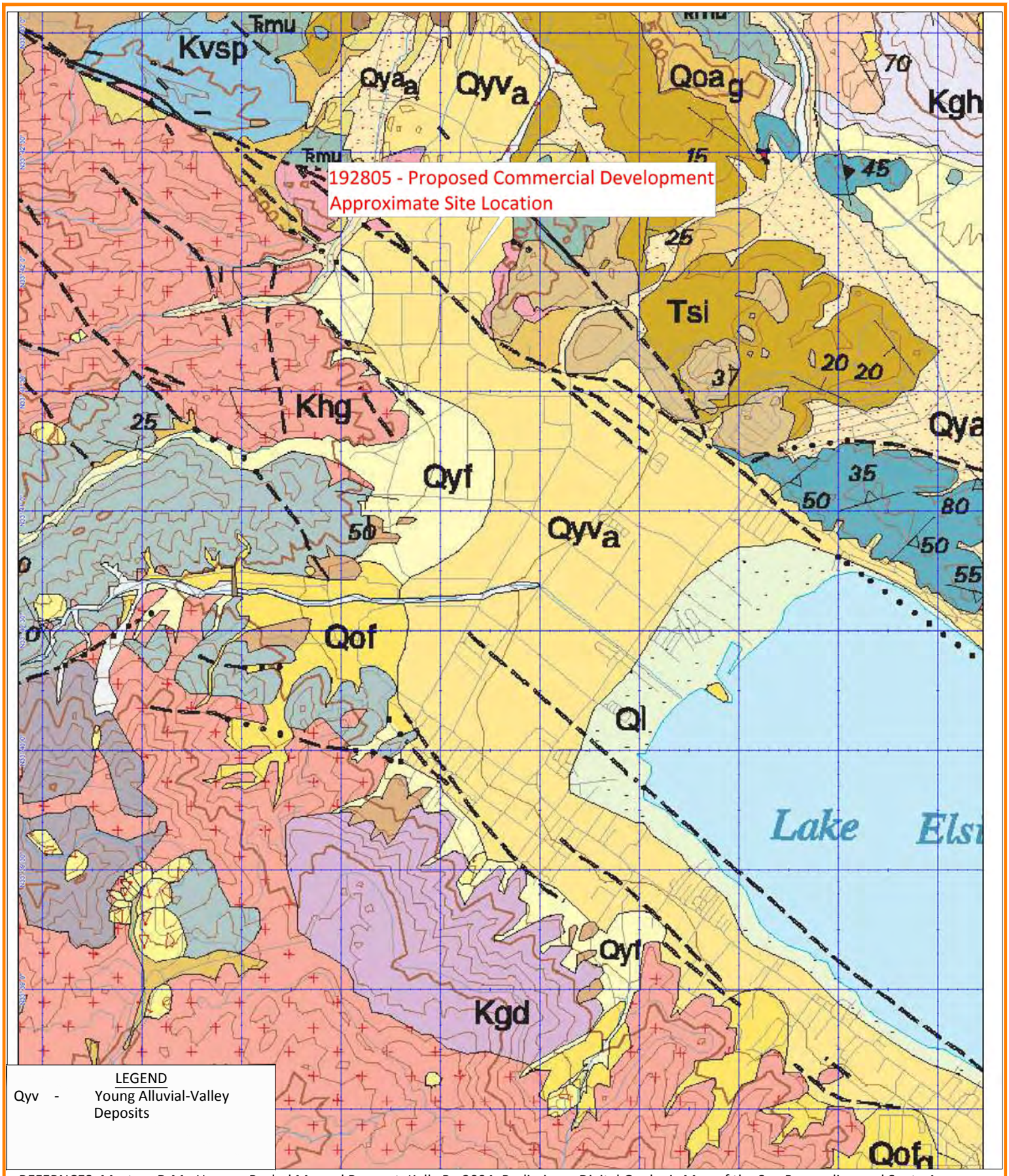
blind thrust fault at the boundary between the Peninsular Ranges Province and the Transverse Range Province.

The mountainous regions within the Peninsular Ranges Province are comprised of Pre-Cretaceous, metasedimentary, and metavolcanic rocks along with Cretaceous plutonic rocks of the Southern California Batholith. The low lying areas are primarily comprised of Tertiary and Quaternary non-marine alluvial sediments consisting of alluvial deposits, sandstones, claystones, siltstones, conglomerates, and occasional volcanic units. A map illustrating the regional geology is presented on the Regional Geologic Map, Figure 2.

Local Geology

The earth materials on the site are primarily comprised of Quaternary Young Alluvial Valley materials. A general description of the dominant earth materials observed on the site is provided below:

- Quaternary Young Alluvial Valley Deposits (map symbol Qyv): Quaternary Young Alluvial Valley deposits were encountered to the maximum depth explored of 16.5 feet. These alluvial deposits consist predominately of interlayered yellow brown to dark yellow brown, fine to coarse grained silty sand, and occasional sandy silt. These deposits were generally noted to be in a dry to slightly moist, dense to very dense state.



LEGEND

Qyv - Young Alluvial-Valley Deposits

REFERNCES: Morton, D.M., Hauser, Rachel M., and Ruppert, Kelly R., 2004, Preliminary Digital Geologic Map of the San Bernardino and Santa Ana 30' x 60' Quadrangle, Southern California, Version 2.0: U.S. Geological Survey Open-File Report 99-0172.

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PROPOSED COMMERCIAL DEVELOPMENT | 192805-10A

REGIONAL GEOLOGIC MAP | SCALE 1:40,625 | AUG 2019 | FIGURE 2

Faulting

The project is located in a seismically active region and as a result, significant ground shaking will likely impact the site within the design life of the proposed project. The geologic structure of the entire southern California area is dominated by northwest-trending faults associated with the San Andreas Fault system, which accommodates for most of the right lateral movement associated with the relative motion between the Pacific and North American tectonic plates. Known active faults within this system include the Newport-Inglewood, Whittier-Elsinore, San Jacinto and San Andreas Faults.

No active faults are known to project through the site and the site is not located within an Alquist-Priolo Earthquake Fault Zone, established by the State of California to restrict the construction of new habitable structures across identifiable traces of known active faults. Although no Alquist-Priolo Fault Zones are located within the subject sites, the County Fault Zone established for the Glen Ivy Fault Zone does trend northwest to southeast through the bottom half of the subject sites. See Figure 3, County Fault Zone and Geotechnical Map, Plate 1 for details.

Fault investigations with trenching and subsequent geotechnical mapping conducted by Leighton Consulting, Inc. found no evidence of faulting across a postulated fault scarp within the parcel south of mountain street, adjacent to the subject lots. No faults were able to be identified by previous fault zone studies (California Division of Mines and Geology 1979; Leighton 2002, 2003; Petra, 2004).

An active fault is defined by the State of California as having surface displacement within the past 11,000 years or during the Holocene geologic time period.

Based on our review of regional geologic maps and applicable computer programs (USGS 2008 Interactive Deaggregation, Caltrans ARS online, and USGS Earthquake Hazard Programs), the Elsinore Fault with an approximate source to site distance of 0.31 kilometers is the closest known active fault anticipated to produce the highest ground accelerations, with an anticipated maximum modal magnitude of 7.7. A list of faults as well as a list of significant historical seismic events within a 100km radius of the subject site are included in Appendix D.

Landslides

Landslide debris was not observed during our subsurface exploration and no ancient landslides are known to exist on the site. No landslides are known to exist, or have been mapped, in the vicinity of the site. Geologic mapping of the site conducted during our investigation, and review of aerial imagery of the site, reveal no geomorphic expressions indicative of landsliding. The materials encountered in the pad area were found to be very hard and no oversteepened slopes exist on the site or are proposed.

CONCLUSIONS AND RECOMMENDATIONS

General

From geotechnical and engineering geologic points of view, the subject property is considered suitable for the proposed development, provided the following conclusions and recommendations are incorporated into the plans and are implemented during construction.

Earthwork

Earthwork and Grading

The provisions of the 2016 California Building Code (CBC), including the General Earthwork and Grading Specifications in the last Appendix of this report, should be applied to all earthwork and grading operations, as well as in accordance with all applicable grading codes and requirements of the appropriate reviewing agency. Unless specifically revised or amended herein, grading operations should also be performed in accordance with applicable provisions of our General Earthwork and Grading Specifications within the last appendix of this report.

Clearing and Grubbing

Vegetation including trees, grasses, weeds, brush, shrubs, or any other debris should be stripped from the areas to be graded and properly disposed of offsite. In addition, laborers should be utilized to remove any roots, branches, or other deleterious materials during grading operations.

Earth Strata Geotechnical Services should be notified at the appropriate times to provide observation and testing services during Clearing and Grubbing operations. Any buried structures or unanticipated conditions should be brought to our immediate attention.

Excavation Characteristics

Based on the results of our exploration and experience with similar projects in similar settings, the near surface earth materials, will be readily excavated with conventional earth moving equipment. Excavation difficulty is a function of the degree of weathering and amount of fracturing within the bedrock. Bedrock generally becomes harder and more difficult to excavate with increasing depth.

Groundwater

Groundwater was not observed during our subsurface exploration. It should be noted that localized groundwater could be encountered during grading due to the limited number of exploratory locations or other factors.

Ground Preparation for Fill Areas

For each area to receive compacted fill, the removal of low density, compressible earth materials, such as topsoils, and upper alluvials, should continue until firm competent alluvium is encountered. Removal excavations are subject to verification by the project engineer, geologist or their representative. Prior to placing compacted fills, the exposed bottom in each removal area should be scarified to a depth of 6 inches or more, watered or air dried as necessary to achieve near optimum moisture conditions and then compacted to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557.

The intent of remedial grading is to diminish the potential for hydro-consolidation, slope instability, and/or settlement. Remedial grading should extend beyond the perimeter of the proposed structures a horizontal distance equal to the depth of excavation or a minimum of 5 feet, whichever

is greater. For cursory purposes the anticipated removal depths are shown on the enclosed Geotechnical Map, Plate 1. In general, the anticipated removal depths should vary from 3 to 5 feet below existing grade.

Wet Removals

Wet alluvial materials will probably not be encountered within the low lying areas of the site. If removals of wet alluvial materials are required, special grading equipment and procedures can greatly reduce overall costs. Careful planning by an experienced grading contractor can reduce the need for special equipment, such as swamp cats, draglines, excavators, pumps, and top loading earthmovers. Possible solutions may include the placement of imported angular rock and/or geotextile ground reinforcement. More specific recommendations can be provided based on the actual conditions encountered. Drying or mixing of wet materials with dry materials will be needed to bring the wet materials to near optimum moisture prior to placing wet materials into compacted fills.

Oversize Rock

Oversize rock is not expected to be encountered during grading. Oversize rock that is encountered (i.e., rock exceeding a maximum dimension of 12 inches) should be disposed of offsite or stockpiled onsite and crushed for future use. The disposal of oversize rock is discussed in greater detail in General Earthwork and Grading Specifications within the last appendix of this report.

Compacted Fill Placement

Compacted fill materials should be placed in 6 to 8 inch maximum (uncompacted) lifts, watered or air dried as necessary to achieve uniform near optimum moisture content and then compacted to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557.

Import Earth Materials

Should import earth materials be needed to achieve final design grades, all potential import materials should be free of deleterious/oversize materials, non-expansive, and approved by the project geotechnical consultant prior to delivery onsite.

Fill Slopes

When properly constructed, fill slopes up to 10 feet high with inclinations of 2:1 (h:v) or flatter are considered to be grossly stable. Keyways are required at the toe of all fill slopes higher than 5 feet and steeper than 5:1 (h:v). Keyways should be a minimum of 10 feet wide and 2 feet into competent earth materials, as measured on the downhill side. In order to establish keyway removals, backcuts should be cut no steeper than 1:1 or as recommended by the geotechnical engineer or engineering geologist. Compacted fill should be benched into competent earth materials.

Cut Slopes

When properly constructed, cut slopes into older alluvium up to 10 feet high with inclinations of 2:1 (h:v) or flatter are considered grossly stable. Cut slopes should be observed by the engineering geologist or his representative during grading, but are anticipated to be stable.

Stabilization Fills

Currently, stabilization fills will not be required for cut slopes in the alluvium. Our engineering geologist or his representative should be called to evaluate all slopes during grading. In the event that unfavorable geologic conditions are encountered, recommendations for stabilization fills or flatter slopes will be provided.

Fill Over Cut Slopes

The fill portion of fill over cut slopes should not be constructed until the cut portion of the slope has been cut to finish grade. The earth materials and geologic structure exposed along the cut slope should be evaluated with regard to suitability for compacted fills or foundations and for stability. If the cut materials are determined to be competent, then the construction of the keyway and subdrain system may commence or additional remedial recommendations will be provided.

Temporary Backcuts

It is the responsibility of the grading contractor to follow all Cal-OSHA requirements with regard to excavation safety. Where existing developments are upslope, adequate slope stability to protect those developments must be maintained. Temporary backcuts will be required to accomplish removals of unsuitable materials and possibly, to perform canyon removals, stabilization fills, and/or keyways. Backcuts should be excavated at a gradient of 1:1 (h:v) or flatter. Flatter backcuts may be required where geologic structure or earth materials are unfavorable. It is imperative that grading schedules minimize the exposure time of the unsupported excavations. All excavations should be stabilized within 30 days of initial excavation.

Cut/Fill Transitions

Cut/fill transitions should be eliminated from all building areas where the depth of fill placed within the "fill" portion exceeds proposed footing depths. This is to diminish distress to structures resulting from excessive differential settlement. The entire foundation of each structure should be founded on a uniform bearing material. This should be accomplished by overexcavating the "cut" portion and replacing the excavated materials as properly compacted fill. Refer to the following table for recommended depths of overexcavation.

DEPTH OF FILL ("fill" portion)	DEPTH OF OVEREXCAVATION ("cut" portion)
Up to 5 feet	Equal Depth
5 to 10 feet	5 feet
Greater than 10 feet	One-half the thickness of fill placed on the "fill" portion (10 feet maximum)

Overexcavation of the "cut" portion should extend beyond the building perimeter a horizontal distance equal to the depth of overexcavation or a minimum of 5 feet, whichever is greater.

Cut Areas

In cut areas, an area a minimum of 5 feet beyond the footprint of the proposed structures should overexcavated until; competent bottoms are achieved; to a minimum 3 feet below the proposed foundations; or per the Overexcavation Table above; (whichever is greater) and replaced with compacted fill. Final determination of areas that require overexcavation should be determined in the field by a representative of Earth Strata Geotechnical Services.

Shrinkage, Bulking and Subsidence

Volumetric changes in earth material quantities will occur when poorly consolidated earth materials are replaced with properly compacted fill. Estimates of the percent shrinkage/bulking factors for the various geologic units observed on the subject property are based on in-place densities and on the estimated average percent of relative compaction achieved during grading.

GEOLOGIC UNIT	SHRINKAGE (%)
Alluvium	5 to 10

Subsidence from scarification and recompaction of exposed bottom surfaces is expected to be negligible to approximately 0.01 foot.

The estimates of shrinkage/bulking and subsidence are intended as an aid for project engineers in determining earthwork quantities. Since many variables can affect the accuracy of these estimates, they should be used with caution and contingency plans should be in place for balancing the project.

Geotechnical Observations

Clearing operations, removal of unsuitable materials, and general grading procedures should be observed by the project geotechnical consultant or his representative. No compacted fill should be placed without observations by the geotechnical consultant or his representative to verify the adequacy of the removals.

The project geotechnical consultant or his representative should be present to observe grading operations and to check that minimum compaction requirements and proper lift thicknesses are being met, as well as to verify compliance with the other recommendations presented herein.

Post Grading Considerations

Slope Landscaping and Maintenance

Adequate slope and building pad drainage is essential for the long term performance of the subject site. The gross stability of graded slopes should not be adversely affected, provided all drainage provisions are properly constructed and maintained. Engineered slopes should be landscaped with deep rooted, drought tolerant maintenance free plant species, as recommended by the project landscape architect.

Site Drainage

Control of site drainage is important for the performance of the proposed project. Roof gutters are recommended for the proposed structures. Pad and roof drainage should be collected and transferred to driveways, adjacent streets, storm-drain facilities, or other locations approved by the building official in non-erosive drainage devices. Drainage should not be allowed to pond on the pad or against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters located within retaining wall backfill should be sealed to prevent moisture intrusion into the backfill. Planters located next to structures should be sealed to the depth of the footings. Drainage control devices require periodic cleaning, testing and maintenance to remain effective.

At a minimum, pad drainage should be designed at the minimum gradients required by the CBC. To divert water away from foundations, the ground surface adjacent to foundations should also be graded at the minimum gradients required per the CBC.

Utility Trenches

All utility trench backfill should be compacted at near optimum moisture to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557. For utility trench backfill within pavement areas the upper 6 inches of subgrade materials should be compacted to 95 percent of the maximum dry density determined by ASTM D 1557. This includes within the street right-of-ways, utility easements, under footings, sidewalks, driveways and building floor slabs, as well as within or adjacent to any slopes. Backfill should be placed in approximately 6 to 8 inch maximum loose lifts and then mechanically compacted with a hydro-hammer, rolling with a sheepsfoot, pneumatic tampers, or similar equipment. The utility trenches should be tested by the project geotechnical engineer or their representative to verify minimum compaction requirements are obtained.

In order to minimize the penetration of moisture below building slabs, all utility trenches should be backfilled with compacted fill, lean concrete or concrete slurry where they undercut the perimeter foundation. Utility trenches that are proposed parallel to any building footings (interior and/or exterior trenches), should not be located within a 1:1 (h:v) plane projected downward from the outside bottom edge of the footing.

SEISMIC DESIGN CONSIDERATIONS

Ground Motions

Structures are required to be designed and constructed to resist the effects of seismic ground motions as provided in the 2016 California Building Code Section 1613. The design is dependent on the site class, occupancy category I, II, III, or IV, mapped spectral accelerations for short periods (S_s), and mapped spectral acceleration for a 1-second period (S_1).

In order for structural design to comply with the 2016 CBC, the USGS "US Seismic Design Maps" online tool was used to compile spectral accelerations for the subject property based on data and maps jointly compiled by the United States Geological Survey (USGS) and the California Geological Survey (CGS). The data found in the following table is based on the Maximum Considered Earthquake (MCE) with 5% damped ground motions having a 2% probability of being exceeded in 50 years (2,475 year return period).

The seismic design coefficients were determined by a combination of the site class, mapped spectral accelerations, and occupancy category. The following seismic design coefficients should be implemented during design of the proposed structures. Summaries of the Seismic Hazard Deaggregation graphs and test data are presented in Appendix D.

2016 CBC	FACTOR
Site Location	Latitude: 33.700119° (North) Longitude: -117.390624°(West)
Site Class	D
Mapped Spectral Accelerations for short periods, S_s	2.53 g
Mapped Spectral Accelerations for 1-Second Period, S_1	1.028 g
Maximum Considered Earthquake Spectral Response Acceleration for Short Periods, S_{ms}	2.53 g
Maximum Considered Earthquake Spectral Response Acceleration for 1-Second Period, S_{m1}	1.542 g
Design Spectral Response Acceleration for Short Periods, S_{DS}	1.687 g
Design Spectral Response Acceleration for 1-Second Period, S_{D1}	1.028 g
Seismic Design Category	E
Importance Factor Based on Occupancy Category	II

We performed the probabilistic seismic hazard assessment for the site in accordance with the 2016 CBC, Section 1803.5.11 and 1803.5.12. The probabilistic seismic hazard maps and data files were jointly prepared by the United States Geological Survey (USGS) and the California Geological Survey (CGS) and can be found at the CGS Probabilistic Seismic Hazards Mapping Ground Motion Page. Actual ground shaking intensities at the site may be substantially higher or lower based on complex variables such as the near source directivity effects, depth and consistency of earth materials, topography, geologic structure, direction of fault rupture, and seismic wave reflection, refraction, and attenuation rates. The mean peak ground acceleration was calculated to be 1.023 g.

Secondary Seismic Hazards

Secondary effects of seismic shaking considered as potential hazards include several types of ground failure as well as induced flooding. Different types of ground failure, which could occur as a consequence of severe ground shaking at the site, include landslides, ground lurching, shallow ground rupture, and liquefaction/lateral spreading. The probability of occurrence of each type of ground failure depends on the severity of the earthquake, distance from faults, topography, the state of subsurface earth materials, groundwater conditions, and other factors. Based on our experience, subsurface exploration, and laboratory testing, all of the above secondary effects of seismic activity are considered unlikely.

Seismically induced flooding is normally a consequence of a tsunami (seismic sea wave), a seiche (i.e., a wave-like oscillation of surface water in an enclosed basin that may be initiated by a strong earthquake) or failure of a major reservoir or retention system up gradient of the site. Since the site is at an elevation of more than 1,400 feet above mean sea level and is located more than 30 miles inland from the nearest coastline of the Pacific Ocean, the potential for seismically induced flooding due to a tsunami is considered nonexistent. Since no enclosed bodies of water lie adjacent to or up gradient of the site, the likelihood for induced flooding due to a dam failure or a seiche overcoming the dam's freeboard is considered nonexistent.

Liquefaction and Lateral Spreading

Liquefaction occurs as a result of a substantial loss of shear strength or shearing resistance in loose, saturated, cohesionless earth materials subjected to earthquake induced ground shaking. Potential impacts from liquefaction include loss of bearing capacity, liquefaction related settlement, lateral movements, and surface manifestation such as sand boils. Seismically induced settlement occurs when loose sandy soils become denser when subjected to shaking during an earthquake. The three factors determining whether a site is likely to be subject to liquefaction include seismic shaking, type and consistency of earth materials, and groundwater level. The proposed structures will be supported by compacted fill and competent alluvium. As such, the potential for earthquake induced liquefaction and lateral spreading beneath the proposed structures is considered very low to remote due to the recommended compacted fill, relatively low groundwater level, and the dense nature of the deeper onsite earth materials.

TENTATIVE FOUNDATION DESIGN RECOMMENDATIONS

General

Provided grading is performed in accordance with the recommendations of this report, shallow foundations are considered feasible for support of the proposed structures. Tentative foundation recommendations are provided herein and graphic presentations of relevant recommendations may also be included on the enclosed map.

Allowable Bearing Values

An allowable bearing value of 2,500 pounds per square foot (psf) is recommended for design of 24-inch square pad footings and 12-inch-wide continuous footings founded at a minimum depth of 12 inches below

the lowest adjacent final grade. This value may be increased by 20 percent for each additional 1-foot of width and/or depth to a maximum value of 3,000 psf. Recommended allowable bearing values include both dead and frequently applied live loads and may be increased by one third when designing for short duration wind or seismic forces.

Settlement

Based on the settlement characteristics of the earth materials that underlie the building sites and the anticipated loading, we estimate that the maximum total settlement of the footings will be less than approximately ¾ inch. Differential settlement is expected to be about ½ inch over a horizontal distance of approximately 20 feet, for an angular distortion ratio of 1:480. It is anticipated that the majority of the settlement will occur during construction or shortly after the initial application of loading.

The above settlement estimates are based on the assumption that the grading and construction are performed in accordance with the recommendations presented in this report and that the project geotechnical consultant will observe or test the earth material conditions in the footing excavations.

Lateral Resistance

Passive earth pressure of 250 psf per foot of depth to a maximum value of 2,500 psf may be used to establish lateral bearing resistance for footings. For areas coved with hardscape, passive earth pressure may be taken from the surface. For areas without hardscape, the upper 12 inches of the soil profile must be neglected when calculating passive earth pressure. A coefficient of friction of 0.36 times the dead load forces may be used between concrete and the supporting earth materials to determine lateral sliding resistance. The above values may be increased by one-third when designing for short duration wind or seismic forces. When combining passive and friction for lateral resistance, the passive component should be reduced by one third. In no case shall the lateral sliding resistance exceed one-half the dead load for clay, sandy clay, sandy silty clay, silty clay, and clayey silt.

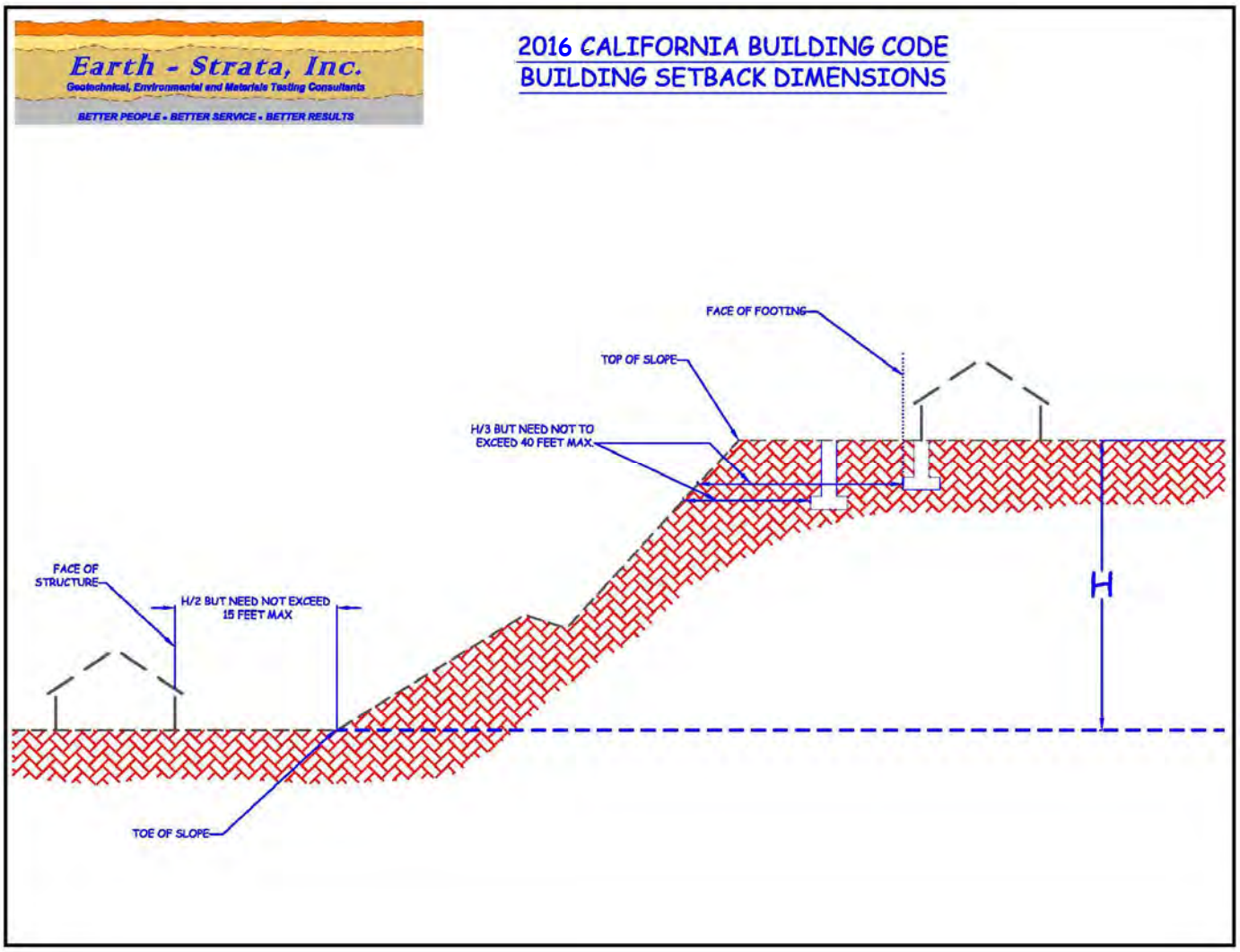
The above lateral resistance values are based on footings for an entire structure being placed directly against either compacted fill or competent alluvium.

Structural Setbacks and Building Clearance

Structural setbacks are required per the 2016 California Building Code (CBC). Additional structural setbacks are not required due to geologic or geotechnical conditions within the site. Improvements constructed in close proximity to natural or properly engineered and compacted slopes can, over time, be affected by natural processes including gravity forces, weathering, and long term secondary settlement. As a result, the CBC requires that buildings and structures be setback or footings deepened to resist the influence of these processes.

For structures that are planned near ascending and descending slopes, the footings should be embedded to satisfy the requirements presented in the CBC, Section 1808.7 as illustrated in the following Foundation Clearances from Slopes diagram.

FOUNDATION CLEARANCES FROM SLOPES



When determining the required clearance from ascending slopes with a retaining wall at the toe, the height of the slope shall be measured from the top of the wall to the top of the slope.

Foundation Observations

In accordance with the 2016 CBC and prior to the placement of forms, concrete, or steel, all foundation excavations should be observed by the geologist, engineer, or his representative to verify that they have been excavated into competent bearing materials. The excavations should be per the approved plans, moistened, cleaned of all loose materials, trimmed neat, level, and square. Any moisture softened earth materials should be removed prior to steel or concrete placement.

Earth materials from foundation excavations should not be placed in slab on grade areas unless the materials are tested for expansion potential and compacted to a minimum of 90 percent of the maximum dry density.

Expansive Soil Considerations

Preliminary laboratory test results indicate onsite earth materials exhibit an expansion potential of **LOW** as classified in accordance with 2016 CBC Section 1803.5.3 and ASTM D4829-03. Additional, testing for expansive soil conditions should be conducted upon completion of rough grading. The following recommendations should be considered the very minimum requirements, for the earth materials tested. It is common practice for the project architect or structural engineer to require additional slab thickness, footing sizes, and/or reinforcement.

Low Expansion Potential (Expansion Index of 21 to 50)

Our laboratory test results indicate that the earth materials onsite exhibit a **LOW** expansion potential as classified in accordance with 2016 CBC Section 1803.5.3 and ASTM D4829-03. Accordingly, the CBC specifies that slab on ground foundations (floor slabs) resting on earth materials with expansion indices greater than 20, require special design considerations in accordance with 2016 CBC Sections 1808.6.1 and 1808.6.2. The design procedures are based on the thickness and plasticity index of the various earth materials within the upper 15 feet of the proposed structure. For preliminary design purposes, we have assumed an effective plasticity index of 12.

Footings

- Exterior continuous footings may be founded at the minimum depths below the lowest adjacent final grade (i.e. 12-inch minimum depth for one-story, 18-inch minimum depth for two-story, and 24-inch minimum depth for three-story construction). Interior continuous footings for one-, two-, and three-story construction may be founded at a minimum depth of 12 inches below the lowest adjacent final grade. All continuous footings should have a minimum width of 12, 15, and 18 inches, for one-, two-, and three-story structures, respectively, and should be reinforced with a minimum of four (4) No. 4 bars, two (2) top and two (2) bottom.

- Exterior pad footings intended to support roof overhangs, such as second story decks, patio covers and similar construction should be a minimum of 24 inches square and founded at a minimum depth of 18 inches below the lowest adjacent final grade. The pad footings should be reinforced with a minimum of No. 4 bars spaced a maximum of 18 inches on center, each way, and should be placed near the bottom-third of the footings.

Building Floor Slabs

- The project architect or structural engineer should evaluate minimum floor slab thickness and reinforcement in accordance with 2016 CBC Section 1808.6.2 based on an assumed effective plasticity index of 12. Building floor slabs should be a minimum of 4 inches thick and reinforced with a minimum of No. 4 bars spaced a maximum of 18 inches on center, each way. All floor slab reinforcement should be supported on concrete chairs or bricks to ensure the desired placement at mid-depth.

- Interior floor slabs, within moisture sensitive areas, should be underlain by a minimum 10-mil thick moisture/vapor barrier to help reduce the upward migration of moisture from the underlying earth materials. The moisture/vapor barrier used should meet the performance

standards of an ASTM E 1745 Class A material, and be properly installed in accordance with ACI publication 318-05. It is the responsibility of the contractor to ensure that the moisture/vapor barriers are free of openings, rips, or punctures prior to placing concrete. As an option for additional moisture reduction, higher strength concrete, such as a minimum 28-day compressive strength of 5,000 pounds per square inch (psi) may be used. Ultimately, the design of the moisture/vapor barrier system and recommendations for concrete placement and curing are the purview of the foundation engineer, taking into consideration the project requirements provided by the architect and owner.

- Garage floor slabs should be a minimum of 5 inches thick and should be reinforced in a similar manner as living area floor slabs. Garage floor slabs should be placed separately from adjacent wall footings with a positive separation maintained with ⅜ inch minimum felt expansion joint materials and quartered with weakened plane joints. A 12-inch-wide turn down founded at the same depth as adjacent footings should be provided across garage entrances. The turn down should be reinforced with a minimum of two (2) No. 4 bars, one (1) top and one (1) bottom.

- The subgrade earth materials below all floor slabs should be pre-watered to achieve a moisture content that is at least equal or slightly greater than optimum moisture content, prior to placing concrete. This moisture content should penetrate a minimum depth of 12 inches into the subgrade earth materials. The pre-watering should be verified by Earth Strata Geotechnical Services during construction.

Post Tensioned Slab/Foundation Design Recommendations

In lieu of the proceeding foundation recommendations, post tensioned slabs may be used to support the proposed structures. We recommend that the foundation engineer design the foundation system using the Preliminary Post Tensioned Foundation Slab Design table below. These parameters have been provided in general accordance with Post Tensioned Design. Alternate designs addressing the effects of expansive earth materials are allowed per 2016 CBC Section 1808.6.2. When utilizing these parameters, the foundation engineer should design the foundation system in accordance with the allowable deflection criteria of applicable codes and per the requirements of the structural engineer/architect.

It should be noted that the post tensioned design methodology is partially based on the assumption that soil moisture changes around and underneath post tensioned slabs, are influenced only by climate conditions. Soil moisture change below slabs is the major factor in foundation damages relating to expansive soil. However, the design methodology has no consideration for presaturation, owner irrigation, or other non-climate related influences on the moisture content of subgrade earth materials. In recognition of these factors, we modified the geotechnical parameters determined from this methodology to account for reasonable irrigation practices and proper homeowner maintenance. Additionally, we recommend that prior to excavating footings, slab subgrades be presoaked to a depth of 12 inches and maintained at above optimum moisture until placing concrete. Furthermore, we recommend that the moisture content of the earth materials around the immediate perimeter and below the slab be presaturated to at least 1% above optimum moisture content just prior to placing concrete. The pre-watering should be verified and tested by Earth Strata Geotechnical Services during construction.

The following geotechnical parameters assume that areas adjacent to the foundations, which are planted and irrigated, will be designed with proper drainage to prevent water from ponding. Water ponding near

the foundation causes significant moisture change below the foundation. Our recommendations do not account for excessive irrigation and/or incorrect landscape design. Planters placed adjacent to the foundation, should be designed with an effective drainage system or liners, to prevent moisture infiltration below the foundation. Some lifting of the perimeter foundation beam should be expected even with properly constructed planters. Based on our experience monitoring sites with similar earth materials, elevated moisture contents below the foundation perimeter due to incorrect landscaping irrigation or maintenance, can result in uplift at the perimeter foundation relative to the central portion of the slab.

Future owners should be informed and educated of the importance in maintaining a consistent level of moisture within the earth materials around the structures. Future owners should also be informed of the potential negative consequences of either excessive watering, or allowing expansive earth materials to become too dry. Earth materials will shrink as they dry, followed by swelling during the rainy winter season, or when irrigation is resumed. This will cause distress to site improvements and structures.

Preliminary Post Tensioned Foundation Slab Design

PARAMETER	VALUE
Expansion Index	Low[1]
Percent Finer than 0.002 mm in the Fraction Passing the No. 200 Sieve	< 20 percent (assumed)
Type of Clay Mineral	Montmorillonite (assumed)
Thornthwaite Moisture Index	+20
Depth to Constant Soil Suction	7 feet
Constant Soil Suction	P.F. 3.6
Moisture Velocity	0.7 inches/month
Center Lift — Edge moisture variation distance, e_m Center lift, y_m	5.5 feet 2.0 inches
Edge Lift — Edge moisture variation distance, e_m Edge lift, y_m	3.0 feet 0.8 inches
Soluble Sulfate Content for Design of Concrete Mixtures in Contact with Earth Materials	Negligible
Modulus of Subgrade Reaction, k (assuming presaturation as indicated below)	200 pci
Minimum Perimeter Foundation Embedment	18
Perimeter Foundation Reinforcement	--
Under Slab Moisture/Vapor Barrier and Sand Layer	10-mil thick moisture/vapor barrier meeting the requirements of a ASTM E 1745 Class A material

1. Obtained by laboratory testing.
2. Recommendations for foundation reinforcement are ultimately the purview of the foundation/structural engineer based upon the geotechnical criteria presented in this report, and structural engineering considerations.

Corrosivity

Corrosion is defined by the National Association of Corrosion Engineers (NACE) as "a deterioration of a substance or its properties because of a reaction with its environment." From a geotechnical viewpoint, the "substances" are the reinforced concrete foundations or buried metallic elements (not surrounded by concrete) and the "environment" is the prevailing earth materials in contact with them. Many factors can contribute to corrosivity, including the presence of chlorides, sulfates, salts, organic materials, different oxygen levels, poor drainage, different soil types, and moisture content. It is not considered practical or realistic to test for all of the factors which may contribute to corrosivity.

The potential for concrete exposure to chlorides is based upon the recognized Caltrans reference standard "Bridge Design Specifications", under Subsection 8.22.1 of that document, Caltrans has determined that "Corrosive water or soil contains more than 500 parts per million (ppm) of chlorides". Based on limited preliminary laboratory testing, the onsite earth materials have chloride contents *less* than 500 ppm. As such, specific requirements resulting from elevated chloride contents are not required.

Specific guidelines for concrete mix design are provided in 2016 CBC Section 1904.1 and ACI 318, Section 4.3 Table 4.3.1 when the soluble sulfate content of earth materials exceeds 0.1 percent by weight. Based on limited preliminary laboratory testing, the onsite earth materials are classified in accordance with Table 4.3.1 as having a *negligible* sulfate exposure condition. Therefore, structural concrete in contact with onsite earth materials should utilize Type I or II.

Based on our laboratory testing of resistivity, the onsite earth materials in contact with buried steel should be considered *corrosive*. Additionally, pH values below 9.7 are recognized as being corrosive to most common metallic components including, copper, steel, iron, and aluminum. The pH values for the earth materials tested were *lower* than 9.7. Therefore, any steel or metallic materials that are exposed to the earth materials should be encased in concrete or other measures should be taken to provide corrosion protection.

If building slabs are to be post tensioned, the post tensioning cables should be encased in concrete and/or encapsulated in accordance with the Post Tensioning Institute Guide Specifications. Post tensioning cable end plate anchors and nuts also need to be protected if exposed. If the anchor plates and nuts are in a recess in the edge of the concrete slab, the recess should be filled in with a non-shrink, non-porous, moisture-insensitive epoxy grout so that the anchorage assembly and the end of the cable are completely encased and isolated from the soil. A standard non-shrink, non-metallic cementitious grout may be used only when the post tension anchoring assembly is polyethylene encapsulated similar to that offered by Hayes Industries, LTD or O'Strand, Inc.

The preliminary test results for corrosivity are based on limited samples, and the initiation of grading may blend various earth materials together. This blending or imported material could alter and increase the detrimental properties of the onsite earth materials. Accordingly, additional testing for chlorides and sulfates along with testing for pH and resistivity should be performed upon completion of grading. Laboratory test results are presented in Appendix C.

RETAINING WALLS

Active and At-Rest Earth Pressures

Foundations may be designed in accordance with the recommendations provided in the Tentative Foundation Design Recommendation section of this report. The following table provides the minimum recommended equivalent fluid pressures for design of retaining walls a maximum of 8 feet high. The active earth pressure should be used for design of unrestrained retaining walls, which are free to tilt slightly. The at-rest earth pressure should be used for design of retaining walls that are restrained at the top, such as basement walls, curved walls with no joints, or walls restrained at corners. For curved walls, active pressure may be used if tilting is acceptable and construction joints are provided at each angle point and at a minimum of 15 foot intervals along the curved segments.

MINIMUM STATIC EQUIVALENT FLUID PRESSURES (pcf)		
PRESSURE TYPE	BACKSLOPE CONDITION	
	LEVEL	2:1 (h:v)
Active Earth Pressure	40	63
At-Rest Earth Pressure	60	95

The retaining wall parameters provided do not account for hydrostatic pressure behind the retaining walls. Therefore, the subdrain system is a very important part of the design. All retaining walls should be designed to resist surcharge loads imposed by other nearby walls, structures, or vehicles should be added to the above earth pressures, if the additional loads are being applied within a 1.5:1 (h:v) plane projected up from the heel of the retaining wall footing. As a way of minimizing surcharge loads and the settlement potential of nearby buildings, the footings for the building can be deepened below the 1.5:1 (h:v)plane projected up from the heel of the retaining wall footing.

Upon request and under a separate scope of work, more detailed analyses can be performed to address equivalent fluid pressures with regard to stepped retaining walls, actual retaining wall heights, actual backfill inclinations, specific backfill materials, higher retaining walls requiring earthquake design motions, etc.

Subdrain System

We recommend a perforated pipe and gravel subdrain system be provided behind all proposed retaining walls to prevent the buildup of hydrostatic pressure behind the proposed retaining walls. The perforated pipe should consist of 4-inch minimum diameter Schedule 40 PVC or ABS SDR-35, placed with the perforations facing down. The pipe should be surrounded by 1 cubic foot per foot of ¾- or 1½ inch open graded gravel wrapped in filter fabric. The filter fabric should consist of Mirafi 140N or equivalent to prevent infiltration of fines and subsequent clogging of the subdrain system.

In lieu of a perforated pipe and gravel subdrain system, weep holes or open vertical masonry joints may be provided in the lowest row of block exposed to the air to prevent the buildup of hydrostatic pressure behind the proposed retaining walls. Weep holes should be a minimum of 3 inches in diameter and provided at intervals of at least every 6 feet along the wall. Open vertical masonry joints should be provided at a minimum of 32 inch intervals. A continuous gravel fill, a minimum of 1 cubic foot per foot, should be placed behind the weep holes or open masonry joints. The gravel should be wrapped in filter fabric consisting of Mirafi 140N or equivalent.

The retaining walls should be adequately coated on the backfilled side of the walls with a proven waterproofing compound by an experienced professional to inhibit infiltration of moisture through the walls.

Temporary Excavations

All excavations should be made in accordance with Cal-OSHA requirements. Earth Strata Geotechnical Services is not responsible for job site safety.

Retaining Wall Backfill

Retaining wall backfill materials should be approved by the geotechnical engineer or his representative prior to placement as compacted fill. Retaining wall backfill should be placed in lifts no greater than 6 to 8 inches, watered or air dried as necessary to achieve near optimum moisture contents. All retaining wall backfill should be compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM D 1557. Retaining wall backfill should be capped with a paved surface drain.

CONCRETE FLATWORK

Thickness and Joint Spacing

Concrete sidewalks and patio type slabs should be at least 4 inches thick and provided with construction or expansion joints every 6 feet or less, to reduce the potential for excessive cracking. Concrete driveway slabs should be at least 5 inches thick and provided with construction or expansion joints every 10 feet or less.

Subgrade Preparation

In order to reduce the potential for unsightly cracking, subgrade earth materials underlying concrete flatwork should be compacted at near optimum moisture to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557 and then moistened to optimum or slightly above optimum moisture content. This moisture should extend to a depth of 12 inches below subgrade and be maintained prior to placement of concrete. Pre-watering of the earth materials prior to placing concrete will promote uniform curing of the concrete and minimize the development of shrinkage cracks. The project geotechnical engineer or his representative should verify the density and moisture content of the earth materials and the depth of moisture penetration prior to placing concrete.

Cracking within concrete flatwork is often a result of factors such as the use of too high a water to cement ratio and/or inadequate steps taken to prevent moisture loss during the curing of the concrete. Concrete distress can be reduced by proper concrete mix design and proper placement and curing of the concrete. Minor cracking within concrete flatwork is normal and should be expected.

GRADING PLAN REVIEW AND CONSTRUCTION SERVICES

This report has been prepared for the exclusive use of **Empire Design Group** and their authorized representative. It likely does not contain sufficient information for other parties or other uses. Earth Strata Geotechnical Services should be engaged to review the final design plans and specifications prior to construction. This is to verify that the recommendations contained in this report have been properly incorporated into the project plans and specifications. Should Earth Strata Geotechnical Services not be accorded the opportunity to review the project plans and specifications, we are not responsibility for misinterpretation of our recommendations.

We recommend that Earth Strata Geotechnical Services be retained to provide geologic and geotechnical engineering services during grading and foundation excavation phases of the work. In order to allow for design changes in the event that the subsurface conditions differ from those anticipated prior to construction.

Earth Strata Geotechnical Services should review any changes in the project and modify and approve in writing the conclusions and recommendations of this report. This report and the drawings contained within are intended for design input purposes only and are not intended to act as construction drawings or specifications. In the event that conditions encountered during grading or construction operations appear to be different than those indicated in this report, this office should be notified immediately, as revisions may be required.

REPORT LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists, practicing at the time and location this report was prepared. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

Earth materials vary in type, strength, and other geotechnical properties between points of observation and exploration. Groundwater and moisture conditions can also vary due to natural processes or the works of man on this or adjacent properties. As a result, we do not and cannot have complete knowledge of the subsurface conditions beneath the subject property. No practical study can completely eliminate uncertainty with regard to the anticipated geotechnical conditions in connection with a subject property. The conclusions and recommendations within this report are based upon the findings at the points of observation and are subject to confirmation by Earth Strata Geotechnical Services based on the conditions revealed during grading and construction.

This report was prepared with the understanding that it is the responsibility of the owner or their representative, to ensure that the conclusions and recommendations contained herein are brought to the attention of the other project consultants and are incorporated into the plans and specifications. The owners' contractor should properly implement the conclusions and recommendations during grading and construction, and notify the owner if they consider any of the recommendations presented herein to be unsafe or unsuitable.

APPENDIX A

REFERENCES

APPENDIX A

References

California Building Standards Commission, 2016, *2016 California Building Code, California Code of Regulations Title 24, Part 2, Volume 2 of 2,* Based on 2012 International Building Code.

DeLorme, 2004, (www.delorme.com) *Topo USA*®.

Hart, Earl W. and Bryant, William A., *1997, Fault Rupture Hazard Zones in California, CDMG Special Publication 42,* revised 2003.

Irvine Geotechnical, 2001, Mult Calc 2000, October 10.

Leighton Consulting, Inc., 2007, *Preliminary Geotechnical Investigation, Proposed Commercial Development "Lake Street Marketplace" NWC Mountain Street and Lake Street, City of Lake Elsinore, California, Project No. 602051-001, dated December 6.*

Leighton Consulting, Inc., 2009, *Supplemental Geotechnical Report – Clarifications on Liquefaction at "Lake Street Marketplace", APN's 389-030-014 through -018, City of Lake Elsinore, California,* dated May 11.

Morton, D.M. (compiler), and Fred K. Miller (compiler), 2006, *Geologic Map of the San Bernardino and Santa Ana 30' x 60' Quadrangles, California*: U.S. Geological Survey, Version 1, California.

National Association of Corrosion Engineers, 1984, *Corrosion Basics An Introduction*, page 191.

APPENDIX B

EXPLORATORY LOGS

Geotechnical Boring Log B-2

Date: August 23, 2019	**Project Name: Lake Steet, Lake Elsinore** **Page: 1 of 1**
Project Number: 192805-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Young Alluvial Valley Deposits (Qyv):**
					SC	Clayey SAND; dark brown, dry, medium dense, fine to coarse sand with
	35	2.5'	119.6	11.8		trace gravel
					SM	Silty SAND; dark yellowish brown, dense, fine to coarse sand with clay
5						
	83/11"	5'	123.2	2.1		Very dense below 5 feet
	83/10"	7.5'	112.9	8.3		Light olive yellow
10						Total Depth: 8.5 feet
						No Groundwater
15						
20						
25						
30						

42184 Remington Avenue, Temecula, CA 92590

Earth Strata Geotechnical Services, Inc.
Geotechnical, Environmental and Materials Testing Consultants
www.ESGSINC.com (951) 397-8315

Geotechnical Boring Log B-3

Date: August 23, 2019	**Project Name: Lake Steet, Lake Elsinore** **Page: 1 of 1**
Project Number: 192805-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Young Alluvial Valley Deposits (Qyv):**
					SM	Silty SAND; light yellowish brown, dry, very dense, fine to coarse sand with
	44	2.5'	101.3	10.9		clay and trace gravel
5	90/11"	5'	103.1	15.6	ML	Sandy SILT; olive yellow, dry, very stiff, fine to medium sand
	REF/5"	7.5'	113.2	8.4		
10						Total Depth: 8.5 feet
						No Groundwater
15						
20						
25						
30						

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Geotechnical Boring Log B-1

Date: August 23, 2019	**Project Name: Lake Steet, Lake Elsinore** **Page: 1 of 1**
Project Number: 192805-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0		0-5'				**Quaternary Young Alluvial Valley Deposits (Qyv):**
					SM	Silty SAND; yellowish brown, dry, medium dense, fine to coarse sand with clay
	63	2.5'	120.1	6.2		and trace gravel
						Very dense below 2 feet
5	49	5'	125.9	5.4		Olive yellow, dry to slightly moist, fine to medium sand below 5 feet
	74	7.5'	112.6	3.9		
10	43	10'	113.9	5.3		
15	45	15'	104.9	8.7		Strong brown, fine to coarse sand
						Total Depth: 16.5 feet
						No Groundwater
20						
25						
30						

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GEOTECHNICAL BORING LOG B-1

Date 11-16-07 **Sheet** 1 **of** 2

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION (Logged By KXS; Sampled By)	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
			B1-1 @ 0-5'						@0-5': Silty fine to medium grained SAND with coarse grained particles, brown, damp	EI
	5			R-2	20	114	4		@5': Silty fine to coarse grained SAND, brown, damp, medium dense	
								SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
	10			R-3	50/4"				@10': Silty fine to coarse grained SAND, dark brown, damp, dense	DS
	15			R-4	76/11"				@15': Silty fine to coarse grained SAND, brown, moist, dense	
	20			R-5	67	117	15		@20': Silty fine to medium grained SAND with lean clay, dark brown, moist, dense	
	25			R-6	50/5"				@25': Silty fine to medium grained SAND, dark brown, moist, dense	
	30									

SAMPLE TYPES:

- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-1

Date 11-16-07 **Sheet** 2 **of** 2

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Elevation Feet	Depth Feet	Graphic Log	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
		N S							**Logged By** KXS **Sampled By**	
	30			R-7	50/1.5"				@30': Silty fine to medium grained SAND, brown, moist, very dense	
									Total Depth 30' 1.5" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	35									
	40									
	45									
	50									
	55									
	60									

SAMPLE TYPES:

- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-2

Date 11-16-07 **Sheet** 1 **of** 1

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS

Sampled By

Elevation Feet	Depth Feet	Graphic Log	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0	N S						SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
			B2-1 @ 0-5'						@0-5': Silty fine to coarse grained SAND, brown, damp	SA
	5			R-2	50/3"	109	4		@5': Silty fine to medium grained SAND, light brown, damp, dense	
	10			R-3	50/5"	101	11		@10': Silty fine to medium grained SAND, dark brown, moist, dense	
	15			R-4	50/5"				@15': Silty fine to medium grained SAND, dark brown, moist, very dense	
	20								Total Depth 15' 6" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	25									
	30									

SAMPLE TYPES:

- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

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GEOTECHNICAL BORING LOG B-3

Date 11-16-07 **Sheet** 1 **of** 1

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION (Logged By KXS; Sampled By)	Type of Tests
	0							SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
									@0-5': Silty fine to medium grained SAND, brown, damp	
	5			R-1	50/3"	108	4		@5': Silty fine to medium grained SAND, dark brown, damp, dense	
	10			R-2	50/3"				@10': Silty fine to coarse grained SAND, light brown, moist, dense	
									Total Depth 10' 9" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	15									
	20									
	25									
	30									

SAMPLE TYPES:

- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

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GEOTECHNICAL BORING LOG B-4

Date 11-16-07 **Sheet** 1 **of** 1

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
			B4-1 @ 0-5'						@0-5': Silty fine to coarse grained SAND, dark brown, damp	
	5			R-2	30	116	7	SM	QUATERNARY OLDER ALLUVIUM (Qalo) @5': Silty fine to coarse grained SAND, brown, moist, medium dense	
	10			R-3	69	121	6		@10': Silty fine to medium grained SAND with coarse grained particles, brown, moist, dense	
	15			R-4	61	117	6		@15': Silty fine to coarse grained SAND with silt, gray, moist, dense	
	20			R-5	50/2"				No Recovery	
									Total Depth 20' 2" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	25									
	30									

Logged By KXS

Sampled By

SAMPLE TYPES:

- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-5

Date 11-16-07 **Sheet** 1 **of** 1

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION (Logged By KXS; Sampled By)	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal) @0-5': Silty fine to medium grained SAND with coarse grained particles, brown, damp	
	5			R-1	58	114	4	SM	QUATERNARY OLDER ALLUVIUM (Qalo) @5': Silty fine to medium grained SAND with coarse grained particles & gravel, gray, moist, medium dense	HCO
	10			R-2	35	106	6		@10': Silty fine to medium grained SAND with coarse grained particles, brown, moist, medium dense	HCO
	15			R-3	50/4"				@15': Silty fine to coarse grained SAND, brown, moist, dense	
	20			R-4	50/6"				@20': Silty fine to coarse grained SAND with gravel, dark brown, moist, dense	
	25								Total Depth 21' Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-6

Date 11-16-07 **Sheet** 1 **of** 1

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Elevation Feet	Depth Feet	Graphic Log	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
		N S							**Logged By** KXS **Sampled By**	
	0		B6-1 @ 0-5'					SM	QUATERNARY YOUNGER ALLUVIUM (Qal) @0-5': Silty fine SAND, reddish brown, moist	CS
	5			R-2	84/8"	117	8	SM	QUATERNARY OLDER ALLUVIUM (Qalo) @5': Silty fine SAND, reddish brown, moist, dense	
	10			R-3	50/3"				@10': Silty fine to coarse grained SAND with gravel, gray & brown, moist, very dense	
	15			R-4	50/4"				@15': Silty fine to coarse grained SAND with gravel, gray & brown, moist, very dense	
	20								Total Depth 15' 4" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	25									
	30									

SAMPLE TYPES:

- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-7

Date 11-16-07 **Sheet** 1 **of** 1

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Elevation Feet	Depth Feet	Graphic Log (N / S)	Notes	Sample No.	Blows per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
									Logged By KXS **Sampled By**	
	0		B7-1 @ 2-5'					SM	QUATERNARY YOUNGER ALLUVIUM (Qal) @0-2': Silty fine SAND, reddish brown brown, moist @2-5': Silty fine to medium grained SAND with coarese grained particles, brown, moist	
	5			R-2	50/5"	113	3	SM	QUATERNARY OLDER ALLUVIUM (Qalo) @5': Silty fine to coarse grained SAND, brown, moist, dense	
	10			R-3	50/6"	93	7		@10': Silty fine to coarse grained SAND, brown, moist, dense (ring sample distrubed during sampling)	
	15			R-4	70				@15': Silty fine SAND, brown, moist, dense	
	20								Total Depth 16' 6" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	25									
	30									

SAMPLE TYPES:

- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

APPENDIX C

LABORATORY PROCEDURES AND TEST RESULTS

APPENDIX C

Laboratory Procedures and Test Results

Laboratory testing provided quantitative and qualitative data involving the relevant engineering properties of the representative earth materials selected for testing. The representative samples were tested in general accordance with American Society for Testing and Materials (ASTM) procedures and/or California Test Methods (CTM).

Soil Classification: Earth materials encountered during exploration were classified and logged in general accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) of ASTM D 2488. Upon completion of laboratory testing, exploratory logs and sample descriptions were reconciled to reflect laboratory test results with regard to ASTM D 2487.

Moisture and Density Tests: For select samples moisture content was determined using the guidelines of ASTM D 2216 and dry density determinations were made using the guidelines of ASTM D 2937. These tests were performed on relatively undisturbed samples and the test results are presented on the exploratory logs.

Maximum Density Tests: The maximum dry density and optimum moisture content of representative samples were determined using the guidelines of ASTM D 1557. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)
Bulk 1@ 0 - 5 feet	Clayey SAND	127.0	10.5

Expansion Index: The expansion potential of representative samples was evaluated using the guidelines of ASTM D 4829. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	EXPANSION INDEX	EXPANSION POTENTIAL
Bulk 1@ 0 - 5 feet	Clayey SAND	25	Low

Minimum Resistivity and pH Tests: Minimum resistivity and pH Tests of select samples were performed using the guidelines of CTM 643. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	pH	MINIMUM RESISTIVITY (ohm-cm)
Bulk 1@ 0 - 5 feet	Clayey SAND	7.2	1,900

Soluble Sulfate: The soluble sulfate content of select samples was determined using the guidelines of CTM 417. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	SULFATE CONTENT (% by weight)	SULFATE EXPOSURE
Bulk 1@ 0 - 5 feet	Clayey SAND	0.001	Negligible

Chloride Content: Chloride content of select samples was determined using the guidelines of CTM 422. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	CHLORIDE CONTENT (ppm)
Bulk 1@ 0 - 5 feet	Clayey SAND	30

Previous Laboratory Testing by Leighton Consulting, Inc.

Previous laboratory testing was performed on selected representative subsurface soil samples by Leighton Consulting (2007) to evaluate the chemical and physical characteristics of the selected soils. A discussion of the laboratory test methods performed, and a summary of the laboratory test data is presented below.

Grain Size Distribution: Select samples were tested using the guidelines of ASTM D 1140. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	% PASSING # 200 SIEVE
B-1 @ 0 - 5 feet	Clayey SAND	38

Atterberg Limits: The Atterberg limits of select samples were determined using the guidelines of ASTM D 4318 for engineering classification of fine materials. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	ASTM SYMBOL
B-2 @ 0 - 5 feet	Clayey SAND	-	-	-	SC

Expansion Index: The expansion potential of representative samples was evaluated using the guidelines of ASTM D 4829. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	EXPANSION INDEX	EXPANSION POTENTIAL
B-1 @ 0 - 5 feet	Silty SAND	5	Very Low

Direct Shear: Direct shear tests were performed on representative remolded and/or undisturbed samples using the guidelines of ASTM D 3080.

SAMPLE LOCATION	MATERIAL DESCRIPTION	*FRICTION ANGLE (degrees)	*APPARENT COHESION (psf)
B-1 @ 10 feet	Clayey SAND	35	680

Remolded to 90 percent of the maximum dry density.

R-Value: The R-value of representative samples was determined using the guidelines of CTM 301. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	R-VALUE
B-1 @ 0 - 5 feet	Silty SAND	53

Minimum Resistivity and pH Tests: Minimum resistivity and pH Tests of select samples were performed using the guidelines of CTM 643. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	pH	MINIMUM RESISTIVITY (ohm-cm)
B-1 @ 0 - 5 feet	Silty SAND	6.8	11,645

Soluble Sulfate: The soluble sulfate content of select samples was determined using the guidelines of CTM 417. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	SULFATE CONTENT (% by weight)	SULFATE EXPOSURE
B-6 @ 0 – 5 feet	B-6 @ 0 – 5 feet	<0.015	Negligible

Chloride Content: Chloride content of select samples was determined using the guidelines of CTM 422. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	CHLORIDE CONTENT (ppm)
B-6 @ 0 - 5 feet	Silty SAND	340

APPENDIX D

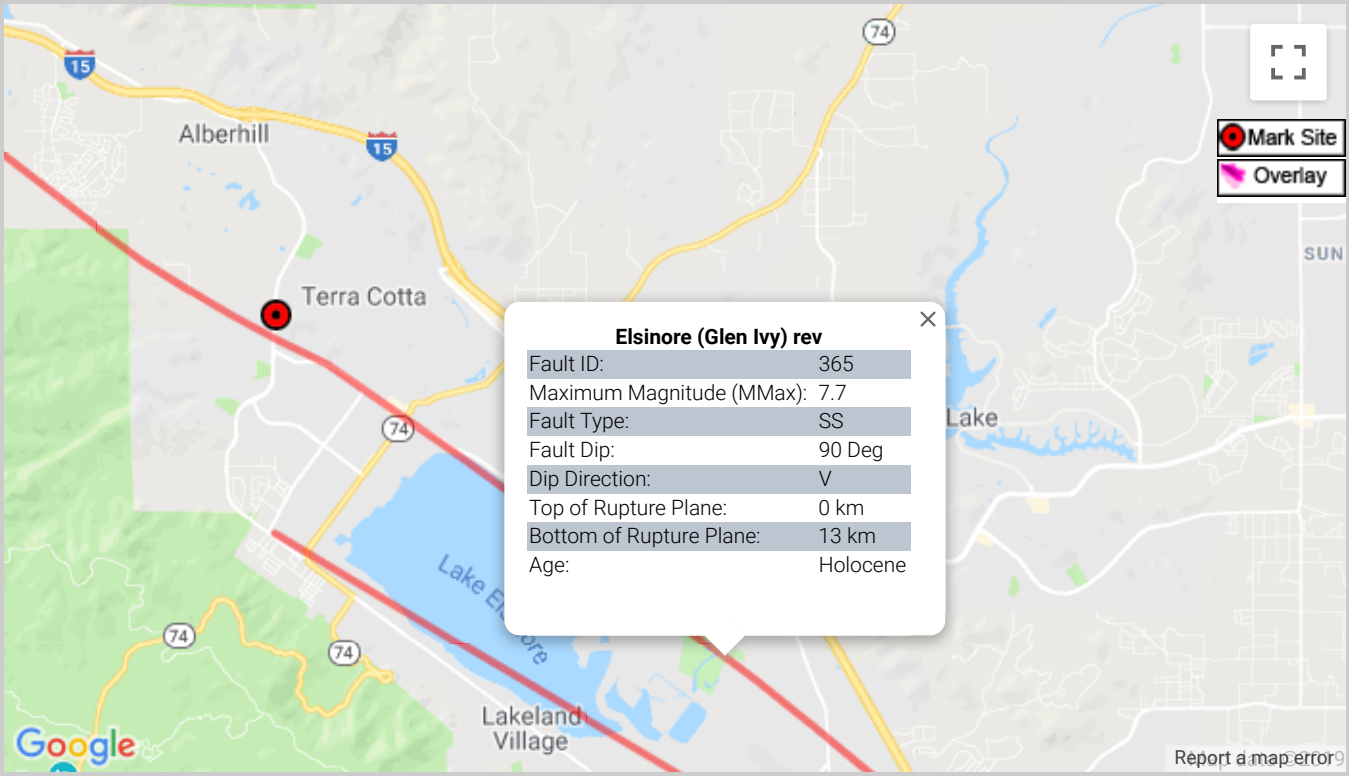
SEISMICITY

CALIFORNIA DEPARTMENT OF TRANSPORTATION

Caltrans ARS Online (v2.3.09)

This web-based tool calculates both deterministic and probabilistic acceleration response spectra for any location in California based on criteria provided in *Appendix B of Caltrans Seismic Design Criteria*. More...

SELECT SITE LOCATION

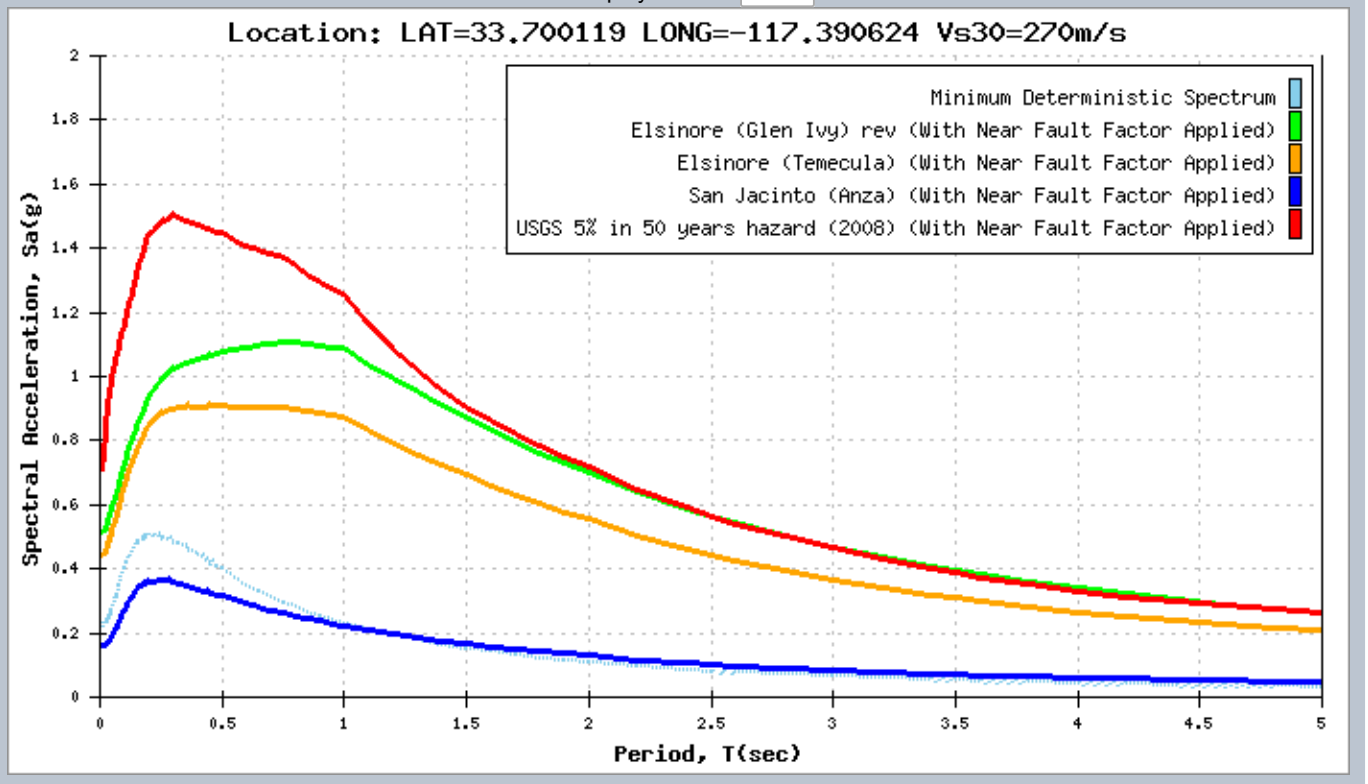


Elsinore (Glen Ivy) rev

Fault ID:	365
Maximum Magnitude (MMax):	7.7
Fault Type:	SS
Fault Dip:	90 Deg
Dip Direction:	V
Top of Rupture Plane:	0 km
Bottom of Rupture Plane:	13 km
Age:	Holocene

Latitude: 33.700119 **Longitude:** -117.390624 ***V*S30:** 270 m/s Calculate

CALCULATED SPECTRA Display Curves: 3



Tabular Data | Envelope Only | Hide Near Fault | Axis Scale | Show Basin

Apply Near Fault Adjustment To:
NOTE: Caltrans SDC requires application of a Near Fault Adjustment factor for sites less than 25 km (Rrup) from the causative fault.

☑ Deterministic Spectrum Using

0.31 Km Elsinore (Glen Ivy) rev
3.60 Km Elsinore (Temecula)
33.08 Km San Jacinto (Anza)

☑ Probabilistic Spectrum Using

0.31 Km (Recommend Performing Deaggregation To Verify)

◉ Show Spectrum with Adjustment Only
○ Show Spectrum with and without near fault Adjustment

OK

This application is being updated for digital accessibility and will continue to function while updates are in progress.

U.S. Geological Survey - Earthquake Hazards Program

2008 National Seismic Hazard Maps - Source Parameters

New Search

Distance in Kilometers	Name	State	Pref Slip Rate (mm/yr)	Dip (degrees)	Dip Dir	Slip Sense	Rupture Top (km)	Rupture Bottom (km)	Length (km)
0.34	Elsinore;GI+T+J	CA	n/a	86	NE	strike slip	0	17	153
0.34	Elsinore;W+GI+T	CA	n/a	84	NE	strike slip	0	14	124
0.34	Elsinore;W+GI	CA	n/a	81	NE	strike slip	0	14	83
0.34	Elsinore;GI+T	CA	5	90	V	strike slip	0	14	78
0.34	Elsinore;GI+T+J+CM	CA	n/a	86	NE	strike slip	0	16	195
0.34	Elsinore;W+GI+T+J+CM	CA	n/a	84	NE	strike slip	0	16	241
0.34	Elsinore;GI	CA	5	90	V	strike slip	0	13	37
0.34	Elsinore;W+GI+T+J	CA	n/a	84	NE	strike slip	0	16	199
3.59	Elsinore;T+J	CA	n/a	86	NE	strike slip	0	17	127
3.59	Elsinore;T+J+CM	CA	n/a	85	NE	strike slip	0	16	169
3.59	Elsinore;T	CA	5	90	V	strike slip	0	14	52
21.33	Chino, alt 2	CA	1	65	SW	strike slip	0	14	29
23.42	Elsinore;W	CA	2.5	75	NE	strike slip	0	14	46
25.54	Chino, alt 1	CA	1	50	SW	strike slip	0	9	24
28.74	San Joaquin Hills	CA	0.5	23	SW	thrust	2	13	27
33.56	San Jacinto;A+CC+B	CA	n/a	90	V	strike slip	0.1	15	152
33.56	San Jacinto;A+C	CA	n/a	90	V	strike slip	0	17	118
33.56	San Jacinto;A+CC+B+SM	CA	n/a	90	V	strike slip	0.1	15	178

33.56	San Jacinto;A	CA	9	90	V	strike slip	0	17	71
33.56	San Jacinto;A+CC	CA	n/a	90	V	strike slip	0	16	118
35.52	San Jacinto;SBV+SJV	CA	n/a	90	V	strike slip	0	16	88
35.52	San Jacinto;SJV+A+CC+B+SM	CA	n/a	90	V	strike slip	0.1	15	196
35.52	San Jacinto;SJV+A+CC+B	CA	n/a	90	V	strike slip	0.1	15	170
35.52	San Jacinto;SJV	CA	18	90	V	strike slip	0	16	43
35.52	San Jacinto;SJV+A+CC	CA	n/a	90	V	strike slip	0	16	136
35.52	San Jacinto;SJV+A+C	CA	n/a	90	V	strike slip	0	17	136
35.52	San Jacinto;SJV+A	CA	n/a	90	V	strike slip	0	17	89
35.52	San Jacinto;SBV+SJV+A+CC+B+SM	CA	n/a	90	V	strike slip	0.1	15	241
35.52	San Jacinto;SBV+SJV+A+CC+B	CA	n/a	90	V	strike slip	0.1	15	215
35.52	San Jacinto;SBV+SJV+A+CC	CA	n/a	90	V	strike slip	0	16	181
35.52	San Jacinto;SBV+SJV+A+C	CA	n/a	90	V	strike slip	0	17	181
35.52	San Jacinto;SBV+SJV+A	CA	n/a	90	V	strike slip	0	16	134
37.90	San Jacinto;SBV	CA	6	90	V	strike slip	0	16	45
42.59	Newport Inglewood Connected alt 1	CA	1.3	89		strike slip	0	11	208
42.59	Newport Inglewood Connected alt 2	CA	1.3	90	V	strike slip	0	11	208
42.59	Newport-Inglewood (Offshore)	CA	1.5	90	V	strike slip	0	10	66
49.36	Puente Hills (Coyote Hills)	CA	0.7	26	N	thrust	2.8	15	17
51.40	Newport-Inglewood, alt 1	CA	1	88		strike slip	0	15	65
51.91	S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	14	384
51.91	S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	86		strike slip	0.1	13	512

51.91	S. San Andreas;SSB+BG	CA	n/a	71		strike slip	0	13	101
51.91	S. San Andreas;NSB+SSB+BG+CO	CA	n/a	79		strike slip	0.2	12	206
51.91	S. San Andreas;CC+BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	14	322
51.91	S. San Andreas;CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	85		strike slip	0	14	380
51.91	S. San Andreas;CC+BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	86		strike slip	0.1	13	449
51.91	S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	86		strike slip	0	14	442
51.91	S. San Andreas;NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	13	213
51.91	S. San Andreas;NM+SM+NSB+SSB+BG	CA	n/a	83		strike slip	0	14	271
51.91	S. San Andreas;NM+SM+NSB+SSB+BG+CO	CA	n/a	84		strike slip	0.1	13	340
51.91	S. San Andreas;NSB+SSB	CA	n/a	90	V	strike slip	0	13	79
51.91	S. San Andreas;NSB+SSB+BG	CA	n/a	75		strike slip	0	14	136
51.91	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0.1	13	421
51.91	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	86		strike slip	0.1	13	479
51.91	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	86		strike slip	0.1	13	548
51.91	S. San Andreas;SM+NSB+SSB	CA	n/a	90	V	strike slip	0	13	176
51.91	S. San Andreas;SM+NSB+SSB+BG	CA	n/a	81		strike slip	0	13	234
51.91	S. San Andreas;SM+NSB+SSB+BG+CO	CA	n/a	83		strike slip	0.1	13	303
51.91	S. San Andreas;SSB	CA	16	90	V	strike slip	0	13	43
51.91	S. San Andreas;SSB+BG+CO	CA	n/a	77		strike slip	0.2	12	170
51.91	S. San Andreas;BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	14	263
51.91	S. San Andreas;BB+NM+SM+NSB+SSB+BG	CA	n/a	84		strike slip	0	14	321
51.91	S. San Andreas;BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	85		strike slip	0.1	13	390

52.27	S. San Andreas;CC+BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0	14	279
52.27	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0.1	13	377
52.27	S. San Andreas;BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0	14	220
52.27	S. San Andreas;NM+SM+NSB	CA	n/a	90	V	strike slip	0	13	170
52.27	S. San Andreas;CH+CC+BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0	14	341
52.27	S. San Andreas;SM+NSB	CA	n/a	90	V	strike slip	0	13	133
52.27	S. San Andreas;NSB	CA	22	90	V	strike slip	0	13	35
52.43	Cucamonga	CA	5	45	N	thrust	0	8	28
53.04	San Jose	CA	0.5	74	NW	strike slip	0	15	20
53.33	Elsinore;J	CA	3	84	NE	strike slip	0	19	75
53.33	Elsinore;J+CM	CA	3	84	NE	strike slip	0	17	118
57.01	Sierra Madre	CA	2	53	N	reverse	0	14	57
57.01	Sierra Madre Connected	CA	2	51		reverse	0	14	76
61.28	S. San Andreas;BG+CO	CA	n/a	72		strike slip	0.3	12	125
61.28	S. San Andreas;BG	CA	n/a	58		strike slip	0	13	56
63.55	Puente Hills (Santa Fe Springs)	CA	0.7	29	N	thrust	2.8	15	11
64.12	Rose Canyon	CA	1.5	90	V	strike slip	0	8	70
64.37	Cleghorn	CA	3	90	V	strike slip	0	16	25
66.59	Palos Verdes Connected	CA	3	90	V	strike slip	0	10	285
66.59	Palos Verdes	CA	3	90	V	strike slip	0	14	99
67.62	Coronado Bank	CA	3	90	V	strike slip	0	9	186
69.34	North Frontal (West)	CA	1	49	S	reverse	0	16	50
69.91	S. San Andreas;CH+CC+BB+NM+SM	CA	n/a	90	V	strike slip	0	14	306

69.91	S. San Andreas;CC+BB+NM+SM	CA	n/a	90	V	strike slip	0	14	243
69.91	S. San Andreas;BB+NM+SM	CA	n/a	90	V	strike slip	0	14	184
69.91	S. San Andreas;NM+SM	CA	n/a	90	V	strike slip	0	14	134
69.91	S. San Andreas;PK+CH+CC+BB+NM+SM	CA	n/a	90	V	strike slip	0.1	13	342
69.91	S. San Andreas;SM	CA	29	90	V	strike slip	0	13	98
73.25	Clamshell-Sawpit	CA	0.5	50	NW	reverse	0	14	16
73.37	Pinto Mtn	CA	2.5	90	V	strike slip	0	16	74
74.39	Puente Hills (LA)	CA	0.7	27	N	thrust	2.1	15	22
75.61	Raymond	CA	1.5	79	N	strike slip	0	16	22
77.36	Elysian Park (Upper)	CA	1.3	50	NE	reverse	3	15	20
82.68	San Jacinto;CC+B+SM	CA	n/a	90	V	strike slip	0.2	14	103
82.68	San Jacinto;CC+B	CA	n/a	90	V	strike slip	0.2	14	77
82.68	San Jacinto;CC	CA	4	90	V	strike slip	0	16	43
84.64	San Jacinto;C	CA	14	90	V	strike slip	0	17	47
85.30	Verdugo	CA	0.5	55	NE	reverse	0	15	29
87.30	Helendale-So Lockhart	CA	0.6	90	V	strike slip	0	13	114
89.21	North Frontal (East)	CA	0.5	41	S	thrust	0	16	27
90.57	Hollywood	CA	1	70	N	strike slip	0	17	17
94.35	Santa Monica Connected alt 2	CA	2.4	44		strike slip	0.8	11	93
94.39	Earthquake Valley	CA	2	90	V	strike slip	0	19	20
96.11	Burnt Mtn	CA	0.6	67	W	strike slip	0	16	21
99.76	Lenwood-Lockhart-Old Woman Springs	CA	0.9	90	V	strike slip	0	13	145

USGS

Search Results

1 of 1 earthquakes in map area.

Click for more information

6.5 **Gulf of Santa Catalina, California**
1800-11-22 21:30:00 (UTC) –

Didn't find what you were looking for?

- Check your Settings.
- Which earthquakes are included on the map and list?
- Felt something not shown – report it here.

Earthquakes updated

Hazards by Location

Search Information

Address: 28915 Lake St, Lake Elsinore, CA 92530, USA

Coordinates: 33.69979679999999, -117.391232

Elevation: ft

Timestamp: 2019-09-03T20:26:42.011Z

Hazard Type: Seismic

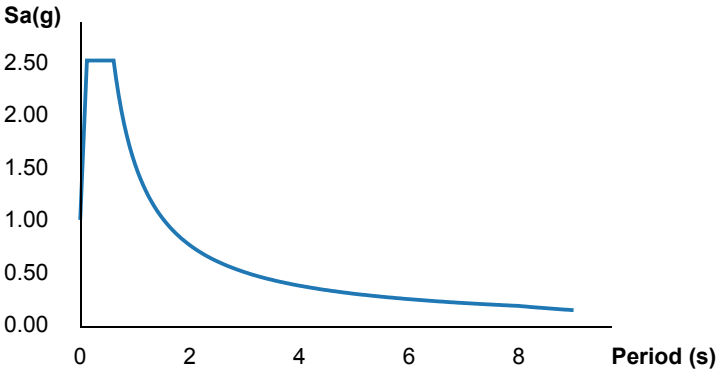
Reference Document: ASCE7-10

Risk Category: II

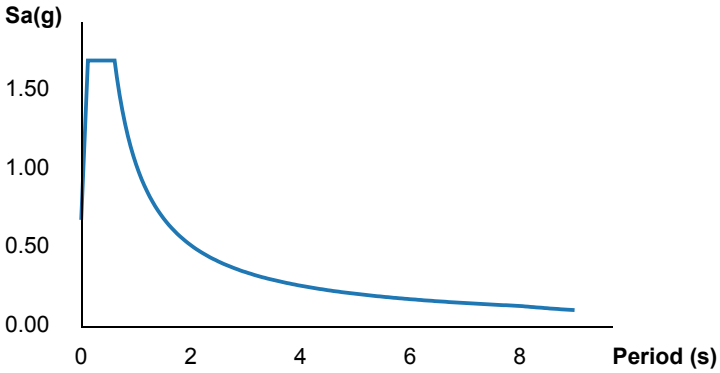
Site Class: D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.53	MCE_R ground motion (period=0.2s)
S_1	1.028	MCE_R ground motion (period=1.0s)
S_{MS}	2.53	Site-modified spectral acceleration value
S_{M1}	1.542	Site-modified spectral acceleration value
S_{DS}	1.687	Numeric seismic design value at 0.2s SA
S_{D1}	1.028	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s

CR_S	0.901	Coefficient of risk (0.2s)
CR_1	0.884	Coefficient of risk (1.0s)
PGA	1.023	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.023	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.53	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.809	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.652	Factored deterministic acceleration value (0.2s)
S1RT	1.028	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.162	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.214	Factored deterministic acceleration value (1.0s)
PGAd	1.023	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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APPENDIX E

GENERAL EARTHWORK AND GRADING SPECIFICATIONS

EARTH-STRATA

General Earthwork and Grading Specifications

General

Intent: These General Earthwork and Grading Specifications are intended to be the minimum requirements for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These General Earthwork and Grading Specifications should be considered a part of the recommendations contained in the geotechnical report(s) and if they are in conflict with the geotechnical report(s), the specific recommendations in the geotechnical report shall supersede these more general specifications. Observations made during earthwork operations by the project Geotechnical Consultant may result in new or revised recommendations that may supersede these specifications and/or the recommendations in the geotechnical report(s).

The Geotechnical Consultant of Record: The Owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant), prior to commencement of grading or construction. The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading or construction.

Prior to commencement of grading or construction, the Owner shall coordinate with the Geotechnical Consultant, and Earthwork Contractor (Contractor) to schedule sufficient personnel for the appropriate level of observation, mapping, and compaction testing.

During earthwork and grading operations, the Geotechnical Consultant shall observe, map, and document the subsurface conditions to confirm assumptions made during the geotechnical design phase of the project. Should the observed conditions differ significantly from the interpretive assumptions made during the design phase, the Geotechnical Consultant shall recommend appropriate changes to accommodate the observed conditions, and notify the reviewing agency where required.

The Geotechnical Consultant shall observe the moisture conditioning and processing of the excavations and fill materials. The Geotechnical Consultant should perform periodic relative density testing of fill materials to verify that the attained level of compaction is being accomplished as specified.

The Earthwork Contractor: The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of earth materials to receive compacted fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall be provided with the approved grading plans and geotechnical report(s) for his review and acceptance of responsibilities, prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the approved grading plans and geotechnical report(s). Prior to commencement of grading, the Contractor shall prepare and submit to the Owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "equipment" of work and the estimated quantities of daily earthwork contemplated for the site. The Contractor shall inform the Owner and the Geotechnical Consultant of work schedule changes and revisions to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. No assumptions shall be made by the Contractor with regard to whether the Geotechnical Consultant is aware of all grading operations.

It is the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the earthwork operations in accordance with the applicable grading codes and agency ordinances, these specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). At the sole discretion of the Geotechnical Consultant, any unsatisfactory conditions, such as unsuitable earth materials, improper moisture conditioning, inadequate compaction, insufficient buttress keyway size, adverse weather conditions, etc., resulting in a quality of work less than required in the approved grading plans and geotechnical report(s), the Geotechnical Consultant shall reject the work and may recommend to the Owner that grading be stopped until conditions are corrected.

Preparation of Areas for Compacted Fill

Clearing and Grubbing: Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed in a method acceptable to the Owner, Geotechnical Consultant, and governing agencies.

The Geotechnical Consultant shall evaluate the extent of these removals on a site by site basis. Earth materials to be placed as compacted fill shall not contain more than 1 percent organic materials (by volume). No compacted fill lift shall contain more than 10 percent organic matter.

Should potentially hazardous materials be encountered, the Contractor shall stop work in the affected area, and a hazardous materials specialist shall immediately be consulted to evaluate the potentially hazardous materials, prior to continuing to work in that area.

It is our understanding that the State of California defines most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) as hazardous waste. As such, indiscriminate dumping or spillage of these fluids may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall be prohibited. The contractor is responsible for all hazardous waste related to his operations. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Owner should contract the services of a qualified environmental assessor.

Processing: Exposed earth materials that have been observed to be satisfactory for support of compacted fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Exposed earth materials that are not observed to be satisfactory shall be removed or alternative recommendations may be provided by the Geotechnical Consultant. Scarification shall continue until the exposed earth materials are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction. The earth materials should be moistened or air dried to near optimum moisture content, prior to compaction.

Overexcavation: The Cut Lot Typical Detail and Cut/Fill Transition Lot Typical Detail, included herein provides a graphic illustration that depicts typical overexcavation recommendations made in the approved geotechnical report(s) and/or grading plan(s).

Keyways and Benching: Where fills are to be placed on slopes steeper than 5:1 (horizontal to vertical units), the ground shall be thoroughly benched as compacted fill is placed. Please see the three Keyway and Benching Typical Details with subtitles Cut Over Fill Slope, Fill Over Cut Slope, and Fill Slope for a graphic illustration. The lowest bench or smallest keyway shall be a minimum of 15 feet wide (or ½ the proposed slope height) and at least 2 feet into competent earth materials as advised by the Geotechnical Consultant. Typical benches shall be excavated a minimum height of 4 feet into competent earth materials or as recommended by the Geotechnical Consultant. Fill placed on slopes steeper than 5:1 should be thoroughly benched or otherwise excavated to provide a flat subgrade for the compacted fill.

Evaluation/Acceptance of Bottom Excavations: All areas to receive compacted fill (bottom excavations), including removal excavations, processed areas, keyways, and benching, shall be observed, mapped, general elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive compacted fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to placing compacted fill. A licensed surveyor shall provide the survey control for determining elevations of bottom excavations, processed areas, keyways, and

benching. The Geotechnical Consultant is not responsible for erroneously located, fills, subdrain systems, or excavations.

Fill Materials

General: Earth material to be used as compacted fill should to a large extent be free of organic matter and other deleterious substances as evaluated and accepted by the Geotechnical Consultant.

Oversize: Oversize material is rock that does not break down into smaller pieces and has a maximum diameter greater than 8 inches. Oversize rock shall not be included within compacted fill unless specific methods and guidelines acceptable to the Geotechnical Consultant are followed. For examples of methods and guidelines of oversize rock placement see the enclosed Oversize Rock Disposal Detail. The inclusion of oversize materials in the compacted fill shall only be acceptable if the oversize material is completely surrounded by compacted fill or thoroughly jetted granular materials. No oversize material shall be placed within 10 vertical feet of finish grade or within 2 feet of proposed utilities or underground improvements.

Import: Should imported earth materials be required, the proposed import materials shall meet the requirements of the Geotechnical Consultant. Well graded, very low expansion potential earth materials free of organic matter and other deleterious substances are usually sought after as import materials. However, it is generally in the Owners best interest that potential import earth materials are provided to the Geotechnical Consultant to determine their suitability for the intended purpose. At least 48 hours should be allotted for the appropriate laboratory testing to be performed, prior to starting the import operations.

Fill Placement and Compaction Procedures

Fill Layers: Fill materials shall be placed in areas prepared to receive fill in nearly horizontal layers not exceeding 8 inches in loose thickness. Thicker layers may be accepted by the Geotechnical Consultant, provided field density testing indicates that the grading procedures can adequately compact the thicker layers. Each layer of fill shall be spread evenly and thoroughly mixed to obtain uniformity within the earth materials and consistent moisture throughout the fill.

Moisture Conditioning of Fill: Earth materials to be placed as compacted fill shall be watered, dried, blended, and/or mixed, as needed to obtain relatively uniform moisture contents that are at or slightly above optimum. The maximum density and optimum moisture content tests should be performed in accordance with the American Society of Testing and Materials (ASTM test method D1557-00).

Compaction of Fill: After each layer has been moisture-conditioned, mixed, and evenly spread, it should be uniformly compacted to a minimum of 90 percent of maximum dry density as determined by ASTM test method D1557-00. Compaction equipment shall be adequately sized and be either specifically designed for compaction of earth materials or be proven to consistently achieve the required level of compaction.

Compaction of Fill Slopes: In addition to normal compaction procedures specified above, additional effort to obtain compaction on slopes is needed. This may be accomplished by backrolling of slopes with sheepsfoot rollers as the fill is being placed, by overbuilding the fill slopes, or by other methods producing results that are satisfactory to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill and the slope face shall be a minimum of 90 percent of maximum density per ASTM test method D1557-00.

Compaction Testing of Fill: Field tests for moisture content and relative density of the compacted fill earth materials shall be periodically performed by the Geotechnical Consultant. The location and frequency of tests shall be at the Geotechnical Consultant's discretion based on field observations. Compaction test locations will not necessarily be random. The test locations may or may not be selected to verify minimum compaction requirements in areas that are typically prone to inadequate compaction, such as close to slope faces and near benching.

Frequency of Compaction Testing: Compaction tests shall be taken at minimum intervals of every 2 vertical feet and/or per 1,000 cubic yards of compacted materials placed. Additionally, as a guideline, at least one (1) test shall be taken on slope faces for each 5,000 square feet of slope face and/or for each 10 vertical feet of slope. The Contractor shall assure that fill placement is such that the testing schedule described herein can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork operations to a safe level so that these minimum standards can be obtained.

Compaction Test Locations: The approximate elevation and horizontal coordinates of each test location shall be documented by the Geotechnical Consultant. The Contractor shall coordinate with the Surveyor to assure that sufficient grade stakes are established. This will provide the Geotechnical Consultant with sufficient accuracy to determine the approximate test locations and elevations. The Geotechnical Consultant can not be responsible for staking erroneously located by the Surveyor or Contractor. A minimum of two grade stakes should be provided at a maximum horizontal distance of 100 feet and vertical difference of less than 5 feet.

Subdrain System Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the approved grading plan, and the typical details provided herein. The Geotechnical Consultant may recommend additional subdrain systems and/or changes to the subdrain systems described herein, with regard to the extent, location, grade, or material depending on conditions encountered during grading or other factors. All subdrain systems shall be surveyed by a licensed land surveyor (except for retaining wall subdrain systems) to verify line and grade after installation and prior to burial. Adequate time should be allowed by the Contractor to complete these surveys.

Excavation

All excavations and over-excavations for remedial purposes shall be evaluated by the Geotechnical Consultant during grading operations. Remedial removal depths indicated on the geotechnical plans are estimates only. The actual removal depths and extent shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading operations. Where fill over cut slopes are planned, the cut portion of the slope shall be excavated, evaluated, and accepted by the Geotechnical Consultant prior to placement of the fill portion of the proposed slope, unless specifically addressed by the Geotechnical Consultant. Typical details for cut over fill slopes and fill over cut slopes are provided herein.

Trench Backfill

1) The Contractor shall follow all OHSA and Cal/OSHA requirements for trench excavation safety.

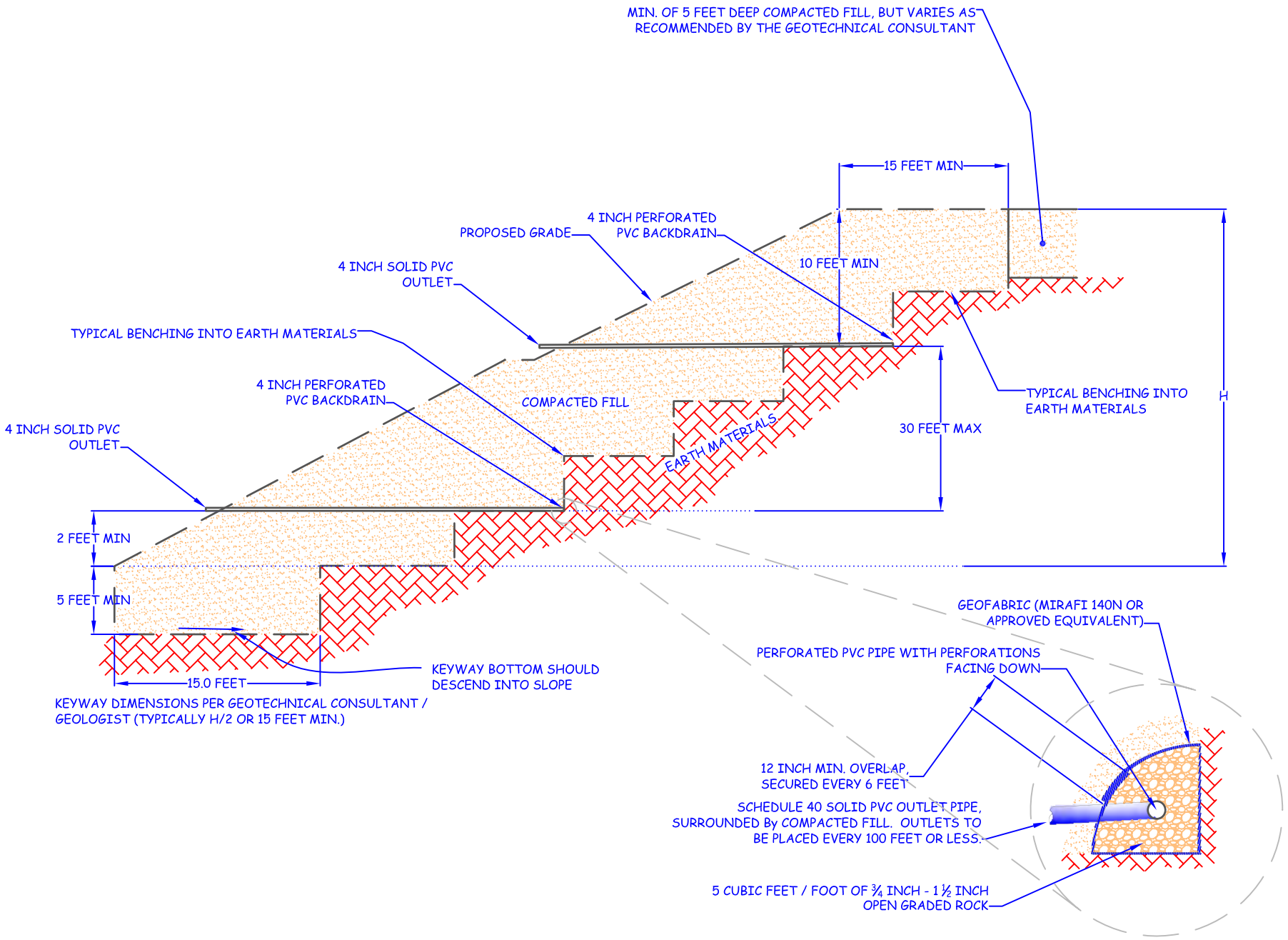
2) Bedding and backfill of utility trenches shall be done in accordance with the applicable provisions in the Standard Specifications of Public Works Construction. Bedding materials shall have a Sand Equivalency more than 30 (SE>30). The bedding shall be placed to 1 foot over the conduit and thoroughly jetting to provide densification. Backfill should be compacted to a minimum of 90 percent of maximum dry density, from 1 foot above the top of the conduit to the surface.

3) Jetting of the bedding materials around the conduits shall be observed by the Geotechnical Consultant.

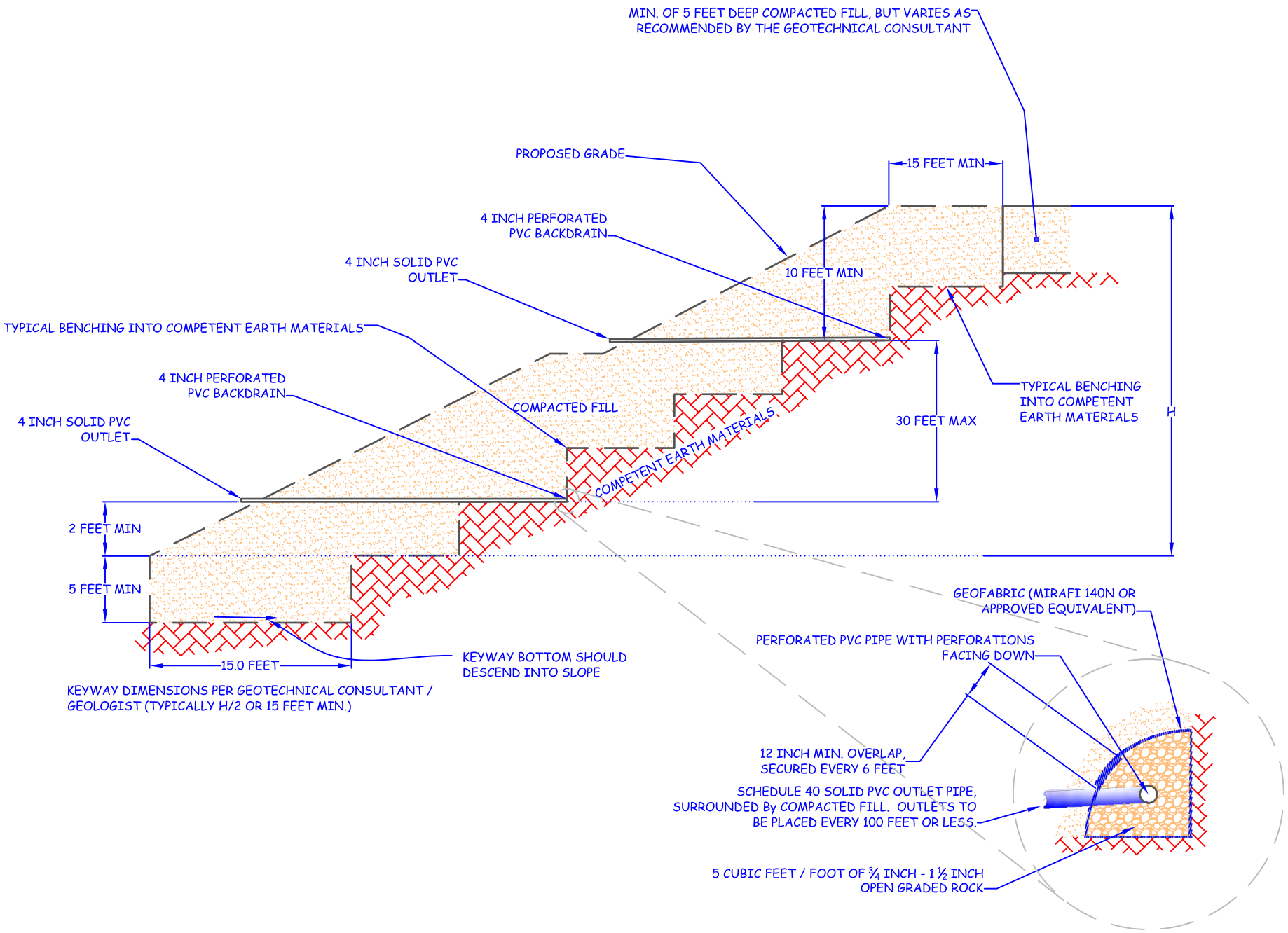
4) The Geotechnical Consultant shall test trench backfill for the minimum compaction requirements recommended herein. At least one test should be conducted for every 300 linear feet of trench and for each 2 vertical feet of backfill.

5) For trench backfill the lift thicknesses shall not exceed those allowed in the Standard Specifications of Public Works Construction, unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment or method.

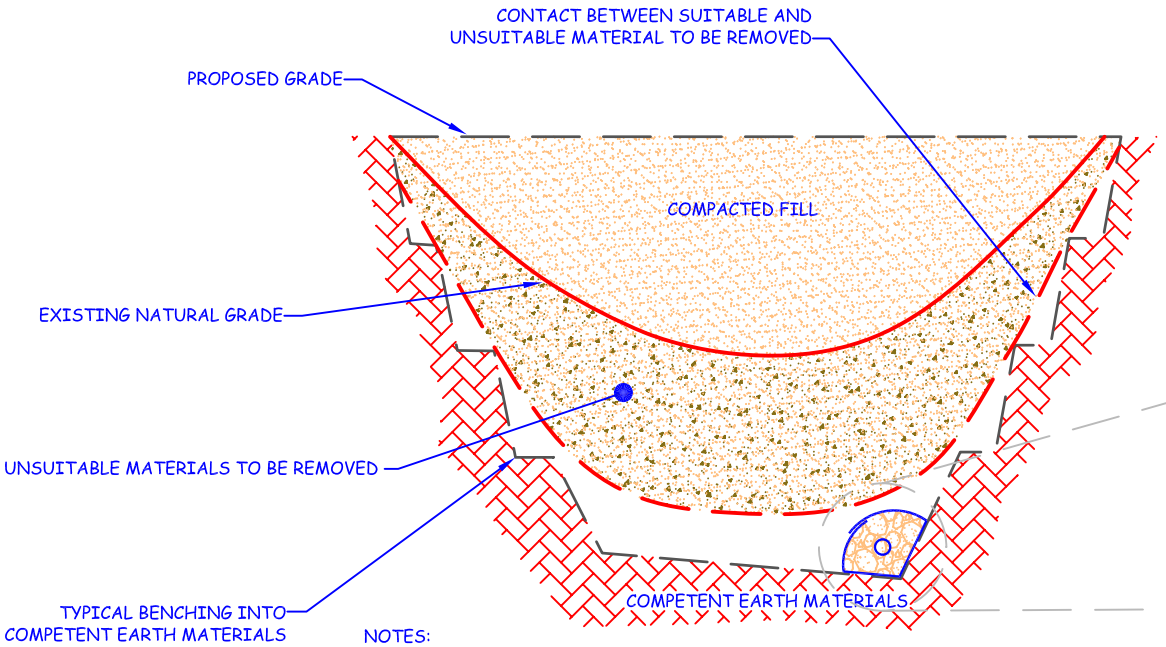
STABILIZATION FILL TYPICAL DETAIL

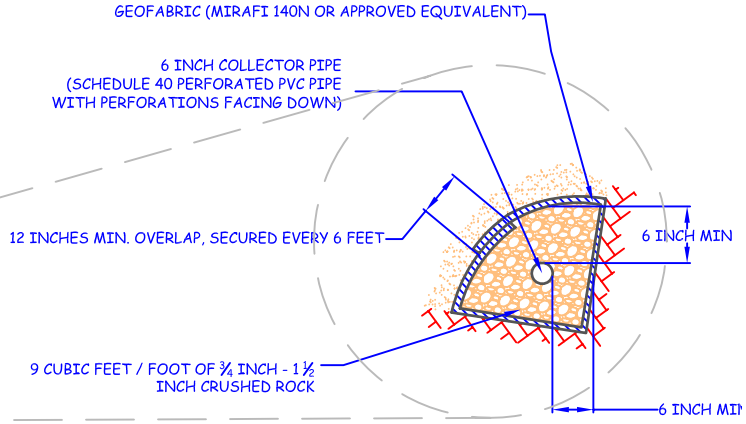


BUTTRESS TYPICAL DETAIL



CANYON SUBDRAIN SYSTEM TYPICAL DETAIL

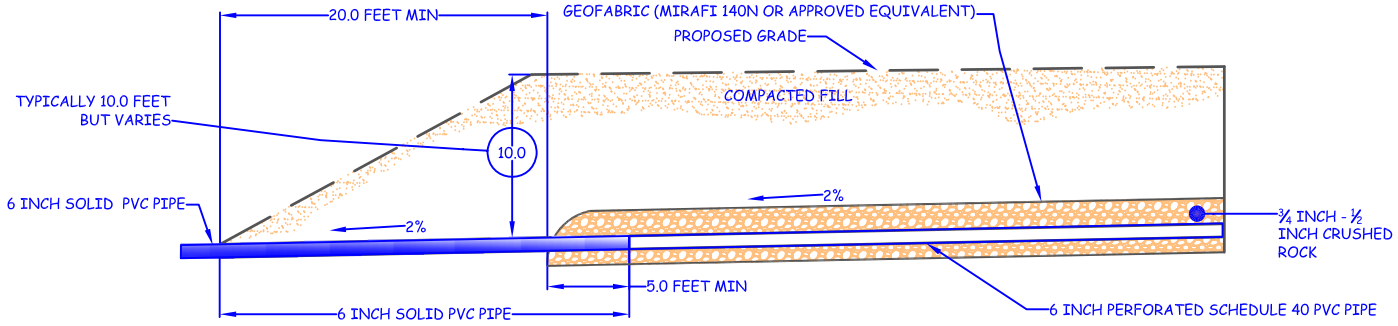




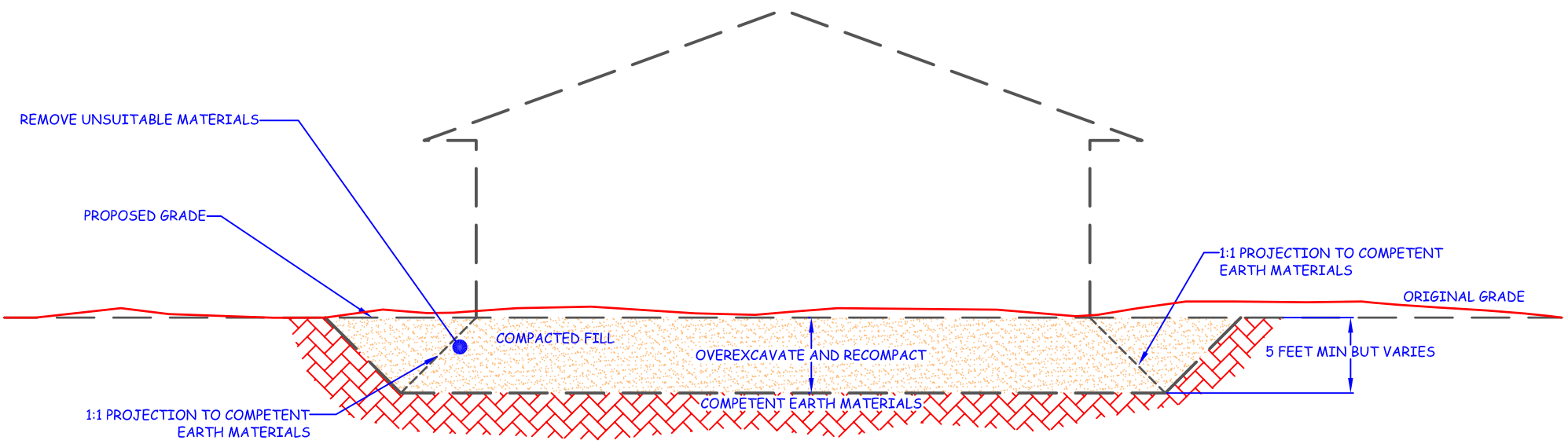
NOTES:
1 - CONTINUOUS RUNS IN EXCESS OF 500 FEET LONG WILL REQUIRE AN 8 INCH DIAMETER PIPE.

2 - FINAL 20 FEET OF PIPE AT OUTLET WILL BE SOLID AND BACKFILLED WITH COMPACTED FINE-GRAINED EARTH MATERIALS.

CANYON SUBDRAIN TYPICAL OUTLET



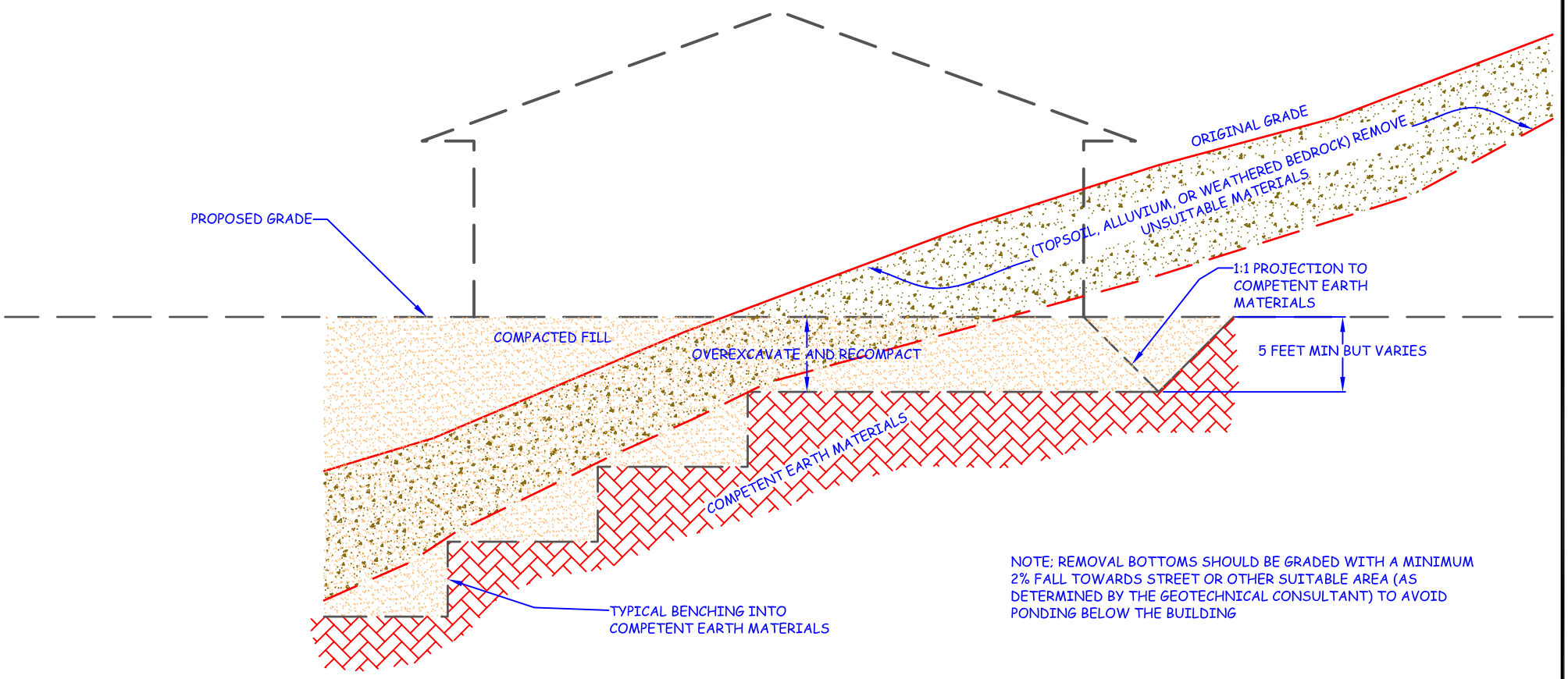
CUT LOT TYPICAL DETAIL



NOTE: REMOVAL BOTTOMS SHOULD BE GRADED WITH A MINIMUM 2% FALL TOWARDS STREET OR OTHER SUITABLE AREA (AS DETERMINED BY THE GEOTECHNICAL CONSULTANT) TO AVOID PONDING BELOW THE BUILDING

NOTE: WHERE DESIGN CUT LOTS ARE EXCAVATED ENTIRELY INTO COMPETENT EARTH MATERIALS, OVEREXCAVATION MAY STILL BY NEEDED FOR HARD-ROCK CONDITIONS OR MATERIALS WITH VARIABLE EXPANSION POTENTIALS

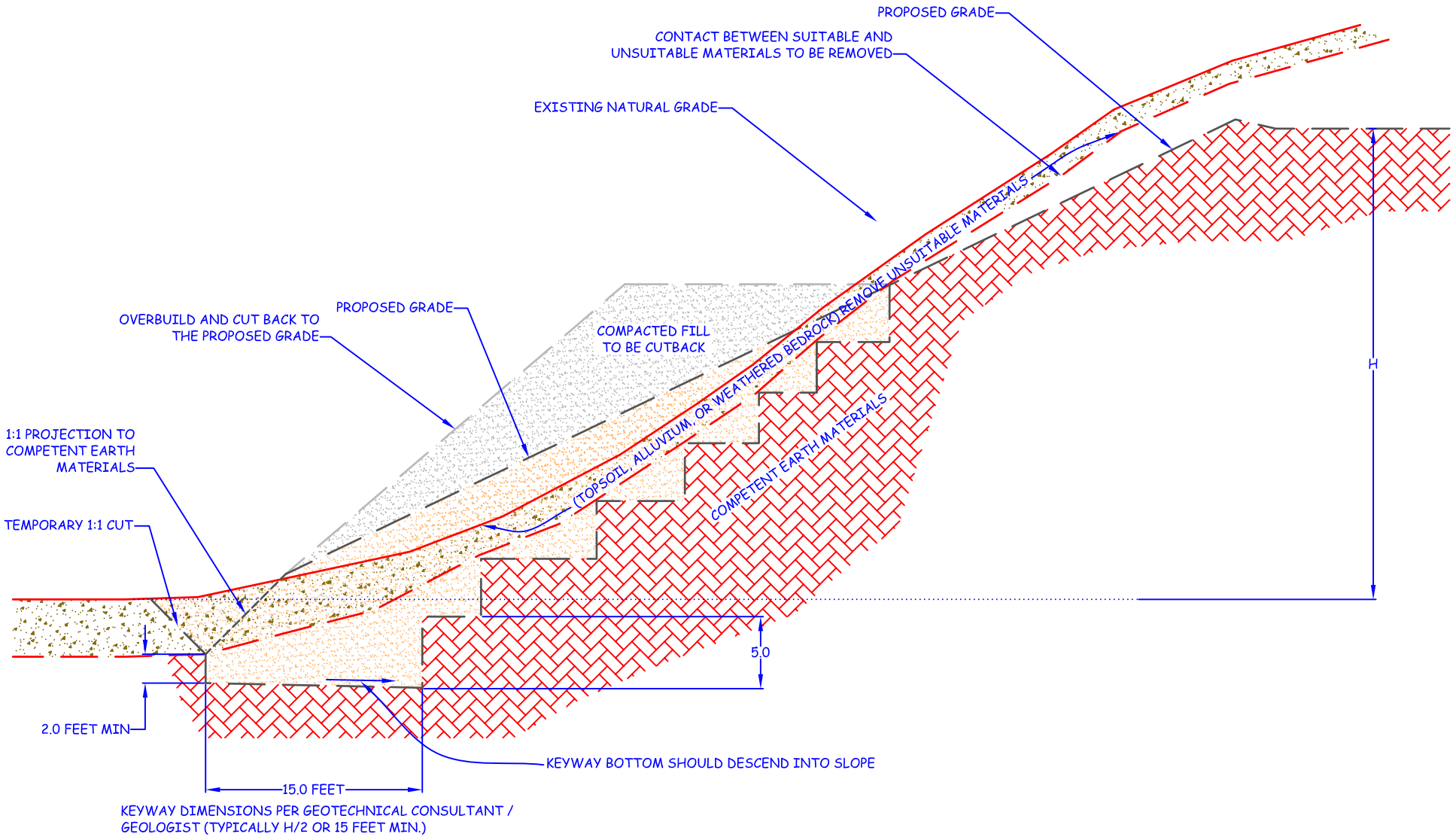
CUT / FILL TRANSITION LOT TYPICAL DETAIL



NOTE; REMOVAL BOTTOMS SHOULD BE GRADED WITH A MINIMUM 2% FALL TOWARDS STREET OR OTHER SUITABLE AREA (AS DETERMINED BY THE GEOTECHNICAL CONSULTANT) TO AVOID PONDING BELOW THE BUILDING

NOTE: WHERE DESIGN CUT LOTS ARE EXCAVATED ENTIRELY INTO COMPETENT EARTH MATERIALS, OVEREXCAVATION MAY STILL BY NEEDED FOR HARD-ROCK CONDITIONS OR MATERIALS WITH VARIABLE EXPANSION POTENTIALS

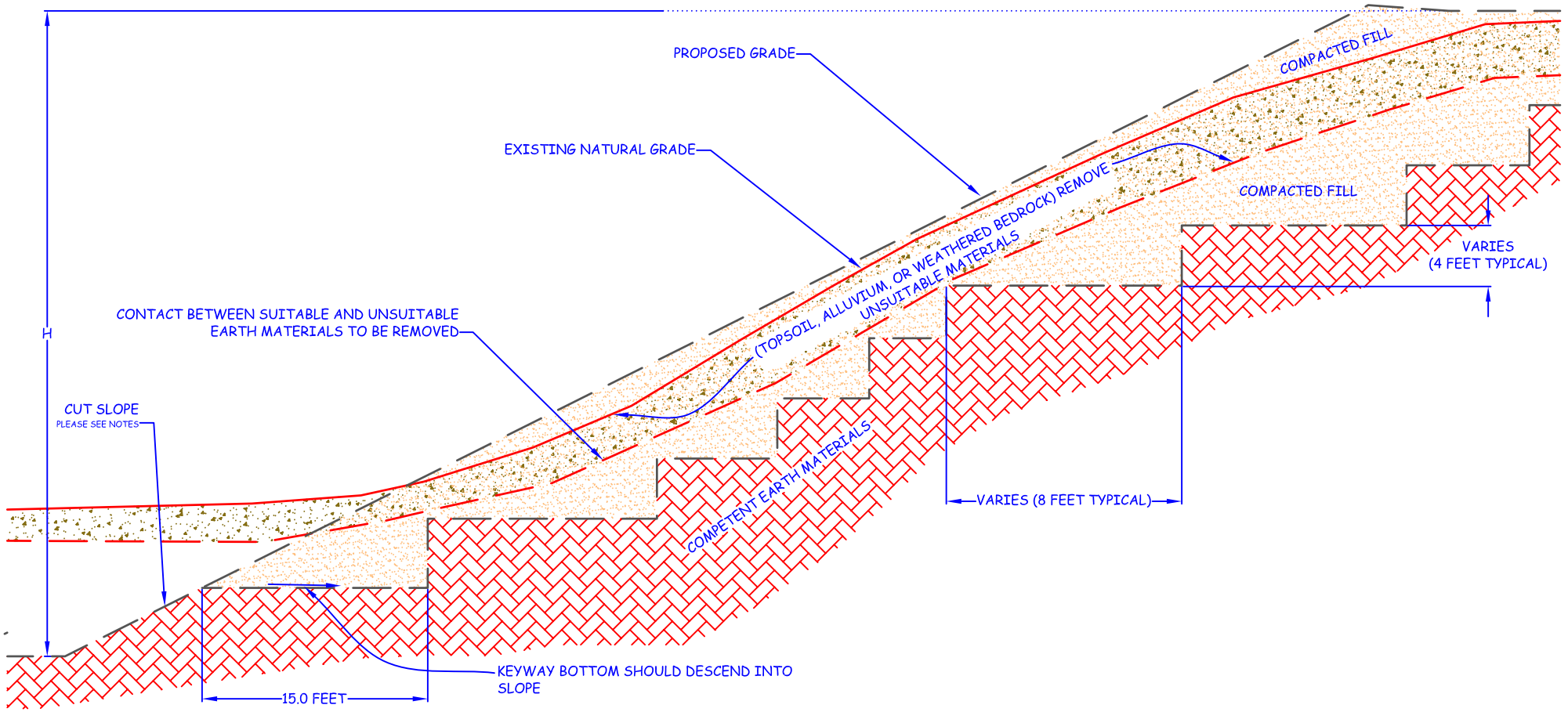
KEYWAY & BENCHING TYPICAL DETAILS
CUT OVER FILL SLOPE



NOTE:

NATURAL SLOPES STEEPER THAN 5:1 (H:V) MUST BE BENCHED INTO COMPETENT EARTH MATERIALS

KEYWAY & BENCHING TYPICAL DETAILS
FILL OVER CUT SLOPE



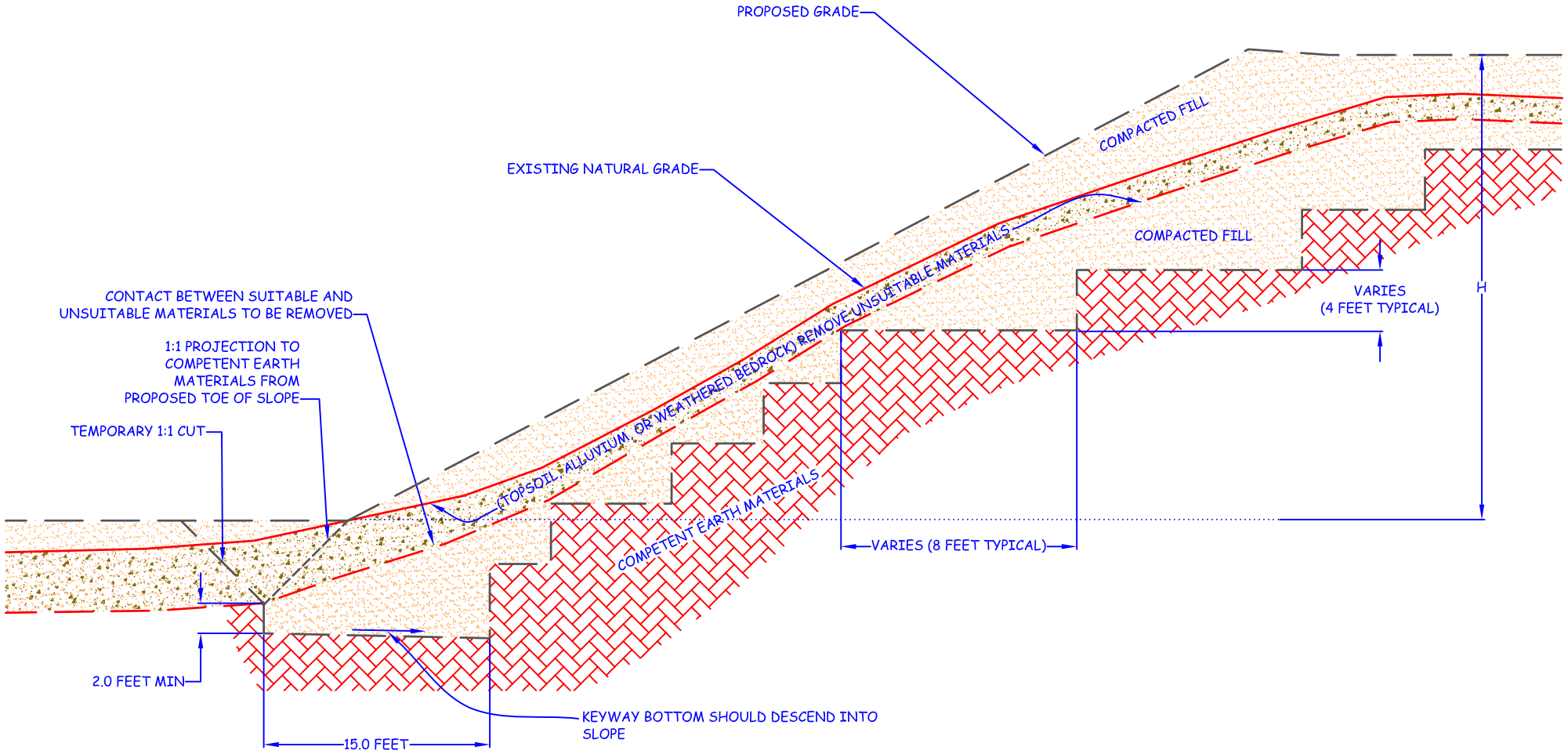
KEYWAY DIMENSIONS PER GEOTECHNICAL CONSULTANT / GEOLOGIST (TYPICALLY H/2 OR 15 FEET MIN.)

NOTES:

NATURAL SLOPES STEEPER THAN 5:1 (H:V) MUST BE BENCHED INTO COMPETENT EARTH MATERIALS

THE CUT SLOPE MUST BE CONSTRUCTED FIRST

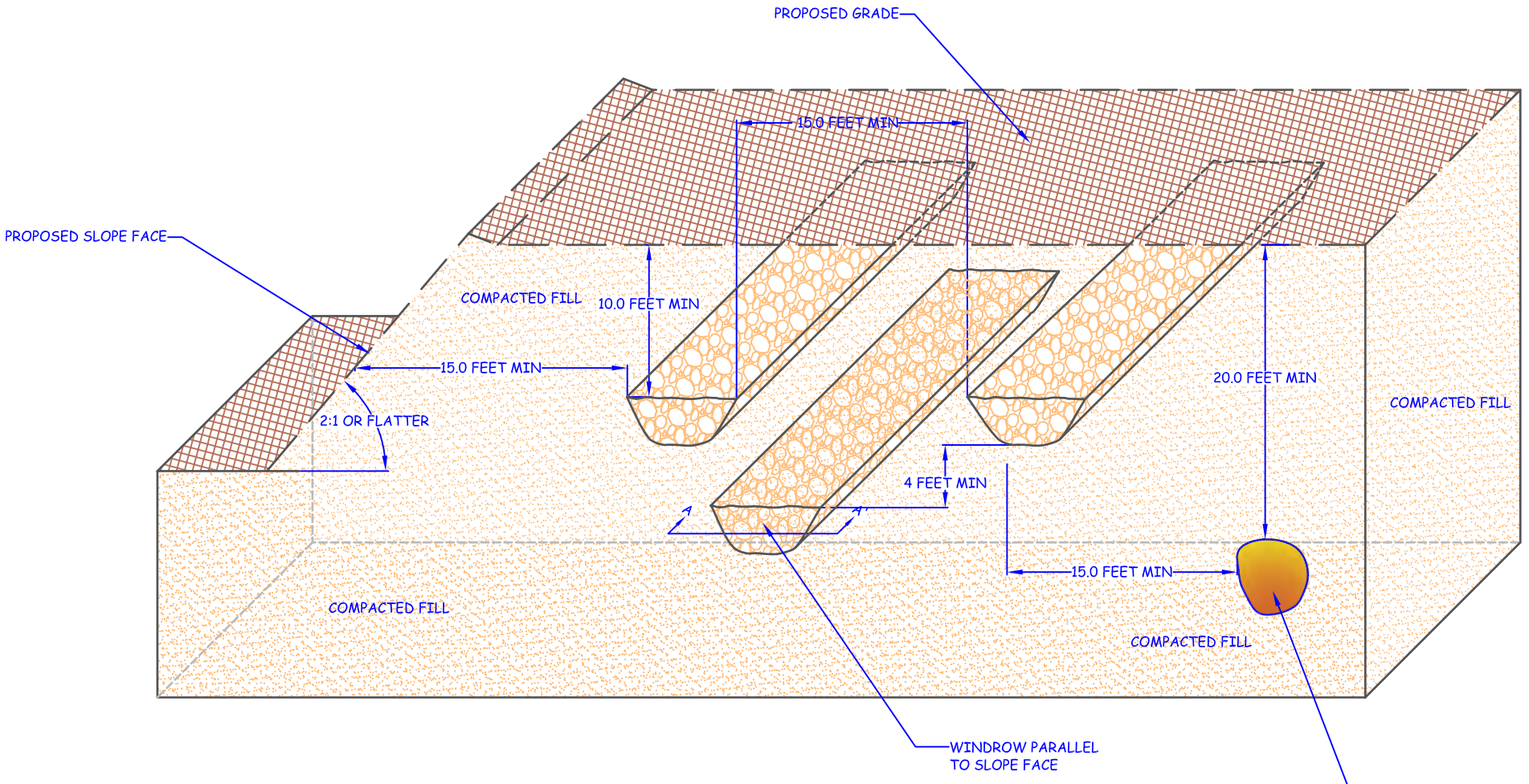
KEYWAY & BENCHING TYPICAL DETAILS
FILL SLOPE



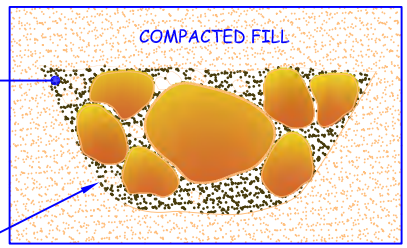
NOTES:

NATURAL SLOPES STEEPER THAN 5:1 (H:V) MUST BE BENCHED INTO COMPETENT EARTH MATERIALS

OVERSIZE ROCK TYPICAL DETAIL

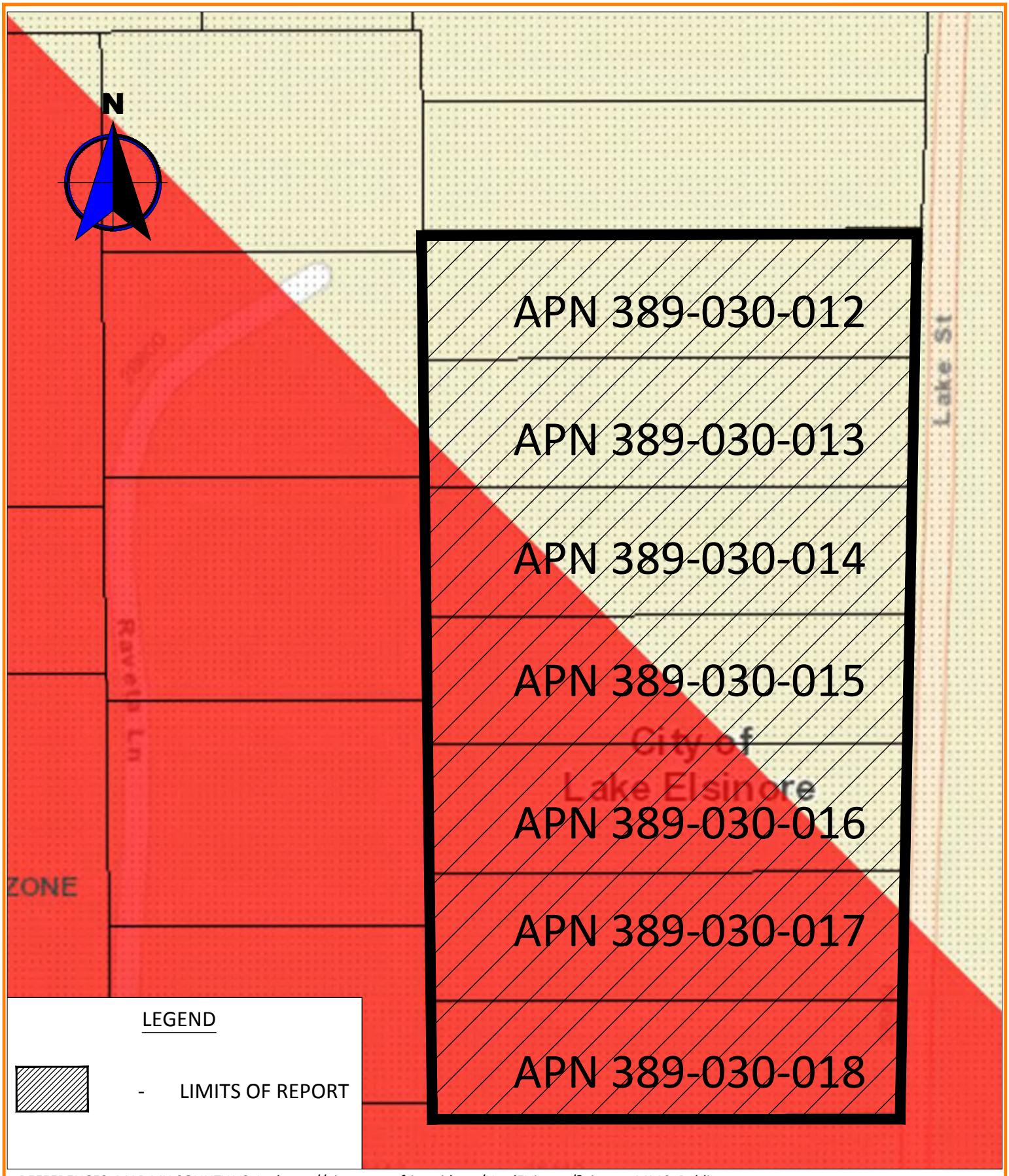


CROSS SECTION A-A'



NOTES:

OVERSIZE ROCK IS LARGER THAN
8 INCHES IN MAX DIAMETER



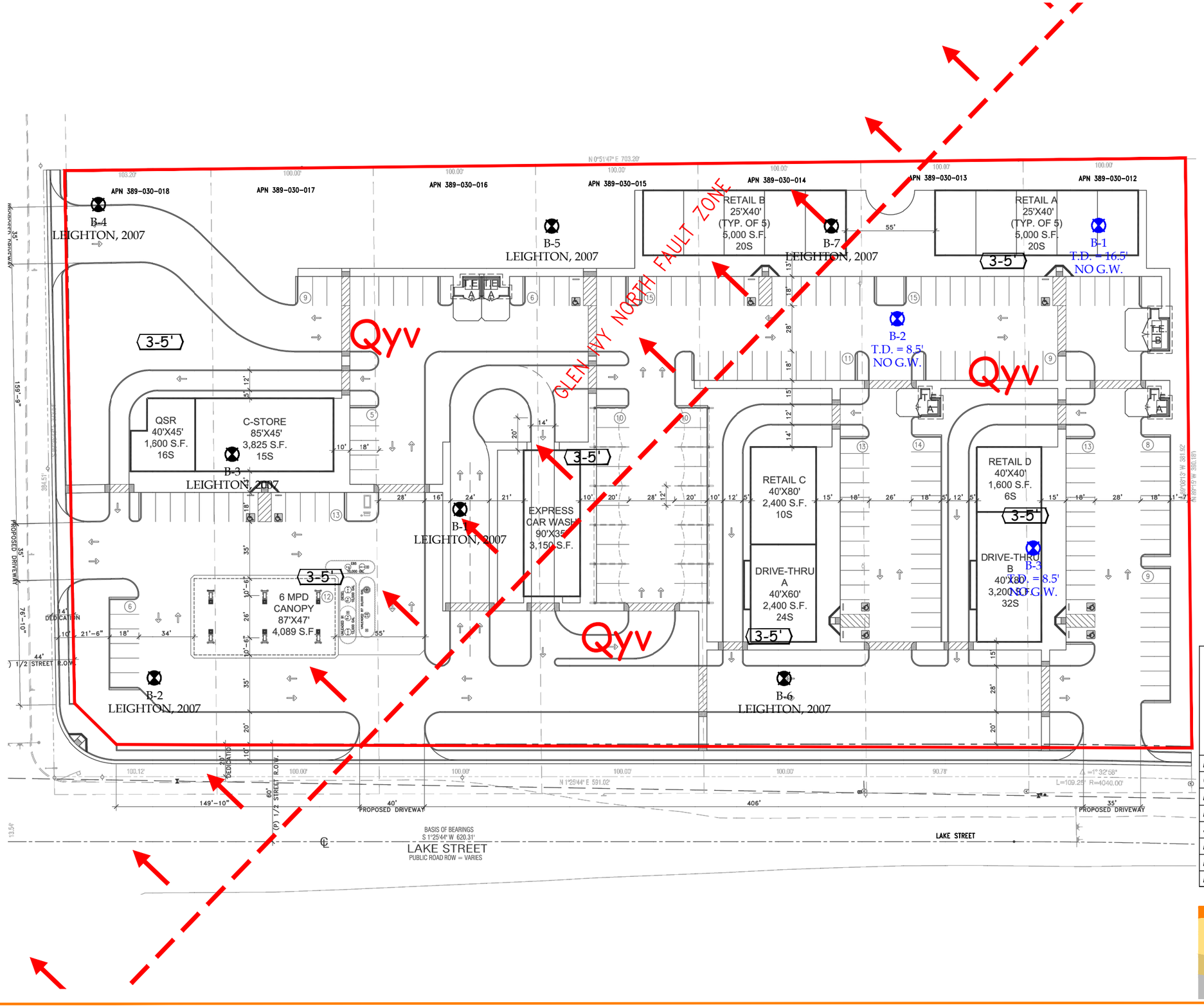
REFFERENCES: MAP MY COUNTY V8.1, https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC_Public

Earth - Strata, Inc.
Geotechnical, Environmental and Materials Testing Consultants
BETTER PEOPLE • BETTER SERVICE • BETTER RESULTS

PROPOSED COMMERCIAL DEVELOPMENT | 192805-10A

COUNTY FAULT MAP | SCALE: 1" = 100'

AUG 2019 | FIGURE 3



LEGEND

Locations are Approximate

Geologic Units

Qyv - Quaternary Young Valley Deposits

Symbols

- Limits of Report
- Northeast Extent of County Fault Zone For Glen Ivy North Fault
- B-3 T.D. = 8.5' NO G.W. — Boring Location, Including Total Depth and Depth to Groundwater
- B-7 LEIGHTON, 2007 — Boring Location, By Leighton Consulting, Inc. May 2007
- 3-5' — Recommended Removal Depths

North

GEOTECHNICAL MAP

LOCATED AT 28915 LAKE STREET

CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA

APN'S 389-030-012, -013, -014, -015, -016, 017 AND -018

PROJECT	***PROPOSED COMMERCIAL DEVELOPMENT***		
CLIENT	***EMPIRE DESIGN GROUP, INC.***		
PROJECT NO.	***192805-10A***		
DATE	***AUGUST 2019***		
SCALE	***1:60***		
DWG XREFS			
REVISION			
DRAWN BY	***JDG***	***PLATE***	***1 OF 1***

Earth Strata Geotechnical Services, Inc.

Geotechnical, Environmental and Materials Testing Consultants

www.ESGSINC.com (951) 397-8315

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Commercial Retail Lake Elsinore, C.1908033
Biofiltration with Underdrain
(pg.66 of Riverside LID Handbook)

$d_{E\_bio}(ft) = (dp+(0.3xds)+(I_{design}xT_{routing}))$ (ft) — Effective Depth

$d_{E\_bio}(ft) = (dp+(0.3xds)$ (ft) — Static Effiective Depth

$V_{biofiltered(with\ routing)} > 150\%$ of V_{BMP}

$V_{biofiltered\_static} > 0.75 \times V_{BMP}$

$V_{biofiltered} = d_{E\_bio\ (with\ routing)} \times A_{effective}$ — Biofiltratoin Volume

$V_{biofiltered\_static} = d_{E\_bio\_static} \times A_{effective}$ — Static Biofiltration Volume

dp =	12	in.	(6" to 12" max)
ds =	36	in.	(24" to 36" max)
dg =	18	in.	(12" to 18" max)
Idesign	2.5	in/hr	
Trouting =	5	hrs	

Rectangular Trench

DMA	DCV (ft^3)	d_{E_bio} (ft)	$d_{E\_bio\_static}$ (ft)	$V_{biofiltered}$ $(ft)^3$	$V_{biofiltered\_static}$ $(ft)^3$	$Area_{effective}$ $(ft)^2$	$Area_{effective\ static}$ $(ft)^2$
1	7900	1.9	1.20	11,850	5,925	6,237	4,938
2	11,000	1.9	1.20	16,500	8,250	8,684	6,875

(DCV based on 100 yr storm event)

3.6 Biofiltration Facility (no infiltration/limited infiltration)

Type of BMP	LID – Biofiltration
Priority Level	Priority 2 – Biofiltration without infiltration
Treatment Mechanisms	Evapotranspiration, Evaporation, Biofiltration
Infiltration Rate Range	Less than 0.1 in/hr (factored) or other feasibility criteria limits any amount of infiltration
Maximum Drainage Area	This BMP is intended to be integrated into a project's landscaped area in a distributed manner. Typically, contributing drainage areas to Bioretention Facilities range from less than 1 acre to a maximum of around 5 acres. For facilities treating larger drainage basins see Fact Sheet 3.7 for additional guidance on design of larger scale facilities.

Description

Biofiltration Facilities are shallow, vegetated basins that filter water through vegetation and engineered soil media prior to discharge via underdrain or overflow to the downstream conveyance system. Healthy plant and biological activity in the root zone maintain and renew the macro-pore space in the soil media and maximize plant uptake of pollutants and runoff. This can extend the time until the BMP clogs and allows more of the soil column to function as both a sponge (retaining water) and an effective biofilter.

Biofiltration Facilities are similar to Biofiltration with Partial Infiltration Facilities except Biofiltration Facilities are generally lined and include a shallower gravel underdrain layer. **This fact sheet is condensed to include only the design aspects and criteria that are different when designing biofiltration compared to biofiltration with partial infiltration**. The user should refer to the Biofiltration with Partial Infiltration Fact Sheet (3.5) and apply the criteria in that fact sheets with the exception of the differences below.

Differences from Biofiltration with Partial Infiltration

Infiltration constraints do not apply. There are no setbacks or considerations related to infiltration feasibility. Infiltration does not occur in appreciable amounts in these facilities.

Underdrain placement and gravel depth is similar to biofiltration with partial infiltration, but for different purposes. These systems should still include a gravel layer of 12 to 18 inches below the underdrain discharge elevation wherever the system discharges to a nutrient-impaired water body. (This applies to all projects in Santa Margarita Watershed). This sump serves to promote nitrogen removal. This can be achieved with an upturned elbow on the outlet. Alternative outlet configurations are acceptable at the discretion of the local jurisdiction.

Planter box configuration is allowed. Biofiltration Facilities that do not include infiltration can also be placed above ground as planter boxes. Planter boxes must have a minimum width of 2 feet, a maximum surcharge depth of 12 inches. No side slopes are necessary. Planter boxes must be constructed so as to ensure that the top surface of the engineered soil media will remain level. This option may be constructed of concrete, brick, stone or other stable materials that will not warp or bend. Chemically treated wood or galvanized steel, which has the ability to contaminate stormwater, should not be used. Planter boxes must be lined with an impermeable liner on all sides, including the bottom. Other general criteria for design are the same as biofiltration with partial infiltration.



Figure 1: Planter Box

Use of proprietary devices as biofiltration BMPs may be allowed. Approved proprietary biofiltration devices may be classified as Biofiltration facilities . Proprietary biofiltration facilities are small footprint, manufactured devices that have been designed to provide biofiltration treatment through the use of high filtration rate media. Proprietary biofiltration BMPs can be considered equivalent to standard biofiltration facilities for the "no infiltration" feasibility condition. See Section 2.3.7 of the 2018 WQMP for approval requirements. Separate sizing methods, maintenance requirements, and design criteria may apply to proprietary biofiltration BMPs.

Sizing calculations are similar, but do not include the infiltration compartment. Because there is no volume retained via infiltration in these facilities, sizing methods differ.

Biofiltration Sizing and Design Procedure

Biofiltration Facilities provide treatment through biofiltration and do not provide appreciable retention (though a minor amount is possible via evapotranspiration). The sizing and design procedure is presented below:

1) Enter the area tributary, A_T, to the Bioretention Facility.

2) Enter the required Design Volume, V_{BMP} (also referred to as DCV) determined from Section 2.1 of this Handbook.

3) Enter the estimated footprint for the BMP (use available space or default of 3% of contributing impervious surface area). **This is the effective footprint of the BMP.** It is measured at the mid ponding depth of the BMP. For example, if the BMP has a ponding depth of 12 inches, then effective footprint is the wetted surface area when the BMP is holding 6 inches of ponded water. For systems with vertical walls, the effective area is the same as the total area.

4) Enter the depth of surface ponding layer, d_p. The minimum depth of surface ponding layer can be 6" so that the runoff is uniformly spread throughout the basin. The maximum depth can be 12".

5) Enter the depth of the engineered soil media, d_S. The recommended minimum depth is 24". A depth of 36" is preferred to provide an enhanced root zone. Engineered soil media deeper than 36" will only get credit for the pore space in the first 36".

6) Enter the design media filtration rate of the media (I_{design}) of 2.5 in/hr to be used for sizing. Actual installed filtration rate may be higher.

7) Enter the allowable routing period ($T_{routing}$) of 5 hours. Routing period is estimated based on the 15th percentile storm duration for storms similar to 85th percentile rainfall depth at the Temecula gage.

8) Calculate the effective biofiltration depth, d_{E_bio}. The effective depth of biofiltration is calculated as:

$$d_{E\_bio}\,(ft) = (d_P + (0.3 \times d_S) + (I_{design} \times T_{routing}))\,(ft)$$

The internal gravel storage is permanently saturated in this design and should not be considered in this calculation. The effective biofiltration storage should only include the storage above the discharge elevation of the underdrain. The maximum allowable pore space of the soil media is 30%. This calculation accounts for water biofiltered during the event.

9) Calculate the effective ***static*** biofiltration depth, $d_{E\_bio\_static}$, within the Biofiltration with Facility. The effective depth of biofiltration storage is calculated as:

$$d_{E\_bio\_static}\,(ft) = (d_P + (0.3 \times d_S)\,(ft)$$

This is similar to the effective biofiltration depth above, but does not include the depth infiltrated during the storm event.

10) Calculate the amount of $V_{biofiltered}$ and $V_{biofiltered\_static}$

$$V_{biofiltered} = d_{E\_bio\ (with\ routing)} \times A_{effective}$$

$$V_{biofiltered\_static} = d_{E\_bio\_static} \times A_{effective}$$

11) Compare the results of above to the required biofiltration volume. There are two options for demonstrating conformance:

a) $V_{biofiltered\ (with\ routing)} > 150\%$ of V_{BMP}

OR

b) $V_{biofiltered\_static} > 0.75 \times V_{BMP}$

Both calculations assume that no portion of the V_{BMP} is retained. This is slightly conservative as it does not account for soil soaking and drying. But soil pores are credited as biofiltration volume. This simplification has negligible effect.

12) If neither of these criteria are met, then return to Step 3, increase the footprint and rerun calculations. This calculation is inherently iterative.

13) Verify that side slopes are no steeper than 4:1 in the standard design, and are not required in the modified design. Demonstrate that the assumed effective area is provided at the mid ponding contour of the BMP.

14) Provide the diameter, minimum 6 inches, of the perforated underdrain used in the Biofiltration Facility. See Appendix B for specific information regarding perforated pipes.

15) Provide the slope within the Biofiltration with Partial Infiltration Facility, if used. The maximum slope is 3 percent for a standard design.

16) Provide the check dam spacing, the Biofiltration with Partial Infiltration Facility is sloped.

17) Describe the vegetation used within the Biofiltration Facility.

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ A. **On-site storm drain inlets**	☒ **Locations of inlets.**	☒ **Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.**	☒ **Maintain and periodically repaint or replace inlet markings.** ☒ **Provide stormwater pollution prevention information to new site owners, lessees, or operators.** ☒ **See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** ☒ **Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."**
☐ B. **Interior floor drains and elevator shaft sump pumps**		☐ **State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.**	☐ **Inspect and maintain drains to prevent blockages and overflow.**
☐ C. **Interior parking garages**		☐ **State that parking garage floor drains will be plumbed to the sanitary sewer.**	☐ **Inspect and maintain drains to prevent blockages and overflow.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ D1. **Need for future indoor & structural pest control**		☐ **Note building design features that discourage entry of pests.**	☐ **Provide Integrated Pest Management information to owners, lessees, and operators.**
☒ D2. **Landscape/ Outdoor Pesticide Use**	☒ **Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.** ☒ **Show self-retaining landscape areas, if any.** ☐ **Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)**	**State that final landscape plans will accomplish all of the following.** ☒ **Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.** ☒ **Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.** ☒ **Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.** ☒ **Consider using pest-resistant plants, especially adjacent to hardscape.** **To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.**	☒ **Maintain landscaping using minimum or no pesticides.** ☒ **See applicable operational BMPs in "What you should know for…..Landscape and Gardening"** at http://rcflood.org/stormwater/**Error! Hyperlink reference not valid.** ☒ **Provide IPM information to new owners, lessees and operators.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ E. **Pools, spas, ponds, decorative fountains, and other water features.**	❑ **Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)**	**If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.**	❑ **See applicable operational BMPs in "**Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
❑ F. **Food service**	❑ **For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment.** ❑ **On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.**	❑ **Describe the location and features of the designated cleaning area.** ❑ **Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.**	❑ **See the brochure, "**The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ **Provide this brochure to new site owners, lessees, and operators.**
❑ G. **Refuse areas**	❑ **Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas.** ❑ **If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area.** ❑ **Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.**	❑ **State how site refuse will be handled and provide supporting detail to what is shown on plans.** ❑ **State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.**	❑ **State how the following will be implemented:** **Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ H. **Industrial processes.**	❑ **Show process area.**	❑ **If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."**	❑ **See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ I. **Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)**	❑ **Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.** ❑ **Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.** ❑ **Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.**	**Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.** **Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:** ▪ **Hazardous Waste Generation** ▪ **Hazardous Materials Release Response and Inventory** ▪ **California Accidental Release (CalARP)** ▪ **Aboveground Storage Tank** ▪ **Uniform Fire Code Article 80 Section 103(b) & (c) 1991** ▪ **Underground Storage Tank** www.cchealth.org/groups/hazmat/	❑ **See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ J. **Vehicle and Equipment Cleaning**	❑ **Show on drawings as appropriate:** **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	❑ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.**	**Describe operational measures to implement the following (if applicable):** ❑ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ❑**Car dealerships and similar may rinse cars with water only.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ K. **Vehicle/Equipment Repair and Maintenance**	❑ **Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.** ❑ **Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.** ❑ **Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.**	❑ **State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.** ❑ **State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.** ❑ **State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.**	**In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:** ❑ **No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.** ❑ **No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.** ❑ **No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.** Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ L. **Fuel Dispensing Areas**	❑ **Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.** ❑ **Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.**		❑ **The property owner shall dry sweep the fueling area routinely.** ❑ **See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

[6] **The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ M. **Loading Docks**	❑ **Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer.** ❑ **Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.** ❑ **Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.**		❑ **Move loaded and unloaded items indoors as soon as possible.** ❑ **See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ N. **Fire Sprinkler Test Water**		❑ **Provide a means to drain fire sprinkler test water to the sanitary sewer.**	❑ **See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**
O. **Miscellaneous Drain or Wash Water or Other Sources** ❑ **Boiler drain lines** ❑ **Condensate drain lines** ❑ **Rooftop equipment** ❑ **Drainage sumps** ❑ **Roofing, gutters, and trim.** ❑ **Other sources**		❑ **Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.** ❑ **Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.** ❑ **Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.** ❑ **Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.** ❑ **Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.** **Include controls for other sources as specified by local reviewer.**	

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☑ P. **Plazas, sidewalks, and parking lots.**			☑ **Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.**

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Lake Elsinore Commercial Retail

Nwc Mountain St. & Lake St., Lake Elsinore, Ca 92539

Book 12, page 23 of maps, records of Riverside County, Califirnia

REQUIRED PERMITS

This section must list any permits required for the implementation, operation, and maintenance of the BMPs. Possible examples are:

- Permits for connection to sanitary sewer
- Permits from California Department of Fish and Game
- Encroachment permits

If no permits are required, a statement to that effect should be made.

RECORDKEEPING

All records must be made available for review upon request.

RESPONSIBLE PARTY

The owner is aware of the maintenance responsibilities of the proposed BMPs. A funding mechanism is in place to maintain the BMPs at the frequency stated in the LID Plan. The contact information for the entity responsible is below:

Name:	Gregory S. Hann
Company:	Empire Design Group, Inc.
Title:	President
Address 1:	24861 Washington Avenue Murrieta CA 92562
Address 2:	
Phone Number:	(951) 696-1490
Email:	ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Non-Structural Source Control BMPs			
Education for Property Owners, Tenants and Occupants	For developments with no Property Owners Association (POA) or with POAs of less than fifty (50) dwelling units, practical information materials will be provided to the first residents/occupants/tenants on general housekeeping practices that contribute to the protection of stormwater quality. These materials will be initially developed and provided to first residents/occupants/tenants by the developer. Thereafter such materials will be available through the Permittees" education program. Different materials for residential, office commercial, retail commercial, vehicle-related commercial and industrial uses will be developed. Brief employee with the maintenance and monitoring of all BMPs. Orientation and training shall be provided to new owners, employees, tenants and contractors.	Ongoing.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Activity Restriction	If a POA is formed, conditions, covenants and restrictions (CCRs) must be prepared by the developer for the purpose of surface water quality protection. An example would be not allowing car washing outside of established community car wash areas in multi-unit complexes. Alternatively, use restrictions may be developed by a building operator through lease terms, etc. These restrictions must be included in the Project SUSMP Report. Prohibit maintenance & washing of vehicles, outdoor storage of materials, unlabeled containers, loading/unloading of materials that may come in contact with stormwater.	Orientation and training shall be provided to new owners, employees, tenants and contractors. Ongoing.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Common Area Landscape Management	Identify on-going landscape maintenance requirements that are consistent with those in the County Water Conservation Resolution (or city equivalent) that include fertilizer and/or pesticide usage consistent with Management Guidelines for Use of Fertilizers. Remove dead leaves, tree trunks, etc. Remove and replace plants that are showing signs of dying.	Inspect and maintain landscape areas on regular basis.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Common Area Litter Control	For industrial/commercial developments and for developments with POAs, the owner/POA should be required to implement trash management and litter control procedures in the common areas aimed at reducing pollution of drainage water. The owner/POA may contract with their landscape maintenance firms to provide this service during regularly scheduled maintenance, which should consist of litter patrol, emptying of trash receptacles in common areas, and noting trash disposal violations by tenants/homeowners or businesses and reporting the violations to the owner/POA for investigation.	Provide this service during regularly scheduled maintenance, which should consist of litter patrol, emptying of trash receptacles in common areas, and noting trash disposal violations. Every two weeks.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
BMP Maintenance	The Project SUSMP shall identify responsibility for implementation of each non-structural BMP and scheduled cleaning and/or maintenance of all structural BMP facilities. Identify responsibility for implementation of each non-structural BMP and scheduled cleaning and/or maintenance of all structural BMP facilities.	Ongoing.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Uniform Fire Code Implementation	Compliance with Article 80 of the Uniform Fire Code enforced by fire protection agency. Facility shall be in compliance with Article 80 of the Uniform Fire Code enforced by fire protection agency. The classification of hazards for chemicals stored, used, and handled at this facility is required to ensure that proper types of fire and life safety protection systems and procedures are in place at all times.	Orientation and training shall be provided to new owners, employees, tenants and contractors about flammable materials and products. Ongoing.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Common Area Litter Control	For industrial/commercial developments and for developments with POAs, the owner/POA should be required to implement trash management and litter control procedures in the common areas aimed at reducing pollution of drainage water. The owner/POA may contract with their landscape maintenance firms to provide this service during regularly scheduled maintenance, which should consist of litter patrol, emptying of trash receptacles in common areas, and noting trash disposal violations by tenants/homeowners or businesses and reporting the violations to the owner/POA for investigation.	Provide this service during regularly scheduled maintenance, which should consist of litter patrol, emptying of trash receptacles in common areas, and noting trash disposal violations. Every two weeks.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Employee Training	Education program (see N1) as it would apply to future employees of individual businesses. Developer either prepares manual(s) for initial purchasers of business site or for development that is constructed for an unspecified use makes commitment on behalf of POA or future business owner to prepare. An example would be training on the proper storage and use of fertilizers and pesticides, or training on the implementation of hazardous spill contingency plans. Train all employees, management, office, yard, manufacturing, field and clerical in BMPs and pollution prevention and make them aware of the maintenance procedures and requirements of all BMPs.	Orientation and training shall be provided to new owners, employees, tenants and contractors. Within 6 months after occupancy and annually thereafter.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Common Area Catch Basin Inspection	For industrial/commercial developments and for developments with privately maintained drainage systems, the owner is required to have at least 80 percent of drainage facilities inspected, cleaned and maintained on an annual basis with 100 percent of the facilities included in a two-year period. Cleaning should take place in the late summer/early fall prior to the start of the rainy season. Drainage facilities include catch basins (storm drain inlets) detention basins, retention basins, sediment basins, open drainage channels and lift stations. Records should be kept to document the annual maintenance.	Inspect annually, clean at minimum, prior to October 1st or more often as needed when debris is present. All drainage facilities inspected, cleaned and maintained after every storm events. Remove debris and garbage to avoid clogging of the storm drain system.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Street Sweeping Private Streets and Parking Lots	Streets and parking lots are required to be swept prior to the storm season, in late summer or early fall, prior to the start of the rainy season or equivalent as required by the governing jurisdiction. Prevent soil from being washed onto pavement and keep landscape areas well maintained. Vacuum/Pressure- wash clogged surfaces. Clean and remove trash, debris and washed out soil from the pavement surface and along gutter flow lines.	Every two weeks and once before October 1st.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Non-Storm Water Discharges	Train employees to identify non-stormwater discharges and report them to appropriate departments.	Nuisance water and spills to be removed on regular basis. No standing water is allowed in more than 48 hrs. Daily or as needed.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Waste Handling & Disposal	Post "No Littering" signs and enforce anti-litter laws. Keep waste collection areas clean.	Daily or as needed.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Building & Grounds Maintenance	Prevent soil from being washed onto pavement and keep landscape areas well maintained inspect pavement at least twice per year. Inspect outlets annually. Vacuum/Pressure wash clogged surfaces.	Weekly or as needed.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Parking/Storage Area Maintenance	Keep parking and storage areas clean and orderly. Remove debris in a timely fashion. Have designated personnel conduct inspections of the parking facilities and stormwater conveyance systems associated with them on a regular basis.	Weekly or as needed.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Drainage System Maintenance	Staff regularly inspect facilities to ensure compliance with standard practices for immediate repair of drainage devices. Check legibility of stencils and signs.	At least three times per year or as needed.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Housekeeping Practices	Keep work sites clean and orderly. Remove debris in a timely fashion. Sweep the area on regular basis.	Daily or as needed.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Provide Storm Drain System Stenciling and Signage	Post signs, with language and/or graphical icons that prohibit illegal dumping, at designated public access points along channels and streams within the project area. Storm drain message markers, concrete stamps, or stenciling language/icons are required at all storm drain inlets and catch basins within project area. Maintain legibility and visibility of markers by repainting or replacing as necessary.	As needed.	Responsible Party: Empire Design Group, Inc Gregory S. Hann 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Use Efficient Irrigation Systems & Landscape Design	Equipment-water sensors, irrigation heads and timing-inspection on a monthly basis.	Monthly basis.	Responsible Party: Empire Design Group, Inc TBD 24861 Washington Avenue Murrieta CA 92562 (951) 696-1490 ghann@empiregr.biz
Treatment Control BMPs			

BMP Name	BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Biofiltration with Underdrain **TC-32**	**Maintain vegetation as needed. Use of fertilizers, pesticides and herbicides should be strenuously avoided to ensure they do not contribute to water pollution. If appropriate native plant selections and other IPM methods are used, such products should not be needed.** **Remove debris and litter from the entire basin to minimize clogging and improve aesthetics.** **No water should be present 72 hours after an event. No long-term standing water should be present at all. No algae formation should be visible. Correct problem as needed.**	**As Needed and 72 hours after a major storm event.**	**Responsible Party:** **Empire Design Group, Inc** **TBD** **24861 Washington Avenue** **Murrieta CA 92562** **(951) 696-1490** **ghann@empiregr.biz**

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

Bioretention TC-32



Design Considerations

- Soil for Infiltration
- Tributary Area
- Slope
- Aesthetics
- Environmental Side-effects

Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through buffer strip and subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

Targeted Constituents

☑	Sediment	■
☑	Nutrients	▲
☑	Trash	■
☑	Metals	■
☑	Bacteria	■
☑	Oil and Grease	■
☑	Organics	■

Legend ***(Removal Effectiveness)***

- ● Low
- ▲ Medium
- ■ High

California Experience

None documented. Bioretention has been used as a stormwater BMP since 1992. In addition to Prince George's County, MD and Alexandria, VA, bioretention has been used successfully at urban and suburban areas in Montgomery County, MD; Baltimore County, MD; Chesterfield County, VA; Prince William County, VA; Smith Mountain Lake State Park, VA; and Cary, NC.

Advantages

- Bioretention provides stormwater treatment that enhances the quality of downstream water bodies by temporarily storing runoff in the BMP and releasing it over a period of four days to the receiving water (EPA, 1999).
- The vegetation provides shade and wind breaks, absorbs noise, and improves an area's landscape.

Limitations

- The bioretention BMP is not recommended for areas with slopes greater than 20% or where mature tree removal would

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be required since clogging may result, particularly if the BMP receives runoff with high sediment loads (EPA, 1999).

- Bioretention is not a suitable BMP at locations where the water table is within 6 feet of the ground surface and where the surrounding soil stratum is unstable.
- By design, bioretention BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water.
- In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

Design and Sizing Guidelines

- The bioretention area should be sized to capture the design storm runoff.
- In areas where the native soil permeability is less than 0.5 in/hr an underdrain should be provided.
- Recommended minimum dimensions are 15 feet by 40 feet, although the preferred width is 25 feet. Excavated depth should be 4 feet.
- Area should drain completely within 72 hours.
- Approximately 1 tree or shrub per 50 ft^2 of bioretention area should be included.
- Cover area with about 3 inches of mulch.

Construction/Inspection Considerations

Bioretention area should not be established until contributing watershed is stabilized.

Performance

Bioretention removes stormwater pollutants through physical and biological processes, including adsorption, filtration, plant uptake, microbial activity, decomposition, sedimentation and volatilization (EPA, 1999). Adsorption is the process whereby particulate pollutants attach to soil (e.g., clay) or vegetation surfaces. Adequate contact time between the surface and pollutant must be provided for in the design of the system for this removal process to occur. Thus, the infiltration rate of the soils must not exceed those specified in the design criteria or pollutant removal may decrease. Pollutants removed by adsorption include metals, phosphorus, and hydrocarbons. Filtration occurs as runoff passes through the bioretention area media, such as the sand bed, ground cover, and planting soil.

Common particulates removed from stormwater include particulate organic matter, phosphorus, and suspended solids. Biological processes that occur in wetlands result in pollutant uptake by plants and microorganisms in the soil. Plant growth is sustained by the uptake of nutrients from the soils, with woody plants locking up these nutrients through the seasons. Microbial activity within the soil also contributes to the removal of nitrogen and organic matter. Nitrogen is removed by nitrifying and denitrifying bacteria, while aerobic bacteria are responsible for the decomposition of the organic matter. Microbial processes require oxygen and can result in depleted oxygen levels if the bioretention area is not adequately

aerated. Sedimentation occurs in the swale or ponding area as the velocity slows and solids fall out of suspension.

The removal effectiveness of bioretention has been studied during field and laboratory studies conducted by the University of Maryland (Davis et al, 1998). During these experiments, synthetic stormwater runoff was pumped through several laboratory and field bioretention areas to simulate typical storm events in Prince George's County, MD. Removal rates for heavy metals and nutrients are shown in Table 1.

Table 1 Laboratory and Estimated Bioretention Davis et al. (1998); PGDER (1993)

Pollutant	Removal Rate
Total Phosphorus	70-83%
Metals (Cu, Zn, Pb)	93-98%
TKN	68-80%
Total Suspended Solids	90%
Organics	90%
Bacteria	90%

Results for both the laboratory and field experiments were similar for each of the pollutants analyzed. Doubling or halving the influent pollutant levels had little effect on the effluent pollutants concentrations (Davis et al, 1998).

The microbial activity and plant uptake occurring in the bioretention area will likely result in higher removal rates than those determined for infiltration BMPs.

Siting Criteria

Bioretention BMPs are generally used to treat stormwater from impervious surfaces at commercial, residential, and industrial areas (EPA, 1999). Implementation of bioretention for stormwater management is ideal for median strips, parking lot islands, and swales. Moreover, the runoff in these areas can be designed to either divert directly into the bioretention area or convey into the bioretention area by a curb and gutter collection system.

The best location for bioretention areas is upland from inlets that receive sheet flow from graded areas and at areas that will be excavated (EPA, 1999). In order to maximize treatment effectiveness, the site must be graded in such a way that minimizes erosive conditions as sheet flow is conveyed to the treatment area. Locations where a bioretention area can be readily incorporated into the site plan without further environmental damage are preferred. Furthermore, to effectively minimize sediment loading in the treatment area, bioretention only should be used in stabilized drainage areas.

Additional Design Guidelines

The layout of the bioretention area is determined after site constraints such as location of utilities, underlying soils, existing vegetation, and drainage are considered (EPA, 1999). Sites with loamy sand soils are especially appropriate for bioretention because the excavated soil can be backfilled and used as the planting soil, thus eliminating the cost of importing planting soil.

The use of bioretention may not be feasible given an unstable surrounding soil stratum, soils with clay content greater than 25 percent, a site with slopes greater than 20 percent, and/or a site with mature trees that would be removed during construction of the BMP.

Bioretention can be designed to be off-line or on-line of the existing drainage system (EPA, 1999). The drainage area for a bioretention area should be between 0.1 and 0.4 hectares (0.25 and 1.0 acres). Larger drainage areas may require multiple bioretention areas. Furthermore, the maximum drainage area for a bioretention area is determined by the expected rainfall intensity and runoff rate. Stabilized areas may erode when velocities are greater than 5 feet per second (1.5 meter per second). The designer should determine the potential for erosive conditions at the site.

The size of the bioretention area, which is a function of the drainage area and the runoff generated from the area is sized to capture the water quality volume.

The recommended minimum dimensions of the bioretention area are 15 feet (4.6 meters) wide by 40 feet (12.2 meters) long, where the minimum width allows enough space for a dense, randomly-distributed area of trees and shrubs to become established. Thus replicating a natural forest and creating a microclimate, thereby enabling the bioretention area to tolerate the effects of heat stress, acid rain, runoff pollutants, and insect and disease infestations which landscaped areas in urban settings typically are unable to tolerate. The preferred width is 25 feet (7.6 meters), with a length of twice the width. Essentially, any facilities wider than 20 feet (6.1 meters) should be twice as long as they are wide, which promotes the distribution of flow and decreases the chances of concentrated flow.

In order to provide adequate storage and prevent water from standing for excessive periods of time the ponding depth of the bioretention area should not exceed 6 inches (15 centimeters). Water should not be left to stand for more than 72 hours. A restriction on the type of plants that can be used may be necessary due to some plants' water intolerance. Furthermore, if water is left standing for longer than 72 hours mosquitoes and other insects may start to breed.

The appropriate planting soil should be backfilled into the excavated bioretention area. Planting soils should be sandy loam, loamy sand, or loam texture with a clay content ranging from 10 to 25 percent.

Generally the soil should have infiltration rates greater than 0.5 inches (1.25 centimeters) per hour, which is typical of sandy loams, loamy sands, or loams. The pH of the soil should range between 5.5 and 6.5, where pollutants such as organic nitrogen and phosphorus can be adsorbed by the soil and microbial activity can flourish. Additional requirements for the planting soil include a 1.5 to 3 percent organic content and a maximum 500 ppm concentration of soluble salts.

Soil tests should be performed for every 500 cubic yards (382 cubic meters) of planting soil, with the exception of pH and organic content tests, which are required only once per bioretention area (EPA, 1999). Planting soil should be 4 inches (10.1 centimeters) deeper than the bottom of the largest root ball and 4 feet (1.2 meters) altogether. This depth will provide adequate soil for the plants' root systems to become established, prevent plant damage due to severe wind, and provide adequate moisture capacity. Most sites will require excavation in order to obtain the recommended depth.

Planting soil depths of greater than 4 feet (1.2 meters) may require additional construction practices such as shoring measures (EPA, 1999). Planting soil should be placed in 18 inches or greater lifts and lightly compacted until the desired depth is reached. Since high canopy trees may be destroyed during maintenance the bioretention area should be vegetated to resemble a terrestrial forest community ecosystem that is dominated by understory trees. Three species each of both trees and shrubs are recommended to be planted at a rate of 2500 trees and shrubs per hectare (1000 per acre). For instance, a 15 foot (4.6 meter) by 40 foot (12.2 meter) bioretention area (600 square feet or 55.75 square meters) would require 14 trees and shrubs. The shrub-to-tree ratio should be 2:1 to 3:1.

Trees and shrubs should be planted when conditions are favorable. Vegetation should be watered at the end of each day for fourteen days following its planting. Plant species tolerant of pollutant loads and varying wet and dry conditions should be used in the bioretention area.

The designer should assess aesthetics, site layout, and maintenance requirements when selecting plant species. Adjacent non-native invasive species should be identified and the designer should take measures, such as providing a soil breach to eliminate the threat of these species invading the bioretention area. Regional landscaping manuals should be consulted to ensure that the planting of the bioretention area meets the landscaping requirements established by the local authorities. The designers should evaluate the best placement of vegetation within the bioretention area. Plants should be placed at irregular intervals to replicate a natural forest. Trees should be placed on the perimeter of the area to provide shade and shelter from the wind. Trees and shrubs can be sheltered from damaging flows if they are placed away from the path of the incoming runoff. In cold climates, species that are more tolerant to cold winds, such as evergreens, should be placed in windier areas of the site.

Following placement of the trees and shrubs, the ground cover and/or mulch should be established. Ground cover such as grasses or legumes can be planted at the beginning of the growing season. Mulch should be placed immediately after trees and shrubs are planted. Two to 3 inches (5 to 7.6 cm) of commercially-available fine shredded hardwood mulch or shredded hardwood chips should be applied to the bioretention area to protect from erosion.

Maintenance

The primary maintenance requirement for bioretention areas is that of inspection and repair or replacement of the treatment area's components. Generally, this involves nothing more than the routine periodic maintenance that is required of any landscaped area. Plants that are appropriate for the site, climatic, and watering conditions should be selected for use in the bioretention cell. Appropriately selected plants will aide in reducing fertilizer, pesticide, water, and overall maintenance requirements. Bioretention system components should blend over time through plant and root growth, organic decomposition, and the development of a natural

soil horizon. These biologic and physical processes over time will lengthen the facility's life span and reduce the need for extensive maintenance.

Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation (EPA, 1999). Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible. BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of water standing and subsequent vector production if not routinely maintained.

In order to maintain the treatment area's appearance it may be necessary to prune and weed. Furthermore, mulch replacement is suggested when erosion is evident or when the site begins to look unattractive. Specifically, the entire area may require mulch replacement every two to three years, although spot mulching may be sufficient when there are random void areas. Mulch replacement should be done prior to the start of the wet season.

New Jersey's Department of Environmental Protection states in their bioretention systems standards that accumulated sediment and debris removal (especially at the inflow point) will normally be the primary maintenance function. Other potential tasks include replacement of dead vegetation, soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the underdrain, and repairing overflow structures. There is also the possibility that the cation exchange capacity of the soils in the cell will be significantly reduced over time. Depending on pollutant loads, soils may need to be replaced within 5-10 years of construction (LID, 2000).

Cost

Construction Cost

Construction cost estimates for a bioretention area are slightly greater than those for the required landscaping for a new development (EPA, 1999). A general rule of thumb (Coffman, 1999) is that residential bioretention areas average about $3 to $4 per square foot, depending on soil conditions and the density and types of plants used. Commercial, industrial and institutional site costs can range between $10 to $40 per square foot, based on the need for control structures, curbing, storm drains and underdrains.

Retrofitting a site typically costs more, averaging $6,500 per bioretention area. The higher costs are attributed to the demolition of existing concrete, asphalt, and existing structures and the replacement of fill material with planting soil. The costs of retrofitting a commercial site in Maryland, Kettering Development, with 15 bioretention areas were estimated at $111,600.

In any bioretention area design, the cost of plants varies substantially and can account for a significant portion of the expenditures. While these cost estimates are slightly greater than those of typical landscaping treatment (due to the increased number of plantings, additional soil excavation, backfill material, use of underdrains etc.), those landscaping expenses that would be required regardless of the bioretention installation should be subtracted when determining the net cost.

Perhaps of most importance, however, the cost savings compared to the use of traditional structural stormwater conveyance systems makes bioretention areas quite attractive financially. For example, the use of bioretention can decrease the cost required for constructing stormwater conveyance systems at a site. A medical office building in Maryland was able to reduce the amount of storm drain pipe that was needed from 800 to 230 feet - a cost savings of $24,000 (PGDER, 1993). And a new residential development spent a total of approximately $100,000 using bioretention cells on each lot instead of nearly $400,000 for the traditional stormwater ponds that were originally planned (Rappahanock,). Also, in residential areas, stormwater management controls become a part of each property owner's landscape, reducing the public burden to maintain large centralized facilities.

Maintenance Cost

The operation and maintenance costs for a bioretention facility will be comparable to those of typical landscaping required for a site. Costs beyond the normal landscaping fees will include the cost for testing the soils and may include costs for a sand bed and planting soil.

References and Sources of Additional Information

Coffman, L.S., R. Goo and R. Frederick, 1999: Low impact development: an innovative alternative approach to stormwater management. Proceedings of the 26th Annual Water Resources Planning and Management Conference ASCE, June 6-9, Tempe, Arizona.

Davis, A.P., Shokouhian, M., Sharma, H. and Minami, C., "Laboratory Study of Biological Retention (Bioretention) for Urban Stormwater Management," ***Water Environ. Res***., 73(1), 5-14 (2001).

Davis, A.P., Shokouhian, M., Sharma, H., Minami, C., and Winogradoff, D. "Water Quality Improvement through Bioretention: Lead, Copper, and Zinc," ***Water Environ. Res***., accepted for publication, August 2002.

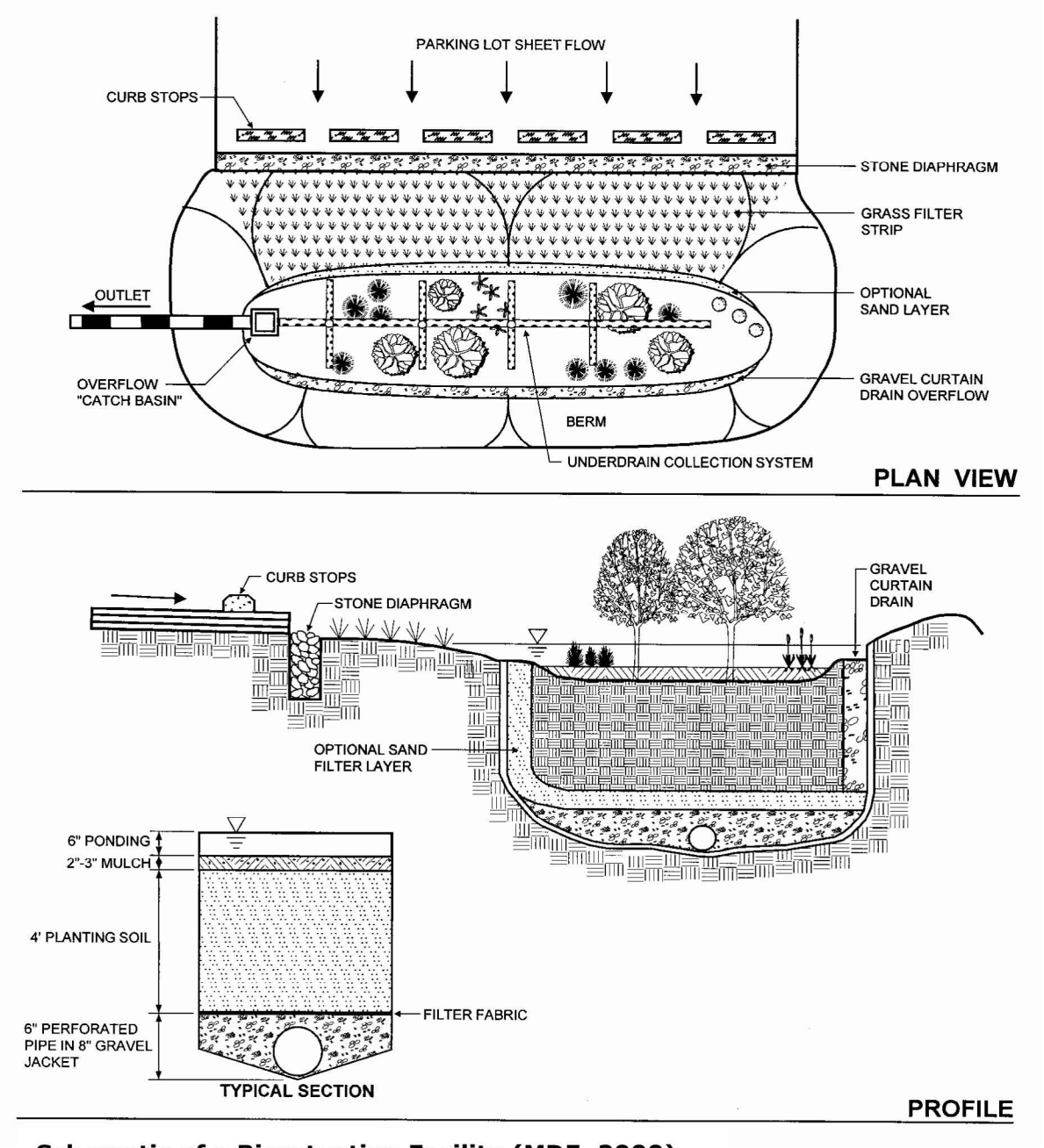
Kim, H., Seagren, E.A., and Davis, A.P., "Engineered Bioretention for Removal of Nitrate from Stormwater Runoff," ***WEFTEC 2000 Conference Proceedings on CDROM Research Symposium, Nitrogen Removal***, Session 19, Anaheim CA, October 2000.

Hsieh, C.-h. and Davis, A.P. "Engineering Bioretention for Treatment of Urban Stormwater Runoff," ***Watersheds 2002, Proceedings on CDROM Research Symposium***, Session 15, Ft. Lauderdale, FL, Feb. 2002.

Prince George's County Department of Environmental Resources (PGDER), 1993. Design Manual for Use of ***Bioretention in Stormwater Management***. Division of Environmental Management, Watershed Protection Branch. Landover, MD.

U.S. EPA Office of Water, 1999. Stormwater Technology Fact Sheet: Bioretention. EPA 832-F-99-012.

Weinstein, N. Davis, A.P. and Veeramachaneni, R. "Low Impact Development (LID) Stormwater Management Approach for the Control of Diffuse Pollution from Urban Roadways," ***5th International Conference Diffuse/Nonpoint Pollution and Watershed Management Proceedings***, C.S. Melching and Emre Alp, Eds. 2001 International Water Association



Schematic of a Bioretention Facility (MDE, 2000)

Appendix K

Preliminary Hydrology Study

PRELIMINARY
HYDROLOGY STUDY

FOR

Commercial Retail Lake Elsinore

NWC Mountain St. & Lake St.,
Lake Elsinore, CA 92530

Prepared By:
PLUMP ENGINEERING, INC.
914 E. Katella Avenue
Anaheim, CA 92805

This Drainage Report was prepared under my supervision:

By: _____ Date: 10/04/2019

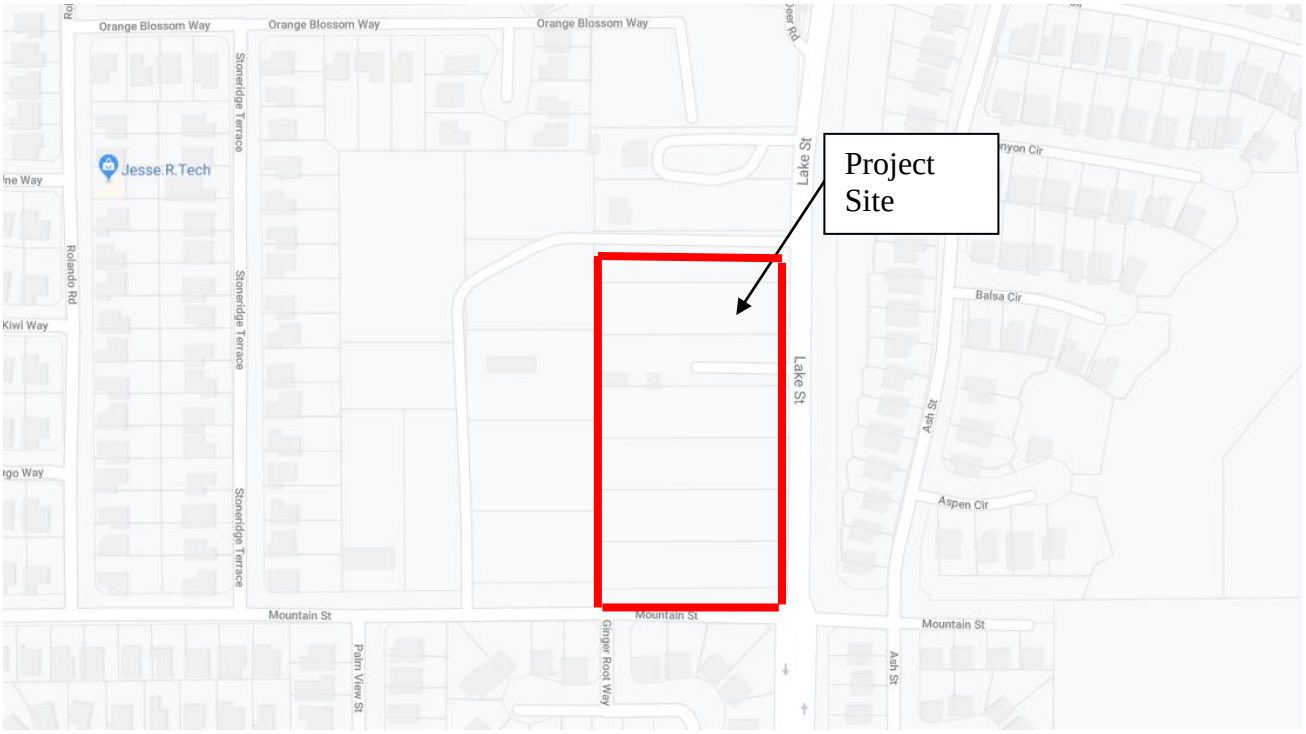
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INTRODUCTION

The site is located at the northwest corner of the intersection of Mountain Street and Lake Street in the City of Lake Elsinore, California 92530. The site is bounded to the west by undeveloped lot, to the north by a private property, to the east by Lake Street and to the south by Mountain Street. The general location of the site is shown on the Site Vicinity Map included on page 2 this report. The subject site is a rectangular shaped, Property size is approximately 5.630± acres with disturbed area of 5.630± acres, presently vacant and undeveloped. Ground surface cover consists of sparse amounts of native grass and weed growth located at the entire site. Overhead electrical power lines are located along the western and southern perimeter of the property. Overall site topography slopes downward to the southwest at a gradient of approximately less than 8.50 percent. There was estimated to be 20± feet of elevation differential across the overall subject site.

The preliminary site plan for the proposed development indicates that the site will be developed with a gas station with car wash and store, four (4) retail buildings, two (2) restaurant buildings with drive-thru, and five (5) trash enclosures . The new gas station canopy will be 4,089± SF, the four new retail buildings will be 13,200± SF, The two restaurants will be 5,840± SF, the car wash will be 3,159± SF, the store will be 3,400± SF, and the trash enclosures will cover 463± SF. The site plan indicates that the proposed buildings will generally be surrounded by asphaltic concrete with some areas of concrete flatwork. Several landscape planters are proposed to be located around the perimeter and within the parking lot of the site.

VICINITY MAP



HYDROLOGY ANALYSIS

Hydrologic calculations were performed in accordance with Riverside County Hydrology Manual (April 1978) guidelines. The Hydrology Manual was used to determine the existing and proposed peak flows for the, 2-year, 10-year and 25-year storms as well as the runoff volumes generated for , 2-year, 10-year and 25-year storms as well as the runoff volumes generated for 100-year storm event. Figures and Tables below are referenced to that Manual. The previous pre-development use is a vacant land with pervious cover.

RUNOFF FLOWS

Table 1: Rational Method Peak Flow

Tributary Area	**DMA-1**	**DMA-2**	**Totals**
Acreage, acres Pre (Post)	5.63 (2.38)	- (3.25)	5.63
Time of Concentration; Tc (min) (Post)	21 (9.5)	- (8.5)	21 9
2 year Pre- Develop. Runoff; Q_2 (cfs)	0.03	-	0.03
2 year Post- Develop. Runoff; Q_2 (cfs)	0.76	1.04	1.79
10 year Pre- Develop. Runoff; Q_{10} (cfs)	0.05	-	0.05
10 year Post- Develop. Runoff; Q_{10} (cfs)	1.25	1.70	2.95
25 year Pre- Develop. Runoff; Q_{25} (cfs)	0.06	-	0.06
25 year Post- Develop. Runoff; Q_{25} (cfs)	1.56	2.13	3.68

RUNOFF VOLUMES

Table 2: Estimated Storm Runoff Volumes

Tributary Area	**Area 1**	**Area 2**	**Totals**
Acreage (Pre Development) Acres Acreage (Post Development) Acres	5.63 (2.38)	- (3.25)	5.63 (5.63)
24-hr. Precipitation Depth(inches) P_{24} (2 yr)	2.35	2.35	-
24-hr. Precipitation Depth(inches) P_{24} (10 yr)	3.88	3.88	-
24-hr. Precipitation Depth(inches) P_{24} (100 yr)	6.25	6.25	-
CN (AMC II) Pre Development	75	-	-
CN (AMC II) Post Development	96	96	-

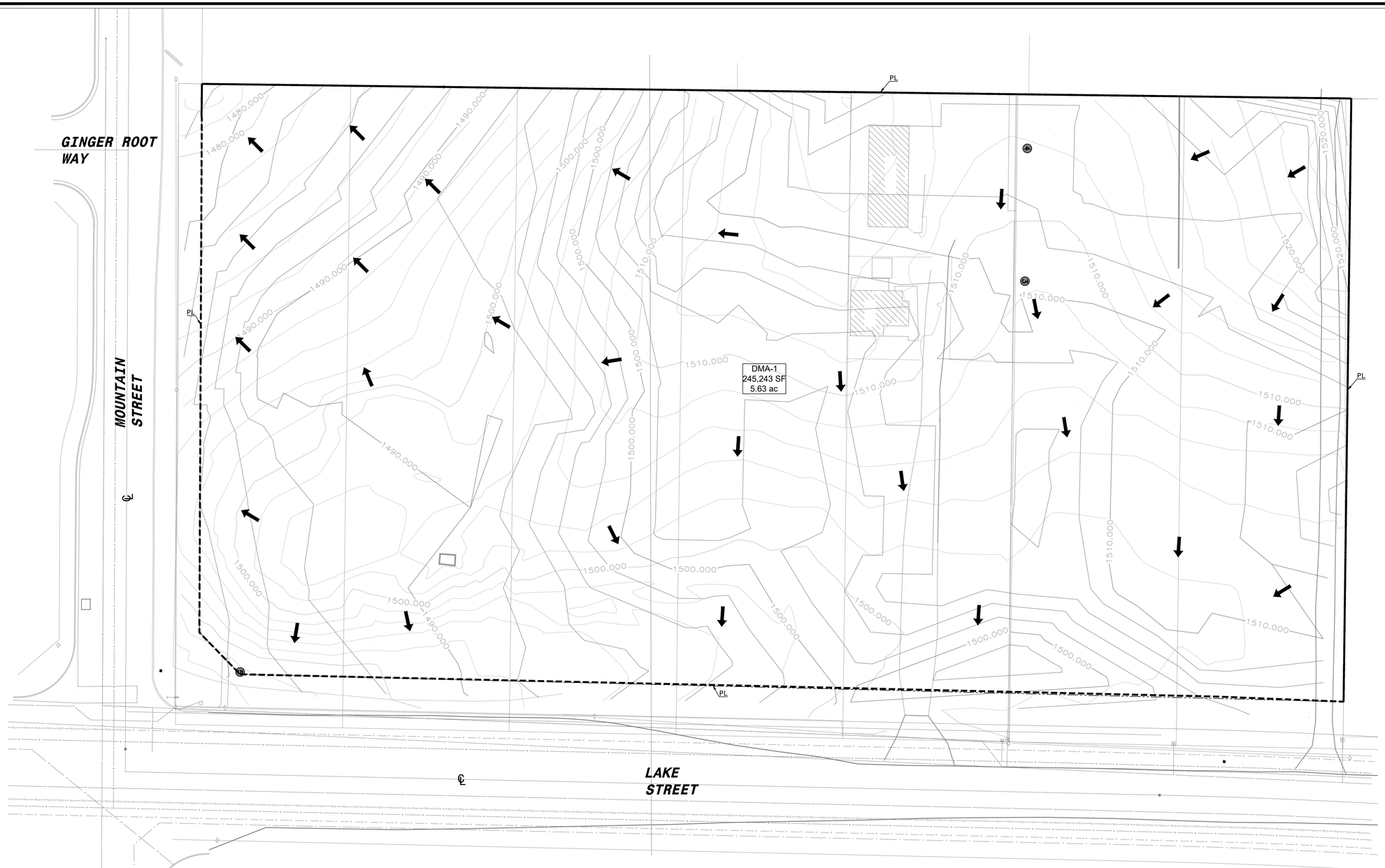
CN (AMC I) Pre Development	57	-	-
CN (AMC I) Post Development	78	78	-
CN (AMC III) Pre Development	88	-	-
CN (AMC III) Post Development	96	96	-
2 year Pre-Develop. Volume V_2 (Ac-ft)	0.04	-	-
2 year Post-Develop. Volume V_2 (Ac-ft)	0.137	0.188	0.325
10 year Pre-Develop. Volume V_{10} (Ac-ft)	1.228	-	-
10 year Post-Develop. Volume V_{10} (Ac-ft)	0.68	0.93	1.605
100 year Pre-Develop. Volume V_{100} (Ac-ft)	2.28	-	-
100 year Post-Develop. Volume V_{100} (Ac-ft)	1.15	1.56	2.710

CONCLUSION

The existing peak runoff from the project area was calculated to be 0.05 cfs, and 0.06 cfs for the 10-year and 25-year storms respectively. The proposed peak runoff from the project area after improvements was calculated to be 2.95 cfs, and 3.68 cfs for the 10-year and 25-year storms respectively. Therefore, outlet detention and retention will be necessary to replicate the pre-development condition in order to protect the downstream storm drains.

The existing runoff volumes from the project area was calculated to be 2.28 Ac-ft. for the 100-year storm and the proposed runoff volume from the project area after improvements was calculated to be 2.71 Ac-ft. for the 100-year storm. Post development condition is 16% higher that the pre development condition. Therefore, there are hydraulic conditions of concern (HCOC's) exist for this project. Excess amount will be retained and filtered on site via biofiltration with underdrain. HCOC Mitigation of the WQMP report will utilize accepted professional methodologies published by entities such as CASQA via biotreatment by means of biofiltration with underdrain.

Attachment A
Figures



LEGEND:

- LANDSCAPE AREA
- DRAINAGE FLOW DIRECTION
- DMA BOUNDARY
- PARCEL BOUNDARY
- DMA-X / X,XXX SF / XX.XX ac — DMA INFORMATION

RUN-OFF FLOW

Return Frequency = **2 years**

PRE-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	Coefficient C	T_c (min)	$I_{1\,hr}$ (In/hr)	Q (cfs)
1	5.630	D	0.01	21	0.492	0.03
					TOTAL	**0.03**

Return Frequency = **10 years**

PRE-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	Coefficient C	T_c (min)	$I_{1\,hr}$ (In/hr)	Q (cfs)
1	5.630	D	0.01	21	0.808	0.05
					TOTAL	**0.05**

Return Frequency = **25 years**

PRE-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	Coefficient C	T_c (min)	$I_{1\,hr}$ (In/hr)	Q (cfs)
1	5.630	D	0.01	21	1.01	0.06
					TOTAL	**0.06**

RUN-OFF VOLUME

Return Frequency = **2 Years**

PRE-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	CN AMC II	CN AMC I	S	I_a	P_{24}	Y	V (Ac-ft)
1	5.630	D	75	57	7.54	1.51	2.35	0.04	0.040
								TOTAL	**0.040**

Return Frequency = **10 Years**

PRE-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	CN AMC II	CN AMC III	S	I_a	P_{24}	Y	V (Ac-ft)
1	5.630	D	75	88	1.36	0.27	3.88	0.67	1.23
								TOTAL	**1.228**

Return Frequency = **100 Years**

PRE-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	CN AMC II	CN AMC III	S	I_a	P_{24}	Y	V (Ac-ft)
1	5.630	D	75	88	1.36	0.27	6.25	0.78	2.28
								TOTAL	**2.283**

30' 0 30' 60' 90'

SCALE: 1" = 30'

PLUMP ENGINEERING INC.
CONSULTING ENGINEERS IN CIVIL, SURVEYING, AND STRUCTURAL ENGINEERING
914 E. KATELLA AVENUE
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ARCHITECT:
EMPIRE DESIGN GROUP Inc.
24861 Washington Ave.
Murrieta, Calif. 92562
Tel 951-696-1490 Fax 951-696-1443

CLIENT:
TIGER PETROLEUM, INC.

COMMERCIAL RETAIL
APN: 389-030-014,015,016,017,018
NWC MOUNTAIN ST. & LAKE ST.
LAKE ELSINORE, CA 92530

ENGINEER OF RECORD:
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(714)385-1835

SEAL:
REGISTERED PROFESSIONAL ENGINEER
TRYFON P. TRYFONOPOULOS
NO. 65859
EXP.12/31/19
CIVIL
STATE OF CALIFORNIA

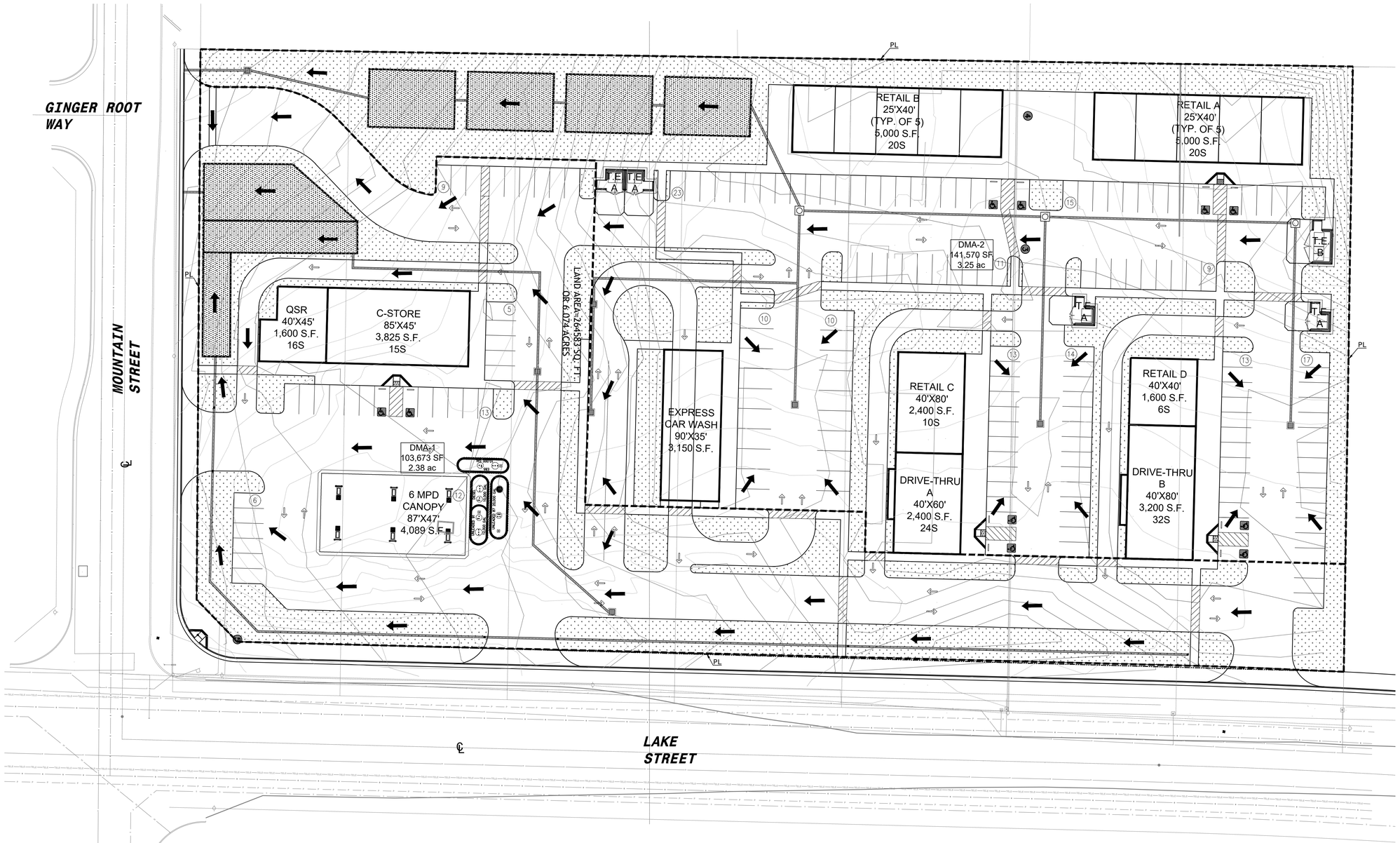
Date: 10-04-2019
Project Number: 1908033

NO.	DATE	REVISION DESCRIPTION

DESIGNED BY: TT
CHECKED BY: TT
DRAWN BY: AA/JT/NA

DRAWING TITLE:
HYDROLOGY
PRE-DEVELOPMENT

SHEET NO:
01



LEGEND:

- LANDSCAPE AREA
- DRAINAGE FLOW DIRECTION
- DMA BOUNDARY
- PARCEL BOUNDARY
- DMA-X / X,XXX SF / XX.XX ac — DMA INFORMATION

RUN-OFF FLOW

Return Frequency = **2 years**

POST-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	Coefficient C	$T_{c\ (Final)}$ (min)	$I_{1\ hr}$ (In/hr)	Q (cfs)
1	2.380	D	0.648	9.5	0.492	0.76
2	3.250	D	0.648	8.5	0.492	1.04
					TOTAL	**1.79**

Return Frequency = **10 years**

POST-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	Coefficient C	$T_{c\ (Final)}$ (min)	$I_{1\ hr}$ (In/hr)	Q (cfs)
1	2.380	D	0.648	9.5	0.808	1.25
2	3.250	D	0.648	8.5	0.808	1.70
					TOTAL	**2.95**

Return Frequency = **25 years**

POST-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	Coefficient C	$T_{c\ (Final)}$ (min)	$I_{1\ hr}$ (In/hr)	Q (cfs)
1	2.380	D	0.648	9.5	1.01	1.56
2	3.250	D	0.648	8.5	1.01	2.13
					TOTAL	**3.68**

RUN-OFF VOLUME

Return Frequency = **2 Years**

POST-DEVELOPMENT

Drainage Area	A (Acres)	Soils Group	CN AMC II	CN AMC I	S	I_a	P_{24}	Y	V (Ac-ft)
1	2.380	D	90	78	2.82	0.56	2.35	0.29	0.137
2	3.250	D	90	78	2.82	0.56	2.35	0.29	0.188
								TOTAL	**0.325**

Return Frequency = **10 Years**

POST-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	CN AMC II	CN AMC III	S	I_a	P_{24}	Y	V (Ac-ft)
1	2.380	D	90	96	0.42	0.08	3.88	0.88	0.68
2	3.250	D	90	96	0.42	0.08	3.88	0.88	0.93
								TOTAL	**1.605**

Return Frequency = **100 Years**

POST-DEVELOPMENT

Drainage Area	A (acres)	Soils Group	CN AMC II	CN AMC III	S	I_a	P_{24}	Y	V (Ac-ft)
1	2.380	D	90	96	0.42	0.08	6.25	0.92	1.15
2	3.250	D	90	96	0.42	0.08	6.25	0.92	1.56
								TOTAL	**2.710**

30' 0 30' 60' 90'

SCALE: 1" = 30'

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CIVIL
STATE OF CALIFORNIA

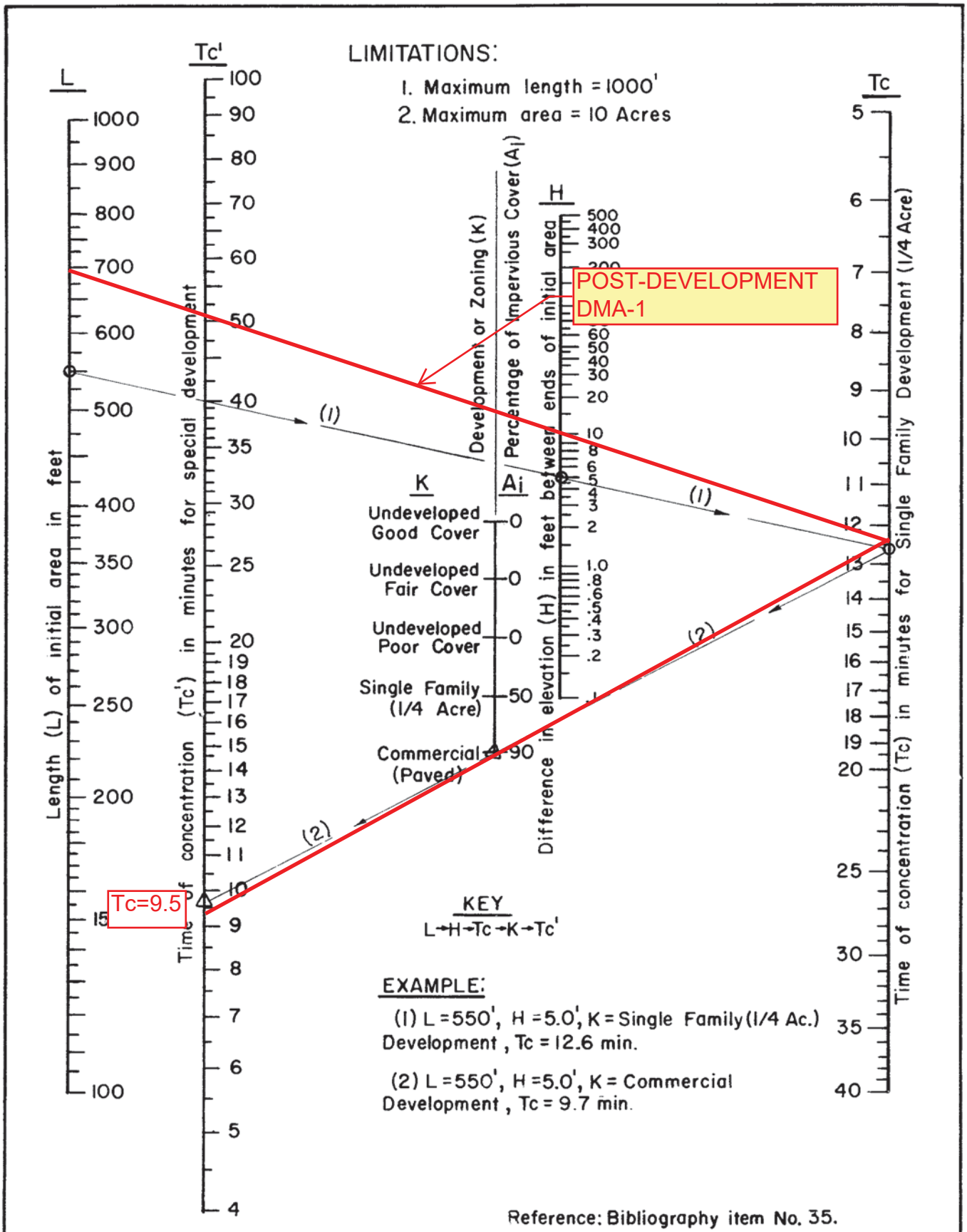
Date: 10-04-2019
Project Number: 1908033

NO.	DATE	REVISION DESCRIPTION

DESIGNED BY: TT
CHECKED BY: TT
DRAWN BY: AA/JT/NA

DRAWING TITLE:
HYDROLOGY
POST-DEVELOPMENT

SHEET NO:
02

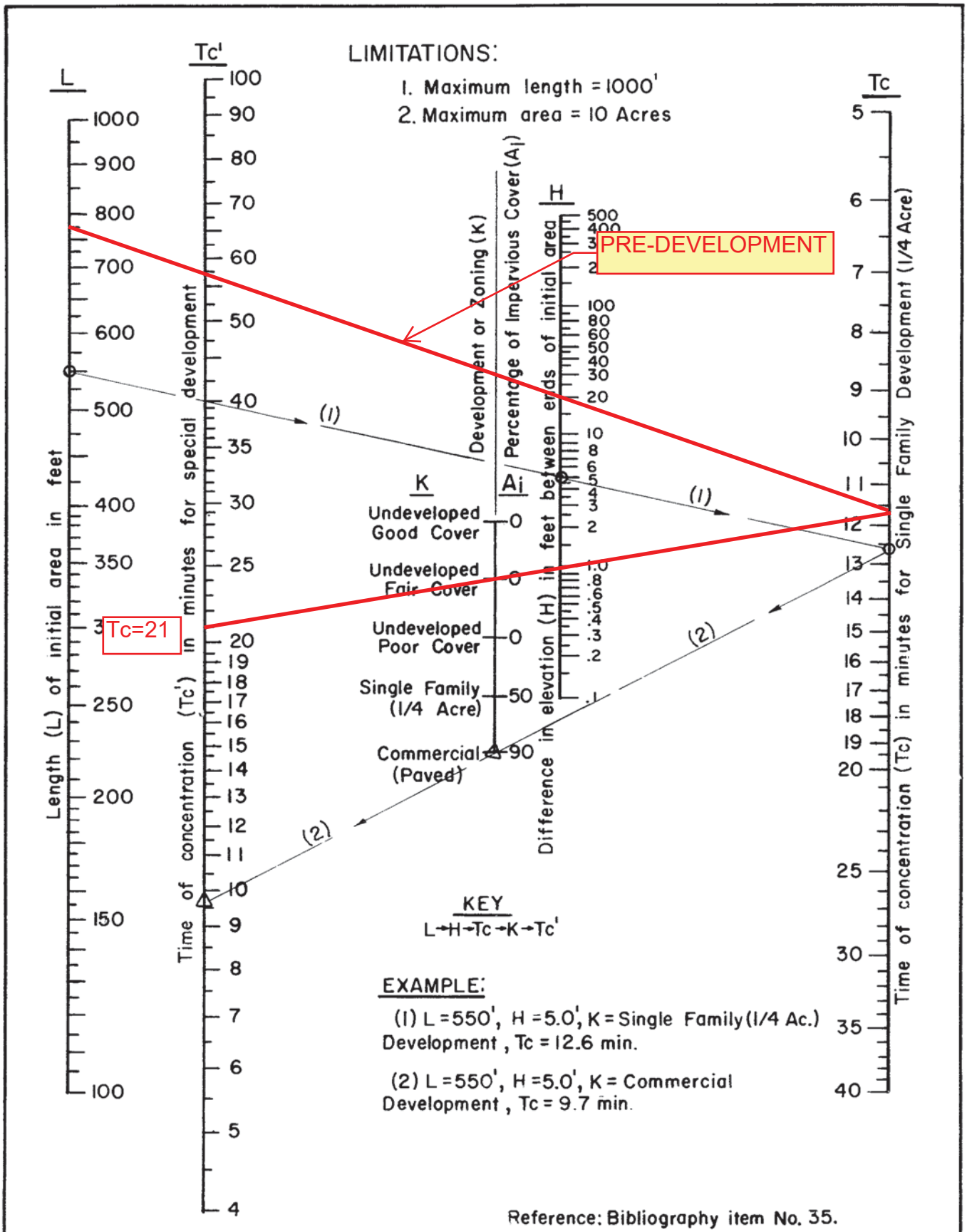


Reference: Bibliography item No. 35.

RCFC & WCD
HYDROLOGY MANUAL

TIME OF CONCENTRATION FOR INITIAL SUBAREA

PLATE D-3

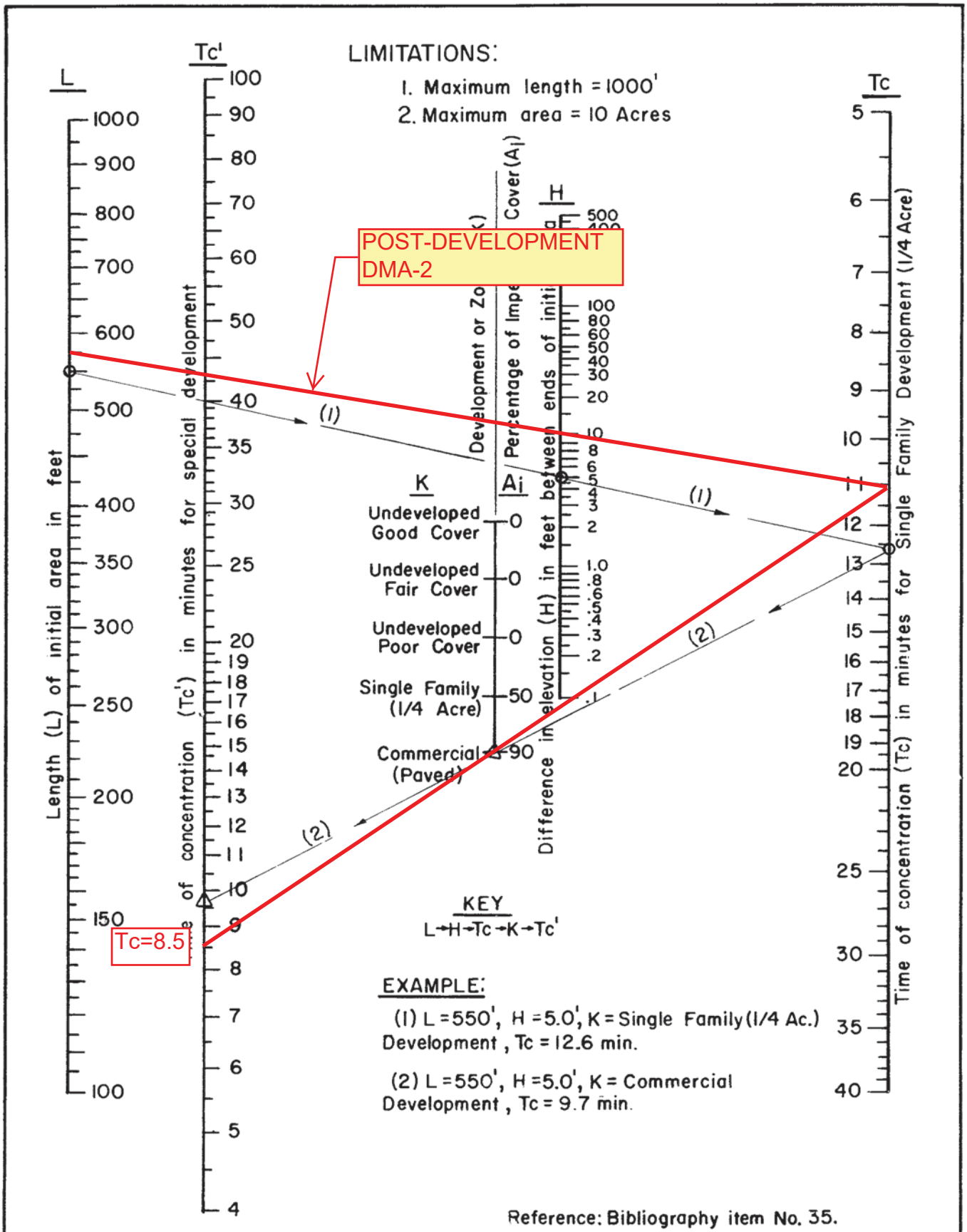


Reference: Bibliography item No. 35.

RCFC & WCD
HYDROLOGY MANUAL

TIME OF CONCENTRATION FOR INITIAL SUBAREA

PLATE D-3



Reference: Bibliography item No. 35.

RCFC & WCD
HYDROLOGY MANUAL

TIME OF CONCENTRATION FOR INITIAL SUBAREA

PLATE D-3

RCFC & WCD

HYDROLOGY MANUAL

STANDARD INTENSITY – DURATION CURVES DATA

RAINFALL INTENSITY–INCHES PER HOUR

RIVERSIDE			RIVERSIDE (FOOTHILL AREAS)			RUBIDOUX			SAN JACINTO			SUN CITY		
DURATION MINUTES	FREQUENCY 10 YEAR	100 YEAR	DURATION MINUTES	FREQUENCY 10 YEAR	100 YEAR	DURATION MINUTES	FREQUENCY 10 YEAR	100 YEAR	DURATION MINUTES	FREQUENCY 10 YEAR	100 YEAR	DURATION MINUTES	FREQUENCY 10 YEAR	100 YEAR
5	2.75	3.92	5	3.14	4.71	5	3.18	4.71	5	2.81	4.16	5	3.25	4.85
6	2.48	3.55	6	2.84	4.26	6	2.87	4.26	6	2.56	3.79	6	2.95	4.40
7	2.28	3.26	7	2.61	3.91	7	2.64	3.91	7	2.37	3.51	7	2.72	4.06
8	2.12	3.03	8	2.42	3.63	8	2.45	3.63	8	2.22	3.29	8	2.53	3.78
9	1.99	2.84	9	2.27	3.41	9	2.30	3.41	9	2.09	3.10	9	2.38	3.55
10	1.88	2.68	10	2.14	3.21	10	2.17	3.21	10	1.98	2.94	10	2.25	3.36
11	1.78	2.54	11	2.03	3.05	11	2.06	3.05	11	1.89	2.80	11	2.14	3.19
12	1.70	2.42	12	1.94	2.91	12	1.96	2.91	12	1.81	2.68	12	2.04	3.05
13	1.62	2.32	13	1.86	2.78	13	1.88	2.78	13	1.74	2.58	13	1.96	2.92
14	1.56	2.23	14	1.78	2.67	14	1.80	2.67	14	1.68	2.48	14	1.88	2.81
15	1.50	2.14	15	1.71	2.57	15	1.74	2.57	15	1.62	2.40	15	1.81	2.71
16	1.45	2.07	16	1.66	2.48	16	1.68	2.48	16	1.57	2.32	16	1.75	2.62
17	1.40	2.00	17	1.60	2.40	17	1.62	2.40	17	1.52	2.25	17	1.70	2.54
18	1.36	1.94	18	1.55	2.33	18	1.57	2.33	18	1.48	2.19	18	1.65	2.46
19	1.32	1.88	19	1.51	2.26	19	1.52	2.26	19	1.44	2.13	19	1.60	2.39
20	1.28	1.83	20	1.46	2.20	20	1.48	2.20	20	1.40	2.08	20	1.56	2.33
22	1.22	1.74	22	1.39	2.08	22	1.41	2.08	22	1.34	1.98	22	1.48	2.21
24	1.16	1.66	24	1.32	1.99	24	1.34	1.99	24	1.28	1.90	24	1.41	2.11
26	1.11	1.58	26	1.27	1.90	26	1.28	1.90	26	1.23	1.82	26	1.36	2.03
28	1.06	1.52	28	1.22	1.82	28	1.23	1.82	28	1.19	1.76	28	1.30	1.95
30	1.02	1.46	30	1.17	1.76	30	1.19	1.76	30	1.15	1.70	30	1.26	1.88
32	.99	1.41	32	1.13	1.70	32	1.14	1.70	32	1.11	1.64	32	1.21	1.81
34	.96	1.37	34	1.09	1.64	34	1.11	1.64	34	1.08	1.59	34	1.18	1.76
36	.93	1.32	36	1.06	1.59	36	1.07	1.59	36	1.05	1.55	36	1.14	1.70
38	.90	1.29	38	1.03	1.54	38	1.04	1.54	38	1.02	1.51	38	1.11	1.66
40	.87	1.25	40	1.00	1.50	40	1.01	1.50	40	.99	1.47	40	1.08	1.61
45	.82	1.17	45	.94	1.41	45	.95	1.41	45	.94	1.39	45	1.01	1.51
50	.77	1.11	50	.88	1.33	50	.90	1.33	50	.89	1.31	50	.96	1.43
55	.73	1.05	55	.84	1.26	55	.85	1.26	55	.85	1.25	55	.91	1.36
60	.70	1.00	60	.80	1.20	60	.81	1.20	60	.81	1.20	60	.87	1.30
65	.67	.96	65	.77	1.15	65	.78	1.15	65	.78	1.15	65	.83	1.25
70	.64	.92	70	.73	1.10	70	.74	1.10	70	.75	1.11	70	.80	1.20
75	.62	.88	75	.71	1.06	75	.72	1.06	75	.72	1.07	75	.77	1.15
80	.60	.85	80	.68	1.02	80	.69	1.02	80	.70	1.04	80	.75	1.12
85	.58	.83	85	.66	.99	85	.67	.99	85	.68	1.01	85	.72	1.08
SLOPE = .550			SLOPE = .550			SLOPE = .550			SLOPE = .500			SLOPE = .530		

PLATE D-4.1(5 of 6)

Attachment B
Rational Method Calculations

HYDROLOGY CALCULATIONS

Plump Engineering, Inc.
914 E. Katella Avenue
Anaheim, CA 92805
By: NA

Runoff Flow Calculations

Q = CIA

Where :

Q = runoff in cubic feet per second (cfs) from a given area.
C= Coefficient of Runoff
I = the time-averaged rainfall intensity (inches/hour) - **1-hr Rainfall** corresponding to the time of concentration T_c (See Figures B-3, B-4 and D-1)
(See Hydrology Map for L, H and K factors)
A = Drainage area (acres)
Soils Maps are at:…\Projects\120374\Hydrology\Plate C-1.42

Return Frequency = **2 years**

PRE-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**T_c (min)**	**$I_{1\ hr}$ (In/hr)**	**Q (cfs)**
1	5.630	D	0.01	21	0.492	0.03
					TOTAL	**0.03**

Return Frequency = **2 years**

POST-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**$T_{c\ (Final)}$ (min)**	**$I_{1\ hr}$ (In/hr)**	**Q (cfs)**
1	2.380	D	0.648	9.5	0.492	0.76
2	3.250	D	0.648	8.5	0.492	1.04
					TOTAL	**1.79**

Return Frequency = **10 years**

PRE-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**T_c (min)**	**$I_{1\ hr}$ (In/hr)**	**Q (cfs)**
1	5.630	D	0.01	21	0.808	0.05
					TOTAL	**0.05**

HYDROLOGY CALCULATIONS

Plump Engineering, Inc.
914 E. Katella Avenue
Anaheim, CA 92805
By: NA

Return Frequency = **10 years**

POST-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**$T_{c\ (Final)}$ (min)**	**$I_{1\ hr}$ (In/hr)**	**Q (cfs)**
1	2.380	D	0.648	9.5	0.808	1.25
2	3.250	D	0.648	8.5	0.808	1.70
					TOTAL	**2.95**

Return Frequency = **25 years**

PRE-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**T_c (min)**	**$I_{1\ hr}$ (In/hr)**	**Q (cfs)**
1	5.630	D	0.01	21	1.01	0.06
					TOTAL	**0.06**

Return Frequency = **25 years**

POST-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**$T_{c\ (Final)}$ (min)**	**$I_{1\ hr}$ (In/hr)**	**Q (cfs)**
1	2.380	D	0.648	9.5	1.01	1.56
2	3.250	D	0.648	8.5	1.01	2.13
					TOTAL	**3.68**

HYDROLOGY CALCULATIONS

Plump Engineering, Inc.
914 E. Katella Avenue
Anaheim, CA 92805
By: NA

Runoff Flow Calculations

Q = CIA

Where :

Q = runoff in cubic feet per second (cfs) from a given area.
C= Coefficient of Runoff
I = the time-averaged rainfall intensity (inches/hour) - **24-hr Rainfall** corresponding to the time of concentration T_c (See Plates D-3, D-4.1, D-4.3 and D
(See Hydrology Map for L, H and K factors)
A = Drainage area (acres)
Soils Maps are at:…\Projects\150647\Hydrology\Plate C-1.42

Return Frequency = **2 years**

PRE-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**T_c (min)**	**$I_{24\ hr}$ (In/hr)**	**Q (cfs)**
1	5.630	D	0.01	21	0.098	0.006
					TOTAL	**0.006**

Return Frequency = **2 years**

POST-DEVELOPMENT (on-site)						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**$T_{c\ (Final)}$ (min)**	**$I_{24\ hr}$ (In/hr)**	**Q (cfs)**
1	2.380	D	0.648	9.50	0.098	0.151
2	3.250	D	0.648	8.50	0.098	0.206
					Total	0.358

HYDROLOGY CALCULATIONS

Plump Engineering, Inc.
914 E. Katella Avenue
Anaheim, CA 92805
By: NA

Return Frequency = **10 years**

PRE-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**T_c (min)**	**$I_{24\ hr}$ (In/hr)**	**Q (cfs)**
1	5.630	D	0.01	21	0.162	0.009
					TOTAL	**0.009**

Return Frequency = **10 years**

POST-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**$T_{c\ (Final)}$ (min)**	**$I_{24\ hr}$ (In/hr)**	**Q (cfs)**
1	2.380	D	0.648	9.50	0.162	0.250
2	3.250	D	0.648	8.50	0.162	0.341
					TOTAL	**0.591**

Return Frequency = **25 years**

PRE-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**T_c (min)**	**$I_{24\ hr}$ (In/hr)**	**Q (cfs)**
A	5.630	D	0.01	21	0.201	0.011
					TOTAL	**0.011**

Return Frequency = **25 years**

POST-DEVELOPMENT						
Drainage Area	**A (acres)**	**Soils Group**	**Coefficient C**	**$T_{c\ (Final)}$ (min)**	**$I_{24\ hr}$ (In/hr)**	**Q (cfs)**
1	2.380	D	0.648	9.50	0.2001	0.309
2	3.250	D	0.648	8.50	0.2001	0.421
					TOTAL	**0.730**

HYDROLOGY CALCULATIONS

Plump Engineering, Inc.
914 E. Katella Avenue
Anaheim, CA 92805
By: NA

Runoff Volume Calculations

$$V = \frac{Y * A * P_{24}}{12}$$

Where :

V= Volume in acre-ft.

Y = 24-hour storm runnoff yield factor for subarea A

$$= \frac{(P_{24} - I_a)^2}{(P_{24} - I_a + S)P_{24}} \qquad \textit{Formula C.3}$$

P_{24} = 24-hour storm rainfall from NOAA Precipitation Frequency Server

I_a = initial abstraction

$= 0.2S$ *Formula C.1*

$S = \frac{1000}{CN} - 10$ *Formula C.2*

A= Drainage area in acres

Return Frequency = **2 Years**

PRE-DEVELOPMENT									
Drainage Area	**A (acres)**	**Soils Group**	**CN AMC II**	**CN AMC I**	**S**	**I_a**	**P_{24}**	**Y**	**V (Ac-ft)**
1	5.630	D	75	57	7.54	1.51	2.35	0.04	0.040
								TOTAL	**0.040**

Return Frequency = **2 Years**

POST-DEVELOPMENT									
Drainage Area	**A (Acres)**	**Soils Group**	**CN AMC II**	**CN AMC I**	**S**	**I_a**	**P_{24}**	**Y**	**V (Ac-ft)**
1	2.380	D	90	78	2.82	0.56	2.35	0.29	0.137
2	3.250	D	90	78	2.82	0.56	2.35	0.29	0.188
								TOTAL	**0.325**

HYDROLOGY CALCULATIONS

Plump Engineering, Inc.
914 E. Katella Avenue
Anaheim, CA 92805
By: NA

Return Frequency = **10 Years**

PRE-DEVELOPMENT									
Drainage Area	**A (acres)**	**Soils Group**	**CN AMC II**	**CN AMC III**	**S**	**I_a**	**P_{24}**	**Y**	**V (Ac-ft)**
1	5.630	D	75	88	1.36	0.27	3.88	0.67	1.23
								TOTAL	**1.228**

Return Frequency = **10 Years**

POST-DEVELOPMENT									
Drainage Area	**A (acres)**	**Soils Group**	**CN AMC II**	**CN AMC III**	**S**	**I_a**	**P_{24}**	**Y**	**V (Ac-ft)**
1	2.380	D	90	96	0.42	0.08	3.88	0.88	0.68
2	3.250	D	90	96	0.42	0.08	3.88	0.88	0.93
								TOTAL	**1.605**

Return Frequency = **100 Years**

PRE-DEVELOPMENT									
Drainage Area	**A (acres)**	**Soils Group**	**CN AMC II**	**CN AMC III**	**S**	**I_a**	**P_{24}**	**Y**	**V (Ac-ft)**
1	5.630	D	75	88	1.36	0.27	6.25	0.78	2.28
								TOTAL	**2.283**

Return Frequency = **100 Years**

POST-DEVELOPMENT									
Drainage Area	**A (acres)**	**Soils Group**	**CN AMC II**	**CN AMC III**	**S**	**I_a**	**P_{24}**	**Y**	**V (Ac-ft)**
1	2.380	D	90	96	0.42	0.08	6.25	0.92	1.15
2	3.250	D	90	96	0.42	0.08	6.25	0.92	1.56
								TOTAL	**2.710**

Appendix L

Noise Impact Analysis

Lake and Mountain Shopping Center

NOISE IMPACT ANALYSIS

CITY OF LAKE ELSINORE

PREPARED BY:

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OCTOBER 23, 2019

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EA	Existing plus Ambient Growth
EAC	EA plus Cumulative
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
I-15	Interstate 15
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Lake and Mountain Shopping Center
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures for the proposed Lake and Mountain Shopping Center development ("Project"). The Project site is located on the northwest corner of Lake Street and Mountain Street in the City of Lake Elsinore. The Project is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel. This study has been prepared to satisfy applicable City of Lake Elsinore noise standards and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the Project will influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 14 roadway segments were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in the *Lake and Mountain Shopping Center Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing 2019, Existing plus Ambient (EA) 2019, and Existing plus Ambient plus Cumulative (EAC) 2021 traffic conditions. The analysis shows that the Project-related traffic noise level increases under all traffic scenarios will be *less than significant*. The analysis shows that the unmitigated Project-related traffic noise level increases under all with Project traffic scenarios are considered *less than significant* impacts at land uses adjacent to the study area roadway segments.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the expected operational noise sources of the Lake and Mountain Shopping Center site, this analysis estimates the Project-related stationary-source noise levels at nearby sensitive receiver locations. The typical activities associated with the proposed Lake and Mountain Shopping Center are anticipated to include: roof-top air conditioning units, drive-thru speakerphones, trash enclosures, parking lots, gas station activity, car wash tunnels and car wash vacuum activity.

The analysis shows that the unmitigated Project-related operational noise levels will exceed the City of Lake Elsinore daytime and nighttime exterior noise level standards at the closest noise-sensitive receiver locations in the Project study area. Therefore, the unmitigated operational noise impacts are considered *potentially significant*.

OPERATIONAL NOISE MITIGATION

To satisfy the applicable local noise standards the project shall implement the following operational noise mitigation measures.

- No car wash activities shall be permitted during the nighttime hours of 10:00 p.m. to 7:00 a.m.
- Reduce the car wash air blower and dryer equipment noise by locating the equipment inside the tunnel and/or utilize sound rated air blower and dryer equipment measuring no more than 71 dBA L_{50} at 10 feet.
- Incorporate parapet walls where appropriate
- Incorporate on-site noise barriers, landscaping, or similar physical features that would act to generally attenuate noise emanating from the Project related noise sources.
- If an outdoor speaker system is being used in conjunction with a Project, the outdoor speaker system shall be oriented away from sensitive receivers and the volume set at a level not readily audible past the property line.

Car wash activities may cycle on and off as each car progresses through the tunnel, however, this analysis assumes all activities would operate continuously to present worst-case conditions. Short-term noise events such as car doors slamming, air blowers cycling on and off, and water spraying are expected to occur and produce high noise levels over short durations of a few seconds to a few minutes, which are likely to be audible and could be perceived as a short-term annoyance, or nuisance, to nearby residents. However, these short-term events will not exceed or represent a significant contribution to the overall City of Lake Elsinore L_{50} noise level standards. As such, while the mitigated daytime car wash operational noise levels are shown to be compliant with City of Lake Elsinore standards, however, short-term individual events may still be perceived as nuisance noise.

With application of these Project operational noise mitigation measures, impacts at all receiver locations would be *less than significant*. In addition, the project operational noise level contribution analysis shows Project-related incremental noise level increase to the ambient noise environment would be *less than significant* at all receiver locations.

CONSTRUCTION NOISE ANALYSIS

Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the closest point to the nearby receiver locations from primary Project construction activity. Using sample reference noise levels to represent the planned construction activities of the Lake and Mountain Shopping Center site, this analysis estimates the Project-related construction noise levels at nearby receiver locations.

While the Project related construction equipment noise levels satisfy the City of Lake Elsinore Municipal Code construction noise level standards of 75 dBA L_{max} for mobile equipment, the noise Project noise levels will exceed the 60 dBA L_{max} standards for stationary equipment during temporary Project construction activities at receiver locations R1 and R5. Therefore, the noise

impacts due to the unmitigated Project construction noise levels is considered as a *potentially significant* impact at receiver locations R1 and R5 and mitigation measures are required to reduce the stationary equipment noise levels generated during temporary Project construction activities. The required construction noise mitigation measures include the use of 12-foot high temporary noise barriers near receiver locations R1 and R5 if occupied during construction.

CONSTRUCTION NOISE MITIGATION

Though construction is temporary, intermittent and of short duration, and will not present any long-term impacts, the following mitigation measures would reduce the noise level impacts due to Project construction activities at the nearby noise-sensitive residential land uses:

- If R1 and R5 represents occupied residential use at the time of Project construction, install a minimum 12-foot high temporary construction noise barrier as shown on Exhibit ES-B, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barrier must meet the minimum height and be constructed as follows:
    - The temporary noise barrier shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts. Example photos are provided in Appendix 10.2.;
    - The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;
    - The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.
- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 7:00 a.m. to 7:00 p.m. daily, *or at any time on weekends or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work by public service utilities or by variance issued by the City is prohibited*. (City of Lake Elsinore Municipal Code, Section 17.176.080 (F).
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction activities (i.e., to the center).
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 7:00 a.m. to 7:00 p.m. daily, with no activity allowed on Sundays or holidays). The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

- The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

The temporary construction noise mitigation measures will reduce the stationary source construction noise levels at the potentially impacted receiver locations and satisfy the construction noise thresholds for noise-sensitive single-family residential receiver locations. Therefore, the noise impacts due to Project construction are considered *less than significant* with mitigation.

CONSTRUCTION VIBRATION ANALYSIS

Based on the reference vibration levels provided by the Federal Transit Administration (FTA), Project-related construction vibration velocity levels are expected to approach 0.01 in/sec root-mean-square (RMS) at the nearby receiver locations at distances ranging from 85 to 390 feet. Based on the City of Lake Elsinore vibration threshold of 0.01 in/sec RMS, the construction-related vibration impacts are considered *less than significant.*

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating at the Project site perimeter.

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Lake and Mountain Shopping Center Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report is consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	9	*Potentially Significant*	*Less Than Significant*
Construction Noise	10	*Potentially Significant*	*Less Than Significant*
Construction Vibration		*Less Than Significant*	-

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Lake and Mountain Shopping Center ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational noise and short-term construction noise impacts.

1.1 SITE LOCATION

The proposed Lake and Mountain Shopping Center Project is located on the northwest corner of Lake Street and Mountain Street in the City of Lake Elsinore, as shown on Exhibit 1-A. The Project site is currently vacant. Nearby existing residential tract homes are located east of the Project site across Lake Street and south across Mountain Street. Individual large lot single-family residential homes are located west and north of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel, as shown on Exhibit 1-B. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2021. The on-site Project-related operational noise sources are expected to include: roof-top air conditioning units, drive-thru speakerphones, trash enclosures, parking lots, gas station activity, car wash tunnels and car wash vacuum activity.

EXHIBIT 1-A: LOCATION MAP

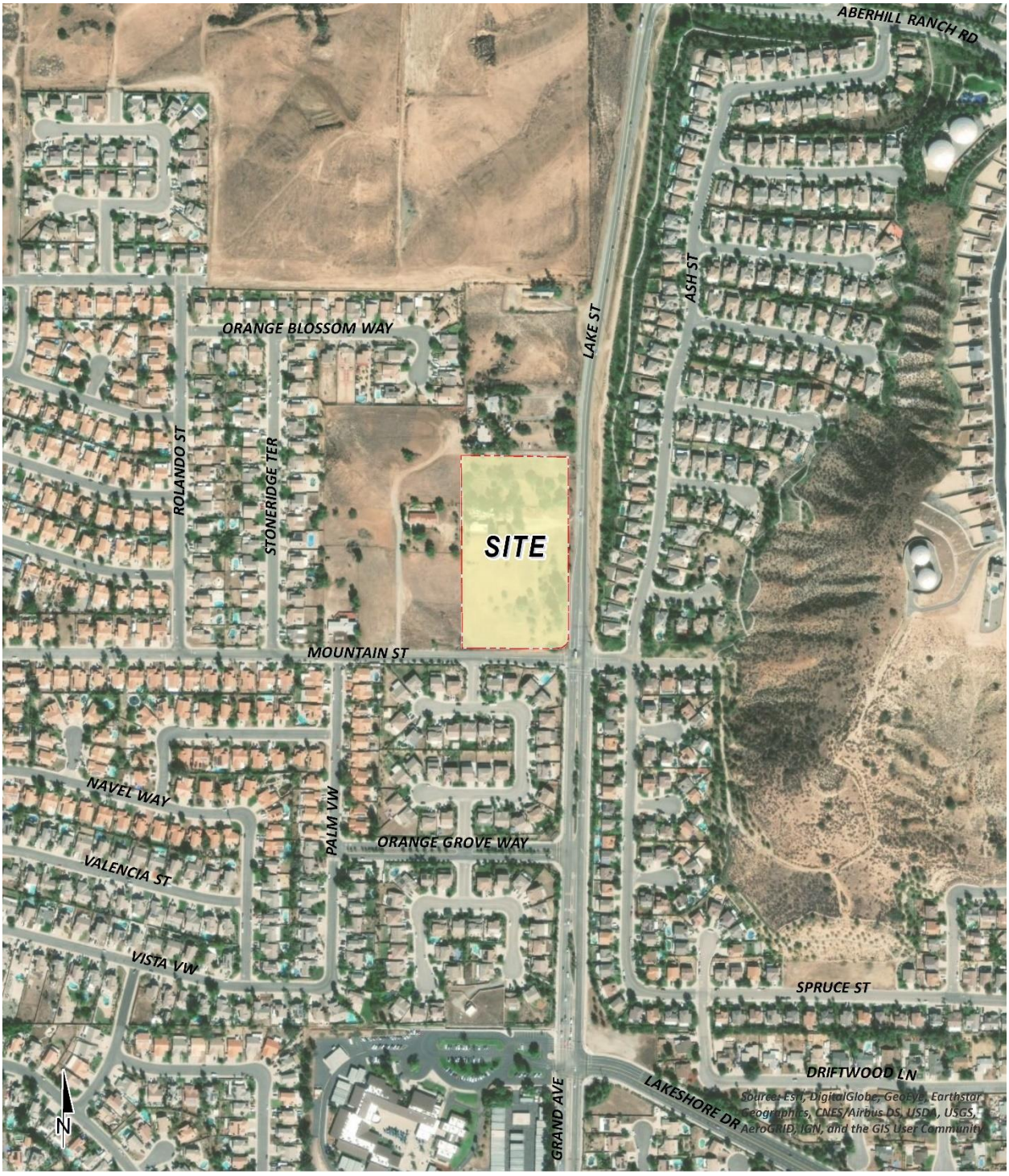
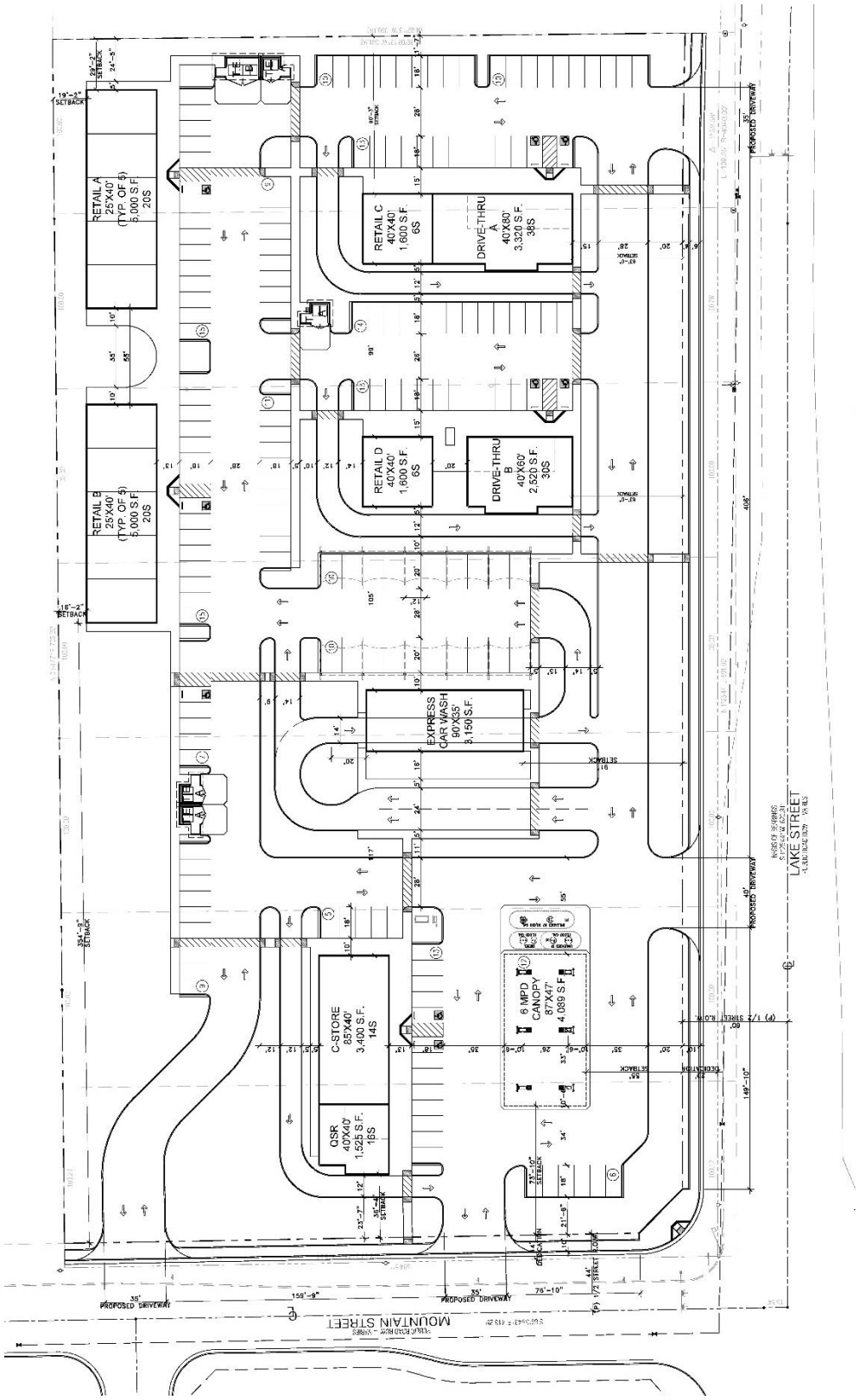


EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort. (4) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (Leq). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA Leq sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA Leq sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Lake Elsinore relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (3)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those

sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (5)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (3)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path- receiver concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (5)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or

livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

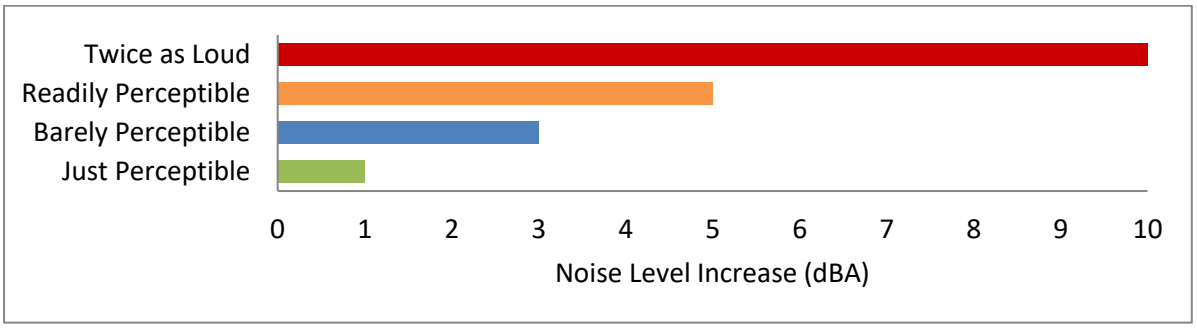
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (7) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (7) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



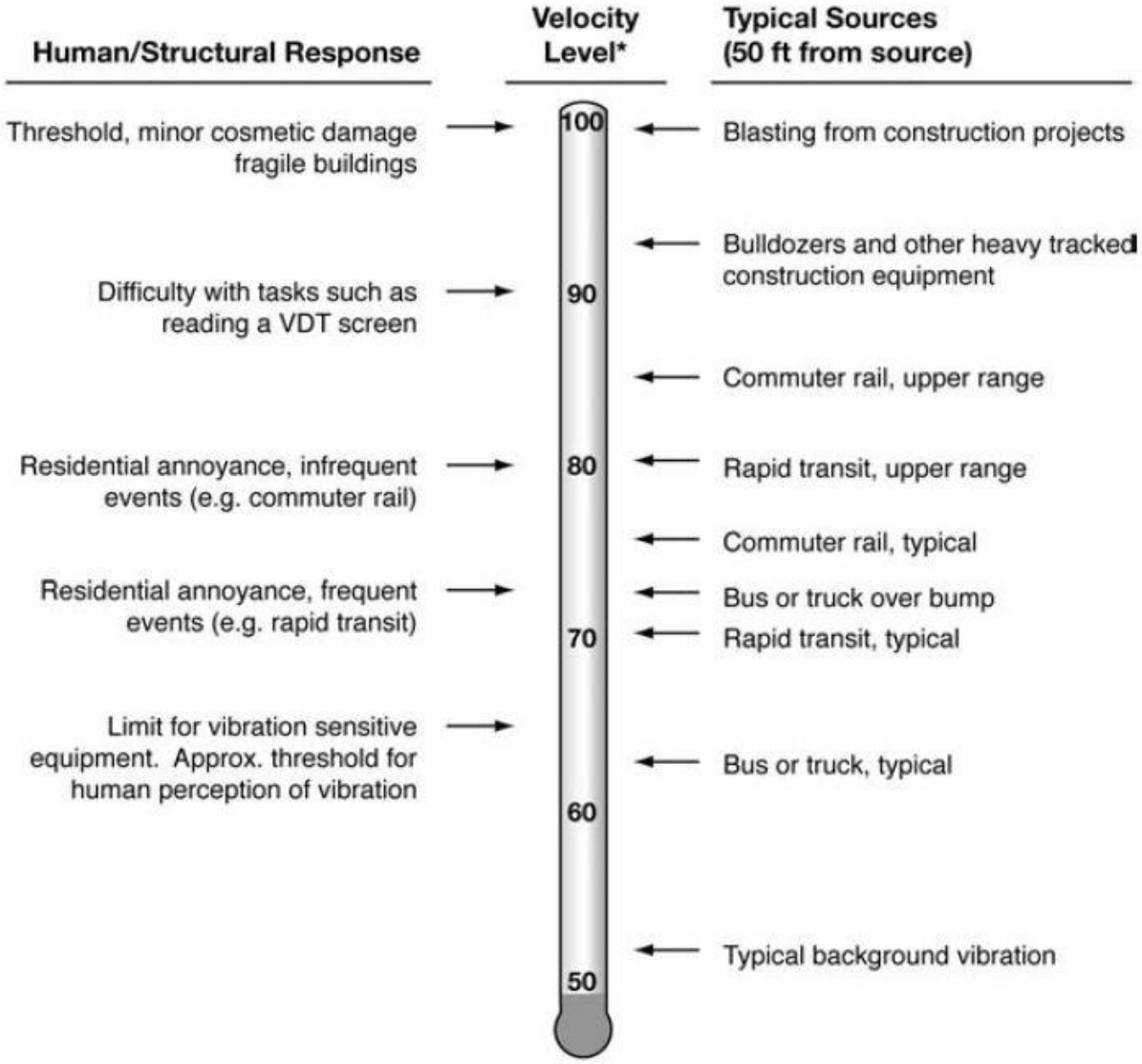
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (8), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



* *RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (9) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (10) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available, and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 CITY OF LAKE ELSINORE GENERAL PLAN

The City of Lake Elsinore has adopted Section 3.7, *Noise,* of the Public Safety and Welfare Element (11) of the General Plan to control and abate environmental noise, and to protect the citizens of Lake Elsinore from excessive exposure to noise. The Noise section specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise section identifies

noise polices designed to protect, create, and maintain an environment free from noise that may jeopardize the health or welfare of sensitive receivers, or degrade quality of life. To protect City of Lake Elsinore residents from excessive noise, the Noise section contains the following goal related to the Project:

Goal 7 *Maintain an environment for all City residents and visitors free of unhealthy, obtrusive, or otherwise excessive noise.*

To ensure noise-sensitive land uses are protected from excessive noise levels (Goal 7), the Noise section identifies the following policies:

7.1 Apply the noise standards set forth in the Lake Elsinore Noise and Land Use Compatibility Matrix (see Table 3-1) and Interior and Exterior Noise Standards (see Table 3-2) when considering all new development and redevelopment proposed within the City.

7.2 Require that mixed-use structures and areas be designed to prevent transfer of noise and vibration from commercial areas to residential areas.

7.3 Strive to reduce the effect of transportation noise on the I-15.

7.4 Consider estimated roadway noise contours based upon Figure 3.6, Noise Contours, when making land use design decisions along busy roadways throughout the City.

7.5 Participate and cooperate with other agencies and jurisdictions in the development of noise abatement plans for highways.

3.3.1 LAND USE COMPATIBILITY

The *Noise and Land Use Compatibility Matrix* (Table 3-1) in the City of Lake Elsinore General Plan Noise section provides guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Noise and Land Use Compatibility Matrix* describes categories of compatibility and not specific noise standards. According to these categories of compatibility, sensitive residential land use in the Project Study area is considered *clearly compatible* with exterior noise levels below 60 dBA CNEL and *normally compatible* with exterior noise levels below 70 dBA CNEL. For *normally compatible* land use, *new construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.* (11)

EXHIBIT 3-A: NOISE AND LAND USE COMPATIBILITY MATRIX

Land Use Categories		Day-Night Noise Level (LDN)						
Categories	**Uses**	**≤55**	**60**	**65**	**70**	**75**	**80≥**	
Residential	Single, Family, Duplex, Multiple Family	A	A	B	B	C	D	D
Residential	Mobile Homes	A	A	B	C	C	D	D
Commercial Regional District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional Village, District Special	Commercial, Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	B	B	C
Commercial Industrial Institutional	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
Commercial Regional Institutional Civic Center	Amphitheatre, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial Recreation	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
Commercial General, Special Industrial Institutional	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional General	Hospital, Church, Library, Schools, Classroom	A	A	B	C	C	D	D
Open Space	Parks	A	A	A	B	C	D	D
Open Space	Golf Course, Cemeteries, Nature Centers, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agriculture	Agriculture	A	A	A	A	A	A	A

Interpretation	
Zone A Clearly Compatible	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
Zone B Normally Compatible	New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed nose insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Zone C Normally Incompatible	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.
Zone D Clearly Incompatible	New construction or development should generally not be undertaken.

Source: City of Lake Elsinore General Plan, Public Safety and Welfare Element, Table 3-1.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Lake and Mountain Shopping Center Project, stationary-source (operational) noise such as roof-top air conditioning units, drive-thru speakerphones, trash enclosures, parking lots, gas station activity, car wash tunnels and car wash vacuum activity are typically evaluated against standards established under a City's Municipal Code.

Section 17.176.060 of the City of Lake Elsinore Municipal Code states the following: *No person shall, operate or cause to be operated, any source of sound at any location within the incorporated City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level when measured on any other property, either incorporated or unincorporated to exceed*…the maximum permissible sound levels by receiving land use. For residential land use, the Municipal Code identifies base exterior noise level limits for the daytime (7:00 a.m. to 10:00 p.m.) hours of 50 dBA L_{50} and 40 dBA L_{50} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. These standards shall apply for a cumulative period of 30 minutes in any hour (L_{50}), as well as the standard plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour (L_{25}), or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour (L_8), or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour (L_2), or the standard plus 20 dBA for any period of time (L_{max}). (12). Table 3-1 shows the City of Lake Elsinore noise standards by land use.

TABLE 3-1: OPERATIONAL EXTERIOR NOISE LEVEL STANDARDS

Land Use	Condition	Based Exterior Noise Level Standards (dBA)[2]				
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
Single-Family Residential	Daytime	50	55	60	65	70
	Nighttime	40	45	50	55	60
Multi-Family Residential	Daytime	50	55	60	65	70
	Nighttime	45	50	55	60	65
Public Space/ Light Comm.	Daytime	60	65	70	75	80
	Nighttime	55	60	65	70	75
General Commercial	Daytime	65	70	75	80	85
	Nighttime	60	65	70	75	80
Light Industrial	Anytime	70	75	80	85	90
Heavy Industrial	Anytime	75	80	85	90	95

[1] Source: City of Lake Elsinore Municipal Code, Section 17.176.060(A)(2) & Table 1 (Appendix 3.1).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

3.5 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Lake and Mountain Shopping Center Project, noise from construction activities are typically limited to the hours of operation established under a City's Municipal Code. The Municipal Code noise standards for construction are described below for the City of Lake Elsinore. The construction-related noise standards are summarized in Tables 3-2 and 3-3.

The City of Lake Elsinore has set restrictions to control noise impacts associated with the construction of the proposed Project. Section 17.176.080 (F), Construction/Demolition indicates that *operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on weekends or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work by public service utilities or by variance issued by the City is prohibited*. The Municipal code further requires construction activities to be conducted in such a manner that the maximum (L_{max}) noise levels at affected residential and commercial properties will not exceed the mobile (less than 10-day duration) and stationary equipment (greater than 10-day duration) noise standards provided below on Tables 3-2 and 3-3, respectively. (12)

TABLE 3-2: MOBILE EQUIPMENT NOISE LEVEL LIMITS

Type	Receiving Land Use Category	Time Period	Maximum Noise Levels (dBA L_{max})[1]
I	Single-Family Residential	Daytime (7:00 a.m. - 7:00 p.m.)	75
		Nighttime (7:00 p.m. - 7:00 a.m.)	60
II	Multi-Family Residential	Daytime (7:00 a.m. - 7:00 p.m.)	80
		Nighttime (7:00 p.m. - 7:00 a.m.)	65
III	Semi-Residential/ Commercial	Daytime (7:00 a.m. - 7:00 p.m.)	85
		Nighttime (7:00 p.m. - 7:00 a.m.)	70

[1] Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment, City of Lake Elsinore Municipal Code 17.176.080 (F) (Appendix 3.1).

TABLE 3-3: STATIONARY EQUIPMENT NOISE LEVEL LIMITS

Type	Receiving Land Use Category	Time Period	Maximum Noise Levels (dBA L_{max})[1]
I	Single-Family Residential	Daytime (7:00 a.m. - 7:00 p.m.)	60
		Nighttime (7:00 p.m. - 7:00 a.m.)	50
II	Multi-Family Residential	Daytime (7:00 a.m. - 7:00 p.m.)	65
		Nighttime (7:00 p.m. - 7:00 a.m.)	55
III	Semi-Residential/ Commercial	Daytime (7:00 a.m. - 7:00 p.m.)	70
		Nighttime (7:00 p.m. - 7:00 a.m.)	60

[1] Maximum noise levels for repetitively scheduled and relatively long-term operation (period of 10 days or more) of stationary equipment, City of Lake Elsinore Municipal Code 17.176.080 (F) (Appendix 3.1).

3.6 CONSTRUCTION VIBRATION STANDARDS

To analyze the vibration impacts originating from the construction of the Project, vibration from construction activities are typically evaluated against standards established under a City's Municipal Code. The Municipal Code vibration standards for construction are described below for the City of Lake Elsinore to determine the potential vibration impacts at sensitive receiver locations. The construction-related vibration standards for are summarized in Table 3-4.

3.6.1 CITY OF LAKE ELSINORE CONSTRUCTION VIBRATION STANDARDS

The City of Lake Elsinore Municipal Code, Section 17.176.080(G), states that *operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property or at 150 feet (46 meters) from the source if on public space or public right-of-way* is prohibited. The Municipal Code defines the vibration perception threshold to be a motion velocity of 0.01 in/sec over the range of one to 100 Hz, as shown on Table 3-4. (12)

TABLE 3-4: CONSTRUCTION VIBRATION STANDARDS

Jurisdiction	Root-Mean-Square (RMS) Velocity (in/sec)
City of Lake Elsinore[1]	0.01

[1] Source: City of Lake Elsinore Municipal Code, Section 17.176.080(G) (Appendix 3.1).

3.6.2 HUMAN PERCEPTION OF VIBRATION

Typically, the human response at the perception threshold for vibration includes annoyance in residential areas as previously shown on Exhibit 2-B, when vibration levels expressed in vibration decibels (VdB) approach 75 VdB. The City of Lake Elsinore, however, identifies a vibration perception threshold of 0.01 in/sec. For vibration levels expressed in velocity, the human body responds to the average vibration amplitude often described as the root-mean-square (RMS). The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a one-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to reduce the range of numbers used to describe human response to vibration. Therefore, the City of Lake Elsinore vibration standard of 0.01 in/sec in RMS velocity levels is used in this analysis to assess the human perception of vibration levels due to Project-related construction activities.

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

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

While the City of Lake Elsinore General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

The Project site is not located within an airport land use plan or within 2 miles of a public airport, or within the vicinity of a private airstrip. Therefore, the Project would not result in potential noise impacts for people residing or working at the Project site. As such, the Project does not have the potential to expose people residing or working in the Project area to excessive noise levels and no impact would occur. No further analysis of CEQA Guideline C is required.

4.1 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (13) Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (14) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft

noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (13) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS

Without Project Noise Level	Potential Significant Impact
< 60 dBA	5 dBA or more
60 - 65 dBA	3 dBA or more
> 65 dBA	1.5 dBA or more

Federal Interagency Committee on Noise (FICON), 1992.

4.2 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-2 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, school, etc.):
    - are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
    - range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase; or
    - already exceed 65 dBA, and the Project creates a community noise level increase of greater than 1.5 dBA (FICON, 1992).

OPERATIONAL NOISE

- If Project-related operational (stationary-source) noise levels exceed the exterior noise level standard at nearby sensitive receiver locations identified on Table 3-1 by land use category (City of Lake Elsinore Municipal Code, Chapter 17.176 Noise Control);
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
    - are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
    - range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase; or
    - already exceed 65 dBA, and the Project creates a community noise level increase of greater than 1.5 dBA (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities generate noise levels which exceed the mobile or stationary equipment noise level limits described on Tables 3-2 and 3-3 (City of Lake Elsinore Municipal Code, Section 17.176.080(F)).
- If short-term Project generated construction vibration levels exceed the City of Lake Elsinore maximum acceptable vibration standard of 0.01 in/sec (RMS) at sensitive receiver locations (City of Lake Elsinore Municipal Code, Section 17.176.080(G)).

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	Nighttime
Off-Site	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
	If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
	If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
Operational	≥ 30 Minutes L_{50}	See Table 3-1 for the Exterior Noise Level Standards by Land Use	
	≥ 15 Minutes L_{25}		
	≥ 5 Minutes L_8		
	≥ 1 Minute L_2		
	Anytime L_{max}		
Construction	Noise Level Threshold (<10 Days)[4]	See Table 3-2	
	Noise Level Threshold (>10 Days)[4]	See Table 3-3	
	Vibration Level Threshold[5]	0.01 in/sec RMS	

[1] Source: FICON, 1992.
[2] Source: City of Lake Elsinore General Plan, Public Safety & Welfare Element, Section 3.7 Noise, Tables 3-1 & 3-2.
[3] Source: City of Lake Elsinore Municipal Code, Chapter 17.176 Noise Control (Appendix 3.1).
[4] Source: City of Lake Elsinore Municipal Code, Section 17.176.080(F) (Appendix 3.1).
[5] Source: City of Lake Elsinore Municipal Code, Section 17.176.080(G) (Appendix 3.1).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, five 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, October 9th, 2019. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (15)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent any part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (3) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby

sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels in a vacant lot north of single-family home at 28885 Raveta Lane approximately 500 feet east of Stonebridge Terrace. The noise level measurements collected show an overall 24-hour exterior noise level of 53.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 46.3 dBA L_{eq} with an average nighttime noise level of 46.5 dBA L_{eq}.
- Location L2 represents the noise levels north of Project site southeast of 28891 Lake Street adjacent to dirt road. The noise level measurements collected show an overall 24-hour exterior noise level of 62.6 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 58.0 dBA L_{eq} with an average nighttime noise level of 55.5 dBA L_{eq}.
- Location L3 represents the noise levels across the street from single family home at 3764 Ash Street. The 24-hour CNEL indicates that the overall exterior noise level is 61.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 57.1 dBA L_{eq} with an average nighttime noise level of 53.9 dBA L L_{eq}.
- Location L4 represents the noise levels on Mountain Street north of single-family home at 14851 Noblewood Circle. The noise level measurements collected show an overall 24-hour exterior noise level of 68.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 64.6 dBA L_{eq} with an average nighttime noise level of 61.1 dBA L_{eq}.
- Location L5 represents the noise levels n Mountain Street north of single-family home at 14859 Noblewood Circle. The 24-hour CNEL indicates that the overall exterior noise level is 70.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 65.3 dBA L_{eq} with an average nighttime noise level of 63.5 dBA L L_{eq}.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network. The 24-hour existing noise level measurements shown on Table 5-1 present the existing ambient noise conditions.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Distance to Project Boundary (Feet)	Description	Energy Average Noise Level (dBA L_{eq})[2]		Median Noise Level (dBA L_{50})[2]		CNEL
			Daytime	Nighttime	Daytime	Nighttime	
L1	185'	Located in a vacant lot north of single-family home at 28885 Raveta Lane approximately 500 feet east of Stonebridge Terrace.	46.3	46.5	42.4	42.9	53.1
L2	10'	Located north of Project site southeast of 28891 Lake Street adjacent to dirt road.	58.0	55.5	52.4	49.3	62.6
L3	350'	Located across the street from single family home at 3764 Ash Street.	57.1	53.9	47.6	45.3	61.1
L4	65'	Located along Mountain Street north of single-family home at 14851 Noblewood Circle	64.6	61.1	57.2	50.3	68.5
L5	70'	Located on Mountain Street north of single-family home at 14859 Noblewood Circle.	65.3	63.5	52.7	46.4	70.4

[1] See Exhibit 5-A for the noise level measurement locations.
[2] The long-term 24-hour measurement printouts are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (16) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (17) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the eight study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Lake Elsinore General Plan Community Form Element, and the posted vehicle speeds. For this analysis, soft site conditions are used to analyze the traffic noise impacts within the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this noise study. (18)

The average daily traffic volumes used for this study are presented on Tables 6-2 and 6-3, and are provided by the *Lake and Mountain Shopping Center Traffic Impact Analysis* prepared by Urban Crossroads, Inc. for Existing (2019), Existing plus Ambient (EA) 2019, and Existing plus Ambient plus Cumulative (EAC) 2021 traffic conditions.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Adjacent Planned Land Use[1]	Distance from Centerline to Nearest Adjacent Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	Lake St.	n/o Nichols Rd.	Commercial	60'	50
2	Lake St.	s/o Nichols Rd.	Commercial	60'	50
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	60'	50
4	Lake St.	n/o Mountain St.	Residential	60'	50
5	Lake St.	s/o Mountain St.	Residential	60'	50
6	Lake St.	s/o Lakeshore Dr.	Residential/School	50'	50
7	Lincoln St.	s/o Grand Av.	Residential	50'	40
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	60'	50
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	39'	40
11	Lakeshore Drive	e/o Lake St.	Residential	60'	50
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	60'	50
13	Grand Av.	w/o Lincoln St.	Residential	50'	45
14	Grand Av.	e/o Lincoln St.	Residential	50'	45

[1] Sources: City of Lake Elsinore General Plan, Community Form Element, Figure 2.1A Land Use Plan and Google Earth aerial imagery.
[2] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification.
[3] Source: Lake and Mountain Shopping Center Traffic Impact Analysis, Urban Crossroads, Inc.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic (1,000's)[1]					
			Existing (2019)		Existing + Ambient		EA + Cumulative	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Lake St.	n/o Nichols Rd.	16.6	17.1	17.3	17.8	18.3	18.8
2	Lake St.	s/o Nichols Rd.	21.5	22.2	22.4	23.1	23.2	23.9
3	Lake St.	s/o Alberhill Ranch Rd.	22.0	22.9	22.9	23.8	23.8	24.7
4	Lake St.	n/o Mountain St.	21.9	23.4	22.9	24.3	23.8	25.2
5	Lake St.	s/o Mountain St.	20.9	22.9	21.8	23.8	22.6	24.6
6	Lake St.	s/o Lakeshore Dr.	17.7	22.8	22.5	23.6	23.4	24.5
7	Lincoln St.	s/o Grand Av.	5.0	5.2	5.2	5.4	5.3	5.5
9	Nichols Rd.	e/o Lake St.	6.5	6.8	6.8	7.0	7.9	8.1
10	Alberhill Ranch Rd.	e/o Lake St.	1.5	1.7	1.6	1.8	2.0	2.2
11	Lakeshore Drive	e/o Lake St.	10.0	10.9	10.4	11.3	10.8	11.7
12	Lakeshore Drive	e/o Terra Cotta Rd.	13.1	13.5	13.7	14.1	14.1	14.5
13	Grand Av.	w/o Lincoln St.	10.7	11.2	11.1	11.6	11.3	11.8
14	Grand Av.	e/o Lincoln St.	12.8	13.7	13.3	14.2	13.7	14.6

[1] Source: Lake and Mountain Shopping Center Traffic Impact Analysis, Urban Crossroads, Inc.

Table 6-3 presents the time of day vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time Period	Vehicle Type		
	Autos	Medium Trucks	Heavy Trucks
Daytime (7:00 a.m. - 7:00 p.m.)	77.5%	84.8%	86.5%
Evening (7:00 p.m. - 10:00 p.m.)	12.9%	4.9%	2.7%
Nighttime (10:00 p.m. - 7:00 a.m.)	9.6%	10.3%	10.8%
Total:	100.0%	100.0%	100.0%

Source: Typical Southern California vehicle mix.

TABLE 6-4: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Roadway	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Roadways[2]	97.42%	1.84%	0.74%	100.00%

[1] Source: County of Riverside Office of Industrial Hygiene.

6.3 CONSTRUCTION VIBRATION ASSESSMENT METHODOLOGY

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

While vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment

7 OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on the *Lake and Mountain Shopping Center Traffic Impact Analysis*. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing 2019 Without / With Project: This scenario refers to the existing 2019 present-day noise conditions, without and with the proposed Project.
- Existing 2019 plus Ambient Growth (EA) 2018 Without / With Project: This scenario refers to the background noise conditions without and with the proposed Project plus ambient growth.
- EA plus Cumulative (EAC) 2021 Without / With Project: This scenario refers to the background noise conditions without and with the proposed Project plus ambient growth. This scenario corresponds to 2021 conditions, and includes all cumulative projects identified in the Traffic Impact Analysis.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 through 7-6 present a summary of the exterior traffic noise levels, without barrier attenuation, for the study area roadway segments analyzed from the without Project to the with Project conditions in each traffic scenario. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING 2019 WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Lake St.	n/o Nichols Rd.	Commercial	70.1	61	130	281
2	Lake St.	s/o Nichols Rd.	Commercial	71.2	72	155	334
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.3	73	157	339
4	Lake St.	n/o Mountain St.	Residential	71.3	73	157	338
5	Lake St.	s/o Mountain St.	Residential	71.1	71	152	328
6	Lake St.	s/o Lakeshore Dr.	Residential/School	71.1	60	128	276
7	Lincoln St.	s/o Grand Av.	Residential	63.2	RW	RW	82
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.0	RW	70	150
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	58.9	RW	RW	RW
11	Lakeshore Drive	e/o Lake St.	Residential	67.9	RW	93	200
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.0	RW	111	240
13	Grand Av.	w/o Lincoln St.	Residential	67.8	RW	77	166
14	Grand Av.	e/o Lincoln St.	Residential	68.6	RW	87	187

[1] Sources: City of Lake Elsinore General Plan, Community Form Element, Figure 2.1A Land Use Plan and Google Earth aerial imagery.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING 2019 WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Lake St.	n/o Nichols Rd.	Commercial	70.2	62	133	287
2	Lake St.	s/o Nichols Rd.	Commercial	71.3	73	158	341
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.5	75	162	348
4	Lake St.	n/o Mountain St.	Residential	71.6	76	164	353
5	Lake St.	s/o Mountain St.	Residential	71.5	75	162	348
6	Lake St.	s/o Lakeshore Dr.	Residential/School	72.2	70	152	327
7	Lincoln St.	s/o Grand Av.	Residential	63.4	RW	RW	84
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.2	RW	72	155
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	59.4	RW	RW	RW
11	Lakeshore Drive	e/o Lake St.	Residential	68.2	RW	99	212
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.2	53	114	245
13	Grand Av.	w/o Lincoln St.	Residential	68.0	RW	79	171
14	Grand Av.	e/o Lincoln St.	Residential	68.9	RW	91	195

[1] Sources: City of Lake Elsinore General Plan, Community Form Element, Figure 2.1A Land Use Plan and Google Earth aerial imagery.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: EA 2019 WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Lake St.	n/o Nichols Rd.	Commercial	70.2	62	134	289
2	Lake St.	s/o Nichols Rd.	Commercial	71.4	74	159	343
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.5	75	162	348
4	Lake St.	n/o Mountain St.	Residential	71.5	75	162	348
5	Lake St.	s/o Mountain St.	Residential	71.2	73	156	337
6	Lake St.	s/o Lakeshore Dr.	Residential/School	72.2	70	151	324
7	Lincoln St.	s/o Grand Av.	Residential	63.4	RW	RW	84
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.2	RW	72	155
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	59.1	RW	RW	RW
11	Lakeshore Drive	e/o Lake St.	Residential	68.0	RW	96	206
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.2	RW	115	247
13	Grand Av.	w/o Lincoln St.	Residential	68.0	RW	79	170
14	Grand Av.	e/o Lincoln St.	Residential	68.7	RW	89	191

[1] Sources: City of Lake Elsinore General Plan, Community Form Element, Figure 2.1A Land Use Plan and Google Earth aerial imagery.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: EA 2019 WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Lake St.	n/o Nichols Rd.	Commercial	70.4	63	137	294
2	Lake St.	s/o Nichols Rd.	Commercial	71.5	75	163	350
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.6	77	166	357
4	Lake St.	n/o Mountain St.	Residential	71.7	78	168	362
5	Lake St.	s/o Mountain St.	Residential	71.6	77	166	357
6	Lake St.	s/o Lakeshore Dr.	Residential/School	72.4	72	155	335
7	Lincoln St.	s/o Grand Av.	Residential	63.6	RW	RW	86
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.3	RW	73	158
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	59.6	RW	RW	RW
11	Lakeshore Drive	e/o Lake St.	Residential	68.4	RW	101	217
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.4	54	117	252
13	Grand Av.	w/o Lincoln St.	Residential	68.2	RW	81	175
14	Grand Av.	e/o Lincoln St.	Residential	69.0	RW	93	200

[1] Sources: City of Lake Elsinore General Plan, Community Form Element, Figure 2.1A Land Use Plan and Google Earth aerial imagery.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: EAC 2019 WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Lake St.	n/o Nichols Rd.	Commercial	70.5	65	139	300
2	Lake St.	s/o Nichols Rd.	Commercial	71.5	76	163	351
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.6	77	166	357
4	Lake St.	n/o Mountain St.	Residential	71.6	77	166	357
5	Lake St.	s/o Mountain St.	Residential	71.4	74	160	345
6	Lake St.	s/o Lakeshore Dr.	Residential/School	72.4	72	155	333
7	Lincoln St.	s/o Grand Av.	Residential	63.5	RW	RW	85
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.8	RW	80	171
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	60.1	RW	RW	40
11	Lakeshore Drive	e/o Lake St.	Residential	68.2	RW	98	211
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.4	54	117	252
13	Grand Av.	w/o Lincoln St.	Residential	68.0	RW	80	172
14	Grand Av.	e/o Lincoln St.	Residential	68.9	RW	91	195

[1] Sources: City of Lake Elsinore General Plan, Community Form Element, Figure 2.1A Land Use Plan and Google Earth aerial imagery.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: EAC 2019 WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	Lake St.	n/o Nichols Rd.	Commercial	70.6	66	142	305
2	Lake St.	s/o Nichols Rd.	Commercial	71.6	77	166	358
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.8	79	170	366
4	Lake St.	n/o Mountain St.	Residential	71.9	80	172	371
5	Lake St.	s/o Mountain St.	Residential	71.8	79	170	365
6	Lake St.	s/o Lakeshore Dr.	Residential/School	72.6	74	159	343
7	Lincoln St.	s/o Grand Av.	Residential	63.6	RW	41	87
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.9	RW	81	174
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	60.5	RW	RW	RW
11	Lakeshore Drive	e/o Lake St.	Residential	68.5	RW	103	223
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.5	55	119	257
13	Grand Av.	w/o Lincoln St.	Residential	68.2	38	82	177
14	Grand Av.	e/o Lincoln St.	Residential	69.2	44	95	204

[1] Sources: City of Lake Elsinore General Plan, Community Form Element, Figure 2.1A Land Use Plan and Google Earth aerial imagery.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVELS

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report. However, the analysis of existing traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until future cumulative conditions.

Table 7-1 presents the Existing without Project conditions CNEL noise levels. The exterior noise levels are shown to range from 58.9 to 71.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 59.4 to 72.2 dBA CNEL. As shown on Table 7-7 the Project will generate a noise level increase of up to 1.1 dBA CNEL on the study area roadway segments.

TABLE 7-7: EXISTING OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Planned (Existing) Land Use	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive?
				No Project	With Project	Project Addition	
1	Lake St.	n/o Nichols Rd.	Commercial	70.1	70.2	0.1	No
2	Lake St.	s/o Nichols Rd.	Commercial	71.2	71.3	0.1	No
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.3	71.5	0.2	No
4	Lake St.	n/o Mountain St.	Residential	71.3	71.6	0.3	No
5	Lake St.	s/o Mountain St.	Residential	71.1	71.5	0.4	No
6	Lake St.	s/o Lakeshore Dr.	Residential/School	71.1	72.2	1.1	No
7	Lincoln St.	s/o Grand Av.	Residential	63.2	63.4	0.2	No
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.0	66.2	0.2	No
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	58.9	59.4	0.5	No
11	Lakeshore Drive	e/o Lake St.	Residential	67.9	68.2	0.3	No
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.0	69.2	0.2	No
13	Grand Av.	w/o Lincoln St.	Residential	67.8	68.0	0.2	No
14	Grand Av.	e/o Lincoln St.	Residential	68.6	68.9	0.3	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[2] Significance Criteria (Section 4).

7.3 EXISTING PLUS AMBIENT CONDITION PROJECT TRAFFIC NOISE LEVELS

Table 7-3 presents the EA 2019 without Project conditions CNEL noise levels which are expected to range from 59.1 to 72.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the EA 2019 with Project conditions will range from 59.6 to 72.4 dBA CNEL. As shown on Table 7-8 the Project will generate a noise level increase of up to 0.5 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under EA 2019 with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-8: EA 2019 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Planned (Existing) Land Use	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive?
				No Project	With Project	Project Addition	
1	Lake St.	n/o Nichols Rd.	Commercial	70.2	70.4	0.2	No
2	Lake St.	s/o Nichols Rd.	Commercial	71.4	71.5	0.1	No
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.5	71.6	0.1	No
4	Lake St.	n/o Mountain St.	Residential	71.5	71.7	0.2	No
5	Lake St.	s/o Mountain St.	Residential	71.2	71.6	0.4	No
6	Lake St.	s/o Lakeshore Dr.	Residential/School	72.2	72.4	0.2	No
7	Lincoln St.	s/o Grand Av.	Residential	63.4	63.6	0.2	No
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.2	66.3	0.1	No
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	59.1	59.6	0.5	No
11	Lakeshore Drive	e/o Lake St.	Residential	68.0	68.4	0.4	No
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.2	69.4	0.2	No
13	Grand Av.	w/o Lincoln St.	Residential	68.0	68.2	0.2	No
14	Grand Av.	e/o Lincoln St.	Residential	68.7	69.0	0.3	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[2] Significance Criteria (Section 4).

7.4 EA PLUS CUMULATIVE CONDITION PROJECT TRAFFIC NOISE LEVELS

Table 7-5 presents the EAC 2019 without Project conditions CNEL noise levels which are expected to range from 60.1 to 72.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the EAC 2019 with Project conditions will range from 60.5 to 72.6 dBA CNEL. As shown on Table 7-9 the Project will generate a noise level increase of up to 0.4 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under EAC 2018 with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-9: EAC 2019 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Planned (Existing) Land Use	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive?
				No Project	With Project	Project Addition	
1	Lake St.	n/o Nichols Rd.	Commercial	70.5	70.6	0.1	No
2	Lake St.	s/o Nichols Rd.	Commercial	71.5	71.6	0.1	No
3	Lake St.	s/o Alberhill Ranch Rd.	Commercial/Residential	71.6	71.8	0.2	No
4	Lake St.	n/o Mountain St.	Residential	71.6	71.9	0.3	No
5	Lake St.	s/o Mountain St.	Residential	71.4	71.8	0.4	No
6	Lake St.	s/o Lakeshore Dr.	Residential/School	72.4	72.6	0.2	No
7	Lincoln St.	s/o Grand Av.	Residential	63.5	63.6	0.1	No
9	Nichols Rd.	e/o Lake St.	Commercial/Residential	66.8	66.9	0.1	No
10	Alberhill Ranch Rd.	e/o Lake St.	Residential	60.1	60.5	0.4	No
11	Lakeshore Drive	e/o Lake St.	Residential	68.2	68.5	0.3	No
12	Lakeshore Drive	e/o Terra Cotta Rd.	Residential	69.4	69.5	0.1	No
13	Grand Av.	w/o Lincoln St.	Residential	68.0	68.2	0.2	No
14	Grand Av.	e/o Lincoln St.	Residential	68.9	69.2	0.3	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[2] Significance Criteria (Section 4).

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8 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following receiver locations as shown on Exhibit 8-A were identified as representative locations for focused analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Sensitive receivers near the Project site include existing residential homes and school uses, as described below. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

R1: Located approximately 53 feet north of the Project site, R1 represents an existing single-family home at 28891 Lake Street. A 24-hour noise level measurement was taken near this location, L2, to describe the existing ambient noise environment.

R2: Location R2 represents existing single-family home at 3748 Ash Street located approximately 191 feet east of the Project site. A 24-hour noise level measurement was taken near this location, L3, to describe the existing ambient noise environment.

R3: Location R3 represents the existing single-family home at 14851 Noblewood Circle roughly 109 feet south of the Project site. A 24-hour noise level measurement was taken near this location, L4, to describe the existing ambient noise environment.

R4: Location R4 represents the existing single-family home at 14857 Noblewood Circle located approximately 92 feet south of the Project site. A 24-hour noise level measurement was taken near this location, L5, to describe the existing ambient noise environment.

R5: Location R5 represents an existing single-family home located at 1510 Mountain Street approximately 371 feet west of the Project site. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.

R6: Location R6 represents an existing single-family home located roughly 85 feet west of the Project site at 28885 Raveta Lane. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.

EXHIBIT 8-A: RECEIVER LOCATIONS



9 OPERATIONAL IMPACTS

This section analyzes the potential operational noise impacts due to the Project's stationary noise sources on the off-site sensitive receiver locations identified in Section 9. Exhibit 9-A identifies the receiver locations and noise source locations used to assess the Project-related operational noise levels.

9.1 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts.

It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top air conditioning units, drive-thru speakerphones, trash enclosures, parking lots, gas station activity, car wash tunnels and car wash vacuum activity all operating simultaneously. These noise level impacts will vary throughout the day. All noise sources were modeled assuming peak operational activity with no periods of inactivity, and are assumed to operate simultaneously, to present a conservative analysis.

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Measurement Duration (hh:mm:ss)	Distance From Source (Feet)	Noise Source Height (Feet)	Reference Noise Levels (dBA L_{50})	
				@ Ref. Dist.	@ 50 Feet
Roof-Top Air Conditioning Units[1]	96:00:00	5'	5'	74.4	54.4
Drive-Through Speakerphone[2]	00:03:00	15'	3'	60.9	50.4
Trash Enclosure Activity[3]	00:00:32	5'	5'	69.0	49.0
Commercial Parking Lot[4]	00:00:13	5'	5'	56.7	36.7
Gas Station Activities[5]	01:00:00	5'	5'	65.6	45.6
Car Wash Tunnel[6]	00:03:04	10'	8'	81.6	67.6
Car Wash Vacuum[7]	00:01:02	5'	3'	74.2	54.2

[1] As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.
[2] As measured by Urban Crossroads, Inc. on 12/19/2014 at a Panera Bread drive-thru in the City of Brea.
[3] As measured by Urban Crossroads, Inc. on 5/3/2018 at trash enclosure in a parking lot in the City of Costa Mesa.
[4] As measured by Urban Crossroads, Inc. on 5/30/2012 at the Laguna Niguel Walmart located at 27470 Alicia Parkway.
[5] As measured by Urban Crossroads, Inc. on 4/26/2016 at an ARCO gas station located at 6501 Quail Hill Parkway in the City of Irvine.
[6] As measured by Urban Crossroads, Inc. on 6/6/2016 at the Audi Mission Viejo Dealership located at 28451 Marguerite Parkway.
[7] As measured by Urban Crossroads, Inc. on 5/27/2011 at an express car wash located at 1195 Baker Street in Costa Mesa.

9.1.1 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units at the Project site, reference noise levels measurements were taken at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a single mechanical roof-top air conditioning unit on the roof of an existing Walmart store with additional background units. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit in addition to background units operating simultaneously. Using a uniform reference distance of 50 feet, the reference noise level noise level is 54.4 dBA L_{50}. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement.

9.1.2 DRIVE-THROUGH SPEAKERPHONE

To describe the potential noise level impacts associated with potential drive-through speakerphones and vehicle activities, a reference noise level measurement was collected on Friday, December 19th, 2014 at a Panera Bread restaurant located at 423 South Associated Road in the City of Brea. The reference noise levels collected at the Panera Bread restaurant are expected to reflect potential drive-through speakerphone noise level activities at the Project site, since the reference measurement includes both drive-through speakerphone and vehicle activity noise. The noise sources included in the reference noise level measurement consist of voices of the Panera Bread employees over the speakerphone, customers' voices ordering food, car engines idling, car radios playing music, and cars queuing in the drive-through lane. At 50 feet from the speakerphone, a reference noise level of 50.4 dBA L_{50} was measured. This reference noise level measurement overstates the actual average noise levels since it represents the average of 28 speakerphone menu board ordering events observed over a two-hour period. In other words, the Panera Bread speakerphone menu board reference noise level describes continuous drive-through operations and does not include any periods of inactivity.

9.1.3 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure, Urban Crossroads collected a reference noise level measurement on May 3rd, 2018 at an existing commercial and office park trash enclosure within a parking lot on the northeast corner of Baker Street and Red Hill Avenue. The measured reference noise level at the uniform 50-foot reference distance is 49.0 dBA L_{50} for the trash enclosure activity. The trash enclosure activity noise levels include two metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster, and background parking lot vehicle movements.

9.1.4 COMMERCIAL PARKING LOT

To determine the noise levels associated with commercial parking lot vehicle movements, Urban Crossroads collected reference noise level measurements at the Laguna Niguel Walmart located at 27470 Alicia Parkway on May 30, 2012. The 15-minute noise level measurement indicates that the parking lot vehicle movements generates noise levels of 36.7 dBA L_{50} at a normalized distance of 50 feet. The parking lot noise levels are mainly due to cars pulling in and out of spaces, car alarms sounding, and customers moving shopping carts.

9.1.5 GAS STATION ACTIVITIES

To describe the potential noise level impacts created by the gas station of the Project, a reference noise level measurement was collected on Tuesday, April 26th, 2016 at an ARCO gas station located at 6501 Quail Hill Parkway in the City of Irvine. The reference noise level measurement includes six cars fueling at once, car doors closing, engines starting, fuel pump TV sounds and background car pass-by events within a 3-minute period. At 50 feet from the gas station, a reference noise level of 45.6 dBA L_{50} was measured.

9.1.6 CAR WASH TUNNEL AIR BLOWERS

On June 10th, 2016, a reference noise level measurement was taken by Urban Crossroads at the Audi Mission Viejo dealership to describe the air blowers used in a car wash tunnel. A reference noise level of 67.6 dBA L_{50} was measured at the uniform distance of 50 feet. The reference noise level measurement includes an exposed five-unit air blower system with background pressure washer noise and is used to represent the proposed Project facilities. It is anticipated that the air dryers within the proposed car wash will operate continuously during the peak operating conditions. Further, this noise analysis does not include any additional attenuation or directional influence provided by locating the car wash air blower and dryer equipment inside the tunnel itself, but rather, models the tunnel exit activities as occurring at the building façade. As such, the analysis may conservatively overstate actual noise levels produced by the car wash tunnel air blower and dryer equipment.

9.1.7 CAR WASH VACUUM ACTIVITY

To represent the self-serve vacuums within the Project site, a reference noise level measurement was collected on May 27th, 2011 at an express car wash located at 1195 Baker Street in the City of Costa Mesa. The reference noise level measurement represents up to four vacuums operating simultaneously at the Costa Mesa express car wash. At a uniform reference distance of 50 feet, the vacuum reference noise level is 54.2 dBA L_{50}. This reference car wash vacuum activity noise level is anticipated to conservatively overstate those of the Project, since this reference noise level includes more vacuums operating simultaneously (4 vacuums) than what will be possible at the Project site (2 vacuums).

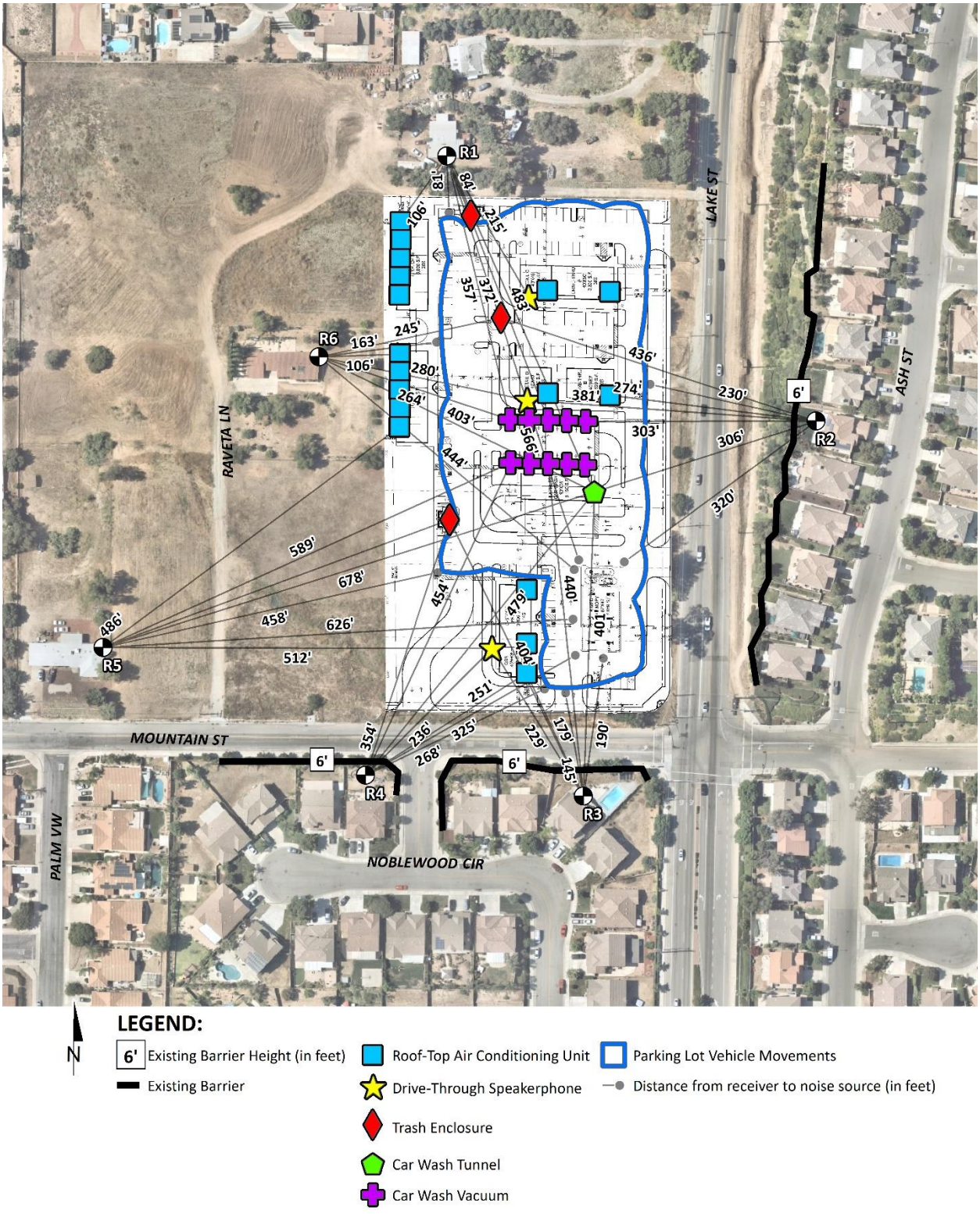
9.2 PROJECT OPERATIONAL NOISE LEVELS

Based upon the reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each of the sensitive receiver locations. The operational noise level calculations shown on Table 9-2 account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL_1):

$$SPL_2 = SPL_1 - 20\log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS



9.2.1 UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS

Table 9-2 indicates that the unmitigated combined Project operational noise levels associated with the roof-top air conditioning units, drive-thru speakerphones, trash enclosures, parking lots, gas station activity, car wash tunnels and car wash vacuum activity are expected to range from 39.6 to 46.9 dBA L_{50} at the noise-sensitive off-site receiver locations. The unmitigated operational noise level calculation worksheets are included in Appendix 9.1.

TABLE 9-2: UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS

Receiver Location[1]	Noise Sources[2]	Operational Noise Levels (dBA)[3]				
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
R1	Air Conditioning Unit (Roof-Top)	35.4	37.1	38.4	38.7	39.2
	Drive-Through Speakerphone	24.4	25.6	27.1	28.8	29.9
	Trash Enclosure	29.5	35.5	42.5	47.5	49.0
	Parking Lot	32.5	36.5	39.5	42.9	55.3
	Gas Station Activity	24.5	25.8	28.4	33.3	41.3
	Car Wash Tunnel	39.0	49.4	50.0	50.7	51.2
	Car Wash Vacuum Activity	23.2	24.4	26.2	27.0	27.8
	Combined Noise Level:	41.7	50.1	51.3	53.1	57.6
R2	Air Conditioning Unit (Roof-Top)	31.5	33.2	34.5	34.8	35.3
	Drive-Through Speakerphone	26.8	28.0	29.5	31.2	32.3
	Trash Enclosure	19.6	25.6	32.6	37.6	39.1
	Parking Lot	16.9	20.9	23.9	27.3	39.7
	Gas Station Activity	23.3	24.6	27.2	32.1	40.1
	Car Wash Tunnel	46.0	56.4	57.0	57.7	58.2
	Car Wash Vacuum Activity	38.6	39.8	41.6	42.4	43.2
	Combined Noise Level:	46.9	56.5	57.2	57.9	58.5
R3	Air Conditioning Unit (Roof-Top)	34.1	35.8	37.1	37.4	37.9
	Drive-Through Speakerphone	30.9	32.1	33.6	35.3	36.4
	Trash Enclosure	20.9	26.9	33.9	38.9	40.4
	Parking Lot	19.6	23.6	26.6	30.0	42.4
	Gas Station Activity	26.6	27.9	30.5	35.4	43.4
	Car Wash Tunnel	44.1	54.5	55.1	55.8	56.3
	Car Wash Vacuum Activity	30.1	31.3	33.1	33.9	34.7
	Combined Noise Level:	44.9	54.6	55.3	56.1	56.9

Receiver Location[1]	Noise Sources[2]	Operational Noise Levels (dBA)[3]				
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
R4	Air Conditioning Unit (Roof-Top)	32.8	34.5	35.8	36.1	36.6
	Drive-Through Speakerphone	27.0	28.2	29.7	31.4	32.5
	Trash Enclosure	17.1	23.1	30.1	35.1	36.6
	Parking Lot	12.1	16.1	19.1	22.5	34.9
	Gas Station Activity	19.3	20.6	23.2	28.1	36.1
	Car Wash Tunnel	37.9	48.3	48.9	49.6	50.1
	Car Wash Vacuum Activity	24.9	26.1	27.9	28.7	29.5
	Combined Noise Level:	39.6	48.6	49.3	50.1	50.8
R5	Air Conditioning Unit (Roof-Top)	14.6	16.3	17.6	17.9	18.4
	Drive-Through Speakerphone	30.2	31.4	32.9	34.6	35.7
	Trash Enclosure	8.0	14.0	21.0	26.0	27.5
	Parking Lot	17.5	21.5	24.5	27.9	40.3
	Gas Station Activity	17.8	19.1	21.7	26.6	34.6
	Car Wash Tunnel	45.0	55.4	56.0	56.7	57.2
	Car Wash Vacuum Activity	32.8	34.0	35.8	36.6	37.4
	Combined Noise Level:	45.4	55.5	56.1	56.8	57.4
R6	Air Conditioning Unit (Roof-Top)	31.4	33.1	34.4	34.7	35.2
	Drive-Through Speakerphone	22.1	23.3	24.8	26.5	27.6
	Trash Enclosure	30.4	36.4	43.4	48.4	49.9
	Parking Lot	26.4	30.4	33.4	36.8	49.2
	Gas Station Activity	15.3	16.6	19.2	24.1	32.1
	Car Wash Tunnel	38.3	48.7	49.3	50.0	50.5
	Car Wash Vacuum Activity	26.3	27.5	29.3	30.1	30.9
	Combined Noise Level:	40.1	49.2	50.5	52.5	54.8

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 9-1.
[3] Stationary source noise level calculations are provided in Appendix 9.1.

9.2.2 UNMITIGATED PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE WITH APPLICABLE STANDARDS

Table 9-3 indicates that the noise levels associated with Project operational noise sources are expected to range from 39.6 to 46.9 dBA L_{50} at sensitive off-site sensitive receiver locations. Table 9-3 shows that the Project operational-source noise levels at potentially affected receivers exceed the City of Lake Elsinore daytime and nighttime exterior noise level standards without mitigation. Therefore, the unmitigated Project operational noise level impacts are considered *potentially significant.*

TABLE 9-3: UNMITIGATED OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Land Use	Noise Level at Receiver Locations (dBA)[2]					Threshold Exceeded?[3]	
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)	Daytime	Nighttime
Exterior Noise Level Standards	**Daytime Residential**	**50**	**55**	**60**	**65**	**70**	**-**	**-**
	Nighttime Residential	**40**	**45**	**50**	**55**	**60**	**-**	**-**
R1	Residential	41.7	50.1	51.3	53.1	57.6	No	Yes
R2	Residential	46.9	56.5	57.2	57.9	58.5	Yes	Yes
R3	Residential	44.9	54.6	55.3	56.1	56.9	No	Yes
R4	Residential	39.6	48.6	49.3	50.1	50.8	No	Yes
R5	Residential	45.4	55.5	56.1	56.8	57.4	Yes	Yes
R6	Residential	40.1	49.2	50.5	52.5	54.8	No	Yes

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Estimated Project operational noise levels as shown on Table 9-2.
[3] Do the Project operational noise levels satisfy the operational noise level standards? "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.2.3 MITIGATED PROJECT OPERATIONAL NOISE LEVELS

To reduce the *potentially significant* Project operational noise level increases for noise sensitive receivers, several noise mitigation measures are considered in this report. To satisfy the applicable local noise standards the project shall implement the following operational noise mitigation measures.

- No car wash activities shall be permitted during the nighttime hours of 10:00 p.m. to 7:00 a.m.
- Reduce the car wash air blower and dryer equipment noise by locating the equipment inside the tunnel and/or utilize sound rated air blower and dryer equipment measuring no more than 71 dBA L_{50} at 10 feet.
- Incorporate parapet walls where appropriate; and
- Incorporate on-site noise barriers, landscaping, or similar physical features that would act to generally attenuate noise emanating from the Project related noise sources.
- If an outdoor speaker system is being used in conjunction with a Project, the outdoor speaker system shall be oriented away from sensitive receivers and the volume set at a level not readily audible past the property line.

Table 9-4 indicates that the mitigated daytime Project operational noise levels associated with the roof-top air conditioning units, drive-thru speakerphones, trash enclosures, parking lots, gas station activity, car wash tunnels and car wash vacuum activity are expected to range from 35.5 to 41.4 dBA L_{50} at the noise-sensitive off-site receiver locations. The mitigated operational noise level calculation worksheets are included in Appendix 9.2.

TABLE 9-4: MITIGATED (DAYTIME) PROJECT OPERATIONAL NOISE LEVELS

Receiver Location[1]	Noise Sources[2]	Operational Noise Levels (dBA)[3]				
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
R1	Air Conditioning Unit (Roof-Top)	35.4	37.1	38.4	38.7	39.2
	Drive-Through Speakerphone	24.4	25.6	27.1	28.8	29.9
	Trash Enclosure	29.5	35.5	42.5	47.5	49.0
	Parking Lot	38.6	42.6	45.6	49.0	61.4
	Gas Station Activity	24.5	25.8	28.4	33.3	41.3
	Car Wash Tunnel	29.0	39.4	40.0	40.7	41.2
	Car Wash Vacuum Activity	23.2	24.4	26.2	27.0	27.8
	Combined Noise Level:	41.2	45.6	48.6	52.0	61.8
R2	Air Conditioning Unit (Roof-Top)	31.5	33.2	34.5	34.8	35.3
	Drive-Through Speakerphone	26.8	28.0	29.5	31.2	32.3
	Trash Enclosure	19.6	25.6	32.6	37.6	39.1
	Parking Lot	25.3	29.3	32.3	35.7	48.1
	Gas Station Activity	23.3	24.6	27.2	32.1	40.1
	Car Wash Tunnel	36.0	46.4	47.0	47.7	48.2
	Car Wash Vacuum Activity	38.6	39.8	41.6	42.4	43.2
	Combined Noise Level:	41.4	47.6	48.6	49.6	52.4
R3	Air Conditioning Unit (Roof-Top)	34.1	35.8	37.1	37.4	37.9
	Drive-Through Speakerphone	30.9	32.1	33.6	35.3	36.4
	Trash Enclosure	20.9	26.9	33.9	38.9	40.4
	Parking Lot	26.9	30.9	33.9	37.3	49.7
	Gas Station Activity	26.6	27.9	30.5	35.4	43.4
	Car Wash Tunnel	34.1	44.5	45.1	45.8	46.3
	Car Wash Vacuum Activity	30.1	31.3	33.1	33.9	34.7
	Combined Noise Level:	39.3	45.7	46.8	48.2	52.6
R4	Air Conditioning Unit (Roof-Top)	32.8	34.5	35.8	36.1	36.6
	Drive-Through Speakerphone	27.0	28.2	29.7	31.4	32.5
	Trash Enclosure	17.1	23.1	30.1	35.1	36.6
	Parking Lot	20.8	24.8	27.8	31.2	43.6
	Gas Station Activity	19.3	20.6	23.2	28.1	36.1
	Car Wash Tunnel	27.9	38.3	38.9	39.6	40.1
	Car Wash Vacuum Activity	24.9	26.1	27.9	28.7	29.5
	Combined Noise Level:	35.5	40.5	41.7	43.1	46.9

Receiver Location[1]	Noise Sources[2]	Operational Noise Levels (dBA)[3]				
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
R5	Air Conditioning Unit (Roof-Top)	14.6	16.3	17.6	17.9	18.4
	Drive-Through Speakerphone	30.2	31.4	32.9	34.6	35.7
	Trash Enclosure	8.0	14.0	21.0	26.0	27.5
	Parking Lot	27.3	31.3	34.3	37.7	50.1
	Gas Station Activity	17.8	19.1	21.7	26.6	34.6
	Car Wash Tunnel	35.0	45.4	46.0	46.7	47.2
	Car Wash Vacuum Activity	32.8	34.0	35.8	36.6	37.4
	Combined Noise Level:	38.3	46.0	46.9	47.9	52.2
R6	Air Conditioning Unit (Roof-Top)	31.4	33.1	34.4	34.7	35.2
	Drive-Through Speakerphone	22.1	23.3	24.8	26.5	27.6
	Trash Enclosure	30.4	36.4	43.4	48.4	49.9
	Parking Lot	34.0	38.0	41.0	44.4	56.8
	Gas Station Activity	15.3	16.6	19.2	24.1	32.1
	Car Wash Tunnel	28.3	38.7	39.3	40.0	40.5
	Car Wash Vacuum Activity	26.3	27.5	29.3	30.1	30.9
	Combined Noise Level:	38.0	43.2	46.7	50.5	57.7

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 9-1.
[3] Stationary source noise level calculations are provided in Appendix 9.2.

9.2.4 MITIGATED (DAYTIME) PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE WITH APPLICABLE STANDARDS

As indicated on Table 9-5, with incorporation proposed mitigation, Project operational-source noise received at potentially affected receivers would comply with applicable standards. On this basis, as mitigated, the potential for the Project to result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies would be *less than significant*.

TABLE 9-5: MITIGATED (DAYTIME) PROJECT OPERATIONAL NOISE LEVELS

Receiver Location[1]	Land Use	Noise Level at Receiver Locations (dBA)[2]					Threshold Exceeded?[3]
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)	
Exterior Noise Level Standards	**Daytime Residential**	**50**	**55**	**60**	**65**	**70**	**-**
R1	Residential	41.2	45.6	48.6	52.0	61.8	No
R2	Residential	41.4	47.6	48.6	49.6	52.4	No
R3	Residential	39.3	45.7	46.8	48.2	52.6	No
R4	Residential	35.5	40.5	41.7	43.1	46.9	No
R5	Residential	38.3	46.0	46.9	47.9	52.2	No
R6	Residential	38.0	43.2	46.7	50.5	57.7	No

1 See Exhibit 9-A for the receiver and noise source locations.
2 Mitigated daytime Project operational noise levels as shown on Table 9-4.
3 Do the Project operational noise levels satisfy the operational noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.2.5 MITIGATED (NIGHTTIME) PROJECT OPERATIONAL NOISE LEVELS

Table 9-6 indicates that the mitigated nighttime Project operational noise levels without the car wash tunnel or car wash vacuum activities are expected to range from 30.8 to 38.3 dBA L_{50} at the noise-sensitive off-site receiver locations. The mitigated operational noise level calculation worksheets are included in Appendix 9.2.

TABLE 9-6: MITIGATED (NIGHTTIME) PROJECT OPERATIONAL NOISE LEVELS

Receiver Location[1]	Noise Sources[2]	Operational Noise Levels (dBA)[3]				
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
R1	Air Conditioning Unit (Roof-Top)	35.4	37.1	38.4	38.7	39.2
	Drive-Through Speakerphone	24.4	25.6	27.1	28.8	29.9
	Trash Enclosure	29.5	35.5	42.5	47.5	49.0
	Parking Lot	32.5	36.5	39.5	42.9	55.3
	Gas Station Activity	24.5	25.8	28.4	33.3	41.3
	Car Wash Tunnel					
	Car Wash Vacuum Activity					
	Combined Noise Level:	38.3	41.4	45.4	49.3	56.4
R2	Air Conditioning Unit (Roof-Top)	31.5	33.2	34.5	34.8	35.3
	Drive-Through Speakerphone	26.8	28.0	29.5	31.2	32.3
	Trash Enclosure	19.6	25.6	32.6	37.6	39.1
	Parking Lot	16.9	20.9	23.9	27.3	39.7
	Gas Station Activity	23.3	24.6	27.2	32.1	40.1
	Car Wash Tunnel					
	Car Wash Vacuum Activity					
	Combined Noise Level:	33.5	35.4	38.0	40.9	45.2
R3	Air Conditioning Unit (Roof-Top)	34.1	35.8	37.1	37.4	37.9
	Drive-Through Speakerphone	30.9	32.1	33.6	35.3	36.4
	Trash Enclosure	20.9	26.9	33.9	38.9	40.4
	Parking Lot	19.6	23.6	26.6	30.0	42.4
	Gas Station Activity	26.6	27.9	30.5	35.4	43.4
	Car Wash Tunnel					
	Car Wash Vacuum Activity					
	Combined Noise Level:	36.5	38.3	40.6	43.2	47.8

Receiver Location[1]	Noise Sources[2]	Operational Noise Levels (dBA)[3]				
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
R4	Air Conditioning Unit (Roof-Top)	32.8	34.5	35.8	36.1	36.6
	Drive-Through Speakerphone	27.0	28.2	29.7	31.4	32.5
	Trash Enclosure	17.1	23.1	30.1	35.1	36.6
	Parking Lot	12.1	16.1	19.1	22.5	34.9
	Gas Station Activity	19.3	20.6	23.2	28.1	36.1
	Car Wash Tunnel					
	Car Wash Vacuum Activity					
	Combined Noise Level:	34.1	35.8	37.8	39.8	42.6
R5	Air Conditioning Unit (Roof-Top)	14.6	16.3	17.6	17.9	18.4
	Drive-Through Speakerphone	30.2	31.4	32.9	34.6	35.7
	Trash Enclosure	8.0	14.0	21.0	26.0	27.5
	Parking Lot	17.5	21.5	24.5	27.9	40.3
	Gas Station Activity	17.8	19.1	21.7	26.6	34.6
	Car Wash Tunnel					
	Car Wash Vacuum Activity					
	Combined Noise Level:	30.8	32.2	34.1	36.5	42.5
R6	Air Conditioning Unit (Roof-Top)	31.4	33.1	34.4	34.7	35.2
	Drive-Through Speakerphone	22.1	23.3	24.8	26.5	27.6
	Trash Enclosure	30.4	36.4	43.4	48.4	49.9
	Parking Lot	26.4	30.4	33.4	36.8	49.2
	Gas Station Activity	15.3	16.6	19.2	24.1	32.1
	Car Wash Tunnel					
	Car Wash Vacuum Activity					
	Combined Noise Level:	34.9	38.9	44.3	48.9	52.7

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 9-1.
[3] Stationary source noise level calculations are provided in Appendix 9.2.

9.2.6 MITIGATED (NIGHTTIME) PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE WITH APPLICABLE STANDARDS

As indicated on Table 9-7, with incorporation proposed mitigation, Project nighttime operational-source noise received at potentially affected receivers would comply with applicable standards. On this basis, as mitigated, the potential for the Project to result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies would be *less than significant*.

TABLE 9-7: MITIGATED (NIGHTTIME) PROJECT OPERATIONAL NOISE LEVELS

Receiver Location[1]	Land Use	Noise Level at Receiver Locations (dBA)[2]					Threshold Exceeded?[3]
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)	
Exterior Noise Level Standards	**Nighttime Residential**	**40**	**45**	**50**	**55**	**60**	**-**
R1	Residential	38.3	41.4	45.4	49.3	56.4	No
R2	Residential	33.5	35.4	38.0	40.9	45.2	No
R3	Residential	36.5	38.3	40.6	43.2	47.8	No
R4	Residential	34.1	35.8	37.8	39.8	42.6	No
R5	Residential	30.8	32.2	34.1	36.5	42.5	No
R6	Residential	34.9	38.9	44.3	48.9	52.7	No

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Mitigated nighttime Project operational noise levels as shown on Table 9-6.
[3] Do the Project operational noise levels satisfy the operational noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.3 PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTIONS

To describe the Project operational noise level contributions, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (3) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 9-8 and 9-9, respectively.

As indicated on Tables 9-8 and 9-9, the Project will generate mitigated daytime operational noise level increases of up to 1.4 dBA L_{50} and a mitigated nighttime operational noise level increases of up to 0.6 dBA L_{50} at the nearby receiver locations. Since the Project-related operational noise level contributions with mitigation will satisfy the operational noise level increase significance criteria presented in Table 4-2, the increases at the sensitive receiver locations will be *less than significant*.

TABLE 9-6: PROJECT DAYTIME OPERATIONAL NOISE CONTRIBUTIONS

Receiver Location[1]	Unmitigated Project Operational Noise Level (dBA)[2]	Meas. Location[3]	Reference Ambient Noise Levels (dBA)[4]	Combined Project and Ambient (dBA)[5]	Project Increase (dBA)[6]	Threshold (dBA)[7]	Threshold Exceeded?[7]
R1	41.2	L2	52.4	52.7	0.3	5.0	No
R2	41.4	L3	47.6	48.5	0.9	5.0	No
R3	39.3	L4	57.2	57.3	0.1	5.0	No
R4	35.5	L5	52.7	52.8	0.1	5.0	No
R5	38.3	L1	42.4	43.8	1.4	5.0	No
R6	38.0	L1	42.4	43.7	1.3	5.0	No

[1] See Exhibit 9-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-5.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] FICON significance criteria as defined in Section 4, Table 4-1, based on the ambient noise level without the Project.

TABLE 9-7: PROJECT NIGHTTIME OPERATIONAL NOISE CONTRIBUTIONS

Receiver Location[1]	Unmitigated Project Operational Noise Level (dBA)[2]	Meas. Location[3]	Reference Ambient Noise Levels (dBA)[4]	Combined Project and Ambient (dBA)[5]	Project Increase (dBA)[6]	Threshold (dBA)[7]	Threshold Exceeded?[7]
R1	38.3	L2	49.3	49.6	0.3	5.0	No
R2	33.5	L3	45.3	45.6	0.3	5.0	No
R3	36.5	L4	50.3	50.5	0.2	5.0	No
R4	34.1	L5	46.4	46.6	0.2	5.0	No
R5	30.8	L1	42.9	43.2	0.3	5.0	No
R6	34.9	L1	42.9	43.5	0.6	5.0	No

[1] See Exhibit 9-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-7.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] FICON significance criteria as defined in Section 4, Table 4-1, based on the ambient noise level without the Project.

10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction activity boundaries in relation to the nearby sensitive receiver locations.

10.1 CONSTRUCTION NOISE SOURCE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction mobile and stationary equipment expected to occur in the following stages:

- Site Preparation (Mobile Equipment)
- Grading (Mobile Equipment)
- Building Construction (Stationary Equipment)
- Paving (Mobile Equipment)
- Architectural Coating (Stationary Equipment)

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the data used to support the construction emissions in the *Lake and Mountain Shopping Center Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (19)

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 10-1 have been adjusted to describe a common reference distance of 50 feet.

EXHIBIT 10-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS

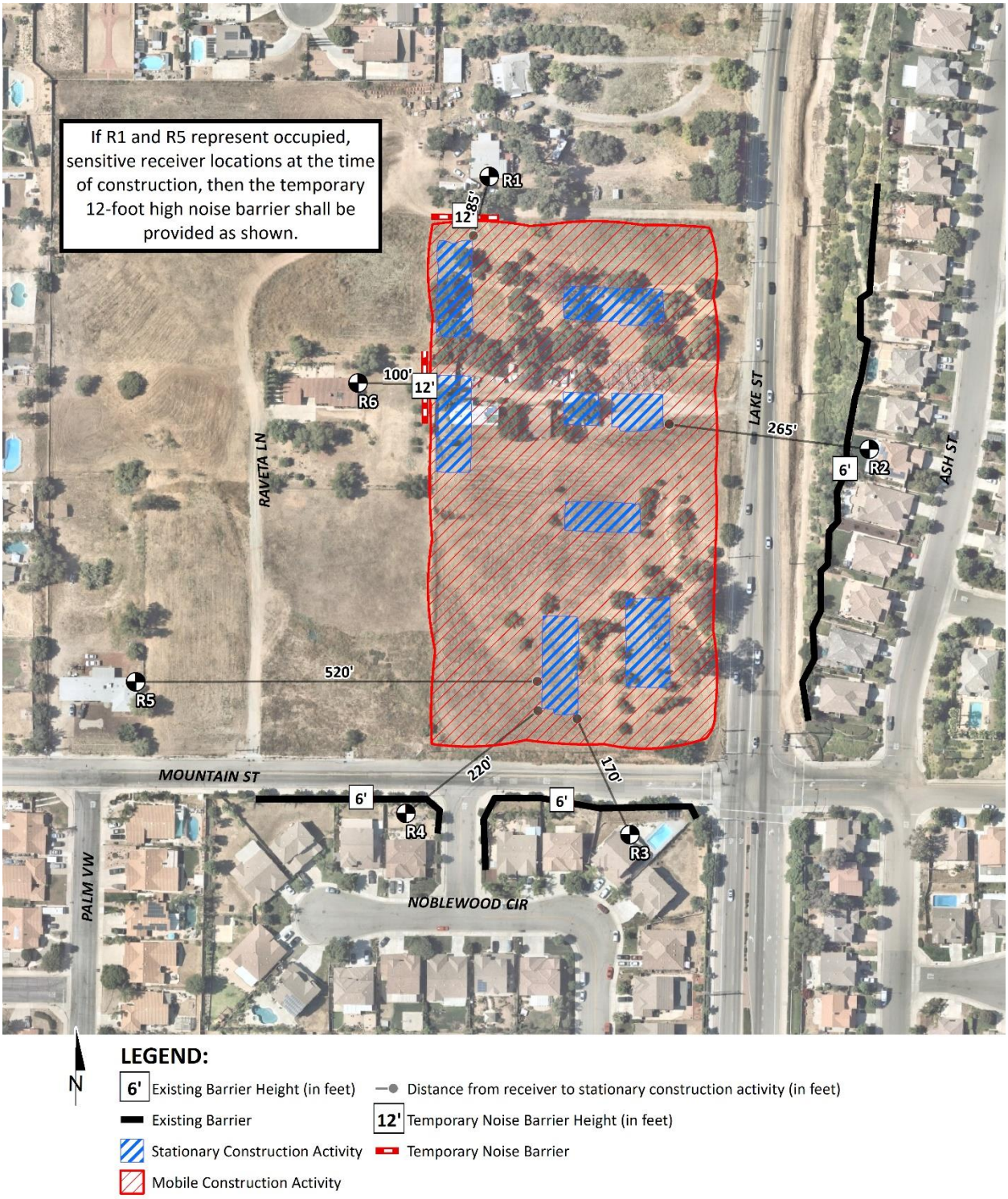


TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L_{eq})	Reference Noise Levels @ 50 Feet (dBA L_{eq})[5]	Reference Noise Levels @ Reference Distance (dBA L_{max})	Reference Noise Levels @ 50 Feet (dBA L_{max})[5]
1	Truck Pass-Bys & Dozer Activity[1]	30'	64'	59'	68.1	63.7
2	Dozer Activity[1]	30'	69'	64'	76.4	72.0
3	Construction Vehicle Maintenance Activities[2]	30'	72'	67'	74.8	70.4
4	Foundation Trenching[2]	30'	73'	68'	74.9	70.5
5	Framing[3]	30'	67'	62'	76.7	72.3
6	Concrete Paver Activities[4]	30'	70'	66'	75.7	71.3
7	Concrete Mixer Pour & Paving Activities[4]	30'	70'	66'	76.3	71.9

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[3] As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.
[4] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[5] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

10.3 CONSTRUCTION NOISE ANALYSIS

Tables 10-2 to 10-6 show the Project construction stages and the reference construction noise levels used for each stage. Table 10-7 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations.

TABLE 10-2: SITE PREPARATION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Truck Pass-Bys & Dozer Activity	63.7
Dozer Activity	72.0
Highest Reference Noise Level at 50 Feet:	72.0

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Estimated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	70'	-2.9	0.0	69.1
R2	205'	-12.3	-5.0	54.7
R3	120'	-7.6	-5.0	59.4
R4	105'	-6.4	-5.0	60.6
R5	390'	-17.8	0.0	54.2
R6	100'	-6.0	0.0	66.0

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

TABLE 10-3: GRADING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Truck Pass-Bys & Dozer Activity	63.7
Dozer Activity	72.0
Highest Reference Noise Level at 50 Feet:	72.0

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Estimated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	70'	-2.9	0.0	69.1
R2	205'	-12.3	-5.0	54.7
R3	120'	-7.6	-5.0	59.4
R4	105'	-6.4	-5.0	60.6
R5	390'	-17.8	0.0	54.2
R6	100'	-6.0	0.0	66.0

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

TABLE 10-4: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Construction Vehicle Maintenance Activities	70.4
Foundation Trenching	70.5
Framing	72.3
Highest Reference Noise Level at 50 Feet:	72.3

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Estimated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	85'	-4.6	0.0	67.7
R2	265'	-14.5	-5.0	52.8
R3	170'	-10.6	-5.0	56.7
R4	220'	-12.9	-5.0	54.4
R5	390'	-17.8	0.0	54.5
R6	100'	-6.0	0.0	66.3

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

TABLE 10-5: PAVING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Concrete Paver Activities	71.3
Concrete Mixer Pour & Paving Activities	71.9
Highest Reference Noise Level at 50 Feet:	71.9

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Estimated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	70'	-2.9	0.0	69.0
R2	205'	-12.3	-5.0	54.6
R3	120'	-7.6	-5.0	59.3
R4	105'	-6.4	-5.0	60.5
R5	390'	-17.8	0.0	54.1
R6	100'	-6.0	0.0	65.9

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

TABLE 10-6: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Construction Vehicle Maintenance Activities	70.4
Framing	72.3
Highest Reference Noise Level at 50 Feet:	72.3

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Estimated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	85'	-4.6	0.0	67.7
R2	265'	-14.5	-5.0	52.8
R3	170'	-10.6	-5.0	56.7
R4	220'	-12.9	-5.0	54.4
R5	390'	-17.8	0.0	54.5
R6	100'	-6.0	0.0	66.3

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

10.3.1 UNMITIGATED PROJECT CONSTRUCTION NOISE LEVELS

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the center of Project construction activity to each of the nearby receiver locations. As shown on Table 10-7, the Project-related short-term construction noise levels are expected to approach 69.1 dBA L_{max} during mobile equipment grading and paving stages, and 67.0 dBA L_{max} during stationary equipment building construction and architectural coating stages.

TABLE 10-7: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Stage Hourly Noise Level (dBA Lmax)						
	Mobile Equipment			Stationary Equipment		Highest Noise Levels[2]	
	Site Preparation	Grading	Paving	Building Construction	Architectural Coating	Mobile Equipment	Stationary Equipment
R1	69.1	69.1	69.0	67.7	67.7	69.1	67.7
R2	54.7	54.7	54.6	52.8	52.8	54.7	52.8
R3	59.4	59.4	59.3	56.7	56.7	59.4	56.7
R4	60.6	60.6	60.5	54.4	54.4	60.6	54.4
R5	54.2	54.2	54.1	54.5	54.5	54.2	54.5
R6	66.0	66.0	65.9	66.3	66.3	66.0	66.3

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Estimated construction noise levels during peak operating conditions.

10.3.2 UNMITIGATED PROJECT CONSTRUCTION NOISE LEVEL COMPLIANCE WITH APPLICABLE STANDARDS

Table 10-8 shows the highest construction noise levels at the potentially impacted receiver locations are expected to approach 69.1 dBA L_{max} from mobile equipment, and 67.0 dBA L_{max} for stationary equipment. While the Project related construction equipment noise levels satisfy the City of Lake Elsinore Municipal Code construction noise level standards of 75 dBA L_{max} for mobile equipment, the noise Project noise levels will exceed the 60 dBA L_{max} standards for stationary equipment during temporary Project construction activities at receiver locations R1 and R5.

TABLE 10-8: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE

Receiver Location[1]	Highest Construction Activity Noise Levels[2]		Threshold[3]		Threshold Exceeded?[4]	
	Mobile	Stationary	Mobile	Stationary	Mobile	Stationary
R1	69.1	67.7	75	60	No	Yes
R2	54.7	52.8	75	60	No	No
R3	59.4	56.7	75	60	No	No
R4	60.6	54.4	75	60	No	No
R5	54.2	54.5	75	60	No	No
R6	66.0	66.3	75	60	No	Yes

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise levels as shown on Table 10-7.
[3] Construction noise standards as shown on Tables 3-1 and 3-2.
[4] Do the estimated Project construction noise levels meet the construction noise level thresholds?

The noise impacts due to the unmitigated Project construction noise levels is, therefore, considered a *potentially significant* impact at receiver locations R1 and R5 and mitigation measures are required to reduce the stationary equipment noise levels generated during temporary Project construction activities. The construction noise mitigation includes the use of a 12-foot high temporary noise barriers near receiver locations R1 and R5 as shown on Exhibit 10-A. Specific construction noise mitigation measures are outlined in the Executive Summary.

Since receivers R2, R3 and R4 satisfy the City of Lake Elsinore Municipal Code construction noise level standards, no mitigation is needed for these locations. Temporary construction noise mitigation measures are only required to reduce the stationary equipment Project construction noise levels at receiver locations R1 and R5.

10.3.3 MITIGATED PROJECT CONSTRUCTION NOISE LEVELS

The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from primary construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location. With the construction noise mitigation measures identified in this noise study, shown on Exhibit 10-A, the worst-case construction noise level increases at the nearby residential receivers would be reduced.

The noise attenuation provided through temporary noise barriers depends on many factors including cost, wind loading, the location of the receiver, and the ability to place barriers such that the line-of-sight of the receiver is blocked to the noise source, among others. This analysis assumes a temporary noise barrier constructed using frame-mounted materials such as vinyl acoustic curtains or quilted blankets attached to the construction site perimeter fence. Table 10-9 shows that the temporary construction noise barrier will provide an additional noise attenuation ranging from 9.2 to 10.2 dBA L_{max} at noise sensitive receiver locations R1 and R5.

TABLE 10-9: MITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Highest Construction Activity Noise Levels[2]	Distance to Construction Activity (Feet)[3]	Distance Attenuation (dBA)[3]	Estimated Noise Barrier Attenuation (dBA)[5]	Mitigated Construction Noise Level (dBA L_{max})
R1	72.3	85'	-4.6	-9.2	58.5
R5	72.3	100'	-6.0	-10.2	56.1

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise levels of stationary equipment, as shown on Table 10-6.
[3] Includes the 100' buffer mitigation setback for stationary equipment.
[4] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[5] Estimated barrier attenuation from temporary 12-foot high construction noise barrier. (See Appendix 10.1)

10.3.4 MITIGATED PROJECT CONSTRUCTION NOISE LEVEL COMPLIANCE WITH APPLICABLE STANDARDS

As shown on Table 10-9, the temporary construction noise mitigation measures will reduce the stationary source construction noise levels at the potentially impacted receiver locations to range from 56.1 to 58.5 dBA L_{max} and satisfy the thresholds for noise-sensitive single-family residential receiver locations. Therefore, the noise impact due to Project construction is considered *less than significant* with mitigation. Appendix 10.1 includes the temporary construction noise barrier attenuation calculations. Sample temporary noise barrier photos are provided in Appendix 10.2 for reference.

Based on the results of the construction noise level analysis, shown on Table 10-10 the Project-related construction noise levels will satisfy the City of Lake Elsinore Municipal Code 75 dBA L_{max} mobile equipment and 60 dBA L_{max} stationary equipment residential construction noise level thresholds at all nearby receiver locations. Therefore, the mitigated noise impacts due to Project construction is considered *less than significant*.

TABLE 10-10: MITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE

Receiver Location[1]	Land Use Category	Mitigated Construction Activity Noise Levels[2]	Stationary Equipment Noise Level Threshold[3]	Threshold Exceeded?[4]
R1	Single-Family Residential	58.5	60	No
R5	Single-Family Residential	56.1	60	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Mitigated stationary equipment construction noise levels stationary equipment, as shown on Table 10-9.
[3] Construction noise standards as shown on Table 3-1 and 3-2.
[4] Do the mitigated Project construction noise levels exceed the construction noise level thresholds?

10.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to buildings, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Construction

activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-6 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-11 presents the expected Project related vibration levels at each of the sensitive receiver locations.

At distances ranging from 85 to 390 feet from the Project construction activities, construction vibration velocity levels are expected to approach 0.014 in/sec (PPV), as shown on Table 10-11. To assess the human perception of vibration levels in PPV, the velocities are converted to RMS vibration levels based on the Caltrans *Transportation and Construction Vibration Guidance Manual* conversion factor of 0.71. Table 10-11 shows the construction vibration levels in RMS are expected to approach 0.010 in/sec (RMS) at the nearby receiver locations. Based on the vibration threshold of 0.01 in/sec, the construction-related vibration impacts are considered *less than significant* at the nearby receiver locations.

TABLE 10-11: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance to Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					RMS Velocity Levels (in/sec)[3]	Threshold (RMS)	Threshold Exceeded?[4]
		Small Bulldozer (<80k lbs)	Jack-hammer	Loaded Trucks	Large Bulldozer (>80k lbs)	Peak Vibration (PPV)			
R1	85'	0.000	0.006	0.012	0.014	0.014	0.010	0.01	No
R2	265'	0.000	0.001	0.002	0.003	0.003	0.002	0.01	No
R3	170'	0.000	0.002	0.004	0.005	0.005	0.004	0.01	No
R4	220'	0.000	0.001	0.003	0.003	0.003	0.002	0.01	No
R5	390'	0.000	0.001	0.001	0.001	0.001	0.001	0.01	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-5.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[4] Does the peak vibration exceed the maximum acceptable vibration threshold shown on Table 3-4?

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating at the Project site perimeter.

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2019.
2. **Urban Crossroads, Inc.** *Lake and Mountain Traffic Impact Analysis.* October 2019.
3. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
4. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
5. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* June, 1995.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
9. **Office of Planning and Research.** *State of California General Plan Guidlines.* 2017.
10. **State of California.** *2016 California Green Building Standards Code.* January 2017.
11. **City of Lake Elsinore.** *City of Lake Elsinore General Plan Section 3.0: Public Safety & Welfare.* December 2011.
12. —. *Municipal Code, Chapter 17.176 Noise Control.*
13. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
14. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
15. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
16. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
17. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
18. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
19. **Urban Crossroads, Inc.** *Lake and Mountain Shopping Center Air Quality Impact Analysis.* October 2019.

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12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Lake and Mountain Shopping Center Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF LAKE ELSINORE MUNICIPAL CODE

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Chapter 17.176
NOISE CONTROL

Sections:

17.176.010 Purpose.

17.176.020 Definitions.

17.176.030 Authority and duties of the Noise Control Office(r) (NCO).

17.176.040 General noise regulations.

17.176.050 Noise measurement procedure.

17.176.060 Exterior noise limits.

17.176.070 Interior noise standards.

17.176.080 Prohibited acts.

17.176.090 Motor vehicles operating on public right-of-way.

17.176.100 Special provisions – Exemptions.

17.176.110 Special variances.

17.176.010 Purpose.

In order to control unnecessary, excessive and annoying noise and vibration in the City, it is hereby declared to be the policy of the City to prohibit such noise and vibration generated from or by all sources as specified in this chapter. It shall be the policy of the City to maintain quiet in those areas which exhibit low noise levels and to implement programs aimed at reducing noise in those areas within the City where noise levels are above acceptable values.

It is determined that certain noise levels and vibrations are detrimental to the public health, welfare and safety, and are contrary to public interest. Therefore, the City Council does ordain and declare that creating, maintaining, causing or allowing to be created, caused or maintained, any noise or vibration in a manner prohibited by or not in conformity with the provisions of this chapter, is a public nuisance and shall be punishable as such. [Ord. 772 § 17.78.010, 1986. Code 1987 § 17.78.010].

17.176.020 Definitions.

All terminology used in this chapter, not defined below, shall be in conformance with applicable publications of the. American National Standards Institute (ANSI) or its successor body.

The following words, phrases and terms as used in this chapter shall have the meaning as indicated below:

“A-weighted sound level” means the sound level in decibels as measured on a sound level meter using the A-weighting network. The level so read is designated dB(A) or dBA.

“Agricultural property” means a parcel of real property of not less than 10 contiguous acres in size, which is undeveloped for any use other than agricultural purposes.

“Ambient noise level” means the composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal of existing level of environmental noise at a given location.

“Commercial area” means property which is zoned for commercial purposes, including, but not limited to, retail and wholesale businesses, personal services, and professional offices.

“Construction” means any site preparation, assembly, erection, substantial repair, alteration, or similar action, for or of public or private rights-of-way, structures, utilities or similar property.

“Cumulative period” means an additive period of time composed of individual time segments which may be continuous or interrupted.

“Decibel” means a unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the ratio of the sound measured to the reference pressure, which is 20 micropascals.

“Demolition” means any dismantling, intentional destruction or removal of structures, utilities, public or private right-of-way surfaces, or similar property.

“Emergency work” means any work performed for the purpose of preventing or alleviating the physical trauma or property damage threatened or caused by an emergency.

“Fixed noise source” means a stationary device which creates sounds while fixed or motionless, including, but not limited to, residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners, and refrigeration.

“Gross vehicle weight rating (GVWR)” means the value specified by the manufacturer as the recommended maximum loaded weight of a single motor vehicle. In cases where trailers and tractors are separable, the gross combination weight rating, which is the value specified by the manufacturer as the recommended maximum loaded weight of the combination vehicle, shall be used.

“Impulsive sound” means sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts, and the discharge of firearms.

“Industrial area” means property which is zoned for manufacturing and related uses.

“Intrusive noise” means that noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency and time of occurrence, and tonal or informational content as well as the prevailing ambient noise level.

“Licensed” means the possession of a formal license or a permit issued by the appropriate jurisdictional authority; or, where no permits or licenses are issued, the sanctioning of the activity by the jurisdiction as noted in public record.

“Mobile noise source” means any noise source other than a fixed source.

“Motor vehicle” shall include any and all self-propelled vehicles as defined in the California Motor Vehicle Code, including all on-highway type motor vehicles subject to registration under said code, and all off-highway type motor vehicles subject to identification under said code.

“Motorboat” means any vessel propelled by machinery, whether or not such machinery is the principal source of propulsion but shall not include a vessel which has a valid marine document issued by the Bureau of Customs of the United States government or any Federal agency successor thereto (Section 651(d), Harbors and Navigation Code).

“Muffler or sound dissipative device” means a device consisting of a series of chambers or baffle plates, or other mechanical design, for the purpose of receiving exhaust gas from an internal combustion engine, and effective in reducing noise.

“Noise Control Officer (NCO)” means a person or persons designated by the Community Development Director as responsible for enforcement of this chapter.

“Noise disturbance” means any sound which, as judged by the Noise Control Officer, (1) endangers or injures the safety or health of human beings or animals, or (2) annoys or disturbs reasonable persons of normal sensitivities, or (3) endangers or injures personal or real property, or (4) violates the factors set forth in LEMC 17.176.040. Compliance with the quantitative standards as listed herein shall constitute elimination of a noise disturbance.

“Noise sensitive zone” means any area designated pursuant to LEMC 17.176.070 for the purpose of ensuring exceptional quiet.

“Noise zone” means any defined areas or regions of a generally consistent land use wherein the ambient noise levels are within a range of five dB.

“Person” means any individual, association, partnership, or corporation, and includes any officer, employee, department, agency or instrumentality of a State or any political subdivision of a State.

"Powered model vehicle" means any self-propelled, airborne, waterborne, or land-borne plane, vessel, or vehicle, which is not designed to carry persons, including, but not limited to, any model airplane, boat, car, or rocket.

"Public right-of-way" means any street, avenue, boulevard, highway, sidewalk or alley or similar place which is owned or controlled by a governmental entity.

"Public space" means any real property or structures thereon which are owned or controlled by a governmental entity.

"Pure tone" means any sound which can be judged as audible as a single pitch or a set of single pitches by the Noise Control Officer. For the purposes of this chapter, a pure tone shall exist if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two contiguous one-third octave bands by five dB for center frequencies of 500 Hz and above and by eight dB for center frequencies between 160 and 400 Hz and by 15 dB for center frequencies less than or equal to 125 Hz.

"Real property boundary" means an imaginary line along the ground surface, and its vertical extension, which separates the real property owned by one person from that owned by another person, but not including intrabuilding real property divisions.

"Residential area" means property which is zoned for residential uses.

"Sound amplifying equipment" means any device for the amplification of the human voice, music, or any other sound, excluding standard automobile radios when used and heard only by the occupants of the vehicle in which the radio is installed, and, as used in this chapter, warning devices on authorized emergency vehicles or horns or other warning devices on any vehicle used only for traffic safety purposes.

"Sound level meter" means an instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement of sound levels, which meets or exceeds the requirements pertinent for type S2A meters in American National Standards Institute specifications for sound level meters, S1.4-1971, or the most recent revision thereof.

"Sound truck" means any motor vehicle, or any other vehicle, regardless of motive power, whether in motion or stationary, having mounted thereon, or attached thereto, any sound amplifying equipment.

"Vibration perception threshold" means the minimum ground- or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects. The perception threshold shall be presumed to be a motion velocity of 0.01 inches per second over the range of one to 100 Hz.

"Weekday" means any day, Monday through Friday, which is not a legal holiday. [Ord. 772 § 17.78.020, 1986. Code 1987 § 17.78.020].

17.176.030 Authority and duties of the Noise Control Office(r) (NCO).

A. Lead Agency. The noise control program established by this chapter shall be administered by the Community Development Director.

B. Powers. In order to implement and enforce this chapter and for the general purpose of noise abatement and control, the NCO shall have, in addition to any other authority vested in it, the power to:

1. Conduct, or cause to be conducted, studies, research, and monitoring related to noise, including joint cooperative investigation with public or private agencies, and the application for, and acceptance of, grants.

2. On all public and private projects which are likely to cause noise in violation of this chapter and which are subject to mandatory review or approval by other departments.

a. Review for compliance with the intent and provisions of this chapter.

b. Require sound analyses which identify existing and projected noise sources and associated noise levels.

c. Require usage of adequate measures to avoid violation of any provision of this chapter.

3. Upon presentation of proper credentials, enter and/or inspect any private property, place, report, or records at any time when granted permission by the owner or by some other person with apparent authority to act for the owner. When permission is refused or cannot be obtained, a search warrant may be obtained from a court of competent jurisdiction upon showing of probable cause to believe that a violation of this chapter may exist. Such inspection may include administration of any necessary tests.

4. Prepare recommendations, to be approved by the City Council, for the designation of noise sensitive zones which contain noise sensitive activities.

5. Prepare recommendations, based upon noise survey data and analytical studies, to be approved by the City Council, for the designation of zones of similar ambient environmental noise within regions of generally consistent land use. These zones shall be identified in terms of their day and nighttime ambient noise levels and their land use classifications as given in LEMC 17.176.060, Table 1. [Ord. 772 § 17.78.030, 1986. Code 1987 § 17.78.030].

17.176.040 General noise regulations.

Notwithstanding any other provision of this chapter, and in addition thereto, it shall be unlawful for

any person to willfully or negligently make or continue, or cause to be made or continued, any loud, unnecessary, or unusual noise which disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

The factors which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

A. The sound level of the objectionable noise.

B. The sound level of the ambient noise.

C. The proximity of the noise to residential sleeping facilities.

D. The nature and zoning of the area within which the noise emanates.

E. The number of persons affected by the noise source.

F. The time of day or night the noise occurs.

G. The duration of the noise and its tonal, informational or musical content.

H. Whether the noise is continuous, recurrent, or intermittent.

I. Whether the noise is produced by a commercial or noncommercial activity. [Ord. 772 § 17.78.040, 1986. Code 1987 § 17.78.040].

17.176.050 Noise measurement procedure.

A. Upon receipt of a complaint from a citizen, the Noise Control Office(r) or his agent, equipped with sound level measurement equipment satisfying the requirements specified in LEMC 17.176.020, shall investigate the complaint. The investigation shall consist of a measurement and the gathering of data to adequately define the noise problem and shall include the following:

1. Nonacoustic Data.

    a. Type of noise source.

    b. Location of noise source relative to complainant's property.

    c. Time period during which noise source is considered by complainant to be intrusive.

    d. Total duration of noise produced by noise source.

    e. Date and time of noise measurement survey.

B. Noise Measurement Procedure. Utilizing the A-weighting scale of the sound level meter and the

"slow" meter response (use "fast" response for impulsive type sounds), the noise level shall be measured at a position or positions at any point on the receiver's property.

In general, the microphone shall be located four to five feet above the ground; 10 feet or more from the nearest reflective surface where possible. However, in those cases where another elevation is deemed appropriate, the latter shall be utilized. If the noise complaint is related to interior noise levels, interior noise measurements shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling, or floor nearest the noise source, with windows in the normal seasonal configuration. Calibration of the measurement equipment, utilizing an acoustic calibration, shall be performed immediately prior to recording any noise data. [Ord. 772 § 17.78.050, 1986. Code 1987 § 17.78.050].

17.176.060 Exterior noise limits.

A. Maximum Permissible Sound Levels by Receiving Land Use.

1. The noise standards for the various categories of land use identified by the Noise Control Office(r) as presented in Table 1 shall, unless otherwise specifically indicated, apply to all such property within a designated zone.

2. No person shall operate, or cause to be operated, any source of sound at any location within the incorporated City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property, either incorporated or unincorporated, to exceed:

a. The noise standard for that land use as specified in Table 1 for a cumulative period of more than 30 minutes in any hour; or

b. The noise standard plus five dB for a cumulative period of more than 15 minutes in any hour; or

c. The noise standard plus 10 dB for a cumulative period of more than five minutes in any hour; or

d. The noise standard plus 15 dB for a cumulative period of more than one minute in any hour; or

e. The noise standard plus 20 dB or the maximum measured ambient level, for any period of time.

3. If the measured ambient level differs from that permissible within any of the fast four noise limit categories above, the allowable noise exposure standard shall be adjusted in five dB increments in each category as appropriate to encompass or reflect said ambient noise level.

In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable

noise level under this category shall be increased to reflect the maximum ambient noise level

4. If the measurement location is on a boundary between two different zones, the noise level limit applicable to the lower noise zone plus six dB shall apply.

5. If possible, the ambient noise shall be measured at the same location along the property line utilized in subsection (A)(2) of this section with the alleged offending noise source inoperative. If, for any reason, the alleged offending noise source cannot be shut down, the ambient noise must be estimated by performing a measurement in the same general area of the source but at a sufficient distance such that the noise from the source is at least 10 dB below the ambient in order that only the ambient level be measured. If the difference between the ambient and the noise source is five to 10 dB, then the level of the ambient itself can be reasonably determined by subtracting a one-decibel correction to account for the contribution of the source.

B. Correction for Character of Sound. In the event the alleged offensive noise, as judged by the Noise Control Officer, contains a steady, audible tone such as a whine, screech, or hum, or is a repetitive noise such as hammering or riveting, or contains music or speech conveying informational content, the standard limits set forth in Table 1 shall be reduced by five dB.

TABLE 1

EXTERIOR NOISE LIMITS

(Levels Not to Be Exceeded More Than 30 Minutes in Any Hour)

Receiving Land Use Category	Time Period	Noise Level (dBA)
Single-Family Residential	10:00 p.m. – 7:00 a.m.	40
	7:00 a.m. – 10:00 p.m.	50
Multiple Dwelling Residential	10:00 p.m. – 7:00 a.m.	45
	7:00 a.m. – 10:00 p.m.	50
Public Space		
Limited Commercial and Office	10:00 p.m. – 7:00 a.m.	55
	7:00 a.m. – 10:00 p.m.	60
General Commercial	10:00 p.m. – 7:00 a.m.	60
	7:00 a.m. – 10:00 p.m.	65
Light Industrial	Anytime	70
Heavy Industrial	Anytime	75

[Ord. 772 § 17.78.060, 1986. Code 1987 § 17.78.060].

17.176.070 Interior noise standards.

A. Maximum Permissible Dwelling Interior Sound Levels.

1. The interior noise standards for multifamily residential dwellings as presented in Table 2 shall apply, unless otherwise specifically indicated, within all such dwellings with windows in their normal seasonal configuration.

TABLE 2

Noise Zone	Type of Land Use	Time Internal	Allowable Interior Noise Level (dBA)
All	Multifamily Residential	10:00 p.m. – 7:00 a.m. 7:00 a.m. – 10:00 p.m.	35 45

2. No person shall operate or cause to be operated within a dwelling unit, any source of sound or allow the creation of any noise which causes the noise level when measured inside a neighboring receiving dwelling unit to exceed:

a. The noise standard as specified in Table 2 for a cumulative period of more than five minutes in any hour; or

b. The noise standard plus five dB for a cumulative period of more than one minute in any hour; or

c. The noise standard plus 10 dB or the maximum measured ambient, for any period of time.

3. If the measured ambient level differs from that permissible within any of the noise limit categories above, the allowable noise exposure standard shall be adjusted in five dB increments in each category as appropriate to reflect said ambient noise level.

B. Correction for Character of Sound. In the event the alleged offensive noise, as judged by the Noise Control Officer, contains a steady, audible tone such as a whine, screech, or hum, or is a repetitive noise such as hammering or riveting, or contains music or speech conveying informational content, the standard limits set forth in Table 2 shall be reduced by five dB. [Ord. 772 § 17.78.070, 1986. Code 1987 § 17.78.070].

17.176.080 Prohibited acts.

No person shall unnecessarily make, continue, or cause to be made or continued, any noise disturbance. The following acts, and the causing or permitting thereof, are declared to be in

violation of this chapter:

A. Operating, playing or permitting the operation or playing of any radio, television set, phonograph, drum, musical instrument, or similar device which produces or reproduces sound:

1. Between the hours of 10:00 p.m. and 7:00 a.m. in such a manner as to create a noise disturbance across a residential or commercial real property line or at any time to violate the provisions of LEMC 17.176.060(A), except for which a variance has been issued by the City.

2. In such a manner as to exceed the levels set forth for public space in Table 1, measured at a distance of at least 50 feet (15 meters) from such device operating on a public right-of-way or public space.

B. Using or operating for any purpose any loudspeaker, loudspeaker system, or similar device between the hours of 10:00 p.m. and 7:00 a.m., such that the sound therefrom creates a noise disturbance across a residential real property line, or at any time violates the provisions of LEMC 17.176.060(A), except for any noncommercial public speaking, public assembly or other activity for which a variance has been issued by the City.

C. Offering for sale, selling anything, or advertising by shouting or outcry within any residential or commercial area or noise sensitive zone of the City except by variance issued by the City. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food, and beverages at licensed sporting events, parades, fairs, circuses, or other similar licensed public entertainment events.

D. Owning, possessing or harboring any animal or bird which frequently or for long duration, howls, barks, meows, squawks, or makes other sounds which create a noise disturbance across a residential or commercial real property line or within a noise sensitive zone. This provision shall not apply to public zoos.

E. Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 p.m. and 7:00 a.m. in such a manner as to cause a noise disturbance across a residential real property line or at any time to violate the provisions of LEMC 17.176.060(A).

F. Construction/Demolition.

1. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on weekends or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by variance issued by the City.

2. Noise Restrictions at Affected Properties. Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed in the following schedule:

AT RESIDENTIAL PROPERTIES:

Mobile Equipment

Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment:

	Type I Areas Single-Family Residential	Type II Areas Multifamily Residential	Type III Areas Semi-Residential/Commercial
Daily, except Sundays and Legal Holidays 7:00 a.m. to 7:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 7:00 p.m. to 7:00 a.m. and all day Sunday and Legal Holidays	60 dBA	65 dBA	70 dBA

Stationary Equipment

Maximum noise levels for repetitively scheduled and relatively long-term operation (period of 10 days or more) of stationary equipment:

	Type I Areas Single-Family Residential	Type II Areas Multifamily Residential	Type III Areas Semi-Residential/Commercial
Daily, except Sundays and Legal Holidays 7:00 a.m. to 7:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 7:00 p.m. to 7:00 a.m. and all day Sunday and Legal Holidays	50 dBA	55 dBA	60 dBA

AT BUSINESS PROPERTIES:

Mobile Equipment

Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:

Daily, including Sundays and Legal Holidays, all hours: maximum of 85 dBA.

Stationary Equipment

Maximum noise levels for repetitively scheduled and relatively long-term operation of stationary

equipment:

Daily, including Sundays and Legal Holidays, all hours: maximum of 75 dBA.

3. All mobile or stationary internal combustion engine powered equipment or machinery shall be equipped with suitable exhaust and air intake silencers in proper working order.

G. Operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property or at 150 feet (46 meters) from the source if on a public space or public right-of-way.

H. Powered Model Vehicles. Operating or permitting the operation of powered model vehicles:

1. Between the hours of 7:00 p.m. and 7:00 a.m. so as to create a noise disturbance across a residential or commercial real property line or at any time to violate the provisions of LEMC 17.176.060(A).

2. In such a manner as to exceed the levels set forth for public space land use in Table 1, measured at a distance not less than 100 feet (30 meters) from any point on the path of a vehicle operating on public space or public right-of-way.

I. Stationary Nonemergency Signaling Devices.

1. Sounding or permitting the sounding of any electronically amplified signal from any stationary bell, chime, siren, whistle, or similar device, intended primarily for nonemergency purposes, from any place, for more than 10 seconds in any hourly period.

2. Houses of religious worship shall be exempt from the operation of this provision.

3. Sound sources covered by this provision and not exempted under subsection (I)(2) of this section shall be exempted by a variance issued by the City.

J. Emergency Signaling Devices.

1. The intentional sounding or permitting the sounding outdoors of any fire, burglar, or civil defense alarm, siren, whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing, as provided in subsection (J)(2) of this section.

2. a. Testing of a stationary emergency signaling system shall not occur before 7:00 a.m. or after 7:00 p.m. Any such testing shall use only the minimum cycle test time. In no case shall such test time exceed 60 seconds.

b. Testing of the complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more

than once in each calendar month. Such testing shall not occur before 7:00 a.m., or after 10:00 p.m. The time limit specified in subsection (J)(2)(a) of this section shall not apply to such complete system testing.

3. Sounding or permitting the sounding of any exterior burglar or fire alarm or any motor vehicle burglar alarm unless such alarm is terminated within 15 minutes of activation.

K. Noise Sensitive Zones.

1. Creating or causing the creation of any sound within any noise sensitive zone, so as to exceed the specified land use noise standards set forth in LEMC 17.176.060(A); provided, that conspicuous signs are displayed indicating the zone; or

2. Creating or causing the creation of any sound within or adjacent to any noise sensitive zone, containing a hospital, nursing home, school, court or other designated area, so as to interfere with the functions of such activity or annoy the occupants in the activity; provided, that conspicuous signs are displayed indicating the presence of the zone.

L. Domestic Power Tools and Machinery.

1. Operating or permitting the operation of any mechanically powered saw, sander, drill, grinder, lawn or garden tool, or similar tool between 10:00 p.m. and 7:00 a.m., so as to create a noise disturbance across a residential or commercial real property line.

2. Any motor, machinery, pump, such as swimming pool equipment, etc., shall be sufficiently enclosed or muffled and maintained so as not to create a noise disturbance in accordance with LEMC 17.176.060.

M. Residential Air-Conditioning or Air-Handling Equipment. Operating or permitting the operation of any air-conditioning or air-handling equipment in such a manner as to exceed any of the following sound levels:

Measurement Location	Units Installed before 1-1-80 dB(A)	Units Installed on or after 1-1-80 dB(A)
Any point on neighboring property line, 5 feet above grade level, no closer than 3 feet from any wall.	60	55
Center of neighboring patio, 5 feet above grade level, no closer than 3 feet from any wall.	55	50
Outside the neighboring living area window nearest the equipment location, not more than 3 feet from the window opening, but at		

least 3 feet from any other surface.	55	50

N. Places of Public Entertainment. Operating or permitting the operation or playing of any loudspeaker, musical instrument, motorized racing vehicle, or other source of sound in any place of public entertainment that exceeds 95 dBA as read on the slow response of a sound level meter at any point normally occupied by a customer, without a conspicuous and legible sign stating:

WARNING! SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT.

[Ord. 772 § 17.78.080, 1986. Code 1987 § 17.78.080].

17.176.090 Motor vehicles operating on public right-of-way.

Motor vehicles noise limits on a public right-of-way are regulated as set forth in the California Motor Vehicle Code, Sections 23130 and 23130.5. Equipment violations which create noise problems are covered under Sections 27150 and 27151. Any peace officer of any jurisdiction in California may enforce these provisions. Therefore, it shall be the policy of the City to enforce these sections of the California Motor Vehicle Code.

A. Refuse Collection Vehicles.

1. No person shall collect refuse with a refuse collection vehicle between the hours of 7:00 p.m. and 7:00 a.m. within or adjacent to a residential area or noise sensitive zone.

2. No person authorized to engage in waste disposal service or garbage collection shall operate any truck-mounted waste or garbage loading and/or compacting equipment or similar device in any manner so as to create any noise exceeding the following levels, measured at a distance of 50 feet from the equipment in an open area:

a. New equipment purchased or leased on or after a date six months from the effective date of the ordinance codified in this chapter: 80 dBA.

b. New equipment purchased or leased on or after 36 months from the effective date of the ordinance codified in this chapter: 75 dBA.

c. Existing equipment, on or after five years from the effective date of the ordinance codified in this chapter: 80 dBA.

B. Motor Vehicle Horns. It is unlawful for any person to sound a vehicular horn except as a warning signal (Motor Vehicle Code, Section 27001).

C. Motorized Recreational Vehicles Operating off Public Right-of-Way. No person shall operate or cause to be operated any motorized recreational vehicle off a public right-of-way in such a manner that the sound levels emitted therefrom violate the provisions of LEMC 17.176.060(A). This section shall apply to all motorized recreational vehicles whether or not duly licensed and registered,

including, but not limited to, commercial or noncommercial racing vehicles, motorcycles, go carts, amphibious craft, campers, snowmobiles and dune buggies, but not including motorboats.

D. *Reserved*.

E. Vehicle, Motorboat, or Aircraft Repair and Testing.

1. Repairing, rebuilding, modifying, or testing any motor vehicle, motorboat, or aircraft in such a manner as to create a noise disturbance across a residential real property line, or at any time to violate the provisions of LEMC 17.176.060(A).

2. Nothing in this section shall be construed to prohibit, restrict, penalize, enjoin, or in any manner regulate the movement of aircraft which are in all respects conducted in accordance with, or pursuant to, applicable Federal laws or regulations.

F. Standing Motor Vehicles. No person shall operate or permit the operation of any motor vehicle with a gross vehicle weight rating (GVWR) in excess of 10,000 pounds, or any auxiliary equipment attached to such a vehicle, for a period longer than 15 minutes in any hour while the vehicle is stationary, for reasons other than traffic congestion, on a public right-of-way or public space within 150 feet (46 meters) of a residential area or designated noise sensitive zone, between the hours of 10:00 p.m. and 7:00 a.m. [Ord. 984, 1994; Ord. 772 § 17.78.090, 1986. Code 1987 § 17.78.090].

17.176.100 Special provisions – Exemptions.

The following activities shall be exempted from the provisions of this chapter:

A. The emission of sound for the purpose of alerting persons to the existence of an emergency.

B. The emission of sound in the performance of emergency work.

C. Warning devices necessary for the protection of public safety, as for example, police, fire and ambulance sirens, and train horns.

D. Regularly scheduled school bands, school athletic and school entertainment events between the hours of 8:45 a.m. and 10:00 p.m., provided a special events permit is also required for band activities on City streets.

E. Regularly scheduled activities conducted on public parks, public playgrounds, and public or private school grounds. However, the use of public address or amplified music systems is not permitted to exceed the exterior noise standard of adjacent property at the property line.

F. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

G. Mobile noise sources associated with agricultural pest control through pesticide application; provided, that the application is made in accordance with restricted material permits issued by or regulations enforced by the Agricultural Commissioner.

H. Mobile noise sources associated with agricultural operations, provided such operations take place on Monday through Friday, excepting legal holidays, between the hours of 7:00 a.m. and 6:00 p.m. All other operations shall comply with this chapter.

I. Noise sources associated with the maintenance of real property, provided such operations take place on Monday through Friday, excepting legal holidays, between the hours of 7:00 a.m. and 6:00 p.m., or on holidays and weekends between the hours of 9:00 a.m. and 6:00 p.m. All other operations shall comply with this chapter.

J. Any activity to the extent that regulation thereof has been preempted by State or Federal law. [Ord. 772 § 17.78.100, 1986. Code 1987 § 17.78.100].

17.176.110 Special variances.

A. The NCO is authorized to grant variances for exemption from any provision of this chapter, subject to limitations as to area, noise levels, time limits, and other terms and conditions as the NCO determines are appropriate to protect the public health, safety, and welfare from the noise emanating therefrom. This section shall in no way affect the duty to obtain any permit or license required by law for such activities.

B. Any person seeking a variance pursuant to this section shall file an application with the NCO. The application shall contain information which demonstrates that bringing the source of sound or activity for which the variance is sought into compliance with this chapter would constitute an unreasonable hardship on the applicant, on the community, or on other persons. The application shall be accompanied by a fee. A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one application. Notice of an application for a variance shall be published according to City code. Any individual who claims to be adversely affected by allowance of the variance may file a statement with the NCO containing any information to support his claim. If at any time the NCO finds that a sufficient controversy exists regarding an application, a public hearing will be held.

C. In determining whether to grant or deny the application, the NCO shall balance the hardship on the applicant, the community, and other persons of not granting the variance against the adverse impact on the health, safety, and welfare of persons affected, the adverse impact on property affected, and any other adverse impacts of granting the variance. Applicants for variances and persons contesting variances may be required to submit such information as the NCO may reasonably require. In granting or denying an application, the NCO shall keep on public file a copy of the decision and the reasons for denying or granting the variance.

D. Variances shall be granted by notice to the applicant containing all necessary conditions, including a time limit on the permitted activity. The variance shall not become effective until all conditions are agreed to by the applicant. Noncompliance with any condition of the variance shall terminate the variance and subject the person holding it to those provisions of this chapter for which the variance was granted.

E. A variance will not exceed 365 days from the date on which it was granted. Application for extension of time limits specified in variances or for modification of other substantial conditions shall be treated like applications for initial variances under subsection (B) of this section. [Ord. 772 § 17.78.110, 1986. Code 1987 § 17.78.110].

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APPENDIX 5.1:

STUDY AREA PHOTOS

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L1_E
33, 42' 1.860000", 117, 23' 32.070000"



L1_N
33, 42' 4.950000", 117, 23' 32.290000"



L1_S
33, 42' 4.950000", 117, 23' 32.290000"



L1_W
33, 42' 1.840000", 117, 23' 31.550000"



L2_E
33, 42' 1.900000", 117, 23' 26.440000"



L2_N
33, 42' 1.900000", 117, 23' 26.330000"



L2_S
33, 42' 1.900000", 117, 23' 26.390000"



L2_W
33, 42' 1.910000", 117, 23' 26.440000"



L3_E
33, 42' 0.020000", 117, 23' 20.700000"



L3_N
33, 42' 0.060000", 117, 23' 20.730000"



L3_S
33, 42' 0.060000", 117, 23' 20.730000"



L3_W
33, 42' 0.000000", 117, 23' 20.700000"



L4_M
33, 41' 54.510000", 117, 23' 26.500000"



L4_N
33, 41' 54.540000", 117, 23' 26.500000"



L4_S
33, 41' 54.540000", 117, 23' 26.520000"



L4_W
33, 41' 54.470000", 117, 23' 26.500000"



L5_E
33, 41' 54.500000", 117, 23' 29.710000"



L5_N
33, 41' 54.450000", 117, 23' 29.740000"

JN: 12770 Study Area Photos



L5_S
33, 41' 54.470000", 117, 23' 29.710000"



L5_W
33, 41' 54.500000", 117, 23' 29.710000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

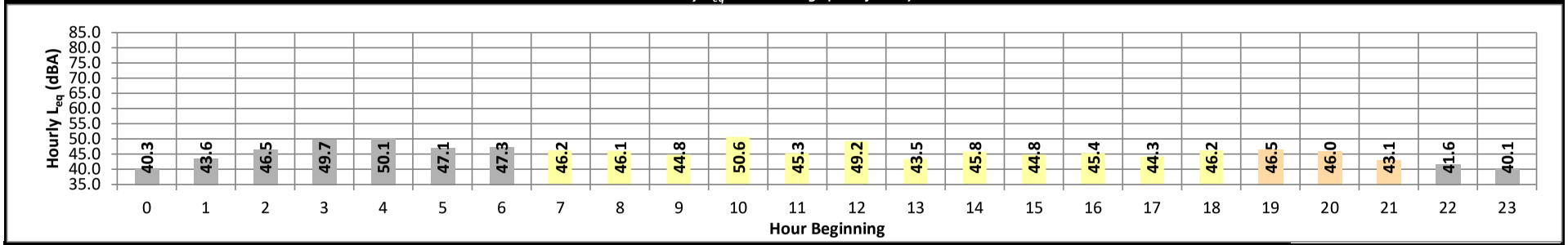
Date: Wednesday, October 9, 2019
Project: Lake and Mountain Development

Location: L1 - Located in a vacant lot north of single family home at 28885 Raveta Lane approximately 500 feet east of Stonebridge Terrace.

Meter: Piccolo I

JN: 12770
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*	*L_{eq}*	*Adj.*	*Adj. L_{eq}*
Night	0	40.3	55.6	34.5	47.0	46.0	43.0	42.0	40.0	39.0	37.0	36.0	35.0	40.3	10.0	50.3
	1	43.6	61.4	34.5	51.0	50.0	49.0	47.0	43.0	40.0	37.0	37.0	35.0	43.6	10.0	53.6
	2	46.5	59.4	37.3	54.0	52.0	51.0	50.0	47.0	44.0	40.0	39.0	37.0	46.5	10.0	56.5
	3	49.7	70.1	41.3	55.0	54.0	52.0	51.0	49.0	47.0	44.0	43.0	42.0	49.7	10.0	59.7
	4	50.1	59.7	42.0	55.0	55.0	53.0	53.0	51.0	49.0	46.0	45.0	44.0	50.1	10.0	60.1
	5	47.1	64.0	41.3	53.0	52.0	50.0	49.0	47.0	45.0	43.0	43.0	42.0	47.1	10.0	57.1
	6	47.3	61.6	42.0	54.0	52.0	50.0	49.0	47.0	46.0	44.0	44.0	43.0	47.3	10.0	57.3
Day	7	46.2	61.3	38.8	53.0	51.0	50.0	49.0	46.0	45.0	42.0	41.0	39.0	46.2	0.0	46.2
	8	46.1	63.7	38.7	56.0	53.0	50.0	49.0	45.0	43.0	40.0	40.0	39.0	46.1	0.0	46.1
	9	44.8	60.5	37.4	55.0	52.0	48.0	47.0	44.0	42.0	39.0	39.0	38.0	44.8	0.0	44.8
	10	50.6	72.4	37.4	62.0	58.0	54.0	52.0	46.0	42.0	39.0	39.0	37.0	50.6	0.0	50.6
	11	45.3	61.4	37.4	57.0	55.0	50.0	48.0	43.0	40.0	37.0	37.0	37.0	45.3	0.0	45.3
	12	49.2	65.2	37.4	60.0	58.0	55.0	53.0	47.0	43.0	40.0	39.0	39.0	49.2	0.0	49.2
	13	43.5	59.5	37.4	51.0	49.0	47.0	46.0	43.0	41.0	39.0	39.0	37.0	43.5	0.0	43.5
	14	45.8	62.3	37.4	56.0	53.0	50.0	48.0	45.0	42.0	39.0	39.0	37.0	45.8	0.0	45.8
	15	44.8	61.5	37.4	54.0	51.0	48.0	47.0	44.0	42.0	39.0	39.0	38.0	44.8	0.0	44.8
	16	45.4	61.6	37.4	56.0	53.0	50.0	47.0	44.0	42.0	40.0	39.0	39.0	45.4	0.0	45.4
	17	44.3	61.2	38.7	54.0	49.0	47.0	46.0	43.0	42.0	40.0	39.0	39.0	44.3	0.0	44.3
	18	46.2	65.3	39.2	52.0	51.0	49.0	48.0	46.0	45.0	42.0	41.0	40.0	46.2	0.0	46.2
Evening	19	46.5	68.3	37.4	54.0	53.0	50.0	48.0	46.0	44.0	41.0	40.0	39.0	46.5	5.0	51.5
	20	46.0	68.3	37.4	56.0	52.0	48.0	47.0	44.0	42.0	39.0	39.0	37.0	46.0	5.0	51.0
	21	43.1	58.0	36.6	51.0	49.0	46.0	45.0	43.0	41.0	38.0	37.0	37.0	43.1	5.0	48.1
Night	22	41.6	56.7	34.5	51.0	48.0	45.0	44.0	41.0	39.0	37.0	36.0	35.0	41.6	10.0	51.6
	23	40.1	61.0	34.5	49.0	46.0	44.0	42.0	39.0	37.0	35.0	35.0	35.0	40.1	10.0	50.1

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	43.5	59.5	37.4	51.0	49.0	47.0	46.0	43.0	40.0	37.0	37.0	37.0
	Max	50.6	72.4	39.2	62.0	58.0	55.0	53.0	47.0	45.0	42.0	41.0	40.0
Energy Average		46.5	Average:		55.5	52.8	49.8	48.3	44.7	42.4	39.7	39.3	38.3
Evening	Min	43.1	58.0	36.6	51.0	49.0	46.0	45.0	43.0	41.0	38.0	37.0	37.0
	Max	46.5	68.3	37.4	56.0	53.0	50.0	48.0	46.0	44.0	41.0	40.0	39.0
Energy Average		45.4	Average:		53.7	51.3	48.0	46.7	44.3	42.3	39.3	38.7	37.7
Night	Min	40.1	55.6	34.5	47.0	46.0	43.0	42.0	39.0	37.0	35.0	35.0	35.0
	Max	50.1	70.1	42.0	55.0	55.0	53.0	53.0	51.0	49.0	46.0	45.0	44.0
Energy Average		46.5	Average:		52.1	50.6	48.6	47.4	44.9	42.9	40.3	39.8	38.7

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
46.4	**46.3**	**46.5**

24-Hour CNEL (dBA)

53.1

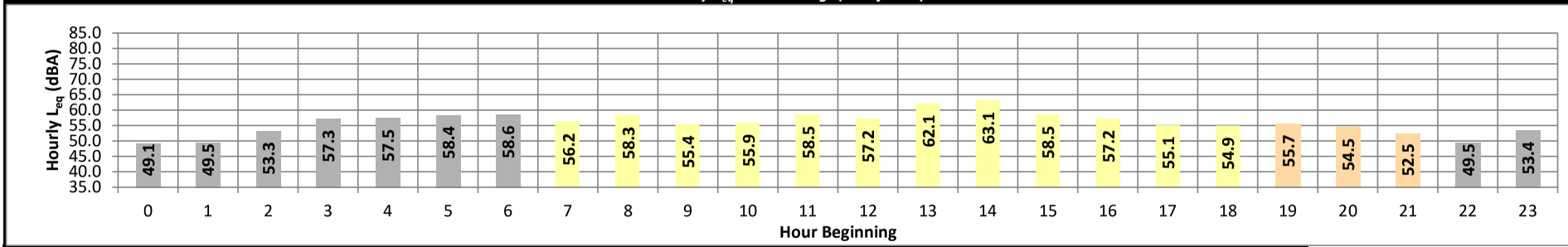
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 9, 2019 *Location:* L2 - Located north of Project site southeast of 28891 Lake Street adjacent to dirt road. *Meter:* Piccolo I *JN:* 12770

Project: Lake and Mountain Development *Analyst:* P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	49.1	66.9	36.4	58.0	56.0	54.0	53.0	49.0	44.0	36.0	36.0	36.0	49.1	10.0	59.1
	1	49.5	69.3	36.4	60.0	57.0	55.0	53.0	48.0	44.0	36.0	36.0	36.0	49.5	10.0	59.5
	2	53.3	72.0	36.4	63.0	61.0	58.0	57.0	53.0	49.0	41.0	39.0	37.0	53.3	10.0	63.3
	3	57.3	81.6	39.5	65.0	63.0	61.0	59.0	56.0	54.0	49.0	48.0	45.0	57.3	10.0	67.3
	4	57.5	72.9	45.4	67.0	65.0	62.0	60.0	57.0	55.0	50.0	49.0	47.0	57.5	10.0	67.5
	5	58.4	74.5	44.5	68.0	66.0	62.0	61.0	58.0	56.0	51.0	50.0	46.0	58.4	10.0	68.4
	6	58.6	76.3	44.6	68.0	66.0	63.0	61.0	57.0	55.0	50.0	49.0	46.0	58.6	10.0	68.6
Day	7	56.2	75.4	41.0	66.0	64.0	61.0	59.0	55.0	53.0	47.0	45.0	42.0	56.2	0.0	56.2
	8	58.3	86.1	39.3	67.0	65.0	61.0	59.0	55.0	52.0	46.0	44.0	41.0	58.3	0.0	58.3
	9	55.4	71.9	36.4	64.0	63.0	60.0	59.0	55.0	51.0	45.0	43.0	39.0	55.4	0.0	55.4
	10	55.9	74.8	36.4	66.0	64.0	61.0	59.0	55.0	52.0	44.0	42.0	39.0	55.9	0.0	55.9
	11	58.5	83.6	36.4	68.0	65.0	62.0	60.0	55.0	52.0	44.0	42.0	39.0	58.5	0.0	58.5
	12	57.2	77.2	39.4	67.0	64.0	61.0	60.0	56.0	54.0	48.0	46.0	42.0	57.2	0.0	57.2
	13	62.1	80.9	39.4	73.0	70.0	68.0	66.0	60.0	55.0	49.0	47.0	44.0	62.1	0.0	62.1
	14	63.1	83.5	39.4	74.0	71.0	68.0	67.0	61.0	55.0	49.0	46.0	43.0	63.1	0.0	63.1
	15	58.5	77.2	39.4	70.0	67.0	63.0	61.0	56.0	53.0	47.0	45.0	42.0	58.5	0.0	58.5
	16	57.2	84.0	39.4	64.0	62.0	60.0	58.0	55.0	53.0	48.0	46.0	43.0	57.2	0.0	57.2
	17	55.1	68.8	40.1	63.0	61.0	59.0	58.0	55.0	53.0	48.0	46.0	42.0	55.1	0.0	55.1
	18	54.9	70.8	39.4	64.0	62.0	59.0	57.0	54.0	53.0	46.0	45.0	41.0	54.9	0.0	54.9
Evening	19	55.7	79.7	36.4	64.0	61.0	58.0	57.0	54.0	52.0	44.0	42.0	39.0	55.7	5.0	60.7
	20	54.5	76.2	36.4	64.0	61.0	57.0	56.0	53.0	50.0	42.0	40.0	37.0	54.5	5.0	59.5
	21	52.5	74.4	36.4	63.0	60.0	57.0	55.0	52.0	48.0	39.0	38.0	36.0	52.5	5.0	57.5
Night	22	49.5	67.3	36.4	59.0	56.0	55.0	53.0	50.0	45.0	36.0	36.0	36.0	49.5	10.0	59.5
	23	53.4	83.5	36.4	62.0	58.0	54.0	52.0	48.0	42.0	36.0	36.0	36.0	53.4	10.0	63.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.9	68.8	36.4	63.0	61.0	59.0	57.0	54.0	51.0	44.0	42.0	39.0
	Max	63.1	86.1	41.0	74.0	71.0	68.0	67.0	61.0	55.0	49.0	47.0	44.0
Energy Average		58.5	Average:		67.2	64.8	61.9	60.3	56.0	53.0	46.8	44.8	41.4
Evening	Min	52.5	74.4	36.4	63.0	60.0	57.0	55.0	52.0	48.0	39.0	38.0	36.0
	Max	55.7	79.7	36.4	64.0	61.0	58.0	57.0	54.0	52.0	44.0	42.0	39.0
Energy Average		54.4	Average:		63.7	60.7	57.3	56.0	53.0	50.0	41.7	40.0	37.3
Night	Min	49.1	66.9	36.4	58.0	56.0	54.0	52.0	48.0	42.0	36.0	36.0	36.0
	Max	58.6	83.5	45.4	68.0	66.0	63.0	61.0	58.0	56.0	51.0	50.0	47.0
Energy Average		55.5	Average:		63.3	60.9	58.2	56.6	52.9	49.3	42.8	42.1	40.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
57.2	58.0	55.5

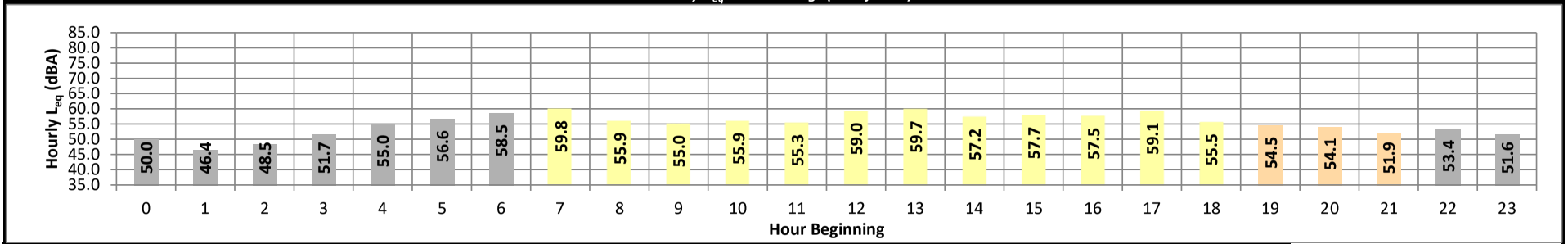
24-Hour CNEL (dBA)
62.6

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 9, 2019
Project: Lake and Mountain Development
Location: L3 - Located across the streeet from single family home at 3764 Ash Street.
Meter: Piccolo I
JN: 12770
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.0	77.1	36.0	52.0	50.0	47.0	46.0	44.0	42.0	39.0	39.0	36.0	50.0	10.0	60.0
	1	46.4	72.0	36.0	52.0	50.0	48.0	47.0	45.0	42.0	36.0	36.0	36.0	46.4	10.0	56.4
	2	48.5	70.0	36.0	58.0	53.0	51.0	49.0	46.0	44.0	40.0	39.0	36.0	48.5	10.0	58.5
	3	51.7	73.4	38.9	64.0	57.0	53.0	51.0	49.0	47.0	44.0	43.0	40.0	51.7	10.0	61.7
	4	55.0	83.5	42.4	65.0	61.0	54.0	52.0	50.0	48.0	45.0	44.0	43.0	55.0	10.0	65.0
	5	56.6	74.9	42.9	69.0	67.0	62.0	58.0	52.0	50.0	46.0	45.0	44.0	56.6	10.0	66.6
	6	58.5	74.8	43.0	70.0	68.0	65.0	63.0	54.0	51.0	47.0	46.0	44.0	58.5	10.0	68.5
Day	7	59.8	86.9	40.3	70.0	68.0	65.0	62.0	53.0	49.0	45.0	43.0	42.0	59.8	0.0	59.8
	8	55.9	75.1	38.9	68.0	66.0	61.0	58.0	52.0	48.0	43.0	42.0	40.0	55.9	0.0	55.9
	9	55.0	75.4	36.0	66.0	65.0	60.0	58.0	52.0	47.0	42.0	40.0	38.0	55.0	0.0	55.0
	10	55.9	75.0	36.0	67.0	65.0	61.0	59.0	54.0	50.0	42.0	40.0	38.0	55.9	0.0	55.9
	11	55.3	73.9	39.0	67.0	65.0	60.0	58.0	52.0	48.0	43.0	42.0	41.0	55.3	0.0	55.3
	12	59.0	76.4	40.4	71.0	69.0	65.0	62.0	56.0	51.0	45.0	44.0	41.0	59.0	0.0	59.0
	13	59.7	87.4	38.9	70.0	68.0	65.0	63.0	54.0	49.0	44.0	42.0	41.0	59.7	0.0	59.7
	14	57.2	76.3	40.2	69.0	67.0	64.0	61.0	51.0	48.0	44.0	43.0	41.0	57.2	0.0	57.2
	15	57.7	78.0	40.1	69.0	68.0	65.0	62.0	53.0	48.0	44.0	43.0	41.0	57.7	0.0	57.7
	16	57.5	72.8	41.9	69.0	67.0	65.0	62.0	53.0	50.0	46.0	45.0	44.0	57.5	0.0	57.5
	17	59.1	81.8	41.7	70.0	68.0	65.0	62.0	52.0	49.0	46.0	45.0	43.0	59.1	0.0	59.1
	18	55.5	79.3	40.7	67.0	65.0	61.0	58.0	50.0	48.0	45.0	44.0	42.0	55.5	0.0	55.5
Evening	19	54.5	79.1	38.9	67.0	65.0	59.0	55.0	47.0	45.0	42.0	41.0	40.0	54.5	5.0	59.5
	20	54.1	78.8	36.0	67.0	64.0	57.0	52.0	45.0	43.0	39.0	39.0	38.0	54.1	5.0	59.1
	21	51.9	74.3	36.0	66.0	61.0	52.0	48.0	43.0	41.0	38.0	36.0	36.0	51.9	5.0	56.9
Night	22	53.4	83.4	36.0	64.0	58.0	49.0	46.0	44.0	43.0	39.0	37.0	36.0	53.4	10.0	63.4
	23	51.6	77.7	36.0	63.0	55.0	48.0	46.0	43.0	41.0	36.0	36.0	36.0	51.6	10.0	61.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.0	72.8	36.0	66.0	65.0	60.0	58.0	50.0	47.0	42.0	40.0	38.0
	Max	59.8	87.4	41.9	71.0	69.0	65.0	63.0	56.0	51.0	46.0	45.0	44.0
Energy Average		57.6	Average:		68.6	66.8	63.1	60.4	52.7	48.8	44.1	42.8	41.0
Evening	Min	51.9	74.3	36.0	66.0	61.0	52.0	48.0	43.0	41.0	38.0	36.0	36.0
	Max	54.5	79.1	38.9	67.0	65.0	59.0	55.0	47.0	45.0	42.0	41.0	40.0
Energy Average		53.6	Average:		66.7	63.3	56.0	51.7	45.0	43.0	39.7	38.7	38.0
Night	Min	46.4	70.0	36.0	52.0	50.0	47.0	46.0	43.0	41.0	36.0	36.0	36.0
	Max	58.5	83.5	43.0	70.0	68.0	65.0	63.0	54.0	51.0	47.0	46.0	44.0
Energy Average		53.9	Average:		61.9	57.7	53.0	50.9	47.4	45.3	41.3	40.6	39.0

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
56.1	**57.1**	**53.9**

24-Hour CNEL (dBA)

61.1

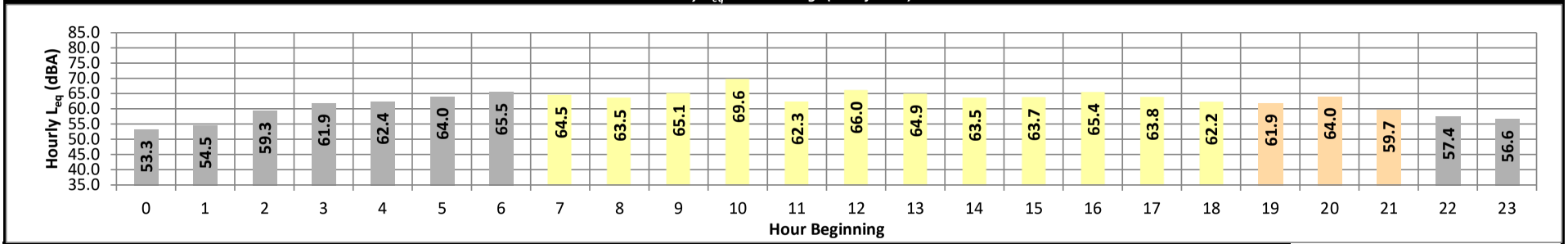
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 9, 2019 *Location:* L4 - Located along Mountain Street north of single family home at 14851 Noblewood Circle *Meter:* Piccolo I *JN:* 12770

Project: Lake and Mountain Development *Analyst:* P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.3	72.1	36.1	65.0	63.0	60.0	58.0	48.0	43.0	36.0	36.0	36.0	53.3	10.0	63.3
	1	54.5	72.8	36.1	66.0	64.0	61.0	59.0	49.0	40.0	36.0	36.0	36.0	54.5	10.0	64.5
	2	59.3	79.7	36.1	70.0	68.0	65.0	63.0	57.0	49.0	39.0	37.0	36.0	59.3	10.0	69.3
	3	61.9	81.5	42.0	71.0	69.0	67.0	65.0	61.0	57.0	48.0	47.0	43.0	61.9	10.0	71.9
	4	62.4	81.1	42.3	71.0	70.0	68.0	66.0	62.0	58.0	50.0	48.0	45.0	62.4	10.0	72.4
	5	64.0	86.4	42.1	72.0	70.0	68.0	67.0	63.0	59.0	51.0	49.0	46.0	64.0	10.0	74.0
	6	65.5	83.6	43.8	74.0	73.0	70.0	69.0	66.0	61.0	53.0	51.0	47.0	65.5	10.0	75.5
Day	7	64.5	86.5	40.1	74.0	72.0	69.0	68.0	64.0	60.0	50.0	48.0	44.0	64.5	0.0	64.5
	8	63.5	87.6	40.5	72.0	70.0	68.0	66.0	62.0	57.0	47.0	45.0	43.0	63.5	0.0	63.5
	9	65.1	95.4	39.1	72.0	70.0	68.0	66.0	61.0	57.0	47.0	45.0	42.0	65.1	0.0	65.1
	10	69.6	100.1	38.4	71.0	70.0	67.0	66.0	61.0	56.0	47.0	45.0	41.0	69.6	0.0	69.6
	11	62.3	79.3	39.0	72.0	70.0	68.0	66.0	61.0	57.0	47.0	45.0	40.0	62.3	0.0	62.3
	12	66.0	91.5	43.7	76.0	72.0	69.0	68.0	63.0	59.0	51.0	49.0	46.0	66.0	0.0	66.0
	13	64.9	86.3	41.9	74.0	72.0	70.0	68.0	64.0	59.0	51.0	48.0	46.0	64.9	0.0	64.9
	14	63.5	82.0	43.8	73.0	70.0	68.0	67.0	63.0	59.0	51.0	49.0	46.0	63.5	0.0	63.5
	15	63.7	85.4	41.1	73.0	71.0	69.0	67.0	63.0	58.0	49.0	48.0	45.0	63.7	0.0	63.7
	16	65.4	91.0	43.6	72.0	70.0	68.0	67.0	63.0	59.0	50.0	48.0	45.0	65.4	0.0	65.4
	17	63.8	85.3	40.9	73.0	70.0	68.0	66.0	63.0	59.0	50.0	48.0	45.0	63.8	0.0	63.8
	18	62.2	81.2	39.1	71.0	69.0	67.0	66.0	62.0	58.0	48.0	46.0	42.0	62.2	0.0	62.2
Evening	19	61.9	84.8	36.1	71.0	69.0	66.0	65.0	61.0	56.0	46.0	44.0	39.0	61.9	5.0	66.9
	20	64.0	91.1	36.1	73.0	70.0	66.0	65.0	60.0	54.0	43.0	40.0	38.0	64.0	5.0	69.0
	21	59.7	87.1	36.1	69.0	67.0	64.0	63.0	58.0	50.0	41.0	40.0	38.0	59.7	5.0	64.7
Night	22	57.4	79.7	36.1	67.0	65.0	62.0	61.0	54.0	45.0	36.0	36.0	36.0	57.4	10.0	67.4
	23	56.6	80.8	36.1	68.0	64.0	61.0	59.0	50.0	41.0	36.0	36.0	36.0	56.6	10.0	66.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	62.2	79.3	38.4	71.0	69.0	67.0	66.0	61.0	56.0	47.0	45.0	40.0
	Max	69.6	100.1	43.8	76.0	72.0	70.0	68.0	64.0	60.0	51.0	49.0	46.0
Energy Average		65.0	Average:		72.8	70.5	68.3	66.8	62.5	58.2	49.0	47.0	43.8
Evening	Min	59.7	84.8	36.1	69.0	67.0	64.0	63.0	58.0	50.0	41.0	40.0	38.0
	Max	64.0	91.1	36.1	73.0	70.0	66.0	65.0	61.0	56.0	46.0	44.0	39.0
Energy Average		62.2	Average:		71.0	68.7	65.3	64.3	59.7	53.3	43.3	41.3	38.3
Night	Min	53.3	72.1	36.1	65.0	63.0	60.0	58.0	48.0	40.0	36.0	36.0	36.0
	Max	65.5	86.4	43.8	74.0	73.0	70.0	69.0	66.0	61.0	53.0	51.0	47.0
Energy Average		61.1	Average:		69.3	67.3	64.7	63.0	56.7	50.3	42.8	41.8	40.1

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
63.6	**64.6**	**61.1**

24-Hour CNEL (dBA)

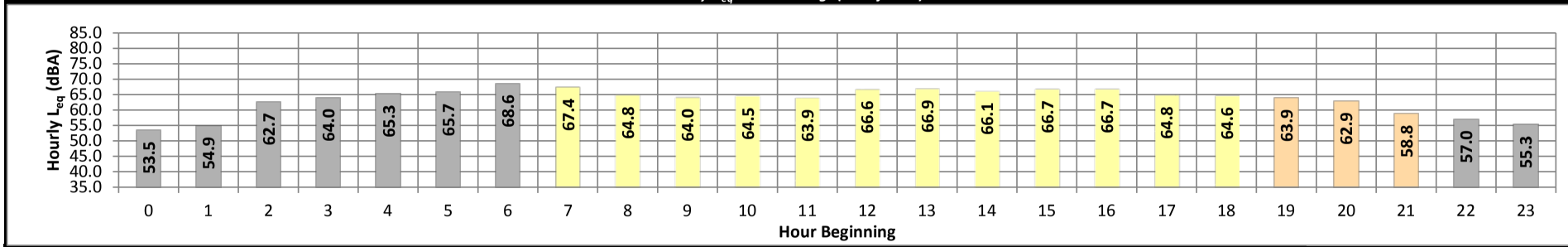
68.5

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 09, 2019
Project: Lake and Mountain Development
Location: L5 - Located along Mountain St. north of single family home at 14859 Noblewood Cir.
Meter: Piccolo I
JN: 12770
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.5	75.5	36.1	68.0	64.0	53.0	49.0	43.0	39.0	36.0	36.0	36.0	53.5	10.0	63.5
	1	54.9	81.3	36.1	68.0	62.0	53.0	50.0	43.0	40.0	36.0	36.0	36.0	54.9	10.0	64.9
	2	62.7	88.0	36.1	75.0	72.0	67.0	63.0	49.0	43.0	38.0	36.0	36.0	62.7	10.0	72.7
	3	64.0	83.0	39.8	76.0	75.0	71.0	68.0	55.0	49.0	44.0	43.0	41.0	64.0	10.0	74.0
	4	65.3	83.9	40.9	77.0	75.0	73.0	71.0	58.0	51.0	45.0	44.0	43.0	65.3	10.0	75.3
	5	65.7	85.1	42.4	76.0	75.0	73.0	71.0	62.0	53.0	47.0	46.0	44.0	65.7	10.0	75.7
	6	68.6	84.5	45.3	77.0	76.0	75.0	74.0	69.0	61.0	49.0	48.0	47.0	68.6	10.0	78.6
Day	7	67.4	82.0	39.8	77.0	76.0	74.0	73.0	67.0	57.0	46.0	44.0	42.0	67.4	0.0	67.4
	8	64.8	87.4	38.7	76.0	74.0	72.0	70.0	60.0	51.0	43.0	42.0	40.0	64.8	0.0	64.8
	9	64.0	79.9	39.1	76.0	74.0	71.0	69.0	58.0	49.0	42.0	41.0	40.0	64.0	0.0	64.0
	10	64.5	79.4	43.1	75.0	74.0	71.0	70.0	62.0	56.0	49.0	48.0	46.0	64.5	0.0	64.5
	11	63.9	88.8	38.4	75.0	74.0	71.0	68.0	57.0	49.0	43.0	41.0	39.0	63.9	0.0	63.9
	12	66.6	84.9	41.9	77.0	75.0	73.0	71.0	65.0	57.0	47.0	46.0	44.0	66.6	0.0	66.6
	13	66.9	82.6	40.9	77.0	76.0	73.0	72.0	66.0	56.0	45.0	44.0	42.0	66.9	0.0	66.9
	14	66.1	85.9	40.9	76.0	75.0	72.0	71.0	65.0	55.0	46.0	44.0	42.0	66.1	0.0	66.1
	15	66.7	93.2	39.0	76.0	75.0	73.0	71.0	64.0	54.0	44.0	42.0	40.0	66.7	0.0	66.7
	16	66.7	86.3	40.0	76.0	75.0	73.0	71.0	66.0	57.0	46.0	44.0	41.0	66.7	0.0	66.7
	17	64.8	79.6	39.1	74.0	73.0	71.0	70.0	64.0	54.0	45.0	43.0	42.0	64.8	0.0	64.8
	18	64.6	80.6	39.1	75.0	73.0	71.0	70.0	63.0	53.0	44.0	43.0	40.0	64.6	0.0	64.6
Evening	19	63.9	80.1	36.1	75.0	74.0	71.0	69.0	60.0	50.0	43.0	42.0	39.0	63.9	5.0	68.9
	20	62.9	83.9	36.1	74.0	72.0	70.0	68.0	55.0	47.0	40.0	39.0	36.0	62.9	5.0	67.9
	21	58.8	78.9	36.1	71.0	69.0	66.0	62.0	50.0	46.0	41.0	39.0	36.0	58.8	5.0	63.8
Night	22	57.0	81.4	36.1	71.0	68.0	59.0	53.0	45.0	42.0	36.0	36.0	36.0	57.0	10.0	67.0
	23	55.3	78.4	36.1	69.0	65.0	56.0	50.0	43.0	40.0	36.0	36.0	36.0	55.3	10.0	65.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.9	79.4	38.4	74.0	73.0	71.0	68.0	57.0	49.0	42.0	41.0	39.0
	Max	67.4	93.2	43.1	77.0	76.0	74.0	73.0	67.0	57.0	49.0	48.0	46.0
Energy Average		65.8	Average:		75.8	74.5	72.1	70.5	63.1	54.0	45.0	43.5	41.5
Evening	Min	58.8	78.9	36.1	71.0	69.0	66.0	62.0	50.0	46.0	40.0	39.0	36.0
	Max	63.9	83.9	36.1	75.0	74.0	71.0	69.0	60.0	50.0	43.0	42.0	39.0
Energy Average		62.4	Average:		73.3	71.7	69.0	66.3	55.0	47.7	41.3	40.0	37.0
Night	Min	53.5	75.5	36.1	68.0	62.0	53.0	49.0	43.0	39.0	36.0	36.0	36.0
	Max	68.6	88.0	45.3	77.0	76.0	75.0	74.0	69.0	61.0	49.0	48.0	47.0
Energy Average		63.5	Average:		73.0	70.2	64.4	61.0	51.9	46.4	40.8	40.1	39.4

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
64.7	65.3	63.5

24-Hour CNEL (dBA)

70.4

URBAN CROSSROADS

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: n/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,660 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.21	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-17.45	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-21.40	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	67.0	65.3	59.2	67.8	68.4
Medium Trucks:	62.5	61.0	54.6	53.1	61.6	61.8
Heavy Trucks:	62.9	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	70.6	68.9	65.8	61.0	69.6	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	121	262	564
CNEL:	61	130	281	605

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,150 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.92	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.32	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.28	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.4	60.3	68.9	69.6
Medium Trucks:	63.6	62.1	55.8	54.2	62.7	62.9
Heavy Trucks:	64.0	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	71.7	70.0	66.9	62.2	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	144	311	670
CNEL:	72	155	334	719

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Alberhill Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,200 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.02	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.22	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.18	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.5	60.4	69.0	69.7
Medium Trucks:	63.7	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	71.8	70.1	67.0	62.3	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	316	680
CNEL:	73	157	339	731

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: n/o Mountain St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,190 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.00	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.24	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.20	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.5	60.4	69.0	69.6
Medium Trucks:	63.7	62.2	55.8	54.3	62.8	63.0
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	71.8	70.1	67.0	62.2	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	146	315	678
CNEL:	73	157	338	728

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Mountain St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,090 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.79	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.45	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.40	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.0	66.3	60.2	68.8	69.4
Medium Trucks:	63.5	62.0	55.6	54.1	62.6	62.8
Heavy Trucks:	63.9	62.5	53.5	54.7	63.1	63.2
Vehicle Noise:	71.6	69.9	66.8	62.0	70.6	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	142	305	657
CNEL:	71	152	328	706

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Lakeshore Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,770 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.07	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.17	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.12	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	63.6	62.1	55.7	54.2	62.6	62.9
Heavy Trucks:	64.0	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	71.7	70.0	66.9	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	554
CNEL:	60	128	276	595

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lincoln St. | Job Number: 12770
Road Segment: s/o Grand Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	500 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.45	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-21.69	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.64	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	55.8	54.3	47.9	46.4	54.8	55.1
Heavy Trucks:	57.1	55.7	46.6	47.9	56.3	56.4
Vehicle Noise:	63.8	62.1	58.8	54.2	62.8	63.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	77	165
CNEL:	18	38	82	177

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Nichols Rd. | Job Number: 12770
Road Segment: e/o Lake St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	650 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-4.28	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-21.52	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-25.47	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	63.0	61.2	55.1	63.8	64.4
Medium Trucks:	58.4	56.9	50.6	49.0	57.5	57.7
Heavy Trucks:	58.9	57.4	48.4	49.6	58.0	58.1
Vehicle Noise:	66.6	64.8	61.8	57.0	65.5	66.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	65	140	302
CNEL:	32	70	150	324

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Alberhill Ranch Rd. | Job Number: 12770
Road Segment: e/o Lake St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	150 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	39.0 feet
Centerline Dist. to Observer:	39.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.443
Medium Trucks:	37.206
Heavy Trucks:	37.230

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.68	1.78	-1.20	-4.58	0.000	0.000
Medium Trucks:	77.72	-26.92	1.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-30.87	1.82	-1.20	-5.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.4	55.5	53.7	47.7	56.3	56.9
Medium Trucks:	51.4	49.9	43.6	42.0	50.5	50.7
Heavy Trucks:	52.7	51.3	42.3	43.5	51.9	52.0
Vehicle Noise:	59.4	57.7	54.4	49.9	58.4	58.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	14	31	66
CNEL:	7	15	33	71

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lakeshore Drive | Job Number: 12770
Road Segment: e/o Lake St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,000 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.41	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-19.65	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-23.60	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	64.8	63.1	57.0	65.6	66.2
Medium Trucks:	60.3	58.8	52.4	50.9	59.4	59.6
Heavy Trucks:	60.7	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	68.4	66.7	63.6	58.8	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	87	187	402
CNEL:	43	93	200	432

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Lakeshore Drive | Job Number: 12770
Road Segment: e/o Terra Cotta Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,310 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.24	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-18.47	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-22.43	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	66.0	64.2	58.2	66.8	67.4
Medium Trucks:	61.5	60.0	53.6	52.1	60.5	60.8
Heavy Trucks:	61.9	60.5	51.4	52.7	61.0	61.2
Vehicle Noise:	69.6	67.8	64.8	60.0	68.6	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	223	481
CNEL:	52	111	240	517

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Lake & Mountain
Road Name: Grand Av. | Job Number: 12770
Road Segment: w/o Lincoln St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,070 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.66	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-18.90	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.85	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	64.6	62.9	56.8	65.4	66.0
Medium Trucks:	60.3	58.8	52.4	50.9	59.4	59.6
Heavy Trucks:	61.2	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.4	66.6	63.5	58.8	67.3	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	33	72	154	333
CNEL:	36	77	166	357

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Lake & Mountain
Road Name: Grand Av. | *Job Number:* 12770
Road Segment: e/o Lincoln St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,280 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.88	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-18.12	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.07	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.3	65.4	63.6	57.6	66.2	66.8
Medium Trucks:	61.1	59.6	53.2	51.7	60.1	60.4
Heavy Trucks:	61.9	60.5	51.5	52.7	61.1	61.2
Vehicle Noise:	69.2	67.4	64.3	59.6	68.1	68.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	81	174	375
CNEL:	40	87	187	402

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | *Project Name:* Lake & Mountain
Road Name: Lake St. | *Job Number:* 12770
Road Segment: n/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,710 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.08	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.32	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-21.27	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.2	65.4	59.3	68.0	68.6
Medium Trucks:	62.6	61.1	54.8	53.2	61.7	61.9
Heavy Trucks:	63.1	61.6	52.6	53.8	62.2	62.3
Vehicle Noise:	70.8	69.0	66.0	61.2	69.7	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	124	267	575
CNEL:	62	133	287	618

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | *Project Name:* Lake & Mountain
Road Name: Lake St. | *Job Number:* 12770
Road Segment: s/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,220 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.05	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-16.18	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.14	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.3	66.5	60.5	69.1	69.7
Medium Trucks:	63.8	62.3	55.9	54.4	62.8	63.0
Heavy Trucks:	64.2	62.8	53.7	55.0	63.3	63.5
Vehicle Noise:	71.9	70.1	67.1	62.3	70.9	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	318	684
CNEL:	73	158	341	735

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | *Project Name:* Lake & Mountain
Road Name: Lake St. | *Job Number:* 12770
Road Segment: s/o Alberhill Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,290 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.19	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-16.05	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.00	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.7	60.6	69.2	69.8
Medium Trucks:	63.9	62.4	56.0	54.5	63.0	63.2
Heavy Trucks:	64.3	62.9	53.9	55.1	63.5	63.6
Vehicle Noise:	72.0	70.3	67.2	62.4	71.0	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	324	698
CNEL:	75	162	348	750

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: n/o Mountain St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,340 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.28	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.95	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.91	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.7	60.7	69.3	69.9
Medium Trucks:	64.0	62.5	56.1	54.6	63.0	63.3
Heavy Trucks:	64.4	63.0	54.0	55.2	63.6	63.7
Vehicle Noise:	72.1	70.4	67.3	62.5	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	153	329	709
CNEL:	76	164	353	761

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Mountain St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,290 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.19	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.05	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.00	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.7	60.6	69.2	69.8
Medium Trucks:	63.9	62.4	56.0	54.5	63.0	63.2
Heavy Trucks:	64.3	62.9	53.9	55.1	63.5	63.6
Vehicle Noise:	72.0	70.3	67.2	62.4	71.0	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	324	698
CNEL:	75	162	348	750

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Lakeshore Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,280 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.17	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.07	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.02	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.4	61.4	70.0	70.6
Medium Trucks:	64.7	63.2	56.8	55.3	63.7	64.0
Heavy Trucks:	65.1	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	72.8	71.1	68.0	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	141	305	656
CNEL:	70	152	327	705

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Lake & Mountain
Road Name: Lincoln St. | Job Number: 12770
Road Segment: s/o Grand Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	520 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.28	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-21.52	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.47	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	60.1	58.3	52.2	60.9	61.5
Medium Trucks:	56.0	54.4	48.1	46.5	55.0	55.2
Heavy Trucks:	57.3	55.9	46.8	48.1	56.4	56.5
Vehicle Noise:	64.0	62.2	59.0	54.4	63.0	63.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	79	170
CNEL:	18	39	84	181

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Lake & Mountain
Road Name: Nichols Rd. | Job Number: 12770
Road Segment: e/o Lake St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	680 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-4.08	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-21.32	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-25.28	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.0	63.1	61.4	55.3	64.0	64.6
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	59.1	57.6	48.6	49.8	58.2	58.3
Vehicle Noise:	66.7	65.0	61.9	57.2	65.7	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	67	144	311
CNEL:	33	72	155	334

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Lake & Mountain
Road Name: Alberhill Ranch Rd. | Job Number: 12770
Road Segment: e/o Lake St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	170 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	39.0 feet
Centerline Dist. to Observer:	39.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.443
Medium Trucks:	37.206
Heavy Trucks:	37.230

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.14	1.78	-1.20	-4.58	0.000	0.000
Medium Trucks:	77.72	-26.37	1.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-30.33	1.82	-1.20	-5.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.0	56.1	54.3	48.2	56.9	57.5
Medium Trucks:	52.0	50.5	44.1	42.5	51.0	51.2
Heavy Trucks:	53.3	51.9	42.8	44.1	52.4	52.6
Vehicle Noise:	60.0	58.2	55.0	50.4	59.0	59.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	33	72
CNEL:	8	17	36	77

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Lake & Mountain
Road Name: Lakeshore Drive | Job Number: 12770
Road Segment: e/o Lake St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.03	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-19.27	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-23.23	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	65.2	63.4	57.4	66.0	66.6
Medium Trucks:	60.7	59.2	52.8	51.3	59.7	60.0
Heavy Trucks:	61.1	59.7	50.6	51.9	60.2	60.4
Vehicle Noise:	68.8	67.0	64.0	59.2	67.8	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	43	92	198	426
CNEL:	46	99	212	457

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Lake & Mountain
Road Name: Lakeshore Drive | Job Number: 12770
Road Segment: e/o Terra Cotta Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,350 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.11	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-18.34	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-22.30	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.0	66.1	64.4	58.3	66.9	67.5
Medium Trucks:	61.6	60.1	53.7	52.2	60.7	60.9
Heavy Trucks:	62.0	60.6	51.6	52.8	61.2	61.3
Vehicle Noise:	69.7	68.0	64.9	60.1	68.7	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	106	228	491
CNEL:	53	114	245	528

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Grand Av.
Road Segment: w/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,120	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	53	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.46	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-18.70	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.65	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	64.8	63.1	57.0	65.6	66.2
Medium Trucks:	60.5	59.0	52.6	51.1	59.6	59.8
Heavy Trucks:	61.4	59.9	50.9	52.1	60.5	60.6
Vehicle Noise:	68.6	66.8	63.7	59.0	67.5	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	74	159	343
CNEL:	37	79	171	368

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Grand Av.
Road Segment: e/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,370	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	53	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.58	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-17.82	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.78	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	65.7	63.9	57.9	66.5	67.1
Medium Trucks:	61.4	59.9	53.5	52.0	60.4	60.7
Heavy Trucks:	62.2	60.8	51.8	53.0	61.4	61.5
Vehicle Noise:	69.4	67.7	64.5	59.9	68.4	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	85	182	392
CNEL:	42	91	195	421

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lake St.
Road Segment: n/o Nichols Rd.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,730	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.03	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.27	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-21.22	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.2	65.4	59.4	68.0	68.6
Medium Trucks:	62.7	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	63.1	61.7	52.6	53.9	62.3	62.4
Vehicle Noise:	70.8	69.1	66.0	61.2	69.8	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	579
CNEL:	62	134	289	622

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lake St.
Road Segment: s/o Nichols Rd.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,240	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.09	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-16.14	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-20.10	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.3	66.6	60.5	69.1	69.7
Medium Trucks:	63.8	62.3	55.9	54.4	62.9	63.1
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	71.9	70.2	67.1	62.3	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	319	688
CNEL:	74	159	343	739

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lake St.
Road Segment: s/o Alberhill Ranch Rd.

Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,290 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.19	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.05	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.00	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.7	60.6	69.2	69.8
Medium Trucks:	63.9	62.4	56.0	54.5	63.0	63.2
Heavy Trucks:	64.3	62.9	53.9	55.1	63.5	63.6
Vehicle Noise:	72.0	70.3	67.2	62.4	71.0	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	324	698
CNEL:	75	162	348	750

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lake St.
Road Segment: n/o Mountain St.

Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,290 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.19	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.05	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.00	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.7	60.6	69.2	69.8
Medium Trucks:	63.9	62.4	56.0	54.5	63.0	63.2
Heavy Trucks:	64.3	62.9	53.9	55.1	63.5	63.6
Vehicle Noise:	72.0	70.3	67.2	62.4	71.0	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	324	698
CNEL:	75	162	348	750

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lake St.
Road Segment: s/o Mountain St.

Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,180 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.98	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.26	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.22	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.4	60.4	69.0	69.6
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	71.8	70.1	67.0	62.2	70.8	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	146	314	676
CNEL:	73	156	337	726

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lake St.
Road Segment: s/o Lakeshore Dr.

Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,250 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.11	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.13	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.08	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.4	61.3	69.9	70.6
Medium Trucks:	64.6	63.1	56.8	55.2	63.7	63.9
Heavy Trucks:	65.1	63.6	54.6	55.8	64.2	64.3
Vehicle Noise:	72.7	71.0	67.9	63.2	71.7	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	140	302	650
CNEL:	70	151	324	699

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lincoln St.
Road Segment: s/o Grand Av.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	520 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.28	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-21.52	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-25.47	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.0	60.1	58.3	52.2	60.9	61.5
Medium Trucks:	56.0	54.4	48.1	46.5	55.0	55.2
Heavy Trucks:	57.3	55.9	46.8	48.1	56.4	56.5
Vehicle Noise:	64.0	62.2	59.0	54.4	63.0	63.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	17	37	79	170
CNEL:	18	39	84	181

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Nichols Rd.
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	680 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.08	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-21.32	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-25.28	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.1	61.4	55.3	64.0	64.6
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	59.1	57.6	48.6	49.8	58.2	58.3
Vehicle Noise:	66.7	65.0	61.9	57.2	65.7	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	67	144	311
CNEL:	33	72	155	334

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Alberhill Ranch Rd.
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	160 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	39.0 feet
Centerline Dist. to Observer:	39.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	37.443
Medium Trucks:	37.206
Heavy Trucks:	37.230

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-9.40	1.78	-1.20	*-4.58*	0.000	0.000
Medium Trucks:	77.72	-26.64	1.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-30.59	1.82	-1.20	*-5.57*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	55.8	54.0	48.0	56.6	57.2
Medium Trucks:	51.7	50.2	43.8	42.3	50.7	51.0
Heavy Trucks:	53.0	51.6	42.6	43.8	52.2	52.3
Vehicle Noise:	59.7	58.0	54.7	50.2	58.7	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	15	32	69
CNEL:	7	16	34	74

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lakeshore Drive
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,040 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.24	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.48	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-23.43	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.5	59.0	52.6	51.1	59.5	59.8
Heavy Trucks:	60.9	59.5	50.4	51.7	60.0	60.2
Vehicle Noise:	68.6	66.8	63.8	59.0	67.6	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	89	192	413
CNEL:	44	96	206	443

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Lakeshore Drive
Road Segment: e/o Terra Cotta Rd.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,370	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-1.04	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.28	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-22.24	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	66.2	64.4	58.4	67.0	67.6
Medium Trucks:	61.7	60.2	53.8	52.3	60.7	61.0
Heavy Trucks:	62.1	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	69.8	68.0	65.0	60.2	68.8	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	50	107	230	496
CNEL:	53	115	247	533

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Grand Av.
Road Segment: w/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,110	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	53	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.50	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-18.74	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.69	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	64.8	63.0	57.0	65.6	66.2
Medium Trucks:	60.5	59.0	52.6	51.1	59.5	59.7
Heavy Trucks:	61.3	59.9	50.9	52.1	60.5	60.6
Vehicle Noise:	68.5	66.8	63.6	59.0	67.5	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	34	73	158	341
CNEL:	37	79	170	366

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Grand Av.
Road Segment: e/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,330	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	53	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.71	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-17.95	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.91	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	61.3	59.7	53.4	51.8	60.3	60.5
Heavy Trucks:	62.1	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	69.3	67.6	64.4	59.7	68.3	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	83	179	385
CNEL:	41	89	191	413

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Lake St.
Road Segment: n/o Nichols Rd.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,780	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.10	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.14	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-21.10	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.2	67.3	65.6	59.5	68.1	68.7
Medium Trucks:	62.8	61.3	54.9	53.4	61.9	62.1
Heavy Trucks:	63.2	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	70.9	69.2	66.1	61.3	69.9	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	127	274	590
CNEL:	63	137	294	634

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,310 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.23	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.01	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.97	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.7	60.6	69.3	69.9
Medium Trucks:	63.9	62.4	56.1	54.5	63.0	63.2
Heavy Trucks:	64.4	62.9	53.9	55.2	63.5	63.6
Vehicle Noise:	72.1	70.3	67.3	62.5	71.0	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	326	702
CNEL:	75	163	350	755

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Alberhill Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,380 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.36	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.88	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.84	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.5	63.1	54.0	55.3	63.6	63.8
Vehicle Noise:	72.2	70.4	67.4	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	154	333	717
CNEL:	77	166	357	770

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: n/o Mountain St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,430 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.45	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.79	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.75	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	66.9	60.9	69.5	70.1
Medium Trucks:	64.2	62.7	56.3	54.7	63.2	63.4
Heavy Trucks:	64.6	63.2	54.1	55.4	63.7	63.9
Vehicle Noise:	72.3	70.5	67.5	62.7	71.2	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	337	727
CNEL:	78	168	362	781

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Mountain St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,380 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.36	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.88	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.84	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.5	63.1	54.0	55.3	63.6	63.8
Vehicle Noise:	72.2	70.4	67.4	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	154	333	717
CNEL:	77	166	357	770

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Lake St.
Road Segment: s/o Lakeshore Dr.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,360 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.32	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.92	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.87	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.4	67.6	61.5	70.2	70.8
Medium Trucks:	64.8	63.3	57.0	55.4	63.9	64.1
Heavy Trucks:	65.3	63.8	54.8	56.1	64.4	64.5
Vehicle Noise:	73.0	71.2	68.2	63.4	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	145	312	671
CNEL:	72	155	335	721

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Lincoln St.
Road Segment: s/o Grand Av.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.12	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-21.35	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.31	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.1	60.2	58.5	52.4	61.0	61.6
Medium Trucks:	56.1	54.6	48.2	46.7	55.2	55.4
Heavy Trucks:	57.4	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	64.1	62.4	59.1	54.6	63.1	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	81	174
CNEL:	19	40	86	186

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Nichols Rd.
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	700 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.96	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-21.20	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-25.15	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	63.3	61.5	55.5	64.1	64.7
Medium Trucks:	58.8	57.2	50.9	49.3	57.8	58.0
Heavy Trucks:	59.2	57.8	48.7	50.0	58.3	58.4
Vehicle Noise:	66.9	65.1	62.1	57.3	65.8	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	68	147	317
CNEL:	34	73	158	340

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Alberhill Ranch Rd.
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	180 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	39.0 feet
Centerline Dist. to Observer:	39.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.443
Medium Trucks:	37.206
Heavy Trucks:	37.230

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.89	1.78	-1.20	-4.58	0.000	0.000
Medium Trucks:	77.72	-26.13	1.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-30.08	1.82	-1.20	-5.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.2	56.3	54.5	48.5	57.1	57.7
Medium Trucks:	52.2	50.7	44.3	42.8	51.3	51.5
Heavy Trucks:	53.5	52.1	43.1	44.3	52.7	52.8
Vehicle Noise:	60.2	58.5	55.2	50.7	59.2	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	16	35	74
CNEL:	8	17	37	80

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Lakeshore Drive
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,130 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.88	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-19.12	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-23.07	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.3	65.4	63.6	57.5	66.2	66.8
Medium Trucks:	60.8	59.3	53.0	51.4	59.9	60.1
Heavy Trucks:	61.3	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	69.0	67.2	64.2	59.4	67.9	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	94	202	436
CNEL:	47	101	217	469

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Lakeshore Drive
Road Segment: e/o Terra Cotta Rd.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,410 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.92	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-18.15	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-22.11	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.5	58.5	67.1	67.7
Medium Trucks:	61.8	60.3	53.9	52.4	60.8	61.1
Heavy Trucks:	62.2	60.8	51.8	53.0	61.4	61.5
Vehicle Noise:	69.9	68.2	65.1	60.3	68.9	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	109	235	505
CNEL:	54	117	252	543

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Grand Av.
Road Segment: w/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,160 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.31	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-18.54	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.50	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.7	59.2	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.7	60.8
Vehicle Noise:	68.7	67.0	63.8	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	76	163	351
CNEL:	38	81	175	377

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP
Road Name: Grand Av.
Road Segment: e/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,420 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.43	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-17.67	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.62	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	65.9	64.1	58.0	66.7	67.3
Medium Trucks:	61.5	60.0	53.7	52.1	60.6	60.8
Heavy Trucks:	62.4	61.0	51.9	53.2	61.5	61.7
Vehicle Noise:	69.6	67.9	64.7	60.0	68.6	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	87	186	402
CNEL:	43	93	200	431

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: n/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,830 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.22	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-17.02	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.98	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.4	65.7	59.6	68.2	68.9
Medium Trucks:	62.9	61.4	55.1	53.5	62.0	62.2
Heavy Trucks:	63.3	61.9	52.9	54.1	62.5	62.6
Vehicle Noise:	71.0	69.3	66.2	61.5	70.0	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	279	601
CNEL:	65	139	300	646

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,320 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.25	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.99	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.95	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.7	60.7	69.3	69.9
Medium Trucks:	64.0	62.5	56.1	54.5	63.0	63.2
Heavy Trucks:	64.4	63.0	53.9	55.2	63.5	63.7
Vehicle Noise:	72.1	70.3	67.3	62.5	71.0	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	152	327	705
CNEL:	76	163	351	757

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Alberhill Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,380 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.36	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.88	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.84	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.5	63.1	54.0	55.3	63.6	63.8
Vehicle Noise:	72.2	70.4	67.4	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	154	333	717
CNEL:	77	166	357	770

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: n/o Mountain St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,380 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.36	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.88	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.84	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.5	63.1	54.0	55.3	63.6	63.8
Vehicle Noise:	72.2	70.4	67.4	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	154	333	717
CNEL:	77	166	357	770

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Mountain St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,260 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.13	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.11	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.06	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	63.8	62.3	56.0	54.4	62.9	63.1
Heavy Trucks:	64.3	62.8	53.8	55.1	63.4	63.5
Vehicle Noise:	72.0	70.2	67.2	62.4	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	692
CNEL:	74	160	345	744

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Lakeshore Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,340 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.28	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.95	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.91	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.5	61.5	70.1	70.7
Medium Trucks:	64.8	63.3	56.9	55.4	63.8	64.1
Heavy Trucks:	65.2	63.8	54.8	56.0	64.4	64.5
Vehicle Noise:	72.9	71.2	68.1	63.3	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	144	310	668
CNEL:	72	155	333	717

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Lincoln St. | Job Number: 12770
Road Segment: s/o Grand Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	530 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.20	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-21.44	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.39	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	60.1	58.4	52.3	60.9	61.5
Medium Trucks:	56.0	54.5	48.2	46.6	55.1	55.3
Heavy Trucks:	57.4	55.9	46.9	48.1	56.5	56.6
Vehicle Noise:	64.1	62.3	59.0	54.5	63.0	63.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	80	172
CNEL:	18	40	85	184

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Nichols Rd. | Job Number: 12770
Road Segment: e/o Lake St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	790 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.43	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-20.67	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-24.63	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.7	63.8	62.0	56.0	64.6	65.2
Medium Trucks:	59.3	57.8	51.4	49.9	58.3	58.6
Heavy Trucks:	59.7	58.3	49.2	50.5	58.8	59.0
Vehicle Noise:	67.4	65.6	62.6	57.8	66.4	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	74	159	344
CNEL:	37	80	171	369

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: Alberhill Ranch Rd.
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	200 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	39.0 feet
Centerline Dist. to Observer:	39.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.443
Medium Trucks:	37.206
Heavy Trucks:	37.230

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.43	1.78	-1.20	*-4.58*	0.000	0.000
Medium Trucks:	77.72	-25.67	1.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-29.62	1.82	-1.20	*-5.57*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.7	56.8	55.0	48.9	57.6	58.2
Medium Trucks:	52.7	51.2	44.8	43.3	51.7	51.9
Heavy Trucks:	54.0	52.6	43.5	44.8	53.1	53.3
Vehicle Noise:	60.7	59.0	55.7	51.1	59.7	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	17	37	80
CNEL:	9	18	40	85

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: Lakeshore Drive
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,080 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.07	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.31	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-23.27	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	65.2	63.4	57.3	66.0	66.6
Medium Trucks:	60.6	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.1	59.6	50.6	51.9	60.2	60.3
Vehicle Noise:	68.8	67.0	64.0	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	91	196	423
CNEL:	45	98	211	455

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: Lakeshore Drive
Road Segment: e/o Terra Cotta Rd.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,410 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.92	0.13	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.15	0.15	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-22.11	0.15	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.5	58.5	67.1	67.7
Medium Trucks:	61.8	60.3	53.9	52.4	60.8	61.1
Heavy Trucks:	62.2	60.8	51.8	53.0	61.4	61.5
Vehicle Noise:	69.9	68.2	65.1	60.3	68.9	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	109	235	505
CNEL:	54	117	252	543

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: Grand Av.
Road Segment: w/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,130 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.42	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-18.66	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.61	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.8	64.9	63.1	57.0	65.7	66.3
Medium Trucks:	60.5	59.0	52.7	51.1	59.6	59.8
Heavy Trucks:	61.4	60.0	50.9	52.2	60.5	60.7
Vehicle Noise:	68.6	66.9	63.7	59.0	67.6	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	74	160	345
CNEL:	37	80	172	370

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Lake & Mountain
Road Name: Grand Av. | Job Number: 12770
Road Segment: e/o Lincoln St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,370 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.58	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-17.82	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.78	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	65.7	63.9	57.9	66.5	67.1
Medium Trucks:	61.4	59.9	53.5	52.0	60.4	60.7
Heavy Trucks:	62.2	60.8	51.8	53.0	61.4	61.5
Vehicle Noise:	69.4	67.7	64.5	59.9	68.4	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	85	182	392
CNEL:	42	91	195	421

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: n/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,880 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.33	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.91	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-20.86	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.8	59.7	68.4	69.0
Medium Trucks:	63.0	61.5	55.2	53.6	62.1	62.3
Heavy Trucks:	63.5	62.0	53.0	54.3	62.6	62.7
Vehicle Noise:	71.2	69.4	66.4	61.6	70.1	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	132	284	612
CNEL:	66	142	305	658

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Nichols Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,390 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.38	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.86	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.82	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.5	63.1	54.1	55.3	63.7	63.8
Vehicle Noise:	72.2	70.5	67.4	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	155	334	719
CNEL:	77	166	358	772

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC | Project Name: Lake & Mountain
Road Name: Lake St. | Job Number: 12770
Road Segment: s/o Alberhill Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,470 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.52	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.72	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.68	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.8	67.0	60.9	69.6	70.2
Medium Trucks:	64.2	62.7	56.4	54.8	63.3	63.5
Heavy Trucks:	64.7	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	72.4	70.6	67.6	62.8	71.3	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	158	341	735
CNEL:	79	170	366	789

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Lake St.
Road Segment: n/o Mountain St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,520 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.61	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.63	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.59	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.8	67.1	61.0	69.6	70.2
Medium Trucks:	64.3	62.8	56.5	54.9	63.4	63.6
Heavy Trucks:	64.7	63.3	54.3	55.5	63.9	64.0
Vehicle Noise:	72.4	70.7	67.6	62.9	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	346	744
CNEL:	80	172	371	800

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Lake St.
Road Segment: s/o Mountain St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,460 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.50	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-15.74	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.69	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	67.0	60.9	69.5	70.1
Medium Trucks:	64.2	62.7	56.3	54.8	63.3	63.5
Heavy Trucks:	64.6	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	72.3	70.6	67.5	62.8	71.3	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	158	340	733
CNEL:	79	170	365	787

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Lake St.
Road Segment: s/o Lakeshore Dr.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,450 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.48	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.76	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.71	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	65.0	63.5	57.1	55.6	64.0	64.3
Heavy Trucks:	65.4	64.0	55.0	56.2	64.6	64.7
Vehicle Noise:	73.1	71.4	68.3	63.5	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	320	688
CNEL:	74	159	343	740

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Lincoln St.
Road Segment: s/o Grand Av.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.04	0.93	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-21.27	0.96	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.23	0.95	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	56.2	54.7	48.3	46.8	55.2	55.5
Heavy Trucks:	57.5	56.1	47.1	48.3	56.7	56.8
Vehicle Noise:	64.2	62.5	59.2	54.7	63.2	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	38	82	176
CNEL:	19	41	87	188

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Nichols Rd.
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	810 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.32	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-20.56	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-24.52	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.8	63.9	62.1	56.1	64.7	65.3
Medium Trucks:	59.4	57.9	51.5	50.0	58.4	58.7
Heavy Trucks:	59.8	58.4	49.4	50.6	59.0	59.1
Vehicle Noise:	67.5	65.8	62.7	57.9	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	75	162	349
CNEL:	38	81	174	375

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Alberhill Ranch Rd.
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	220 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	39.0 feet
Centerline Dist. to Observer:	39.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.443
Medium Trucks:	37.206
Heavy Trucks:	37.230

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.02	1.78	-1.20	-4.58	0.000	0.000
Medium Trucks:	77.72	-25.25	1.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.21	1.82	-1.20	-5.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.1	57.2	55.4	49.4	58.0	58.6
Medium Trucks:	53.1	51.6	45.2	43.7	52.1	52.4
Heavy Trucks:	54.4	53.0	43.9	45.2	53.5	53.7
Vehicle Noise:	61.1	59.4	56.1	51.5	60.1	60.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	18	39	85
CNEL:	9	20	42	91

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Lakeshore Drive
Road Segment: e/o Lake St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,170 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.73	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-18.97	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-22.92	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	61.0	59.5	53.1	51.6	60.0	60.3
Heavy Trucks:	61.4	60.0	50.9	52.2	60.6	60.7
Vehicle Noise:	69.1	67.4	64.3	59.5	68.1	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	96	207	446
CNEL:	48	103	223	480

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Lakeshore Drive
Road Segment: e/o Terra Cotta Rd.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,450 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.260
Medium Trucks:	48.076
Heavy Trucks:	48.094

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.79	0.13	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-18.03	0.15	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-21.99	0.15	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.3	66.4	64.7	58.6	67.2	67.8
Medium Trucks:	61.9	60.4	54.1	52.5	61.0	61.2
Heavy Trucks:	62.3	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	70.0	68.3	65.2	60.5	69.0	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	111	239	515
CNEL:	55	119	257	553

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Grand Av.
Road Segment: w/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,180	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	53	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.23	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-18.47	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-22.43	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.0	65.1	63.3	57.2	65.9	66.5
Medium Trucks:	60.7	59.2	52.9	51.3	59.8	60.0
Heavy Trucks:	61.6	60.2	51.1	52.4	60.7	60.9
Vehicle Noise:	68.8	67.1	63.9	59.2	67.8	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	77	165	355
CNEL:	38	82	177	381

Saturday, October 19, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC
Road Name: Grand Av.
Road Segment: e/o Lincoln St.
Project Name: Lake & Mountain
Job Number: 12770

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,460	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	53	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	42.694
Medium Trucks:	42.486
Heavy Trucks:	42.506

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.31	0.93	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-17.55	0.96	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-21.50	0.95	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.0	64.2	58.2	66.8	67.4
Medium Trucks:	61.7	60.2	53.8	52.2	60.7	60.9
Heavy Trucks:	62.5	61.1	52.0	53.3	61.7	61.8
Vehicle Noise:	69.7	68.0	64.8	60.2	68.7	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	88	190	409
CNEL:	44	95	204	439

Saturday, October 19, 2019

APPENDIX 9.1:

OPERATIONAL NOISE LEVEL CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R1**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	106.0	feet	***Barrier Height:***	**5.0 feet**
Noise Distance to Barrier:	5.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	101.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,515.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	106.0	-26.5	-26.5	-26.5	-26.5	-26.5	-26.5
Shielding (Barrier Attenuation)	5.0	-10.6	-10.6	-10.6	-10.6	-10.6	-10.6
Raw (Distance + Barrier)		40.1	37.3	39.0	40.3	40.6	41.1
39 Minute Hourly Adjustment		**38.2**	**35.4**	**37.1**	**38.4**	**38.7**	**39.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R1**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	215.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	76.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	139.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	215.0	-23.1	-23.1	-23.1	-23.1	-23.1	-23.1
Shielding (Barrier Attenuation)	76.0	-13.4	-13.4	-13.4	-13.4	-13.4	-13.4
Raw (Distance + Barrier)		25.5	24.4	25.6	27.1	28.8	29.9
60 Minute Hourly Adjustment		**25.5**	**24.4**	**25.6**	**27.1**	**28.8**	**29.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R1**
Source: Trash Enclosure
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	84.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	70.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	14.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	84.0	-24.5	-24.5	-24.5	-24.5	-24.5	-24.5
Shielding (Barrier Attenuation)	70.0	-10.2	-10.2	-10.2	-10.2	-10.2	-10.2
Raw (Distance + Barrier)		42.6	34.3	40.3	47.3	52.3	53.8
20 Minute Hourly Adjustment		**37.8**	**29.5**	**35.5**	**42.5**	**47.5**	**49.0**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R1**
Source: Parking Lot
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	81.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	81.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	81.0	-24.2	-24.2	-24.2	-24.2	-24.2	-24.2
Shielding (Barrier Attenuation)	81.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		35.9	32.5	36.5	39.5	42.9	55.3
60 Minute Hourly Adjustment		**35.9**	**32.5**	**36.5**	**39.5**	**42.9**	**55.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R1**
Source: Gas Station Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	566.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	566.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	566.0	-41.1	-41.1	-41.1	-41.1	-41.1	-41.1
Shielding (Barrier Attenuation)	566.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.1	24.5	25.8	28.4	33.3	41.3
60 Minute Hourly Adjustment		**27.1**	**24.5**	**25.8**	**28.4**	**33.3**	**41.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R1**
Source: Car Wash Tunnel
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	483.0 feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	143.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	340.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,515.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	88.3	81.6	92.0	92.6	93.3	93.8
Distance Attenuation	483.0	-33.7	-33.7	-33.7	-33.7	-33.7	-33.7
Shielding (Barrier Attenuation)	143.0	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9
Raw (Distance + Barrier)		45.7	39.0	49.4	50.0	50.7	51.2
60 Minute Hourly Adjustment		**45.7**	**39.0**	**49.4**	**50.0**	**50.7**	**51.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R1**
Source: Car Wash Vacuum Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	357.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	68.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	289.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	357.0	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1
Shielding (Barrier Attenuation)	68.0	-13.9	-13.9	-13.9	-13.9	-13.9	-13.9
Raw (Distance + Barrier)		23.6	23.2	24.4	26.2	27.0	27.8
60 Minute Hourly Adjustment		**23.6**	**23.2**	**24.4**	**26.2**	**27.0**	**27.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R2**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	274.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	244.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	274.0	-34.8	-34.8	-34.8	-34.8	-34.8	-34.8
Shielding (Barrier Attenuation)	244.0	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2
Raw (Distance + Barrier)		36.2	33.4	35.1	36.4	36.7	37.2
39 Minute Hourly Adjustment		**34.3**	**31.5**	**33.2**	**34.5**	**34.8**	**35.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R2**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	381.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	351.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	381.0	-28.1	-28.1	-28.1	-28.1	-28.1	-28.1
Shielding (Barrier Attenuation)	351.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Raw (Distance + Barrier)		27.9	26.8	28.0	29.5	31.2	32.3
60 Minute Hourly Adjustment		**27.9**	**26.8**	**28.0**	**29.5**	**31.2**	**32.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R2**
Source: Trash Enclosure
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	436.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	406.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	436.0	-38.8	-38.8	-38.8	-38.8	-38.8	-38.8
Shielding (Barrier Attenuation)	406.0	-5.8	-5.8	-5.8	-5.8	-5.8	-5.8
Raw (Distance + Barrier)		32.7	24.4	30.4	37.4	42.4	43.9
20 Minute Hourly Adjustment		**27.9**	**19.6**	**25.6**	**32.6**	**37.6**	**39.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R2**
Source: Parking Lot
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	230.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	200.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	230.0	-33.3	-33.3	-33.3	-33.3	-33.3	-33.3
Shielding (Barrier Attenuation)	200.0	-6.5	-6.5	-6.5	-6.5	-6.5	-6.5
Raw (Distance + Barrier)		20.3	16.9	20.9	23.9	27.3	39.7
60 Minute Hourly Adjustment		**20.3**	**16.9**	**20.9**	**23.9**	**27.3**	**39.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R2**
Source: Gas Station Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	320.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	279.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	41.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	320.0	-36.1	-36.1	-36.1	-36.1	-36.1	-36.1
Shielding (Barrier Attenuation)	279.0	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2
Raw (Distance + Barrier)		25.9	23.3	24.6	27.2	32.1	40.1
60 Minute Hourly Adjustment		**25.9**	**23.3**	**24.6**	**27.2**	**32.1**	**40.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R2**
Source: Car Wash Tunnel
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	306.0	feet	***Barrier Height:***	**6.0**	**feet**
Noise Distance to Barrier:	277.0	feet	*Noise Source Height:*	8.0	feet
Barrier Distance to Observer:	29.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,525.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,525.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	88.3	81.6	92.0	92.6	93.3	93.8
Distance Attenuation	306.0	-29.7	-29.7	-29.7	-29.7	-29.7	-29.7
Shielding (Barrier Attenuation)	277.0	-5.9	-5.9	-5.9	-5.9	-5.9	-5.9
Raw (Distance + Barrier)		52.7	46.0	56.4	57.0	57.7	58.2
60 Minute Hourly Adjustment		**52.7**	**46.0**	**56.4**	**57.0**	**57.7**	**58.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R2**
Source: Car Wash Vacuum Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	303.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	276.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	27.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,525.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,525.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	303.0	-35.6	-35.6	-35.6	-35.6	-35.6	-35.6
Shielding (Barrier Attenuation)	276.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		39.0	38.6	39.8	41.6	42.4	43.2
60 Minute Hourly Adjustment		**39.0**	**38.6**	**39.8**	**41.6**	**42.4**	**43.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R3**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	179.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	145.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	34.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	179.0	-31.1	-31.1	-31.1	-31.1	-31.1	-31.1
Shielding (Barrier Attenuation)	145.0	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3
Raw (Distance + Barrier)		38.8	36.0	37.7	39.0	39.3	39.8
39 Minute Hourly Adjustment		**36.9**	**34.1**	**35.8**	**37.1**	**37.4**	**37.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R3**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	229.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	191.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	38.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	229.0	-23.7	-23.7	-23.7	-23.7	-23.7	-23.7
Shielding (Barrier Attenuation)	191.0	-6.3	-6.3	-6.3	-6.3	-6.3	-6.3
Raw (Distance + Barrier)		32.0	30.9	32.1	33.6	35.3	36.4
60 Minute Hourly Adjustment		**32.0**	**30.9**	**32.1**	**33.6**	**35.3**	**36.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R3**
Source: Trash Enclosure
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	404.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	367.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	37.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	404.0	-38.1	-38.1	-38.1	-38.1	-38.1	-38.1
Shielding (Barrier Attenuation)	367.0	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
Raw (Distance + Barrier)		34.0	25.7	31.7	38.7	43.7	45.2
20 Minute Hourly Adjustment		**29.2**	**20.9**	**26.9**	**33.9**	**38.9**	**40.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R3**
Source: Parking Lot
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	145.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	115.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	145.0	-29.2	-29.2	-29.2	-29.2	-29.2	-29.2
Shielding (Barrier Attenuation)	115.0	-7.9	-7.9	-7.9	-7.9	-7.9	-7.9
Raw (Distance + Barrier)		23.0	19.6	23.6	26.6	30.0	42.4
60 Minute Hourly Adjustment		**23.0**	**19.6**	**23.6**	**26.6**	**30.0**	**42.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R3**
Source: Gas Station Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	190.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	152.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	38.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	190.0	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6
Shielding (Barrier Attenuation)	152.0	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4
Raw (Distance + Barrier)		29.2	26.6	27.9	30.5	35.4	43.4
60 Minute Hourly Adjustment		**29.2**	**26.6**	**27.9**	**30.5**	**35.4**	**43.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R3**
Source: Car Wash Tunnel
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	401.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	364.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	37.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	88.3	81.6	92.0	92.6	93.3	93.8
Distance Attenuation	401.0	-32.1	-32.1	-32.1	-32.1	-32.1	-32.1
Shielding (Barrier Attenuation)	364.0	-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Raw (Distance + Barrier)		50.8	44.1	54.5	55.1	55.8	56.3
60 Minute Hourly Adjustment		**50.8**	**44.1**	**54.5**	**55.1**	**55.8**	**56.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R3**
Source: Car Wash Vacuum Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	440.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	404.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	36.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	440.0	-38.9	-38.9	-38.9	-38.9	-38.9	-38.9
Shielding (Barrier Attenuation)	404.0	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
Raw (Distance + Barrier)		30.5	30.1	31.3	33.1	33.9	34.7
60 Minute Hourly Adjustment		**30.5**	**30.1**	**31.3**	**33.1**	**33.9**	**34.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R4**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	251.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	219.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	32.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	251.0	-34.0	-34.0	-34.0	-34.0	-34.0	-34.0
Shielding (Barrier Attenuation)	219.0	-5.7	-5.7	-5.7	-5.7	-5.7	-5.7
Raw (Distance + Barrier)		37.5	34.7	36.4	37.7	38.0	38.5
39 Minute Hourly Adjustment		**35.6**	**32.8**	**34.5**	**35.8**	**36.1**	**36.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R4**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	236.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	236.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	236.0	-23.9	-23.9	-23.9	-23.9	-23.9	-23.9
Shielding (Barrier Attenuation)	236.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Raw (Distance + Barrier)		28.1	27.0	28.2	29.7	31.4	32.5
60 Minute Hourly Adjustment		**28.1**	**27.0**	**28.2**	**29.7**	**31.4**	**32.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R4**
Source: Trash Enclosure
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	354.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	354.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	354.0	-37.0	-37.0	-37.0	-37.0	-37.0	-37.0
Shielding (Barrier Attenuation)	354.0	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1
Raw (Distance + Barrier)		30.2	21.9	27.9	34.9	39.9	41.4
20 Minute Hourly Adjustment		**25.4**	**17.1**	**23.1**	**30.1**	**35.1**	**36.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R4**
Source: Parking Lot
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	268.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	268.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	268.0	-34.6	-34.6	-34.6	-34.6	-34.6	-34.6
Shielding (Barrier Attenuation)	268.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Raw (Distance + Barrier)		15.5	12.1	16.1	19.1	22.5	34.9
60 Minute Hourly Adjustment		**15.5**	**12.1**	**16.1**	**19.1**	**22.5**	**34.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R4**
Source: Gas Station Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	325.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	325.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	325.0	-36.3	-36.3	-36.3	-36.3	-36.3	-36.3
Shielding (Barrier Attenuation)	325.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Raw (Distance + Barrier)		21.9	19.3	20.6	23.2	28.1	36.1
60 Minute Hourly Adjustment		**21.9**	**19.3**	**20.6**	**23.2**	**28.1**	**36.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R4**
Source: Car Wash Tunnel
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	479.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	479.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	88.3	81.6	92.0	92.6	93.3	93.8
Distance Attenuation	479.0	-33.6	-33.6	-33.6	-33.6	-33.6	-33.6
Shielding (Barrier Attenuation)	479.0	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1
Raw (Distance + Barrier)		44.6	37.9	48.3	48.9	49.6	50.1
60 Minute Hourly Adjustment		**44.6**	**37.9**	**48.3**	**48.9**	**49.6**	**50.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R4**
Source: Car Wash Vacuum Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	454.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	454.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	454.0	-39.2	-39.2	-39.2	-39.2	-39.2	-39.2
Shielding (Barrier Attenuation)	454.0	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1
Raw (Distance + Barrier)		25.3	24.9	26.1	27.9	28.7	29.5
60 Minute Hourly Adjustment		**25.3**	**24.9**	**26.1**	**27.9**	**28.7**	**29.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R5**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	512.0	feet	***Barrier Height:***	**5.0**	**feet**
Noise Distance to Barrier:	5.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	507.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,490.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	512.0	-40.2	-40.2	-40.2	-40.2	-40.2	-40.2
Shielding (Barrier Attenuation)	5.0	-17.7	-17.7	-17.7	-17.7	-17.7	-17.7
Raw (Distance + Barrier)		19.3	16.5	18.2	19.5	19.8	20.3
39 Minute Hourly Adjustment		**17.4**	**14.6**	**16.3**	**17.6**	**17.9**	**18.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R5**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	512.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	512.0	feet	*Noise Source Height:*	3.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,490.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	512.0	-30.7	-30.7	-30.7	-30.7	-30.7	-30.7
Shielding (Barrier Attenuation)	512.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		31.3	30.2	31.4	32.9	34.6	35.7
60 Minute Hourly Adjustment		**31.3**	**30.2**	**31.4**	**32.9**	**34.6**	**35.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R5**
Source: Trash Enclosure
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	485.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	16.0	feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	469.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	485.0	-39.7	-39.7	-39.7	-39.7	-39.7	-39.7
Shielding (Barrier Attenuation)	16.0	-16.5	-16.5	-16.5	-16.5	-16.5	-16.5
Raw (Distance + Barrier)		21.1	12.8	18.8	25.8	30.8	32.3
20 Minute Hourly Adjustment		**16.3**	**8.0**	**14.0**	**21.0**	**26.0**	**27.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R5**
Source: Parking Lot
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	458.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	458.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	458.0	-39.2	-39.2	-39.2	-39.2	-39.2	-39.2
Shielding (Barrier Attenuation)	458.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		20.9	17.5	21.5	24.5	27.9	40.3
60 Minute Hourly Adjustment		**20.9**	**17.5**	**21.5**	**24.5**	**27.9**	**40.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R5**
Source: Gas Station Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	626.0 feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	63.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	563.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	626.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0
Shielding (Barrier Attenuation)	63.0	-5.8	-5.8	-5.8	-5.8	-5.8	-5.8
Raw (Distance + Barrier)		20.4	17.8	19.1	21.7	26.6	34.6
60 Minute Hourly Adjustment		**20.4**	**17.8**	**19.1**	**21.7**	**26.6**	**34.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R5**
Source: Car Wash Tunnel
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	678.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	678.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	88.3	81.6	92.0	92.6	93.3	93.8
Distance Attenuation	678.0	-36.6	-36.6	-36.6	-36.6	-36.6	-36.6
Shielding (Barrier Attenuation)	678.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		51.7	45.0	55.4	56.0	56.7	57.2
60 Minute Hourly Adjustment		**51.7**	**45.0**	**55.4**	**56.0**	**56.7**	**57.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R5**
Source: Car Wash Vacuum Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	589.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	589.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	589.0	-41.4	-41.4	-41.4	-41.4	-41.4	-41.4
Shielding (Barrier Attenuation)	589.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		33.2	32.8	34.0	35.8	36.6	37.4
60 Minute Hourly Adjustment		**33.2**	**32.8**	**34.0**	**35.8**	**36.6**	**37.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R6**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	106.0 feet	***Barrier Height:***	**5.0 feet**
Noise Distance to Barrier:	5.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	101.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	106.0	-26.5	-26.5	-26.5	-26.5	-26.5	-26.5
Shielding (Barrier Attenuation)	5.0	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6
Raw (Distance + Barrier)		36.1	33.3	35.0	36.3	36.6	37.1
39 Minute Hourly Adjustment		**34.2**	**31.4**	**33.1**	**34.4**	**34.7**	**35.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R6**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	280.0 feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	133.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	147.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	280.0	-25.4	-25.4	-25.4	-25.4	-25.4	-25.4
Shielding (Barrier Attenuation)	133.0	-13.4	-13.4	-13.4	-13.4	-13.4	-13.4
Raw (Distance + Barrier)		23.2	22.1	23.3	24.8	26.5	27.6
60 Minute Hourly Adjustment		**23.2**	**22.1**	**23.3**	**24.8**	**26.5**	**27.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R6**
Source: Trash Enclosure
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	245.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	245.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	245.0	-33.8	-33.8	-33.8	-33.8	-33.8	-33.8
Shielding (Barrier Attenuation)	245.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		43.5	35.2	41.2	48.2	53.2	54.7
20 Minute Hourly Adjustment		**38.7**	**30.4**	**36.4**	**43.4**	**48.4**	**49.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R6**
Source: Parking Lot
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	163.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	163.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	163.0	-30.3	-30.3	-30.3	-30.3	-30.3	-30.3
Shielding (Barrier Attenuation)	163.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		29.8	26.4	30.4	33.4	36.8	49.2
60 Minute Hourly Adjustment		**29.8**	**26.4**	**30.4**	**33.4**	**36.8**	**49.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R6**
Source: Gas Station Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	444.0 feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	270.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	174.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	444.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0
Shielding (Barrier Attenuation)	270.0	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3
Raw (Distance + Barrier)		17.9	15.3	16.6	19.2	24.1	32.1
60 Minute Hourly Adjustment		**17.9**	**15.3**	**16.6**	**19.2**	**24.1**	**32.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R6**
Source: Car Wash Tunnel
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	403.0	feet	***Barrier Height:***	**20.0**	**feet**
Noise Distance to Barrier:	246.0	feet	*Noise Source Height:*	8.0	feet
Barrier Distance to Observer:	157.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,518.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,518.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	88.3	81.6	92.0	92.6	93.3	93.8
Distance Attenuation	403.0	-32.1	-32.1	-32.1	-32.1	-32.1	-32.1
Shielding (Barrier Attenuation)	246.0	-11.2	-11.2	-11.2	-11.2	-11.2	-11.2
Raw (Distance + Barrier)		45.0	38.3	48.7	49.3	50.0	50.5
60 Minute Hourly Adjustment		**45.0**	**38.3**	**48.7**	**49.3**	**50.0**	**50.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/23/2019

Observer Location: **R6**
Source: Car Wash Vacuum Activity
Condition: Operational

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	264.0	feet	***Barrier Height:***	**20.0**	**feet**
Noise Distance to Barrier:	115.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	149.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,518.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,518.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	264.0	-34.5	-34.5	-34.5	-34.5	-34.5	-34.5
Shielding (Barrier Attenuation)	115.0	-13.4	-13.4	-13.4	-13.4	-13.4	-13.4
Raw (Distance + Barrier)		26.7	26.3	27.5	29.3	30.1	30.9
60 Minute Hourly Adjustment		**26.7**	**26.3**	**27.5**	**29.3**	**30.1**	**30.9**

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APPENDIX 9.2:

MITIGATED OPERATIONAL NOISE LEVEL CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R1**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	106.0	feet	***Barrier Height:***	**5.0 feet**
Noise Distance to Barrier:	5.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	101.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,515.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	106.0	-26.5	-26.5	-26.5	-26.5	-26.5	-26.5
Shielding (Barrier Attenuation)	5.0	-10.6	-10.6	-10.6	-10.6	-10.6	-10.6
Raw (Distance + Barrier)		40.1	37.3	39.0	40.3	40.6	41.1
39 Minute Hourly Adjustment		**38.2**	**35.4**	**37.1**	**38.4**	**38.7**	**39.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R1**
Source: Drive-Through Speakerphone
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	215.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	76.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	139.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	215.0	-23.1	-23.1	-23.1	-23.1	-23.1	-23.1
Shielding (Barrier Attenuation)	76.0	-13.4	-13.4	-13.4	-13.4	-13.4	-13.4
Raw (Distance + Barrier)		25.5	24.4	25.6	27.1	28.8	29.9
60 Minute Hourly Adjustment		**25.5**	**24.4**	**25.6**	**27.1**	**28.8**	**29.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R1**
Source: Trash Enclosure
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	84.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	70.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	14.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	84.0	-24.5	-24.5	-24.5	-24.5	-24.5	-24.5
Shielding (Barrier Attenuation)	70.0	-10.2	-10.2	-10.2	-10.2	-10.2	-10.2
Raw (Distance + Barrier)		42.6	34.3	40.3	47.3	52.3	53.8
20 Minute Hourly Adjustment		**37.8**	**29.5**	**35.5**	**42.5**	**47.5**	**49.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R1**
Source: Parking Lot
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	81.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	81.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	81.0	-24.2	-24.2	-24.2	-24.2	-24.2	-24.2
Shielding (Barrier Attenuation)	81.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		35.9	32.5	36.5	39.5	42.9	55.3
60 Minute Hourly Adjustment		**35.9**	**32.5**	**36.5**	**39.5**	**42.9**	**55.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R1**
Source: Gas Station Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	566.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	566.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	566.0	-41.1	-41.1	-41.1	-41.1	-41.1	-41.1
Shielding (Barrier Attenuation)	566.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.1	24.5	25.8	28.4	33.3	41.3
60 Minute Hourly Adjustment		**27.1**	**24.5**	**25.8**	**28.4**	**33.3**	**41.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R1**
Source: Car Wash Tunnel
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	483.0 feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	143.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	340.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,515.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	78.3	71.6	82.0	82.6	83.3	83.8
Distance Attenuation	483.0	-33.7	-33.7	-33.7	-33.7	-33.7	-33.7
Shielding (Barrier Attenuation)	143.0	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9
Raw (Distance + Barrier)		35.7	29.0	39.4	40.0	40.7	41.2
60 Minute Hourly Adjustment		**35.7**	**29.0**	**39.4**	**40.0**	**40.7**	**41.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R1**
Source: Car Wash Vacuum Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	357.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	68.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	289.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,533.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,533.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	357.0	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1
Shielding (Barrier Attenuation)	68.0	-13.9	-13.9	-13.9	-13.9	-13.9	-13.9
Raw (Distance + Barrier)		23.6	23.2	24.4	26.2	27.0	27.8
60 Minute Hourly Adjustment		**23.6**	**23.2**	**24.4**	**26.2**	**27.0**	**27.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R2**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	274.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	244.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	30.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	274.0	-34.8	-34.8	-34.8	-34.8	-34.8	-34.8
Shielding (Barrier Attenuation)	244.0	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2
Raw (Distance + Barrier)		36.2	33.4	35.1	36.4	36.7	37.2
39 Minute Hourly Adjustment		**34.3**	**31.5**	**33.2**	**34.5**	**34.8**	**35.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R2**
Source: Drive-Through Speakerphone
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	381.0	feet	***Barrier Height:***	**6.0**	**feet**
Noise Distance to Barrier:	351.0	feet	*Noise Source Height:*	3.0	feet
Barrier Distance to Observer:	30.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,525.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,525.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	381.0	-28.1	-28.1	-28.1	-28.1	-28.1	-28.1
Shielding (Barrier Attenuation)	351.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Raw (Distance + Barrier)		27.9	26.8	28.0	29.5	31.2	32.3
60 Minute Hourly Adjustment		**27.9**	**26.8**	**28.0**	**29.5**	**31.2**	**32.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R2**
Source: Trash Enclosure
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	436.0	feet	***Barrier Height:***	**6.0**	**feet**
Noise Distance to Barrier:	406.0	feet	*Noise Source Height:*	4.0	feet
Barrier Distance to Observer:	30.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,525.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,525.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	436.0	-38.8	-38.8	-38.8	-38.8	-38.8	-38.8
Shielding (Barrier Attenuation)	406.0	-5.8	-5.8	-5.8	-5.8	-5.8	-5.8
Raw (Distance + Barrier)		32.7	24.4	30.4	37.4	42.4	43.9
20 Minute Hourly Adjustment		**27.9**	**19.6**	**25.6**	**32.6**	**37.6**	**39.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R2**
Source: Parking Lot
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	230.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	200.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	230.0	-33.3	-33.3	-33.3	-33.3	-33.3	-33.3
Shielding (Barrier Attenuation)	200.0	-6.5	-6.5	-6.5	-6.5	-6.5	-6.5
Raw (Distance + Barrier)		20.3	16.9	20.9	23.9	27.3	39.7
60 Minute Hourly Adjustment		**20.3**	**16.9**	**20.9**	**23.9**	**27.3**	**39.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R2**
Source: Gas Station Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	320.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	279.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	41.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	320.0	-36.1	-36.1	-36.1	-36.1	-36.1	-36.1
Shielding (Barrier Attenuation)	279.0	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2
Raw (Distance + Barrier)		25.9	23.3	24.6	27.2	32.1	40.1
60 Minute Hourly Adjustment		**25.9**	**23.3**	**24.6**	**27.2**	**32.1**	**40.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R2**
Source: Car Wash Tunnel
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	306.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	277.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	29.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	78.3	71.6	82.0	82.6	83.3	83.8
Distance Attenuation	306.0	-29.7	-29.7	-29.7	-29.7	-29.7	-29.7
Shielding (Barrier Attenuation)	277.0	-5.9	-5.9	-5.9	-5.9	-5.9	-5.9
Raw (Distance + Barrier)		42.7	36.0	46.4	47.0	47.7	48.2
60 Minute Hourly Adjustment		**42.7**	**36.0**	**46.4**	**47.0**	**47.7**	**48.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R2**
Source: Car Wash Vacuum Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	303.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	276.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	27.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,525.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,525.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	303.0	-35.6	-35.6	-35.6	-35.6	-35.6	-35.6
Shielding (Barrier Attenuation)	276.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		39.0	38.6	39.8	41.6	42.4	43.2
60 Minute Hourly Adjustment		**39.0**	**38.6**	**39.8**	**41.6**	**42.4**	**43.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R3**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	179.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	145.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	34.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	179.0	-31.1	-31.1	-31.1	-31.1	-31.1	-31.1
Shielding (Barrier Attenuation)	145.0	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3
Raw (Distance + Barrier)		38.8	36.0	37.7	39.0	39.3	39.8
39 Minute Hourly Adjustment		**36.9**	**34.1**	**35.8**	**37.1**	**37.4**	**37.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R3**
Source: Drive-Through Speakerphone
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	229.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	191.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	38.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	229.0	-23.7	-23.7	-23.7	-23.7	-23.7	-23.7
Shielding (Barrier Attenuation)	191.0	-6.3	-6.3	-6.3	-6.3	-6.3	-6.3
Raw (Distance + Barrier)		32.0	30.9	32.1	33.6	35.3	36.4
60 Minute Hourly Adjustment		**32.0**	**30.9**	**32.1**	**33.6**	**35.3**	**36.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R3**
Source: Trash Enclosure
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	404.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	367.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	37.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	404.0	-38.1	-38.1	-38.1	-38.1	-38.1	-38.1
Shielding (Barrier Attenuation)	367.0	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
Raw (Distance + Barrier)		34.0	25.7	31.7	38.7	43.7	45.2
20 Minute Hourly Adjustment		**29.2**	**20.9**	**26.9**	**33.9**	**38.9**	**40.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R3**
Source: Parking Lot
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	145.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	115.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	145.0	-29.2	-29.2	-29.2	-29.2	-29.2	-29.2
Shielding (Barrier Attenuation)	115.0	-7.9	-7.9	-7.9	-7.9	-7.9	-7.9
Raw (Distance + Barrier)		23.0	19.6	23.6	26.6	30.0	42.4
60 Minute Hourly Adjustment		**23.0**	**19.6**	**23.6**	**26.6**	**30.0**	**42.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R3**
Source: Gas Station Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	190.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	152.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	38.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	190.0	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6
Shielding (Barrier Attenuation)	152.0	-7.4	-7.4	-7.4	-7.4	-7.4	-7.4
Raw (Distance + Barrier)		29.2	26.6	27.9	30.5	35.4	43.4
60 Minute Hourly Adjustment		**29.2**	**26.6**	**27.9**	**30.5**	**35.4**	**43.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R3**
Source: Car Wash Tunnel
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	401.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	364.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	37.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	78.3	71.6	82.0	82.6	83.3	83.8
Distance Attenuation	401.0	-32.1	-32.1	-32.1	-32.1	-32.1	-32.1
Shielding (Barrier Attenuation)	364.0	-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Raw (Distance + Barrier)		40.8	34.1	44.5	45.1	45.8	46.3
60 Minute Hourly Adjustment		**40.8**	**34.1**	**44.5**	**45.1**	**45.8**	**46.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R3**
Source: Car Wash Vacuum Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	440.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	404.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	36.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,484.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,484.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	440.0	-38.9	-38.9	-38.9	-38.9	-38.9	-38.9
Shielding (Barrier Attenuation)	404.0	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
Raw (Distance + Barrier)		30.5	30.1	31.3	33.1	33.9	34.7
60 Minute Hourly Adjustment		**30.5**	**30.1**	**31.3**	**33.1**	**33.9**	**34.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R4**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	251.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	219.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	32.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	251.0	-34.0	-34.0	-34.0	-34.0	-34.0	-34.0
Shielding (Barrier Attenuation)	219.0	-5.7	-5.7	-5.7	-5.7	-5.7	-5.7
Raw (Distance + Barrier)		37.5	34.7	36.4	37.7	38.0	38.5
39 Minute Hourly Adjustment		**35.6**	**32.8**	**34.5**	**35.8**	**36.1**	**36.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R4**
Source: Drive-Through Speakerphone
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	236.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	236.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	236.0	-23.9	-23.9	-23.9	-23.9	-23.9	-23.9
Shielding (Barrier Attenuation)	236.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Raw (Distance + Barrier)		28.1	27.0	28.2	29.7	31.4	32.5
60 Minute Hourly Adjustment		**28.1**	**27.0**	**28.2**	**29.7**	**31.4**	**32.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R4**
Source: Trash Enclosure
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	354.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	354.0	feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	354.0	-37.0	-37.0	-37.0	-37.0	-37.0	-37.0
Shielding (Barrier Attenuation)	354.0	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1
Raw (Distance + Barrier)		30.2	21.9	27.9	34.9	39.9	41.4
20 Minute Hourly Adjustment		**25.4**	**17.1**	**23.1**	**30.1**	**35.1**	**36.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R4**
Source: Parking Lot
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	268.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	268.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	268.0	-34.6	-34.6	-34.6	-34.6	-34.6	-34.6
Shielding (Barrier Attenuation)	268.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Raw (Distance + Barrier)		15.5	12.1	16.1	19.1	22.5	34.9
60 Minute Hourly Adjustment		**15.5**	**12.1**	**16.1**	**19.1**	**22.5**	**34.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R4**
Source: Gas Station Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	325.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	325.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	325.0	-36.3	-36.3	-36.3	-36.3	-36.3	-36.3
Shielding (Barrier Attenuation)	325.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Raw (Distance + Barrier)		21.9	19.3	20.6	23.2	28.1	36.1
60 Minute Hourly Adjustment		**21.9**	**19.3**	**20.6**	**23.2**	**28.1**	**36.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R4**
Source: Car Wash Tunnel
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	479.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	479.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	78.3	71.6	82.0	82.6	83.3	83.8
Distance Attenuation	479.0	-33.6	-33.6	-33.6	-33.6	-33.6	-33.6
Shielding (Barrier Attenuation)	479.0	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1
Raw (Distance + Barrier)		34.6	27.9	38.3	38.9	39.6	40.1
60 Minute Hourly Adjustment		**34.6**	**27.9**	**38.3**	**38.9**	**39.6**	**40.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R4**
Source: Car Wash Vacuum Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	454.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	454.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,486.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,486.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	454.0	-39.2	-39.2	-39.2	-39.2	-39.2	-39.2
Shielding (Barrier Attenuation)	454.0	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1
Raw (Distance + Barrier)		25.3	24.9	26.1	27.9	28.7	29.5
60 Minute Hourly Adjustment		**25.3**	**24.9**	**26.1**	**27.9**	**28.7**	**29.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R5**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	512.0	feet	***Barrier Height:***	**5.0 feet**
Noise Distance to Barrier:	5.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	507.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	512.0	-40.2	-40.2	-40.2	-40.2	-40.2	-40.2
Shielding (Barrier Attenuation)	5.0	-17.7	-17.7	-17.7	-17.7	-17.7	-17.7
Raw (Distance + Barrier)		19.3	16.5	18.2	19.5	19.8	20.3
39 Minute Hourly Adjustment		**17.4**	**14.6**	**16.3**	**17.6**	**17.9**	**18.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R5**
Source: Drive-Through Speakerphone
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	512.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	512.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	512.0	-30.7	-30.7	-30.7	-30.7	-30.7	-30.7
Shielding (Barrier Attenuation)	512.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		31.3	30.2	31.4	32.9	34.6	35.7
60 Minute Hourly Adjustment		**31.3**	**30.2**	**31.4**	**32.9**	**34.6**	**35.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R5**
Source: Trash Enclosure
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	485.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	16.0	feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	469.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	485.0	-39.7	-39.7	-39.7	-39.7	-39.7	-39.7
Shielding (Barrier Attenuation)	16.0	-16.5	-16.5	-16.5	-16.5	-16.5	-16.5
Raw (Distance + Barrier)		21.1	12.8	18.8	25.8	30.8	32.3
20 Minute Hourly Adjustment		**16.3**	**8.0**	**14.0**	**21.0**	**26.0**	**27.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R5**
Source: Parking Lot
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	458.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	458.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	458.0	-39.2	-39.2	-39.2	-39.2	-39.2	-39.2
Shielding (Barrier Attenuation)	458.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		20.9	17.5	21.5	24.5	27.9	40.3
60 Minute Hourly Adjustment		**20.9**	**17.5**	**21.5**	**24.5**	**27.9**	**40.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R5**
Source: Gas Station Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	626.0 feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	63.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	563.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	626.0	-42.0	-42.0	-42.0	-42.0	-42.0	-42.0
Shielding (Barrier Attenuation)	63.0	-5.8	-5.8	-5.8	-5.8	-5.8	-5.8
Raw (Distance + Barrier)		20.4	17.8	19.1	21.7	26.6	34.6
60 Minute Hourly Adjustment		**20.4**	**17.8**	**19.1**	**21.7**	**26.6**	**34.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R5**
Source: Car Wash Tunnel
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	678.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	678.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	78.3	71.6	82.0	82.6	83.3	83.8
Distance Attenuation	678.0	-36.6	-36.6	-36.6	-36.6	-36.6	-36.6
Shielding (Barrier Attenuation)	678.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		41.7	35.0	45.4	46.0	46.7	47.2
60 Minute Hourly Adjustment		**41.7**	**35.0**	**45.4**	**46.0**	**46.7**	**47.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R5**
Source: Car Wash Vacuum Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	589.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	589.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,490.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,490.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	589.0	-41.4	-41.4	-41.4	-41.4	-41.4	-41.4
Shielding (Barrier Attenuation)	589.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		33.2	32.8	34.0	35.8	36.6	37.4
60 Minute Hourly Adjustment		**33.2**	**32.8**	**34.0**	**35.8**	**36.6**	**37.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R6**
Source: Air Conditioning Unit (Roof-Top)
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	106.0	feet	***Barrier Height:***	**5.0 feet**
Noise Distance to Barrier:	5.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	101.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	106.0	-26.5	-26.5	-26.5	-26.5	-26.5	-26.5
Shielding (Barrier Attenuation)	5.0	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6
Raw (Distance + Barrier)		36.1	33.3	35.0	36.3	36.6	37.1
39 Minute Hourly Adjustment		**34.2**	**31.4**	**33.1**	**34.4**	**34.7**	**35.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R6**
Source: Drive-Through Speakerphone
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	280.0	feet	***Barrier Height:***	**20.0**	**feet**
Noise Distance to Barrier:	133.0	feet	*Noise Source Height:*	3.0	feet
Barrier Distance to Observer:	147.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,518.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,518.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	60.9	62.1	63.6	65.3	66.4
Distance Attenuation	280.0	-25.4	-25.4	-25.4	-25.4	-25.4	-25.4
Shielding (Barrier Attenuation)	133.0	-13.4	-13.4	-13.4	-13.4	-13.4	-13.4
Raw (Distance + Barrier)		23.2	22.1	23.3	24.8	26.5	27.6
60 Minute Hourly Adjustment		**23.2**	**22.1**	**23.3**	**24.8**	**26.5**	**27.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 10/22/2019

Observer Location: **R6**
Source: Trash Enclosure
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	245.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	245.0	feet	*Noise Source Height:*	4.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	1,518.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	1,518.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.3	69.0	75.0	82.0	87.0	88.5
Distance Attenuation	245.0	-33.8	-33.8	-33.8	-33.8	-33.8	-33.8
Shielding (Barrier Attenuation)	245.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		43.5	35.2	41.2	48.2	53.2	54.7
20 Minute Hourly Adjustment		**38.7**	**30.4**	**36.4**	**43.4**	**48.4**	**49.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R6**
Source: Parking Lot
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	163.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	163.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	56.7	60.7	63.7	67.1	79.5
Distance Attenuation	163.0	-30.3	-30.3	-30.3	-30.3	-30.3	-30.3
Shielding (Barrier Attenuation)	163.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		29.8	26.4	30.4	33.4	36.8	49.2
60 Minute Hourly Adjustment		**29.8**	**26.4**	**30.4**	**33.4**	**36.8**	**49.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R6**
Source: Gas Station Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	444.0 feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	270.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	174.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	65.6	66.9	69.5	74.4	82.4
Distance Attenuation	444.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0
Shielding (Barrier Attenuation)	270.0	-11.3	-11.3	-11.3	-11.3	-11.3	-11.3
Raw (Distance + Barrier)		17.9	15.3	16.6	19.2	24.1	32.1
60 Minute Hourly Adjustment		**17.9**	**15.3**	**16.6**	**19.2**	**24.1**	**32.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R6**
Source: Car Wash Tunnel
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	403.0	feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	246.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	157.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	78.3	71.6	82.0	82.6	83.3	83.8
Distance Attenuation	403.0	-32.1	-32.1	-32.1	-32.1	-32.1	-32.1
Shielding (Barrier Attenuation)	246.0	-11.2	-11.2	-11.2	-11.2	-11.2	-11.2
Raw (Distance + Barrier)		35.0	28.3	38.7	39.3	40.0	40.5
60 Minute Hourly Adjustment		**35.0**	**28.3**	**38.7**	**39.3**	**40.0**	**40.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

10/22/2019

Observer Location: **R6**
Source: Car Wash Vacuum Activity
Condition: Operational-Mitigated

Project Name: Lake & Mountain
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	264.0	feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	115.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	149.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	1,518.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	1,510.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	1,518.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	74.2	75.4	77.2	78.0	78.8
Distance Attenuation	264.0	-34.5	-34.5	-34.5	-34.5	-34.5	-34.5
Shielding (Barrier Attenuation)	115.0	-13.4	-13.4	-13.4	-13.4	-13.4	-13.4
Raw (Distance + Barrier)		26.7	26.3	27.5	29.3	30.1	30.9
60 Minute Hourly Adjustment		**26.7**	**26.3**	**27.5**	**29.3**	**30.1**	**30.9**

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APPENDIX 10.1:

TEMPORARY CONSTRUCTION NOISE BARRIER CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R1**
Source: Peak Construction Activity
Condition: Construction

Project Name: Lake & Mountain Shopping C
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	85.0 feet	***Barrier Height:***	**12.0 feet**
Noise Distance to Barrier:	25.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	60.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	0.0	0.0	0.0	0.0	0.0	76.7
Distance Attenuation	85.0	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0
Shielding (Barrier Attenuation)	25.0	-9.2	-9.2	-9.2	-9.2	-9.2	-9.2

STATIONARY SOURCE NOISE PREDICTION MODEL

10/23/2019

Observer Location: **R5**
Source: Peak Construction Activity
Condition: Construction

Project Name: Lake & Mountain Shopping C
Job Number: 12770
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	100.0 feet	***Barrier Height:***	**12.0 feet**
Noise Distance to Barrier:	10.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	90.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	0.0	0.0	0.0	0.0	0.0	76.7
Distance Attenuation	100.0	-10.5	-10.5	-10.5	-10.5	-10.5	-10.5
Shielding (Barrier Attenuation)	10.0	-10.2	-10.2	-10.2	-10.2	-10.2	-10.2

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APPENDIX 10.2:

SAMPLE TEMPORARY CONSTRUCTION NOISE BARRIER PHOTOS

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Temporary Construction Noise Barrier Examples



I-Beam & Acoustic Material 01



I-Beam & Acoustic Material 02



I-Beam & Acoustic Material 03



K-Rail Plywood & Acoustic Material



K-Rail Temporary Fence & Acoustic Material



K-Rail-Mounted Acoustic Material 01

Temporary Construction Noise Barrier Examples



Pillar & Acoustic Material



Straw Bales 01



Straw Bales 02



Temporary Fence & Acoustic Material 01



Temporary Fence & Acoustic Material 02

Appendix M

Traffic Impact Analysis

URBAN CROSSROADS

Lake and Mountain Shopping Center

TRAFFIC IMPACT ANALYSIS

CITY OF LAKE ELSINORE

PREPARED BY:

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JANUARY 17, 2020

APPROVED
March 4, 2020
NRL

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
E+P	Existing Plus Project
EAP	Existing Plus Ambient Growth Plus Project
EAPC	Existing Plus Ambient Growth Plus Project Plus Cumulative
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
PHF	Peak Hour Factor
Project	Lake and Mountain Shopping Center
RCTC	Riverside County Transportation Commission
RTA	Riverside Transport Authority
TIA	Traffic Impact Analysis
TIF	Transportation Impact Fee
TUMF	Transportation Uniform Mitigation Fee
v/c	Volume to Capacity
WRCOG	Western Riverside Council of Governments

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Lake and Mountain Shopping Center ("Project"), which is located on the northwest corner of Lake Street and Mountain Street in the City of Lake Elsinore, as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. As directed by City of Lake Elsinore staff, this traffic study has been prepared in accordance with the County of Riverside Traffic Impact Analysis Preparation Guide, the California Department of Transportation (Caltrans) Guide for the Preparation of Traffic Impact Studies, and consultation with City staff during the scoping process. (1) (2) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 SUMMARY OF FINDINGS

The Project is proposing to construct the following improvements as design features in conjunction with development of the site. The Project is not anticipated to contribute to any off-site traffic impacts, as such, no off-site intersection improvements have been recommended.

Recommendation 1.1 – ***Driveway 1/Ginger Root Way & Mountain Street (#1)*** – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the southbound approach and construct a southbound shared left-through-right turn lane.

Recommendation 2.1 – ***Driveway 2 & Mountain Street (#2)*** – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the southbound approach and construct a southbound right turn lane. Project will construct a pork chop island to restrict access to right-in/right-out only.

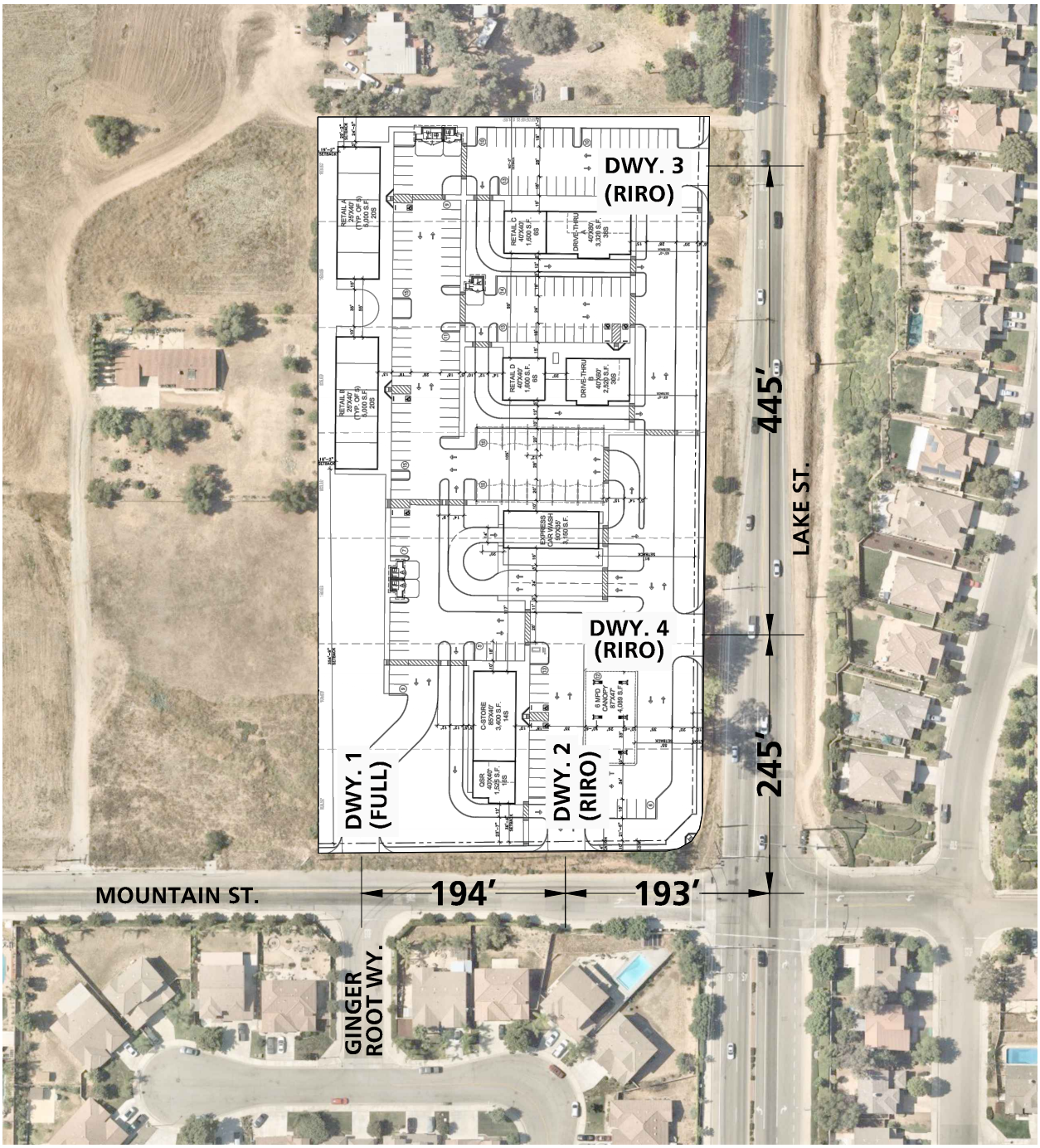
Recommendation 3.1 – ***Lake Street & Driveway 3 (#5)*** – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the eastbound approach and construct an eastbound right turn lane. Project will construct a raised median on Lake Street to restrict access at this driveway to right-in/right-out only.

Recommendation 4.1 – ***Lake Street & Driveway 4 (#6)*** – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the eastbound approach and construct an eastbound right turn lane. Project will construct a raised median on Lake Street to restrict access at this driveway to right-in/right-out only.

EXHIBIT 1-1: PRELIMINARY SITE PLAN



LEGEND:

RIRO = RIGHT-IN/RIGHT-OUT ONLY ACCESS

N

12768 - siteplan.dwg

Recommendation 5.1 – ***Lake Street & Mountain Street (#7)*** – The following improvement is necessary to accommodate peak hour queues:

- Maintain the existing traffic control and lane geometrics, however, the Project should modify the existing median on Lake Street to accommodate a 285-foot northbound left turn lane.

Recommendation 6.1 – ***Mountain Street*** – Mountain Street is an east-west oriented roadway located at the southern Project boundary. Construct Mountain Street to its ultimate half-section along the Project's frontage on the north side as a Local Street (60-foot right-of-way) in compliance with applicable City of Lake Elsinore standards. The Project will construct a pork chop island to restrict access to right-in/right-out access only for Driveway 2.

Recommendation 7.1 – ***Lake Street*** – Lake Street is a north-south oriented roadway located at the eastern Project boundary. Construct Lake Street to its ultimate half-section along the Project's frontage on the west side as an Urban Arterial Highway (120-foot right-of-way) in compliance with applicable City of Lake Elsinore standards. The Project will construct the raised median on Lake Street to restrict access to right-in/right-out access only at the two driveways on Lake Street.

Additional details are provided in Section 1.6 *Recommendations* of this report.

1.2 PROJECT OVERVIEW

Exhibit 1-1 illustrates the preliminary site plan. As indicated on Exhibit 1-1, the Project is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2021. For the purpose of this analysis, the following driveways will provide access to the Project site:

- Driveway 1 via Mountain Street – Full Access
- Driveway 2 via Mountain Street – Right-in/Right-out access only
- Driveway 3 via Lake Street – Right-in/Right-out access only
- Driveway 4 via Lake Street – Right-in/Right-out access only

Regional access to the Project site is available from the I-15 Freeway and Lake Street and Nichols Road interchanges.

Trips generated by the Project's proposed land uses have been estimated based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for Shopping Center (ITE Land Use Code 820), Fast-Food Restaurant with Drive-Through Window (ITE Land Use Code 934), Super Convenience Market/Gas Station (ITE Land Use Code 960), and Automated Car Wash (ITE Land Use Code 948). (3) The proposed Project is anticipated to generate a net total of 3,696 trip-ends per day with 380 AM peak hour trips and 319 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been assessed for each of the following conditions:

- Existing (2019) Conditions
- Existing Plus Project (E+P) Conditions
- Existing Plus Ambient Growth Plus Project (EAP) (2021)
- Existing Plus Ambient Growth Plus Project Plus Cumulative Projects (EAPC) (2021)

1.3.1 EXISTING (2019) CONDITIONS

Information for Existing (2019) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project (E+P) analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions. The E+P analysis is intended to identify the project-specific traffic impacts associated solely with the development of the proposed Project based on a comparison of the E+P traffic conditions to Existing (2019) conditions.

1.3.3 EXISTING PLUS AMBIENT GROWTH PLUS PROJECT (2021) CONDITIONS

The EAP (2021) conditions analyses determines the traffic impacts based on a comparison of the EAP (2021) traffic conditions to Existing (2019) traffic conditions. To account for background traffic growth, an ambient growth factor from Existing (2019) conditions of 4.04% (2% per year compounded annually for two years) is included for EAP (2021) traffic conditions. The EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the proposed Project based on the expected background growth within the study area.

1.3.4 EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE (2021) CONDITIONS

The EAPC (2021) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth factor of 4.04% (2% per year compounded annually for two years) from Existing conditions are included for EAPC (2021) traffic conditions.

1.4 STUDY AREA

To ensure that this TIA satisfies the City of Lake Elsinore's traffic study requirements, Urban Crossroads, Inc. prepared a traffic study scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology and is included in Appendix 1.1.

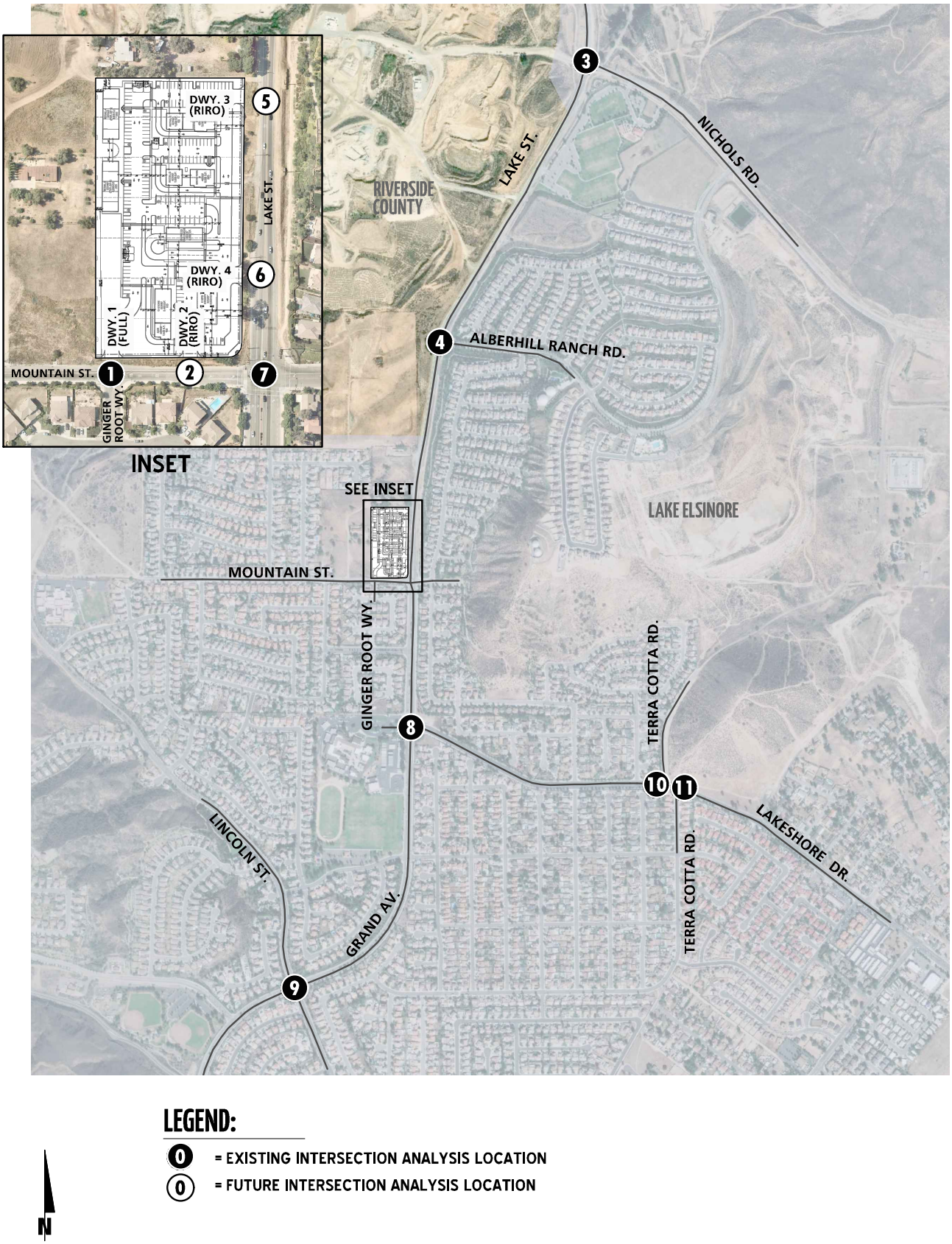
The following 11 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on consultation with City of Lake Elsinore staff and have generally been selected based on the "50 peak hour trip" criterion. The "50 peak hour trip" criterion is consistent with the methodology employed by the City of Lake Elsinore and County of Riverside, and generally represents a minimum number of trips at which a typical intersection would have the potential to be substantively impacted by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely utilized tool for estimating a potential area of impact (i.e., study area).

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Driveway 1/Ginger Root Wy. & Mountain St.	Lake Elsinore	No
2	Driveway 2 & Mountain St. – Future Intersection	Lake Elsinore	No
3	Lake St. & Nichols Rd.	Lake Elsinore	No
4	Lake St. & Alberhill Ranch Rd.	Lake Elsinore	No
5	Lake St. & Driveway 3 – Future Intersection	Lake Elsinore	No
6	Lake St. & Driveway 4 – Future Intersection	Lake Elsinore	No
7	Lake St. & Mountain St.	Lake Elsinore	No
8	Lake St./Grand Av. & Lakeshore Dr.	Lake Elsinore	No
9	Lincoln St. & Grand Av.	Lake Elsinore	No
10	Terra Cotta Rd. (N) & Lakeshore Dr.	Lake Elsinore	No
11	Terra Cotta Rd. (S) & Lakeshore Dr.	Lake Elsinore	No

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and updated most recently updated in 2011. The Riverside County Transportation Commission (RCTC) adopted the 2011 CMP for the County of Riverside in December 2011. (4) None of the study area intersections are identified as CMP facilities in the Riverside County CMP.

EXHIBIT 1-2: LOCATION MAP



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URBAN CROSSROADS

1.5 ANALYSIS FINDINGS

This section provides a summary of analysis results for E+P, EAP (2021), and EAPC (2021) traffic conditions. A summary of level of service (LOS) results for all analysis scenarios is presented on Exhibit 1-3.

1.5.1 EXISTING (2019) CONDITIONS

All study area intersections are currently operating at an acceptable LOS during the peak hours under Existing (2019) traffic conditions.

1.5.2 E+P CONDITIONS

All study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours with the addition of Project traffic for E+P traffic conditions.

1.5.3 EAP (2021) CONDITIONS

All study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours under EAP (2021) traffic conditions.

1.5.4 EAPC (2021) CONDITIONS

All study area intersections are anticipated to continue to operate at an acceptable LOS during the peak hours under EAPC (2021) traffic conditions.

1.6 RECOMMENDATIONS

The following recommendations are based on the improvements needed to accommodate site access and peak hour queues. Exhibit 1-4 shows the site adjacent recommendations.

Recommendation 1.1 – Driveway 1/Ginger Root Way & Mountain Street (#1) – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the southbound approach and construct a southbound shared left-through-right turn lane.

Recommendation 2.1 – Driveway 2 & Mountain Street (#2) – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the southbound approach and construct a southbound right turn lane. Project will construct a pork chop island to restrict access to right-in/right-out only.

Recommendation 3.1 – Lake Street & Driveway 3 (#5) – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the eastbound approach and construct an eastbound right turn lane. Project will construct a raised median on Lake Street to restrict access at this driveway to right-in/right-out only.

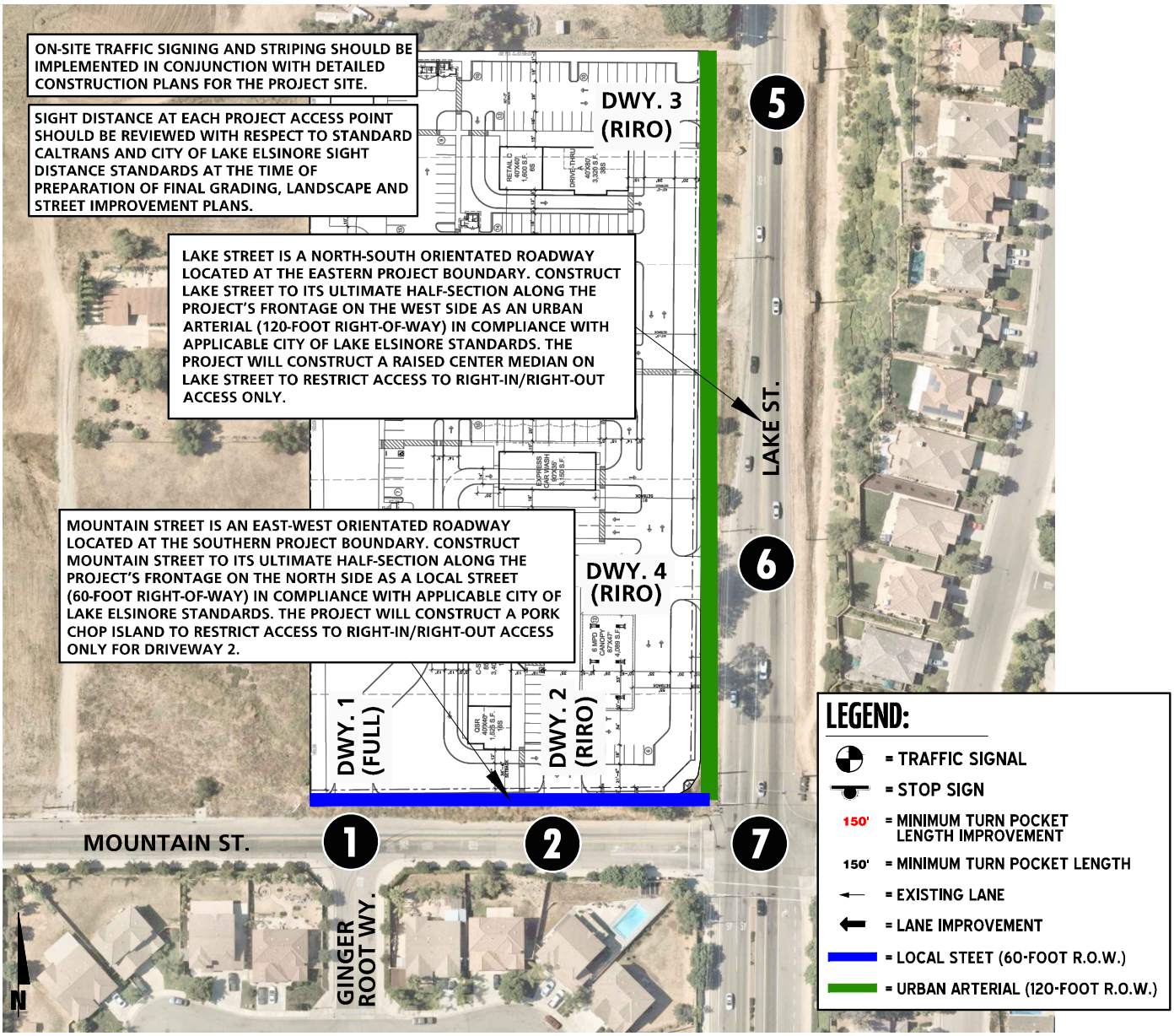
EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

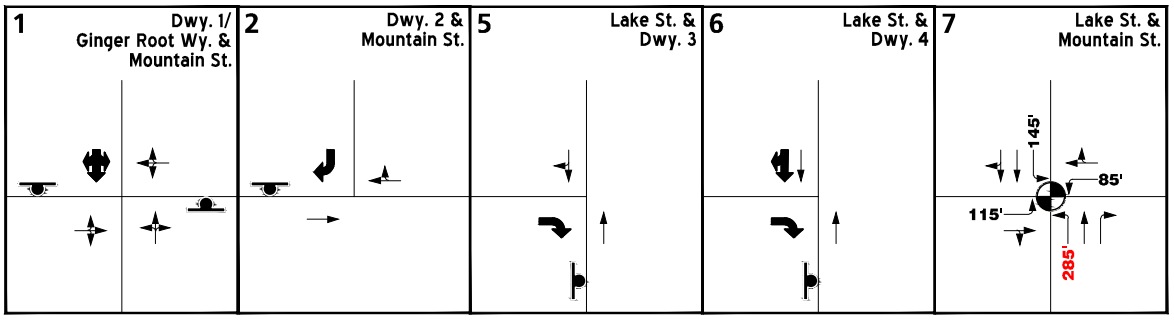
#	Intersection	Existing (2019)	E+P	EAP (2021)	EAPC (2021)
1	Dwy. 1 / Ginger Root Wy. & Mountain St.	◐	◐	◐	◐
2	Dwy. 2 & Mountain St.	NA	◐	◐	◐
3	Lake St. & Nichols Rd.	◐	◐	◐	◐
4	Lake St. & Alberhill Ranch Rd.	◐	◐	◐	◐
5	Lake St. & Dwy. 3	NA	◐	◐	◐
6	Lake St. & Dwy. 4	NA	◐	◐	◐
7	Lake St. & Mountain St.	◐	◐	◐	◐
8	Lake St. / Grand Av. & Lakeshore Dr.	◐	◐	◐	◐
9	Lincoln St. & Grand Av.	◐	◐	◐	◐
10	Terra Cotta Rd. (N) & Lakeshore Dr.	◐	◐	◐	◐
11	Terra Cotta Rd. (S) & Lakeshore Dr.	◐	◐	◐	◐

LEGEND:

- ◖ = AM PEAK HOUR
- ◗ = PM PEAK HOUR
- ◐ = LOS A-D
- ◐ = LOS E
- ◐ = LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS





Recommendation 4.1 – ***Lake Street & Driveway 4 (#6)*** – The following improvement is necessary to accommodate site access:

- Project to install a stop control on the eastbound approach and construct an eastbound right turn lane. Project will construct a raised median on Lake Street to restrict access at this driveway to right-in/right-out only.

Recommendation 5.1 – ***Lake Street & Mountain Street (#7)*** – The following improvement is necessary to accommodate peak hour queues:

- Maintain the existing traffic control and lane geometrics, however, the Project should modify the existing median on Lake Street to accommodate a 285-foot northbound left turn lane.
- Appendix 1.2 contains the site adjacent queuing analysis worksheets for all analysis scenarios. The resulting 95th percentile queue results for each analysis scenario are summarized on Table 1-2 below for the northbound left turn lane at Lake Street and Mountain Street.

TABLE 1-2: QUEUING ANALYSIS SUMMARY

Scenario:	Existing	E+P	EAP	EAPC
Northbound Left Queue (Feet)				
AM Peak Hour:	82	255	261	262
PM Peak Hour:	80	272	280	**282**

Recommendation 6.1 – ***Mountain Street*** – Mountain Street is an east-west oriented roadway located at the southern Project boundary. Construct Mountain Street to its ultimate half-section along the Project's frontage on the north side as a Local Street (60-foot right-of-way) in compliance with applicable City of Lake Elsinore standards. The Project will construct a pork chop island to restrict access to right-in/right-out access only for Driveway 2.

Recommendation 7.1 – ***Lake Street*** – Lake Street is a north-south oriented roadway located at the eastern Project boundary. Construct Lake Street to its ultimate half-section along the Project's frontage on the west side as an Urban Arterial Highway (120-foot right-of-way) in compliance with applicable City of Lake Elsinore standards. The Project will construct the raised median on Lake Street to restrict access to right-in/right-out access only at the two driveways on Lake Street.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the identified roadway classifications and respective cross-sections in the City of Lake Elsinore General Plan Circulation Element.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with City of Lake Elsinore traffic study guidelines.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM), 6th Edition, methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

City of Lake Elsinore

The City of Lake Elsinore requires signalized intersection operations analysis based on the methodology described in the HCM. (5) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1. Study area intersections have been evaluated using the Synchro (Version 10) analysis software package.

Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F	F

Source: HCM (6th Edition)

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all near-term analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (5)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Lake Elsinore requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (5) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM (6th Edition)

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA update uses the signal warrant criteria presented in the latest edition of the Caltrans' California Manual on Uniform Traffic Control Devices (CA MUTCD), for all study area intersections. (6)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (6) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 is appropriate to use for this TIA update because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

As shown in Table 2-3, traffic signal warrant analyses were performed for the following unsignalized study area intersection during the peak weekday conditions wherein the Project is anticipated to contribute the highest trips:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Driveway 1/Ginger Root Wy. & Mountain St.	Lake Elsinore
10	Terra Cotta Rd. (N) & Lakeshore Dr.	Lake Elsinore

Traffic signal warrant analyses were not performed for Driveway 2, Driveway 3, or Driveway 4 as these locations are proposed to be restricted to right-in/right-out access only and would not be suitable for signalization.

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Conditions,* Section 6 *EAP (2021) Traffic Conditions,* and Section 7 *EAPC (2021) Traffic Conditions* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS) AND INTERSECTION DEFICIENCY CRITERIA

The City, pursuant to its 2011 General Plan, requires that peak hour intersection operations be at LOS D or better to be considered acceptable. Therefore, City intersections operating at LOS E or F would be considered deficient.

2.5 THRESHOLDS OF SIGNIFICANCE

The following types of traffic deficiencies are considered to be significant under the California Environmental Quality Act (CEQA):

- When existing traffic conditions exceed the General Plan target LOS (e.g., LOS D or better).
- When project traffic, when added to existing traffic, will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.
- When cumulative traffic exceeds the target LOS, and impacts cannot be mitigated through the Transportation Uniform Mitigation Fee (TUMF) network (or other funding mechanism), project conditions of approval, or other implementation mechanism.

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Lake Elsinore General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Lake Elsinore staff (Appendix 1.1), the study area includes a total of 11 existing intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF LAKE ELSINORE GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the City of Lake Elsinore. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified in the City of Lake Elsinore General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Lake Elsinore General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Lake Elsinore General Plan roadway cross-sections.

Study area roadways that are classified as an Urban Arterial are identified as having six lanes of travel. The following study area roadways within the City of Lake Elsinore are classified as an Urban Arterial:

- Lake Street
- Nichols Road
- Lakeshore Drive

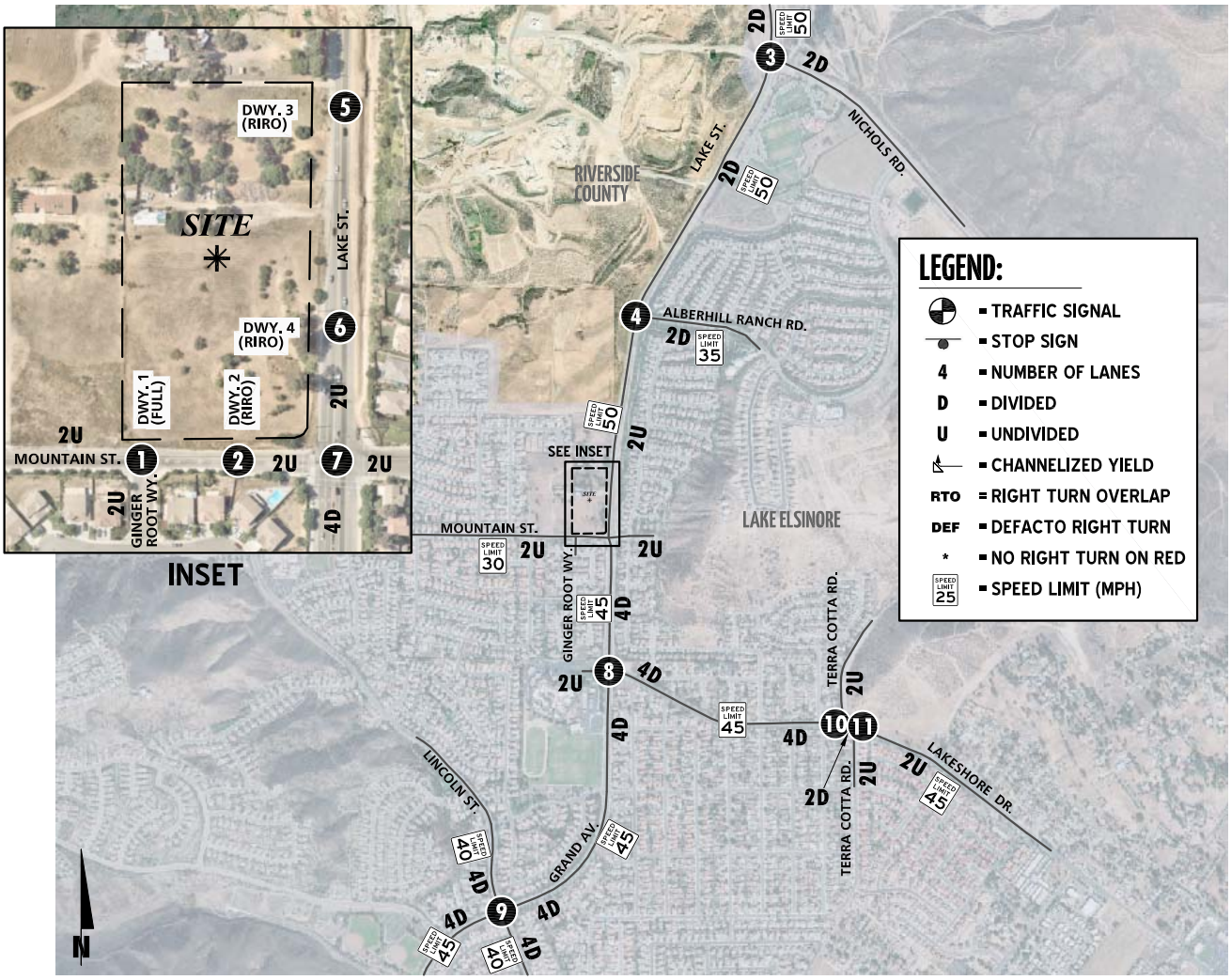
Study area roadways that are classified as a Major are identified as having four lanes of travel. The following study area roadways within the City of Lake Elsinore are classified as a Major:

- Grand Avenue
- Lincoln Street (south of Grand Avenue)

Study area roadways that are classified as a Secondary are identified as having two lanes of travel. The following study area roadway within the City of Lake Elsinore is classified as a Secondary:

- Lincoln Street (north of Grand Avenue)

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



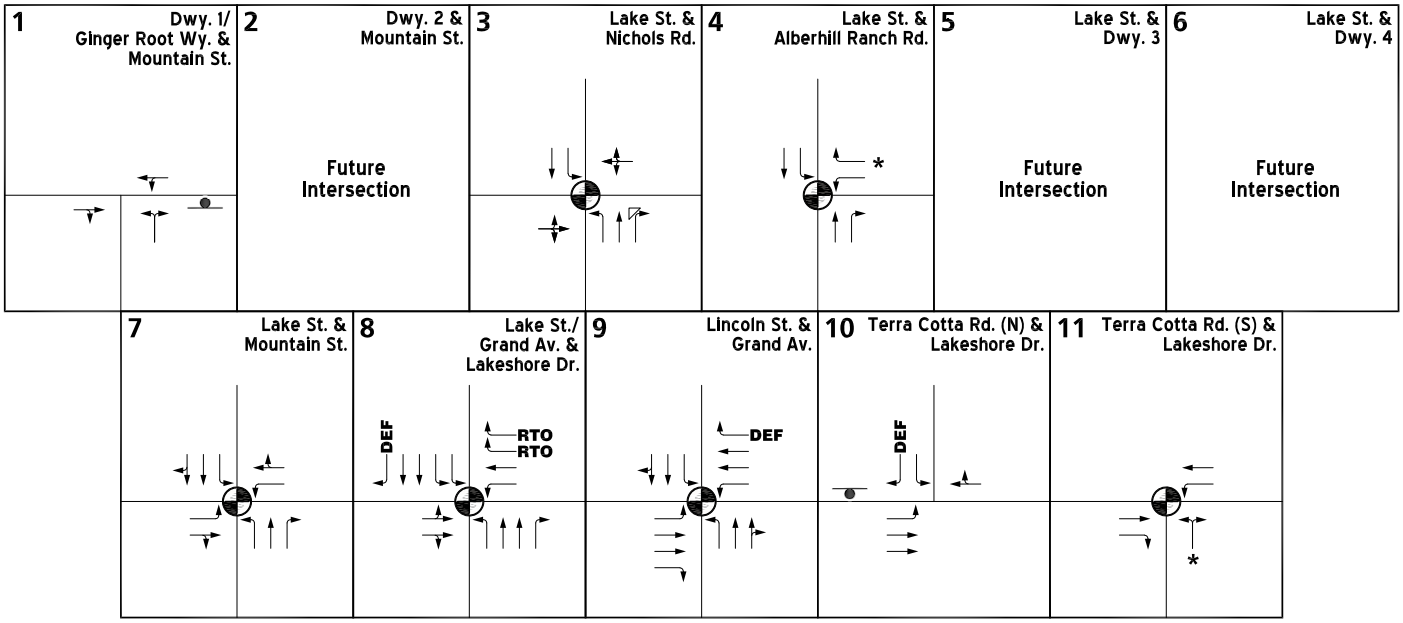
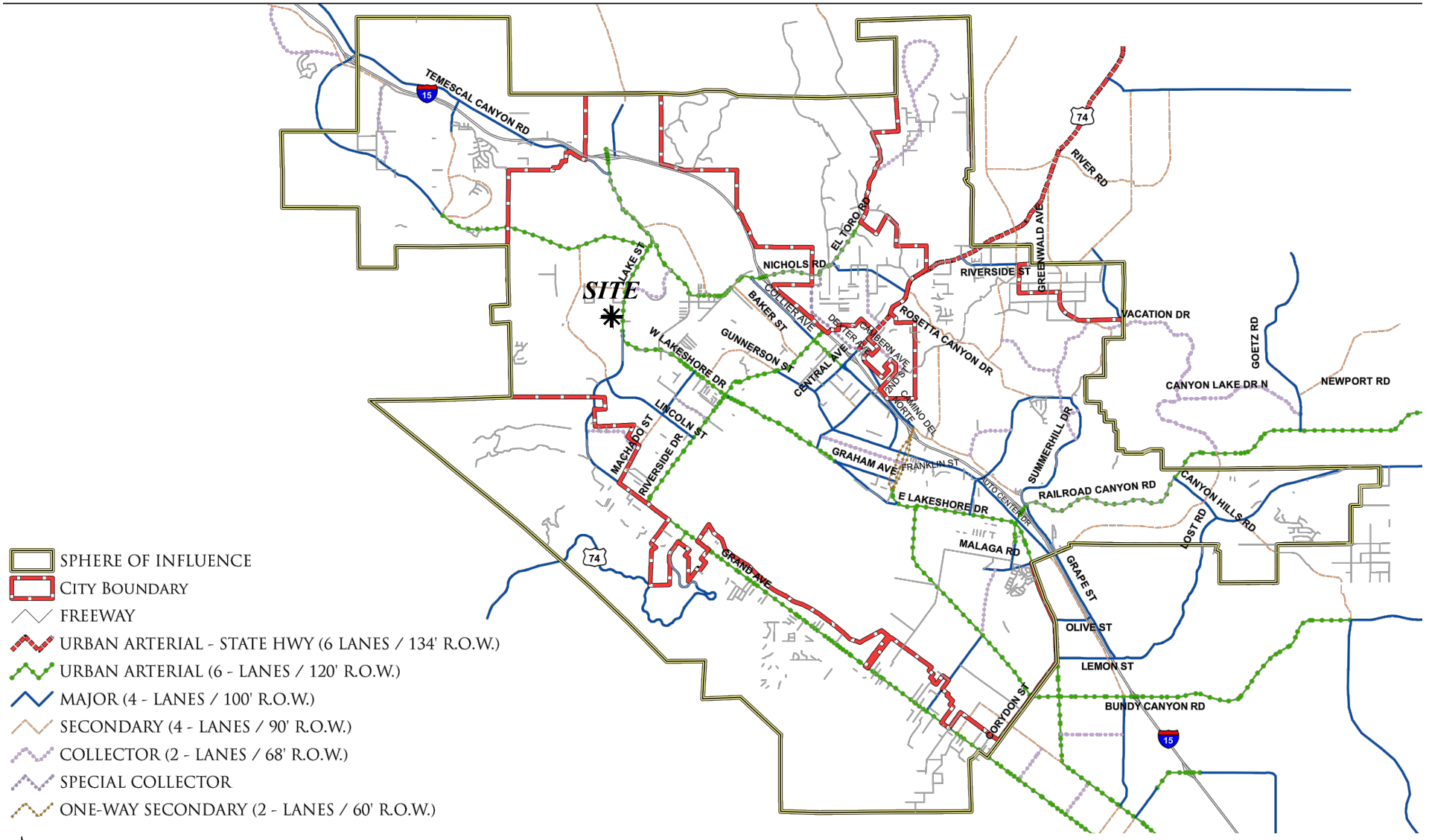


EXHIBIT 3-2: CITY OF LAKE ELSINORE GENERAL PLAN CIRCULATION ELEMENT

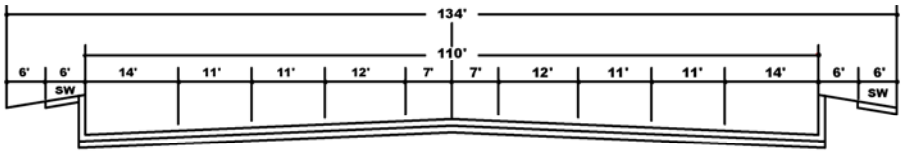


SOURCE: CITY OF LAKE ELSINORE GENERAL PLAN (ADOPTED 12-13-2011)

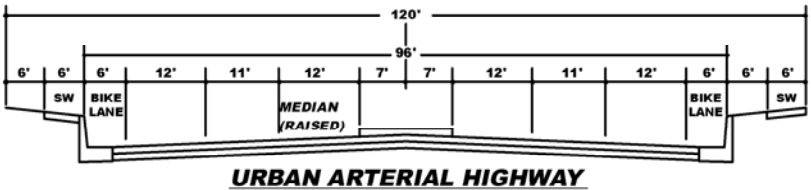
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URBAN CROSSROADS

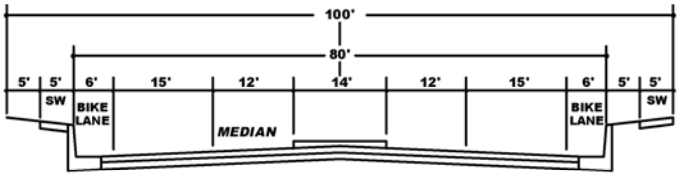
EXHIBIT 3-3: CITY OF LAKE ELSINORE GENERAL PLAN ROADWAY CROSS-SECTIONS



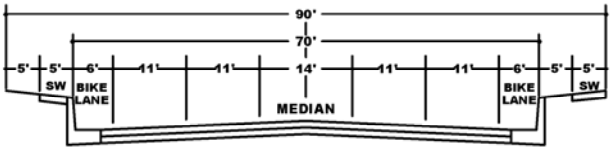
AUGMENTED URBAN ARTERIAL - STATE HIGHWAY
(8-LANE)



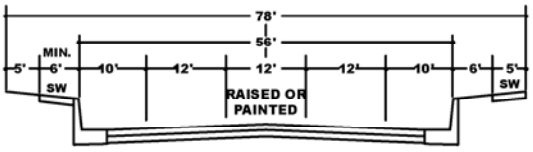
URBAN ARTERIAL HIGHWAY
(6-LANE)



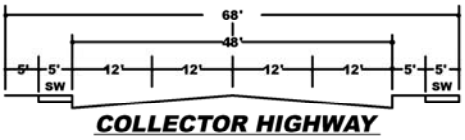
MAJOR HIGHWAY
(4-LANE)



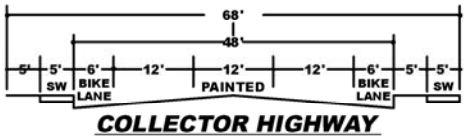
SECONDARY HIGHWAY
(4-LANE)



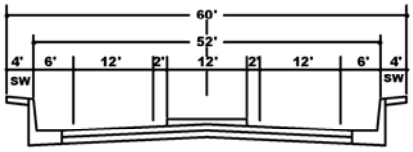
DIVIDED COLLECTOR
BIKES USE SHOULDER
(2-LANE)



COLLECTOR HIGHWAY
(4-LANE)



COLLECTOR HIGHWAY
(2-LANE)



NEW SPECIAL ROADWAY
SHOULDER/BIKE LANE
(2-LANE)
(PROPOSED FOR LAKESHORE DRIVE IN THE COUNTRY CLUB HEIGHT DISTRICT)

* BIKE LANES ARE NOT MANDATORY UNLESS SHOWN ON THE BIKEWAY CIRCULATION ELEMENT PLAN
PRECISE SIDEWALK LOCATION SUBJECT TO CITY ENGINEER APPROVAL
NOTE: CHECK THE DISTRICT PLAN OF YOUR AREA FOR ANY REQUIRED SPECIAL ROADWAY CROSS-SECTION, ESPECIALLY THE LAKE EDGE AND COUNTRY CLUB HEIGHTS DISTRICT PLANS.
STRIPPING OF COLLECTOR HIGHWAY AS DIRECTED BY CITY ENGINEER.

SOURCE: CITY OF LAKE ELSINORE GENERAL PLAN (ADOPTED 12-13-2011)

3.3 BICYCLE AND PEDESTRIAN FACILITIES

The City of Lake Elsinore Area Trails System is shown on Exhibit 3-4 while the City of Lake Elsinore Bikeway Plan is shown on Exhibit 3-5. There is currently a historic trail along Lake Street within the study area. Nichols Road, Lake Street, Lakeshore Drive, and Lincoln Avenue (south of Grand Avenue) are designated as Class II bike facilities per the City of Lake Elsinore General Plan.

There is also a planned Class II bike path along Lakeshore Drive within the study area. Existing pedestrian facilities within the study area are shown on Exhibit 3-6. Field observations conducted in September 2019 indicate nominal pedestrian and bicycle activity within the study area.

3.4 TRANSIT SERVICE

The Riverside Transit Authority (RTA) currently serves the City of Lake Elsinore. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. RTA Route 8 runs along Lakeshore Drive and Riverside Drive and RTA Route 9 and Route 205/206 run along Collier Avenue and the I-15 Freeway. However, there are currently no transit routes within the vicinity of the Project site. Existing transit routes in the vicinity of the study area are illustrated on Exhibit 3-7. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. As such, it is recommended that the applicant work in conjunction with RTA to potentially provide additional bus service to the site.

3.5 EXISTING (2019) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected on Thursday, September 19, 2019. The following peak hours were selected for analysis:

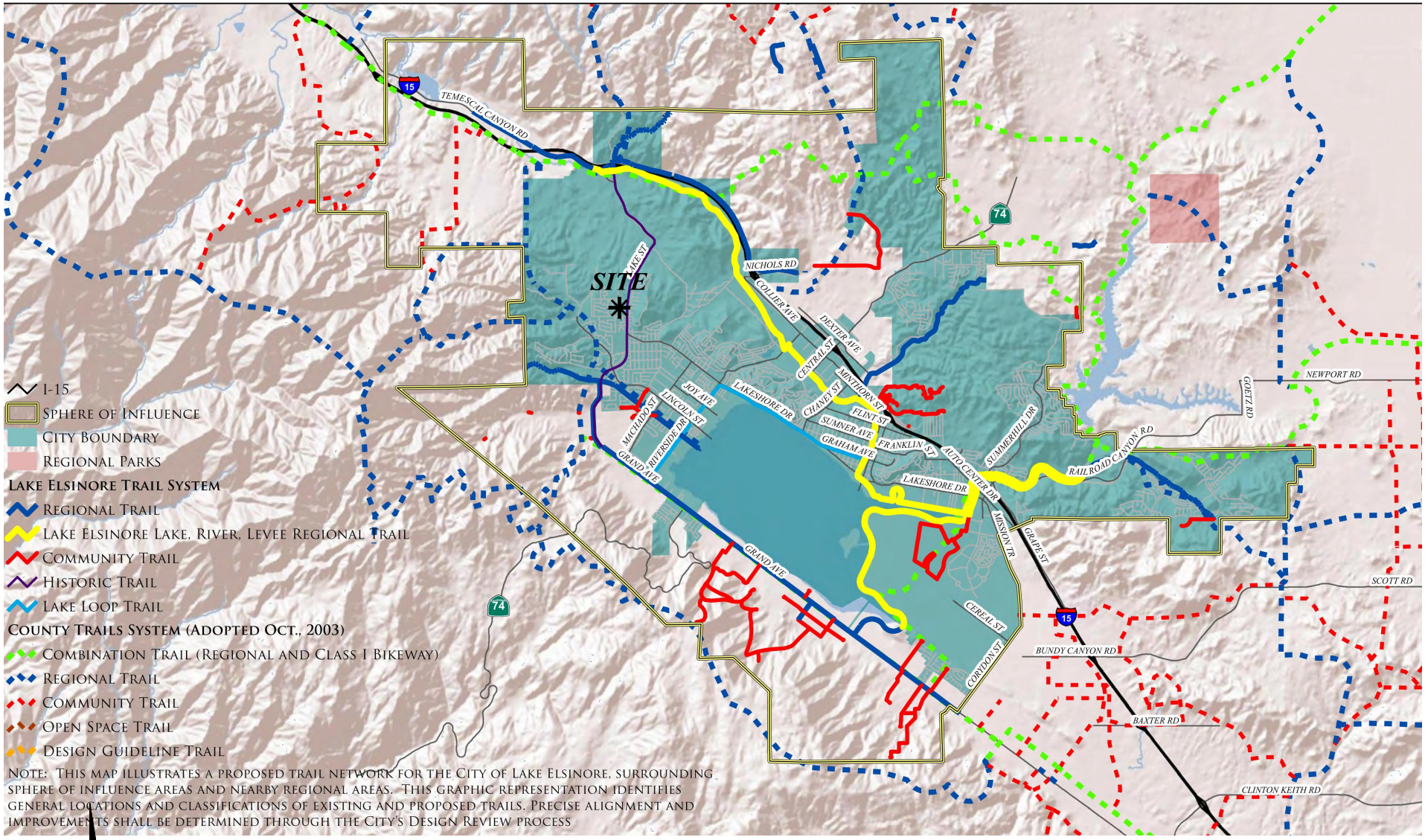
- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The weekday AM and weekday PM peak hour count data are representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

Existing weekday Average Daily Traffic (ADT) volumes are shown on Exhibit 3-8. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

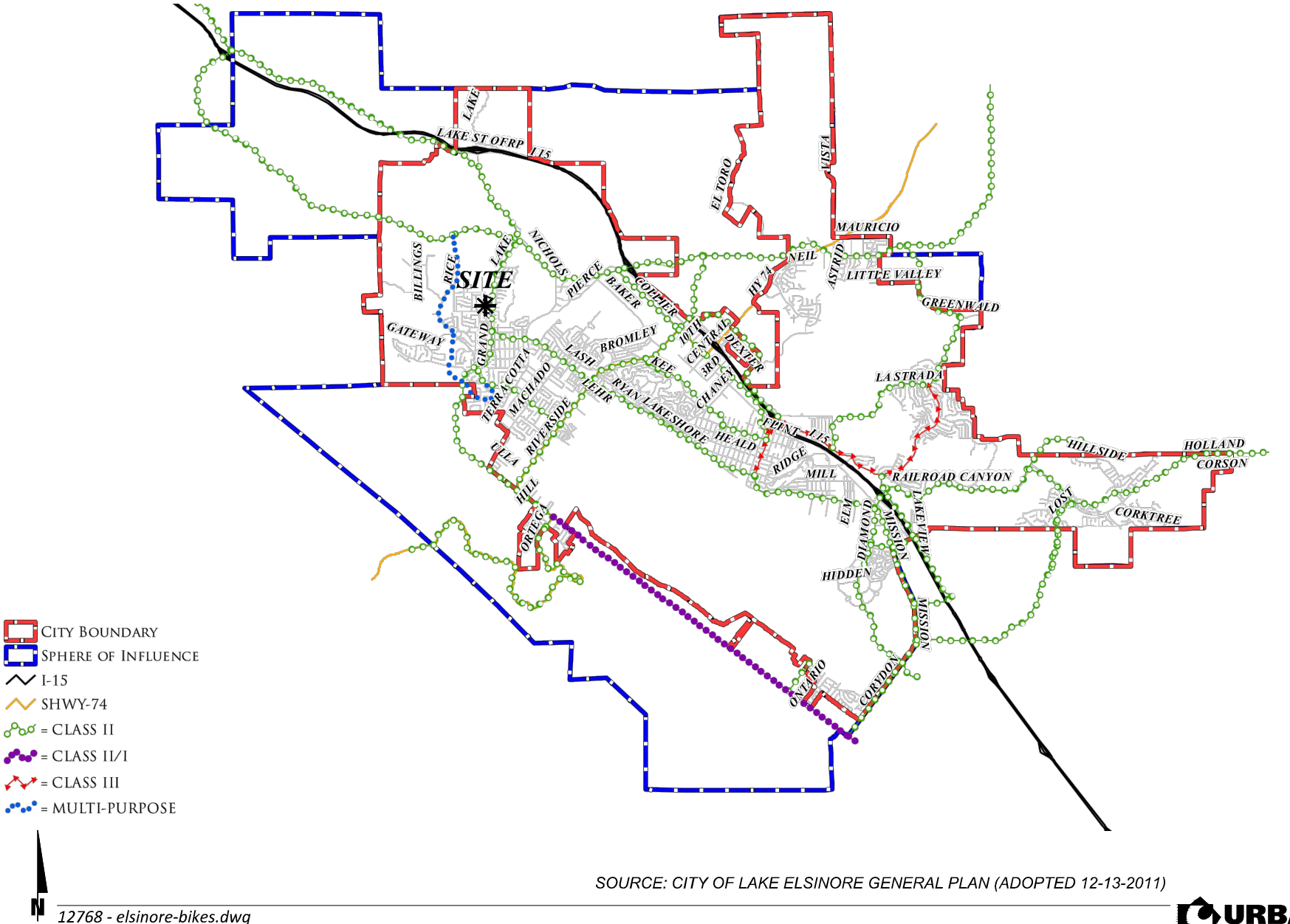
Weekday PM Peak Hour (Approach Volume + Exit Volume) x 14.02 = Leg Volume

EXHIBIT 3-4: CITY OF LAKE ELSINORE AREA TRAILS SYSTEM



SOURCE: CITY OF LAKE ELSINORE GENERAL PLAN (ADOPTED 12-13-2011)

EXHIBIT 3-5: CITY OF LAKE ELSINORE BIKEWAY PLAN

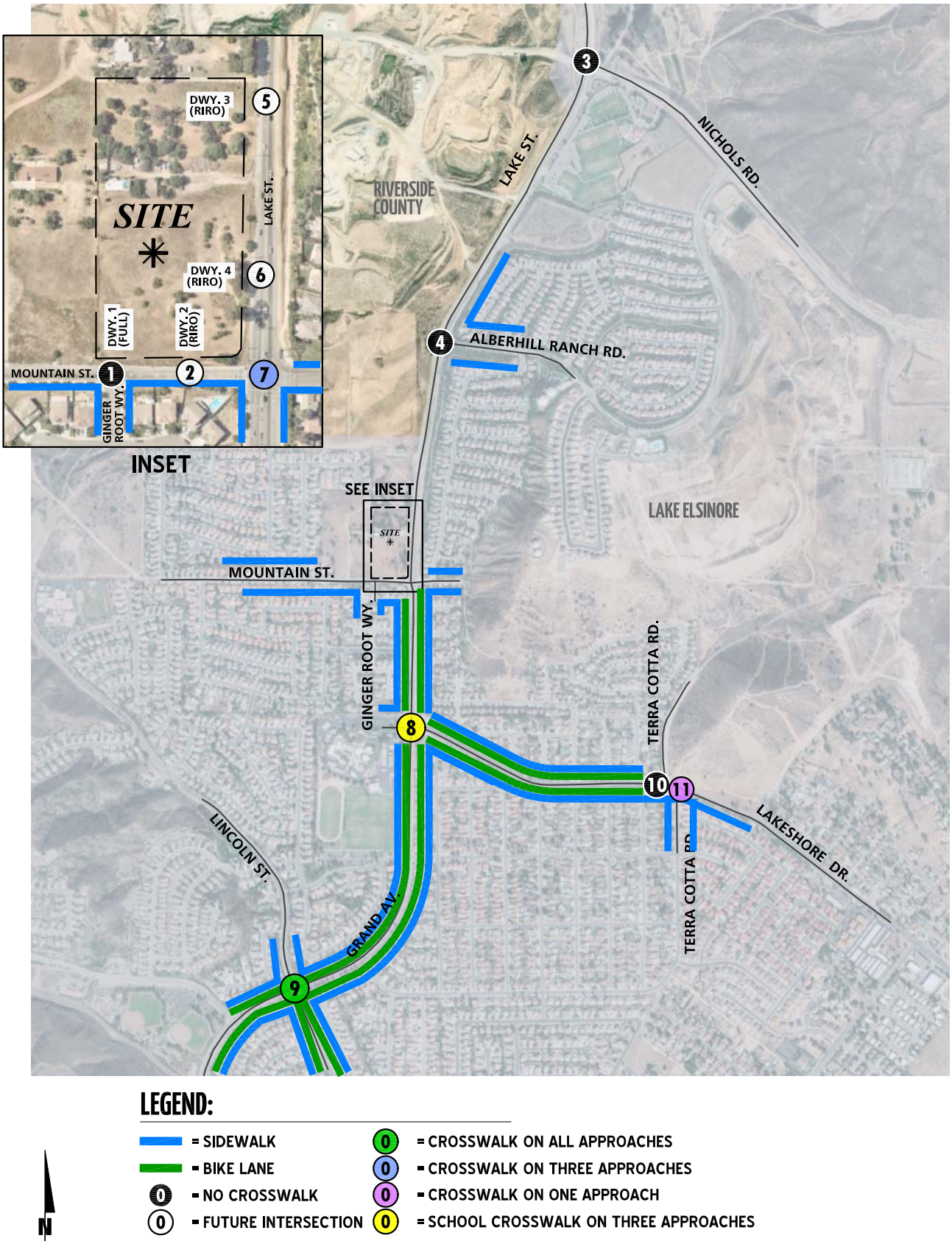


SOURCE: CITY OF LAKE ELSINORE GENERAL PLAN (ADOPTED 12-13-2011)

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URBAN CROSSROADS

EXHIBIT 3-6: EXISTING PEDESTRIAN and BICYCLE FACILITIES



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EXHIBIT 3-7: EXISTING TRANSIT ROUTES

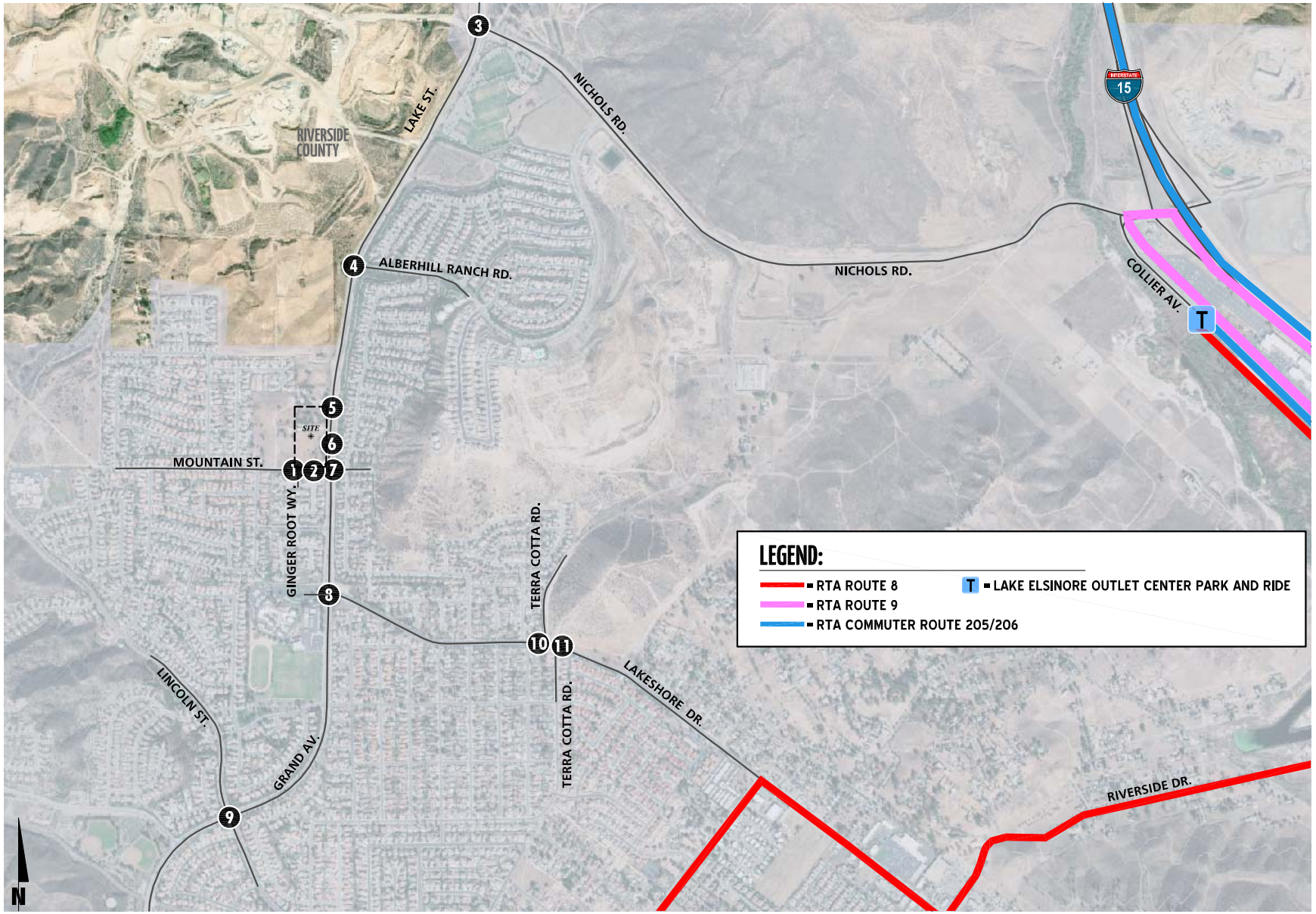
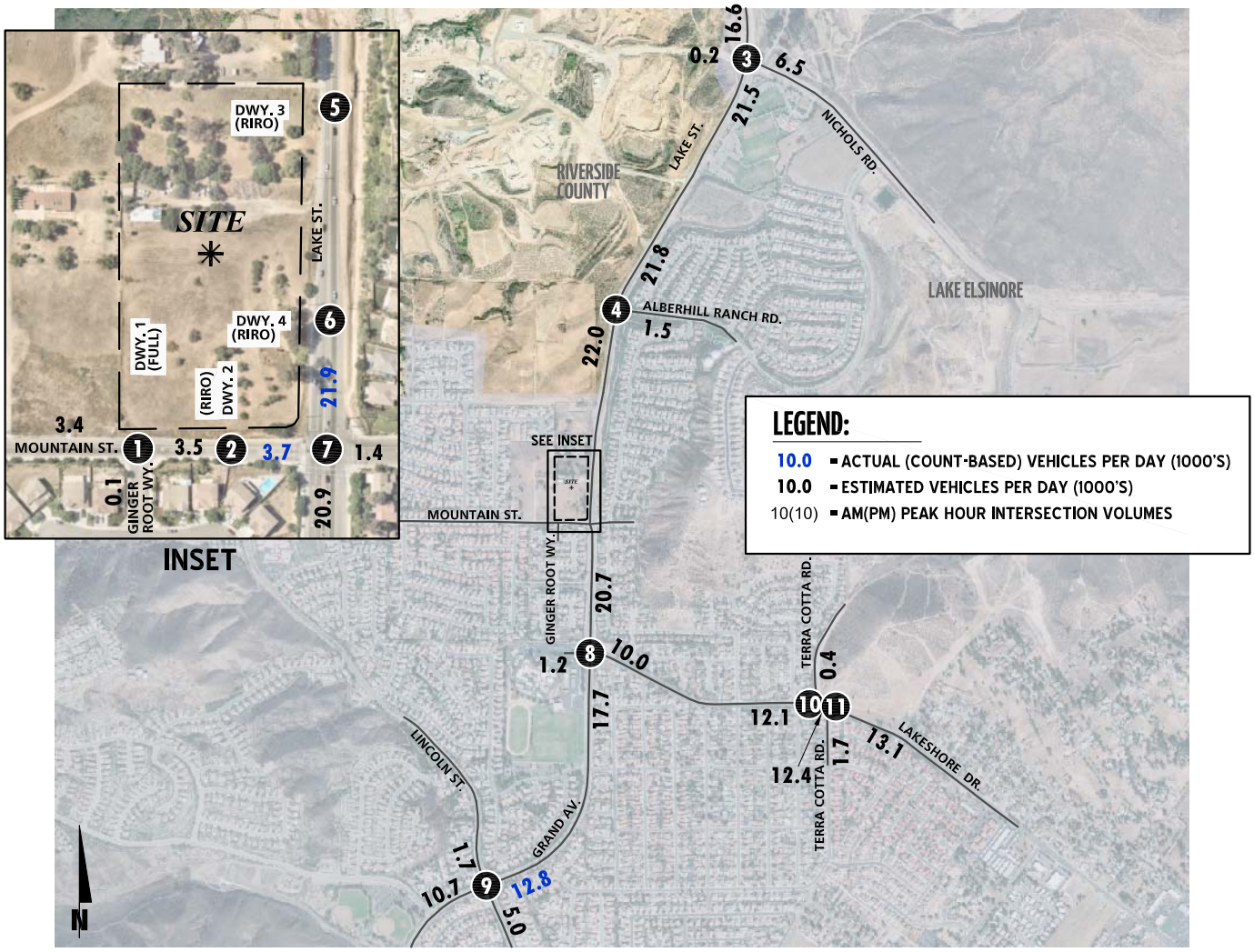


EXHIBIT 3-8: EXISTING (2019) TRAFFIC VOLUMES



1 Dwy. 1/ Ginger Root Wy. & Mountain St. ←113(148) ←3(5) 251(95)→ 0(0)→ 0(0)↑ 12(3)↑	**2** Dwy. 2 & Mountain St. Future Intersection	**3** Lake St. & Nichols Rd. 266(749)↓ 21(39)↓ →42(16) ←9(1) ←183(238) 9(4)→ 4(4)→ 2(2)→ 3(2)↑ 708(376)↑ 348(168)↑	**4** Lake St. & Alberhill Ranch Rd. 430(966)↓ 18(32)↓ ←57(16) ←67(28) 1008(543)↑ 38(31)↑	**5** Lake St. & Dwy. 3 Future Intersection	**6** Lake St. & Dwy. 4 Future Intersection
7 Lake St. & Mountain St. 68(97)↓ 421(863)↓ 8(34)↓ →47(13) ←25(5) ←49(24) 172(60)→ 15(4)→ 76(34)→ 23(51)↑ 827(501)↑ 44(16)↑	**8** Lake St./ Grand Av. & Lakeshore Dr. 137(13)↓ 374(612)↓ 160(255)↓ →267(199) ←114(10) ←190(135) 60(10)→ 117(20)→ 118(20)→ 94(15)↑ 666(388)↑ 212(95)↑	**9** Lincoln St. & Grand Av. 95(13)↓ 123(25)↓ 34(11)↓ →11(12) ←346(377) ←167(154) 88(24)→ 459(298)→ 44(19)→ 38(31)↑ 129(34)↑ 216(94)↑	**10** Terra Cotta Rd. (N) & Lakeshore Dr. 3(2)↓ 7(10)↓ →12(14) ←578(440) 4(0)→ 542(419)→	**11** Terra Cotta Rd. (S) & Lakeshore Dr. ←559(449) ←12(41) 538(401)→ 11(28)→ 31(5)↑ 45(45)↑	

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.13 percent. As such, the above equation utilizing a factor of 14.02 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.13 percent (i.e., 1/0.0713 = 14.02) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-8.

3.6 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1, which indicates that all the study area intersections are currently operating at an acceptable LOS during the peak hours under Existing (2019) traffic conditions.

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing (2019) traffic conditions is shown on Exhibit 3-9. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.7 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing (2019) traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized study area intersections that currently warrant a traffic signal under Existing (2019) traffic conditions. Existing (2019) conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

3.8 RECOMMENDED IMPROVEMENTS

As shown in Table 3-1, the study area intersections are currently operating at an acceptable LOS during the peak hours under Existing (2019) traffic conditions. As such, no improvements have been recommended.

Table 3-1

Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Driveway 1/Ginger Root Wy. & Mountain St.	CSS	0	1	0	0	0	0	0	1	0	0	1	0	9.9	8.8	A	A
2	Driveway 2 & Mountain St.		Future Intersection															
3	Lake St. & Nichols Rd.	TS	1	1	1	1	1	0	0	1	0	0	1	0	18.6	21.3	B	C
4	Lake St. & Alberhill Ranch Rd.	TS	0	1	1	1	1	0	0	0	0	1	0	1	12.5	8.1	B	A
5	Lake St. & Driveway 3		Future Intersection															
6	Lake St. & Driveway 4		Future Intersection															
7	Lake St. & Mountain St.	TS	1	1	1	1	1	0	1	1	0	1	1	0	19.6	11.6	B	B
8	Lake St./Grand Av. & Lakeshore Dr.	TS	1	2	1	2	2	d	0	2	0	1	1	2>	34.9	20.5	C	C
9	Lincoln St. & Grand Av.	TS	1	2	0	1	2	0	1	2	1	1	2	d	28.2	18.5	C	B
10	Terra Cotta Rd. (N) & Lakeshore Dr.	CSS	0	0	0	1	0	d	1	2	0	0	1	0	16.6	12.5	C	B
11	Terra Cotta Rd. (S) & Lakeshore Dr.	TS	0	1	0	0	0	0	0	1	1	1	1	0	9.2	8.4	A	A

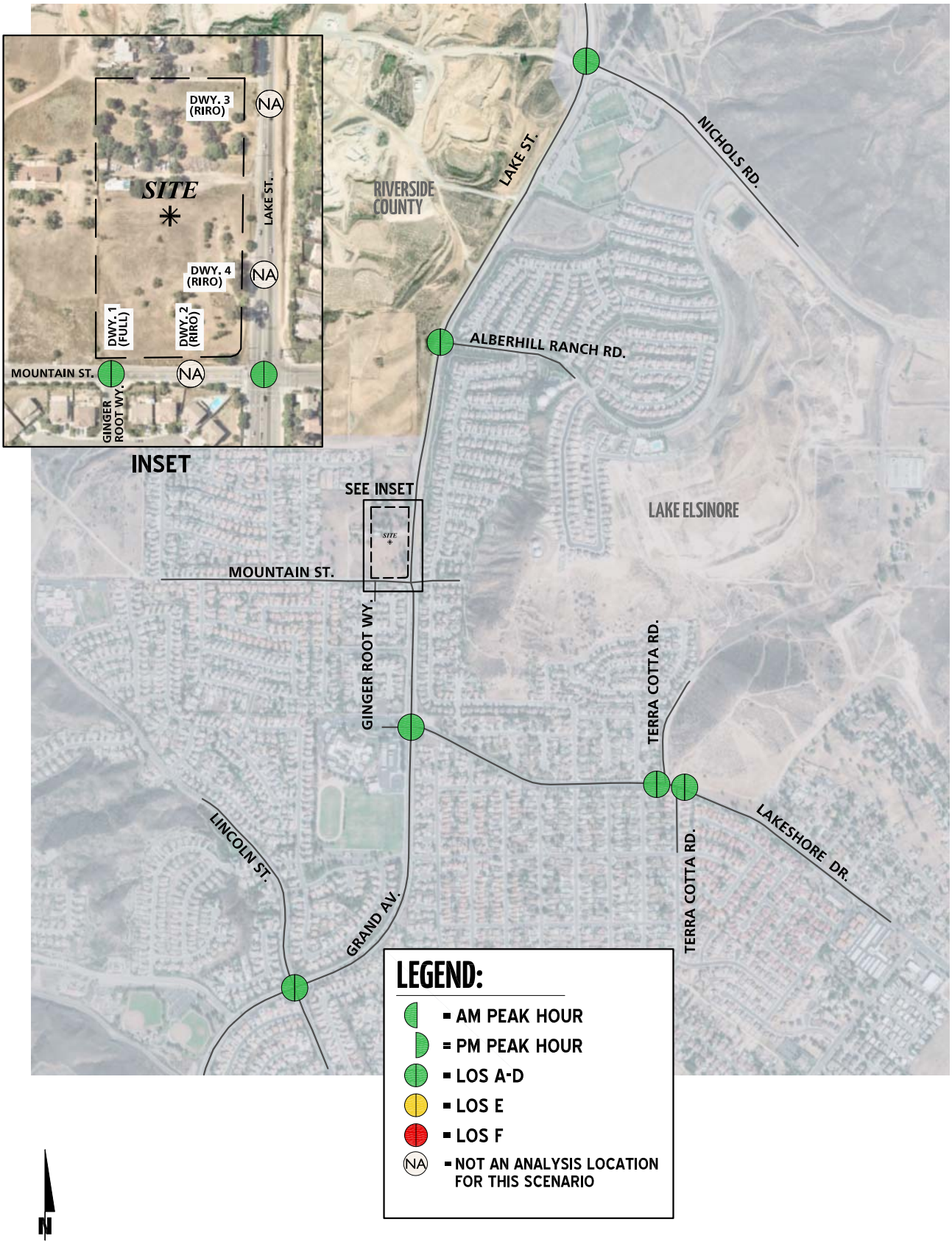
[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; d= Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[3] CSS = Cross-street Stop; TS = Traffic Signal

EXHIBIT 3-9: EXISTING (2019) SUMMARY OF LOS



4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project's trip assignment onto the study area roadway network. The Project is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2021. For the purpose of this analysis, the following driveways will provide access to the Project site:

- Driveway 1 via Mountain Street – Full Access
- Driveway 2 via Mountain Street – Right-in/Right-out access only
- Driveway 3 via Lake Street – Right-in/Right-out access only
- Driveway 4 via Lake Street – Right-in/Right-out access only

Regional access to the Project site is available from the I-15 Freeway and Lake Street and Nichols Road interchanges.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

Trip generation rates used to estimate Project traffic are shown in Table 4-1. A summary of the Project's trip generation is shown in Table 4-2. The trip generation rates used for this analysis are based upon information collected by the ITE as provided in their Trip Generation Manual (10th Edition, 2017) for Shopping Center (ITE Land Use Code 820), Fast-Food Restaurant with Drive-Through Window (ITE Land Use Code 934), Super Convenience Market/Gas Station (ITE Land Use Code 960), and Automated Car Wash (ITE Land Use Code 948). (3)

As the project is proposed to include shopping center, gas station, and other complementary uses, pass-by percentages have been obtained from the ITE Trip Generation Handbook (3rd Edition, 2017). (7) Patrons of the gas station may also visit other uses on-site, including the restaurants, car wash, and retail uses, without leaving the site. The ITE Trip Generation Handbook has been utilized to determine the internal capture for the applicable mix of uses. Pass-by trip reductions at the Project driveways and site adjacent intersection of Lake Street and Mountain Street are shown on Exhibit 4-2.

Table 4-1

Project Trip Generation Rates

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Shopping Center[3]	TSF	820	7.440	4.560	12.000	4.420	4.780	9.200	114.930
Fast-Food Restaurant with Drive-Through Window	TSF	934	20.497	19.693	40.190	16.988	15.682	32.670	470.950
Super Convenience Mkt./Gas Station	TSF	960	41.570	41.570	83.140	34.640	34.640	69.280	837.580
Automated Car Wash[4]	TUN	948	N/A	N/A	N/A	38.750	38.750	77.500	775.000

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet; TUN = Tunnels

[3] Trip generation rates are based on the regression equation.

[4] AM peak hour and daily trip generation rate not available. Daily rate estimated at 10 times the PM peak hour rate.

Table 4-2

Project Trip Generation Summary

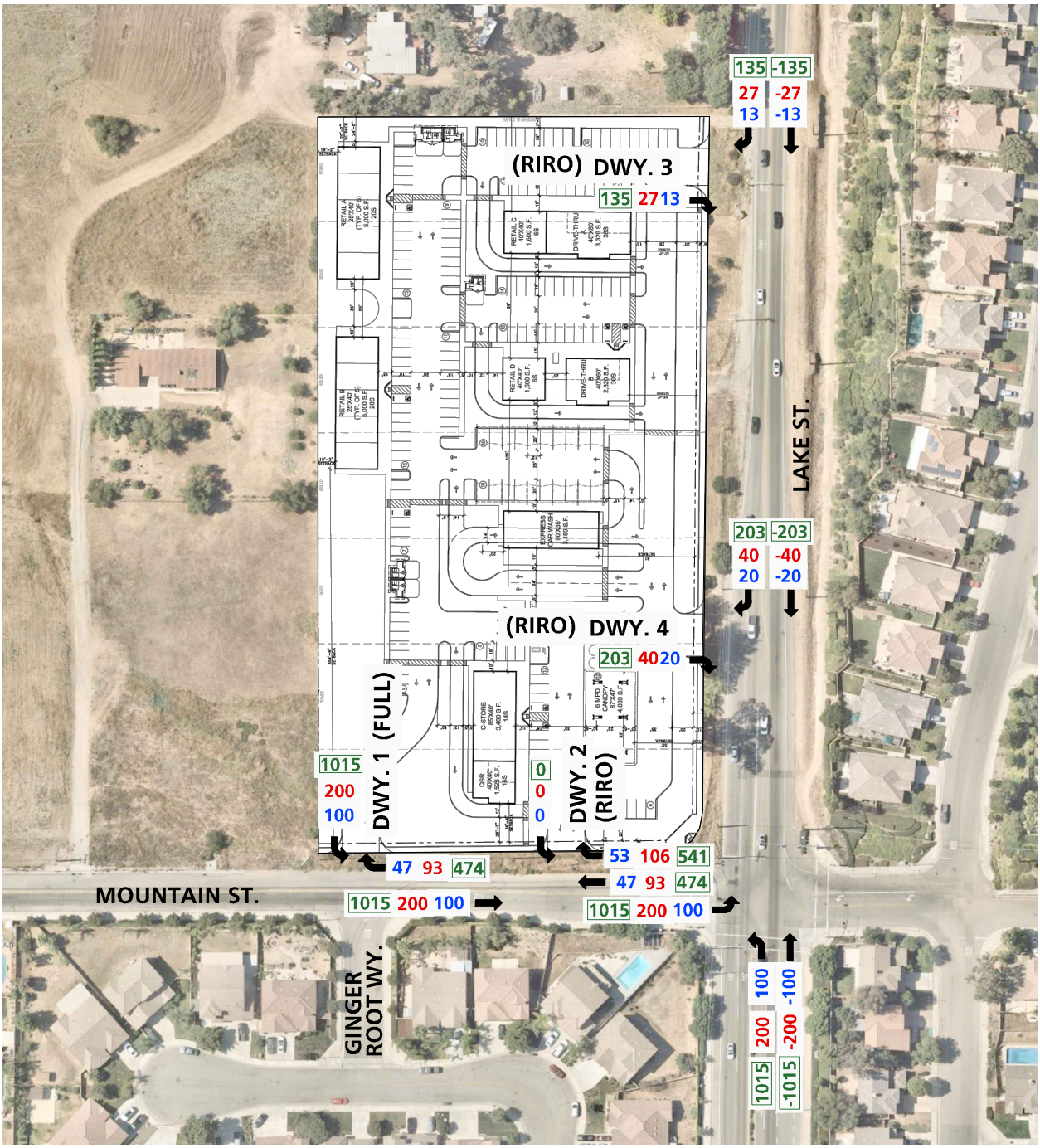
Project Land Uses	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Shopping Center	13.200	TSF	98	60	158	58	63	121	1,517
Internal Capture (Retail to Restaurant)[2]:			-1	-1	-2	-5	-4	-9	-113
Net External Trips:			97	59	156	53	59	112	1,404
Pass-by Reduction (PM/Daily: 34%)[2]:			0	0	0	-18	-18	-36	-478
Shopping Center Total:			*97*	*59*	*156*	*35*	*41*	*76*	*926*
Gasoline/Service Station w/Convenience Mkt.	3.400	TSF	141	141	282	118	118	236	2,848
Internal Capture (Retail to Restaurant)[2]:			-18	-25	-43	-42	-32	-74	-894
Net External Trips:			123	116	239	76	86	162	1,954
Pass-by Reduction (AM: 62%; PM/Daily: 56%)[3]:			-72	-72	-144	-43	-43	-86	-1,094
Gasoline/Service Station w/Conven. Mkt. Total:			*51*	*44*	*95*	*33*	*43*	*76*	*860*
Fast-Food Restaurant with Drive-Through Window	7.365	TSF	151	145	296	125	115	240	3,470
Internal Capture (Restaurant to Retail)[2]:			-26	-19	-45	-36	-47	-83	-1,202
Net External Trips:			125	126	251	89	68	157	2,268
Pass-by Reduction (AM: 49%, PM: 50%, Daily: 50%)[3]:			-61	-61	-122	-34	-34	-68	-1,134
Fast-Food Restaurant with Drive-Through Window Total:			*64*	*65*	*129*	*55*	*34*	*89*	*1,134*
Automated Car Wash	1.000	TUN	N/A	N/A	N/A	39	39	78	776
Total Net Trips			***212***	***168***	***380***	***162***	***157***	***319***	***3,696***

[1] TSF = thousand square feet; TUN = Tunnels

[2] Internal capture calculated from NCHRP 684 Internal Trip Capture Estimation Tool.

[3] Source: ITE Trip Generation Handbook, 3rd Edition, 2017.

EXHIBIT 4-1: PASS-BY TRIP REDUCTIONS



LEGEND:

10 = AM TRIPS

10 = PM TRIPS

[10] = DAILY TRIPS

N

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Internal capture is a percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internal to the site. In other words, trips may be made between individual retail uses on-site and can be made either by walking or using internal roadways without using external streets. As the trip generation for the site was conservatively estimated based on individual land uses as opposed to the average ITE Shopping Center rate, an internal capture reduction was applied to recognize the interactions that would occur between the various complementary land uses. The internal capture is based on the National Cooperative Highway Research Program's (NCHRP Report 684) internal capture trip capture estimation tool. These internal capture worksheets are attached to this scoping agreement.

As shown in Table 4-2, the proposed Project is anticipated to generate a net total of 3,696 trip-ends per day with 380 AM peak hour trips and 319 PM peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. The trip distribution pattern is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. The Project trip distribution pattern is graphically depicted on Exhibit 4-2. The Project trip distribution pattern was reviewed by the City of Lake Elsinore as part of the traffic study scoping process (see Appendix 1.1).

4.3 MODAL SPLIT

The potential for Project trips to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

EXHIBIT 4-2: PROJECT TRIP DISTRIBUTION

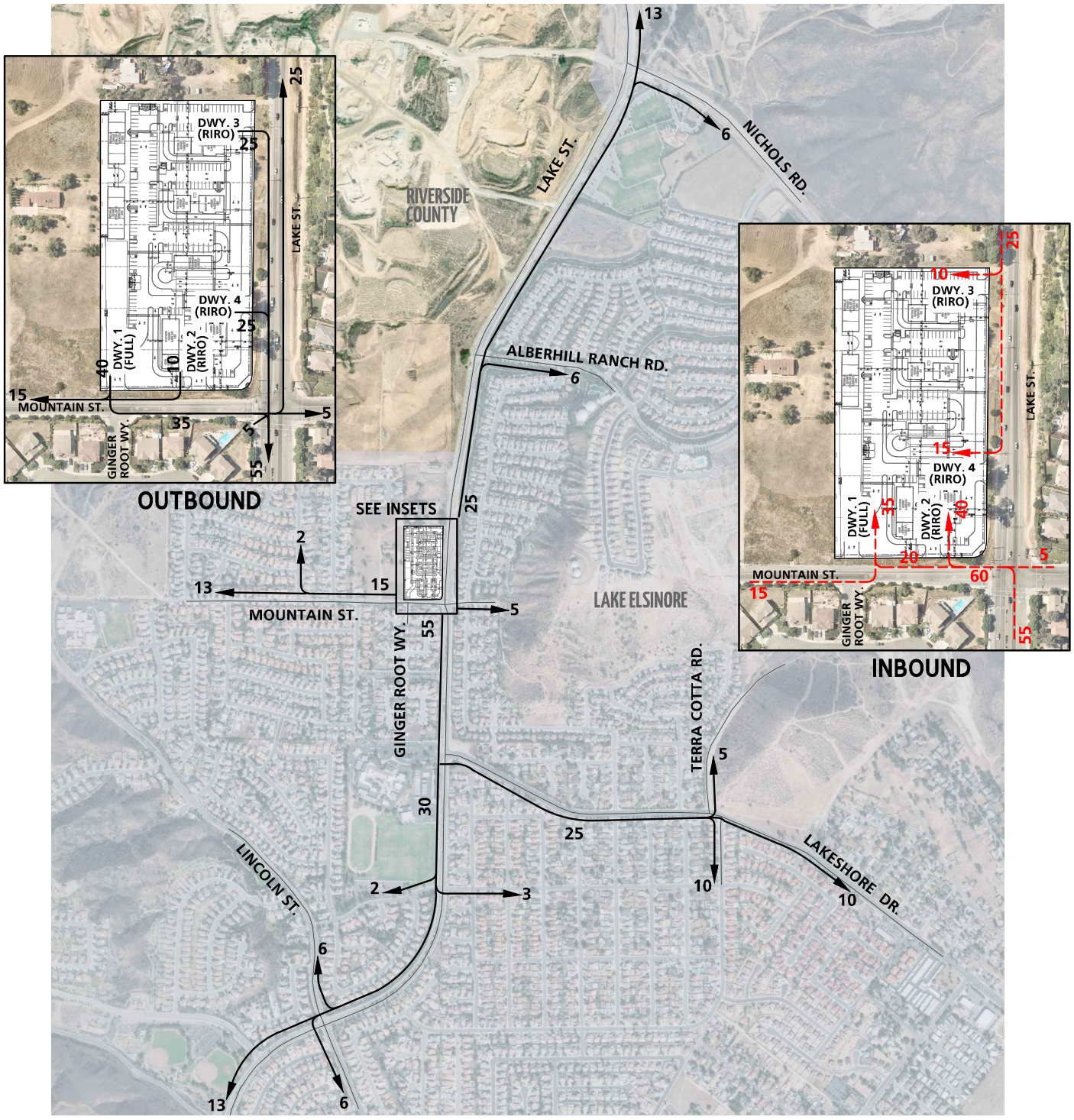
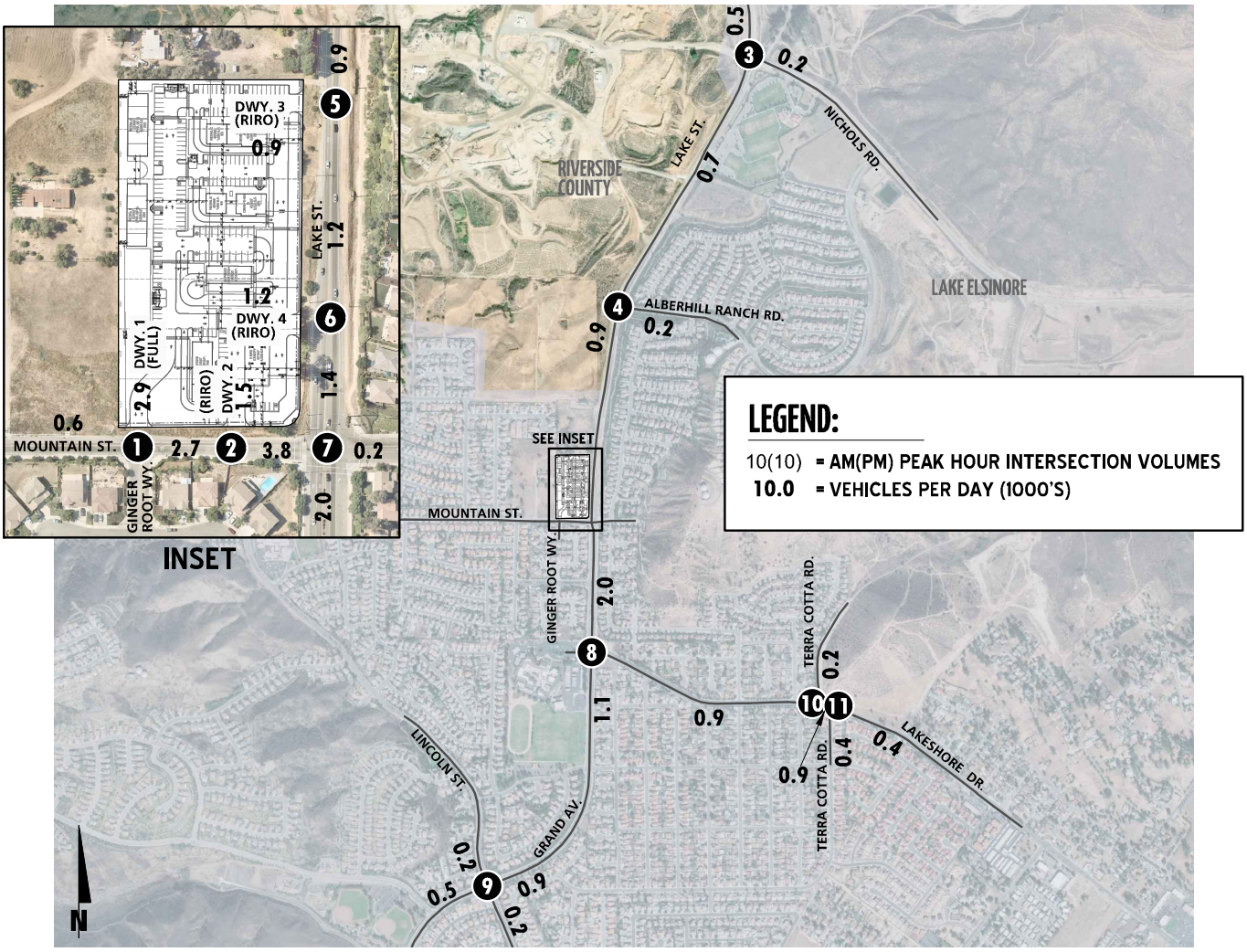
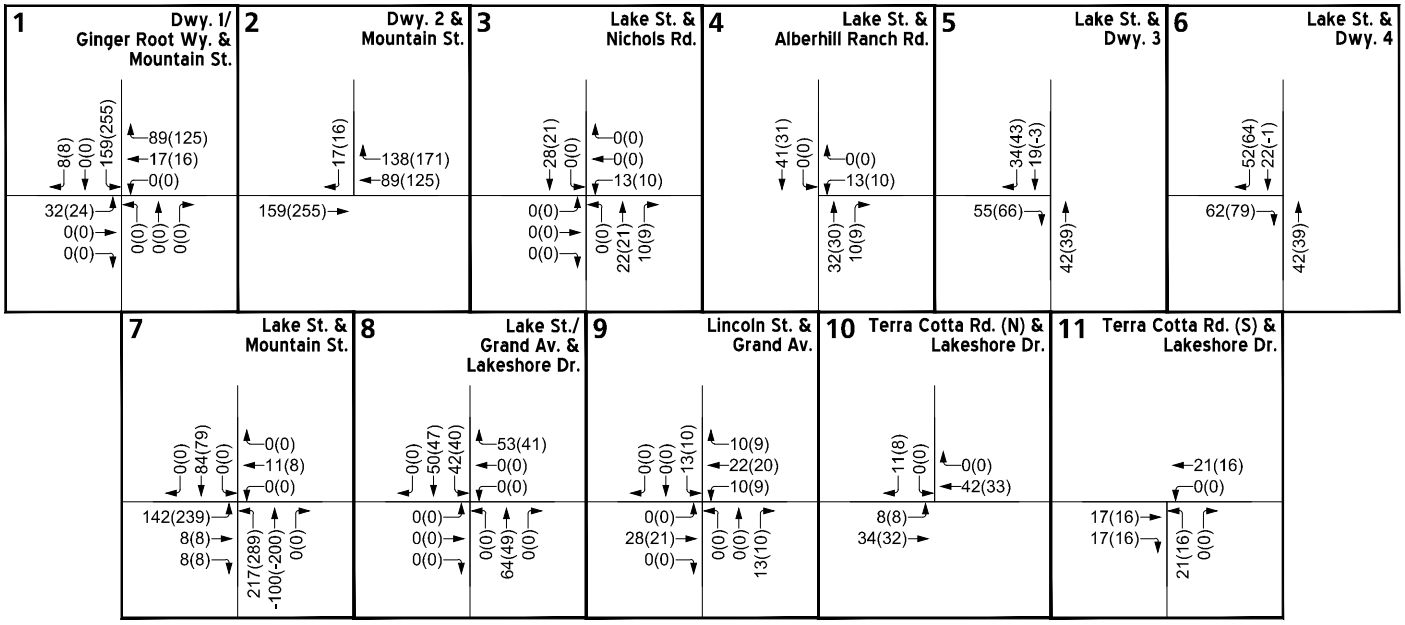


EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES





4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth of 4.04% (2% per year compounded annually over two years) for 2021 traffic conditions. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. EAP (2021) and EAPC (2021) traffic volumes are provided in Section 6 and Section 7 of this report, respectively.

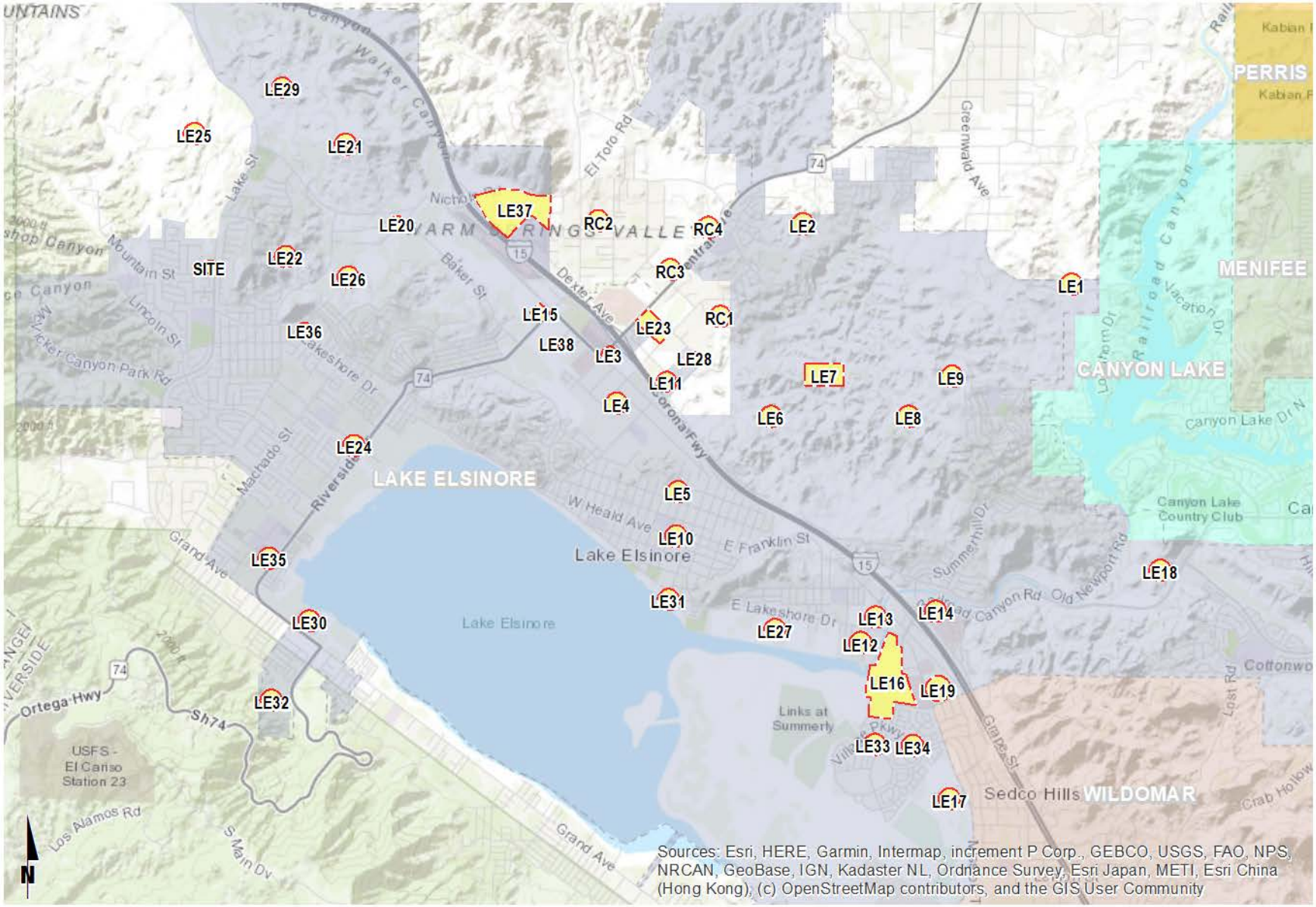
4.6 CUMULATIVE DEVELOPMENT TRAFFIC

CEQA guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Lake Elsinore.

Exhibit 4-4 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown in Table 4-3. If applicable, the traffic generated by individual cumulative projects was manually added to the EAP (2021) forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-3 are reflected as part of the background traffic to estimate EAPC (2021) traffic forecasts.

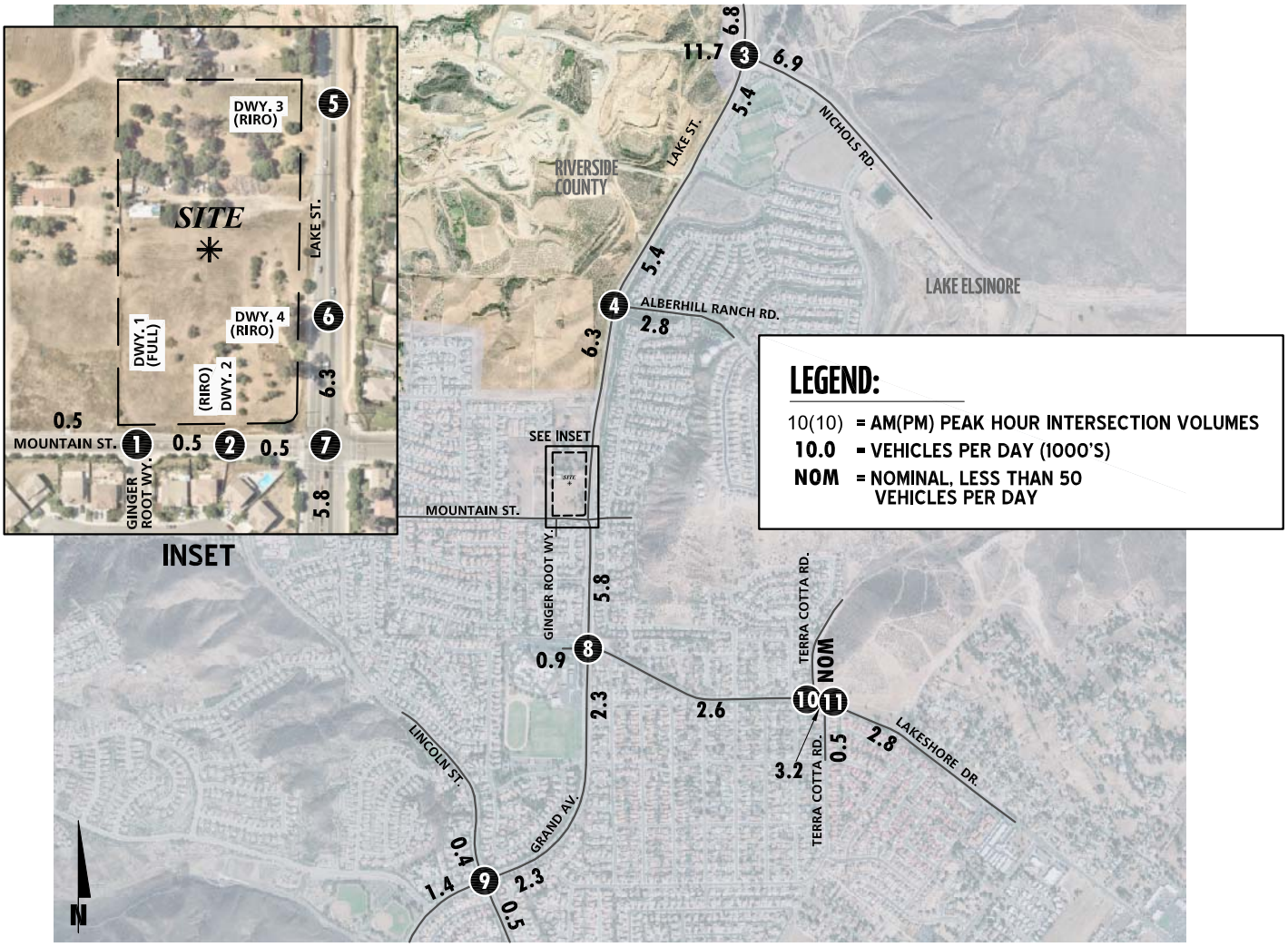
For the purposes of this study, an absorption percentage has been applied to the cumulative development traffic. It is unlikely that each cumulative development project shown on Exhibit 4-4 will be fully constructed and occupied by the year 2021. As such, 15% of the cumulative development traffic is added on top of EAP (2021) traffic volumes. Cumulative ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5. Cumulative Project Trip Generation is available in Appendix 4.1 of this TIA.

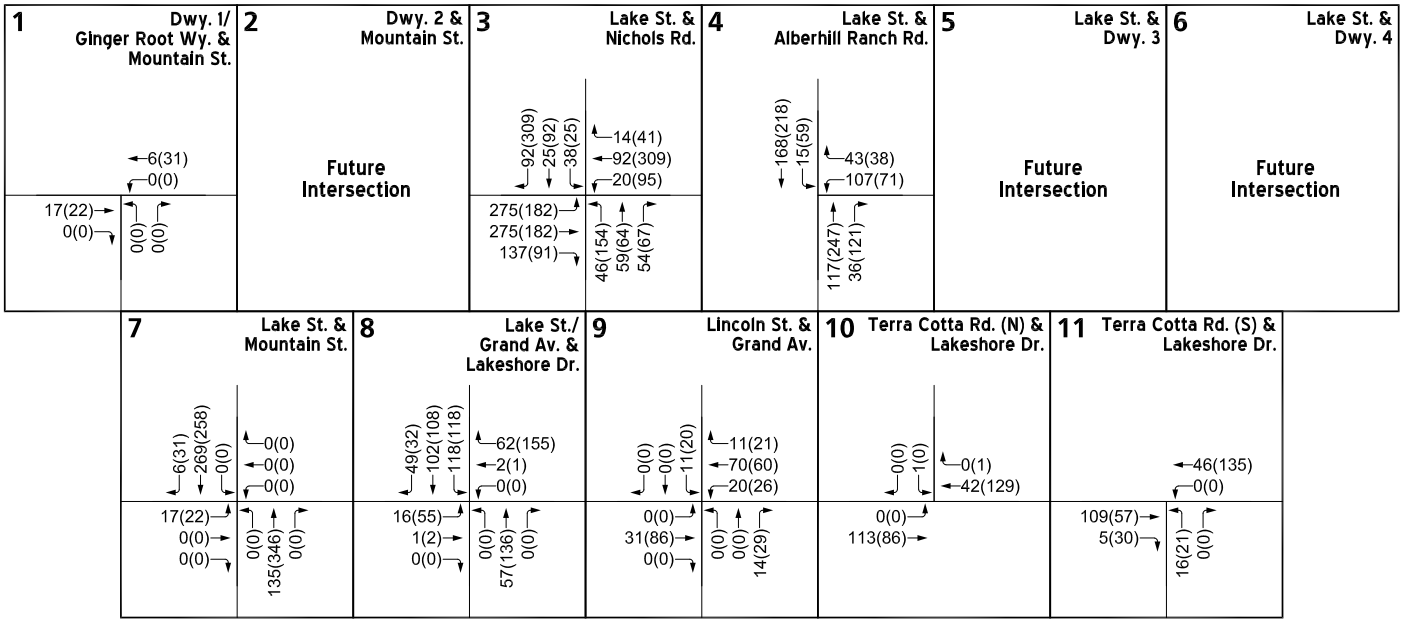
EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP



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EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES





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Table 4-3

Summary of Cumulative Development Land Uses

No.	Project Name	Location	Land Use	Quantity[1]	
City of Lake Elsinore					
LE1	Greenwald[2]	Lake Elsinore	Shopping Center	104.450	TSF
LE2	Ramsgate	Lake Elsinore	Single Family Residential	1,306	DU
			Condo/Townhomes	120	DU
LE3	Honda	Lake Elsinore	Automobile Sales	53.400	TSF
LE4	Fairway Business Park	Lake Elsinore	Warehouse	279.445	TSF
LE5	Ness Industrial Garage	Lake Elsinore	Warehouse	12.000	TSF
LE6	Spyglass Ranch[3]	Lake Elsinore	Single Family Residential	523	DU
			Condo/Townhomes	171	DU
			Shopping Center	145.00	TSF
LE7	South Shore I (Tract 31593)	Lake Elsinore	Single Family Residential	521	DU
	South Shore II (Tract 36567)	Lake Elsinore	Single Family Residential	147	DU
LE8	La Strada (Tract 32077)	Lake Elsinore	Single Family Residential	134	DU
LE9	Tuscany West (Tract 25473)	Lake Elsinore	Single Family Residential	164	DU
LE10	Marina Village Condos (Tract 33820)[6]	Lake Elsinore	Condo/Townhomes	94	DU
LE11	La Quinta Inn	Lake Elsinore	Hotel	64	RM
LE12	LE Sports Complex	Lake Elsinore	Recreational Community Center	525.000	TSF
LE13	TAG Property[4]	Lake Elsinore	New Car Sales	50.000	TSF
LE14	City Center Condos[4]	Lake Elsinore	Condo/Townhomes	144	DU
LE15	Kassab Travel Center	Lake Elsinore	High Turnover (Sit-Down) Restaurant	17.200	TSF
LE16	Diamond Specific Plan[5]	Lake Elsinore	Condo/Townhomes	600	DU
			Hotel	150	RM
			General Office	425.000	TSF
			Shopping Center	472.000	TSF
LE17	The Colony[4]	Lake Elsinore	Apartments	211	DU
	Back Basin Specific Plan & East Lake Specific Plan	Lake Elsinore	Single Family Residential	2,407	DU
			Condo/Townhomes	324	DU
	John Laing Homes (Phase 2)	Lake Elsinore	Single Family Residential	506	DU
			Condo/Townhomes	1,141	DU
			Apartments	308	DU
			Shopping Center	117.000	TSF
LE18	Canyon Hills Estates (Tract 34249)	Lake Elsinore	Single Family Residential	302	DU
	Canyon Hills (Multiple Tracts)	Lake Elsinore	Single Family Residential	2,700	DU
			Apartments	1,575	DU
	Audie Murphy (Tract 36484)	Lake Elsinore	Single Family Residential	109	DU
	Audie Murphy (Tract 36485)	Lake Elsinore	Single Family Residential	1,003	DU
LE19	Artisan Alley	Lake Elsinore	Shopping Center	95.100	TSF
LE20	Quikrete Plant	Lake Elsinore	Warehouse	163.900	TSF
LE21	Alberhill Ridge (Tract 35001)	Lake Elsinore	Single Family Residential	1,056	DU
			Apartments	345	DU
			Shopping Center	679.000	TSF
			General Office	679.000	TSF

Table 4-3

Summary of Cumulative Development Land Uses

No.	Project Name	Location	Land Use	Quantity[1]	
LE22	Alberhill Ranch	Lake Elsinore	Single Family Residential	1,986	DU
LE23	Lake Elsinore Walmart	Lake Elsinore	Free-Standing Discount Superstore	154.487	TSF
			Specialty Retail	4.600	TSF
			Fast Food w/Drive Thru	6.800	TSF
			Fast Food w/o Drive Thru	4.600	TSF
LE24	Circle K	Lake Elsinore	Gas Station	4.500	TSF
LE25	Alberhill Villages	Lake Elsinore	Single Family Residential	9,536	DU
LE26	Terracina	Lake Elsinore	Single Family Residential	365	DU
LE27	Lakeshore Senior Apartments	Lake Elsinore	Senior Adult Housing Attached	121	DU
LE28	North Peak Plaza	Lake Elsinore	Condo/Townhomes	92	DU
			Shopping Center	92.000	TSF
LE29	Running Deer (TR 31957)	Lake Elsinore	Single Family Residential	101	DU
LE30	Wake Rider Beach Resort	Lake Elsinore	Beach Resort	11.350	TSF
LE31	Lakeshore Town Center	Lake Elsinore	Town Center	237.400	TSF
LE32	Ortega	Lake Elsinore	Single Family Residential	105	DU
LE33	Summerly	Lake Elsinore	Single Family Residential	142	DU
LE34	Beazer, KB Homes, McMillin Homes, Richmond American	Lake Elsinore	Single Family Residential	395	DU
LE35	Village at Lake Elsinore SPA #1	Lake Elsinore	Single Family Residential	163	DU
LE36	Lakeview Manor	Lake Elsinore	Condo/Townhomes	104	DU
LE37	Nichols Ranch	Lake Elsinore	Single Family Residential	168	DU
			Park	8.3	AC
			Hotel	130	RM
			Fast-food with Drive-Through	6.000	TSF
			Fast-food without Drive-Through	5.500	TSF
			High Turnover (Sit-Down) Restaurant	9.400	TSF
			Shopping Center	4.400	TSF
			Health & Fitness Club	8.000	TSF
			General Office	43.000	TSF
			Gas Station w/ Market and Car Wash	16	VFP
LE38	Tige Watersports	Lake Elsinore	Shopping Center	34.500	TSF
County of Riverside					
RC1	Lennar (Tract 31792)	County of Riverside	Single Family Residential	191	DU
RC2	PM33840	County of Riverside	Single Family Residential	4	DU
RC3	PP20158R1	County of Riverside	Storage Facility	103.727	TSF
RC4	CUP03651	County of Riverside	Recycling Facility	0.504	TSF

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; AC = Acres; STU = Students; VFP = Vehicle Fueling Positions

[2] Source: Greenwald Avenue Commercial Center TIA, Urban Crossroads, Inc., May 2008.

[3] Source: Spyglass Ranch TIA (Revised), Kunzman Associates, February 2007.

[4] Source: Lake Elsinore TAG Property TIA (Revised), Urban Crossroads, Inc., August 2008.

[5] Source: The Diamond Specific Plan TIA, Urban Crossroads, Inc., April 2009.

5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 EXISTING PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The ADT volumes and weekday AM and PM peak hour intersection turning movement volumes which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicates that there are no study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic, consistent with Existing (2019) traffic conditions.

Consistent with Table 5-1, a summary of the peak hour intersection LOS for E+P traffic conditions is shown on Exhibit 5-2. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA.

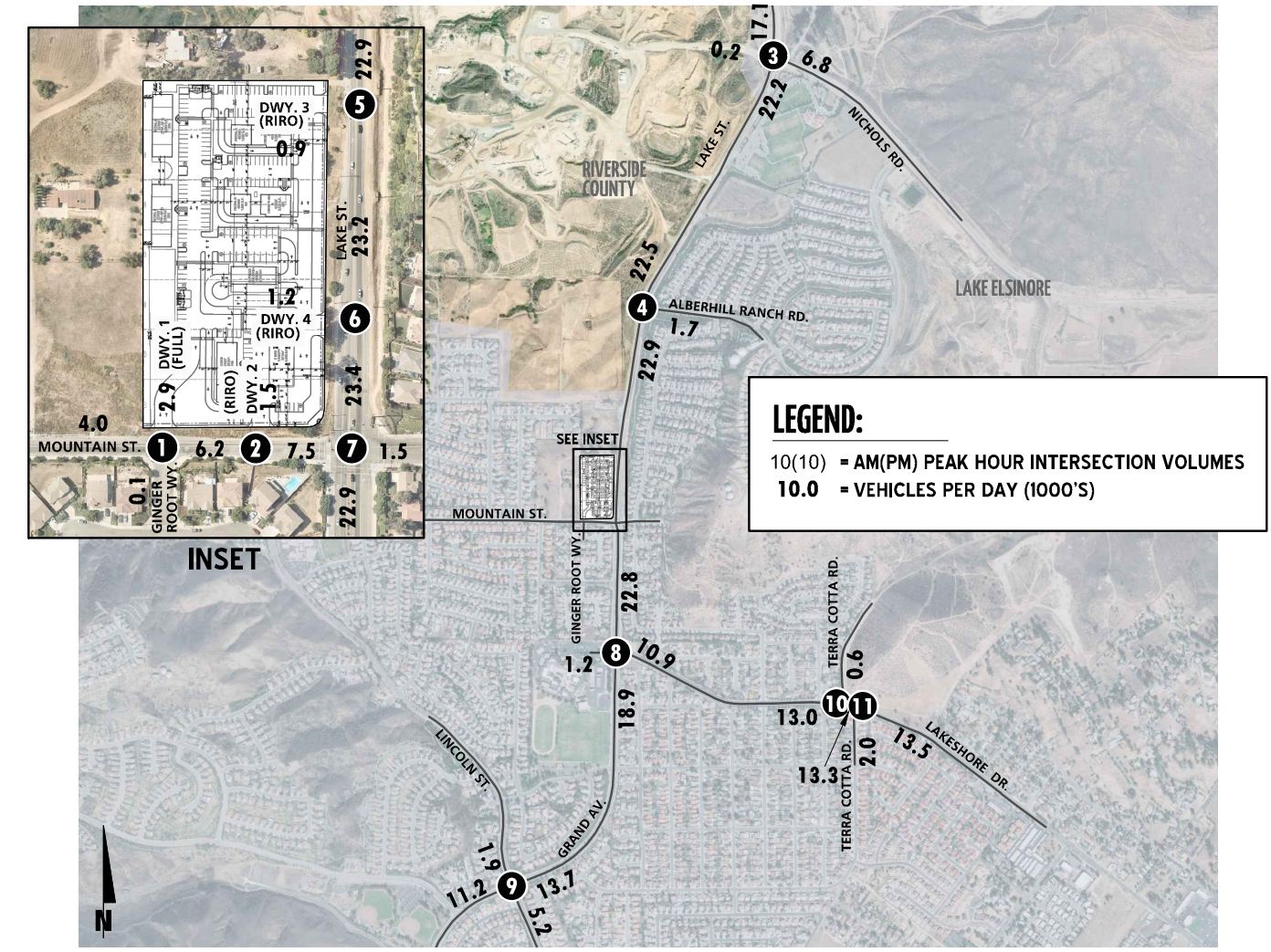
5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

With the addition of Project traffic, the following unsignalized study area intersection is anticipated to warrant a traffic signal for E+P traffic conditions:

- Driveway 1/Ginger Root Way & Mountain Street

The intersection of Driveway 1/Ginger Root Way and Mountain Street is anticipated to operate at an acceptable LOS during the peak hours as an unsignalized, cross-street stop-controlled intersection under E+P traffic conditions. As such, a traffic signal has not been recommended at this intersection. However, the intersection should be monitored, and a traffic signal should be installed at the discretion of the City's Traffic Engineer. E+P conditions traffic signal warrant analysis worksheets are provided in Appendix 5.2.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES



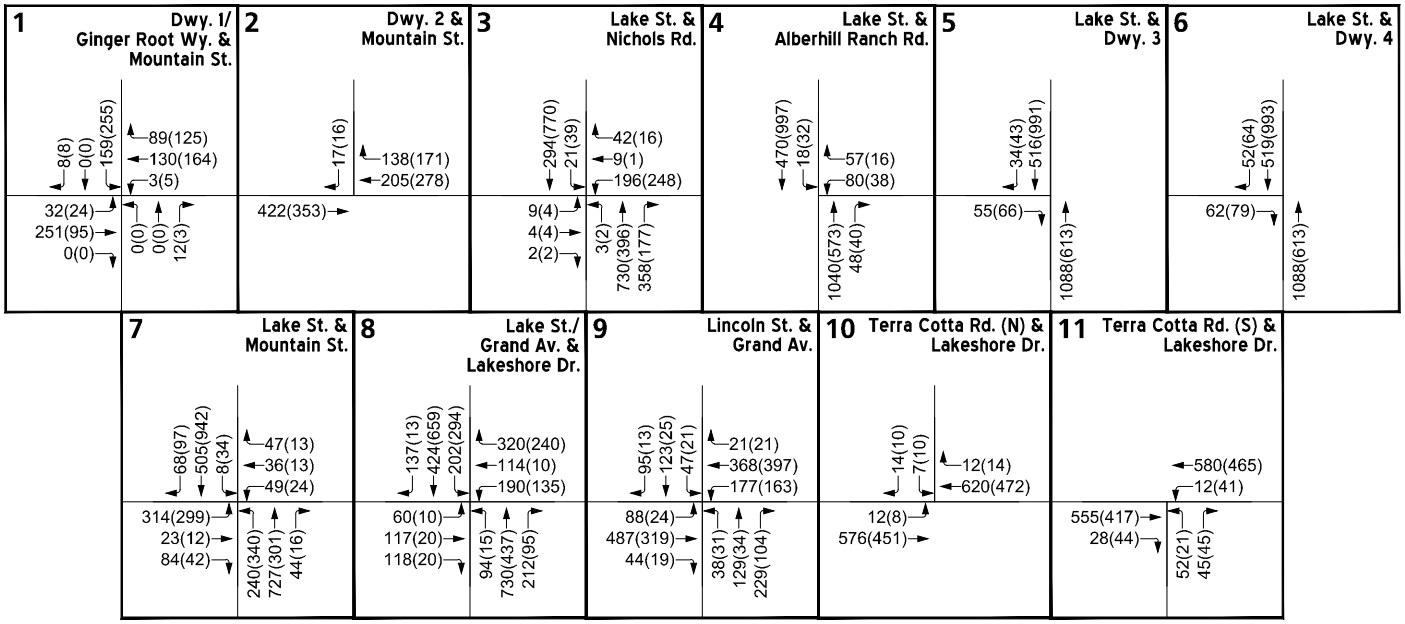


EXHIBIT 5-2: E+P SUMMARY OF LOS

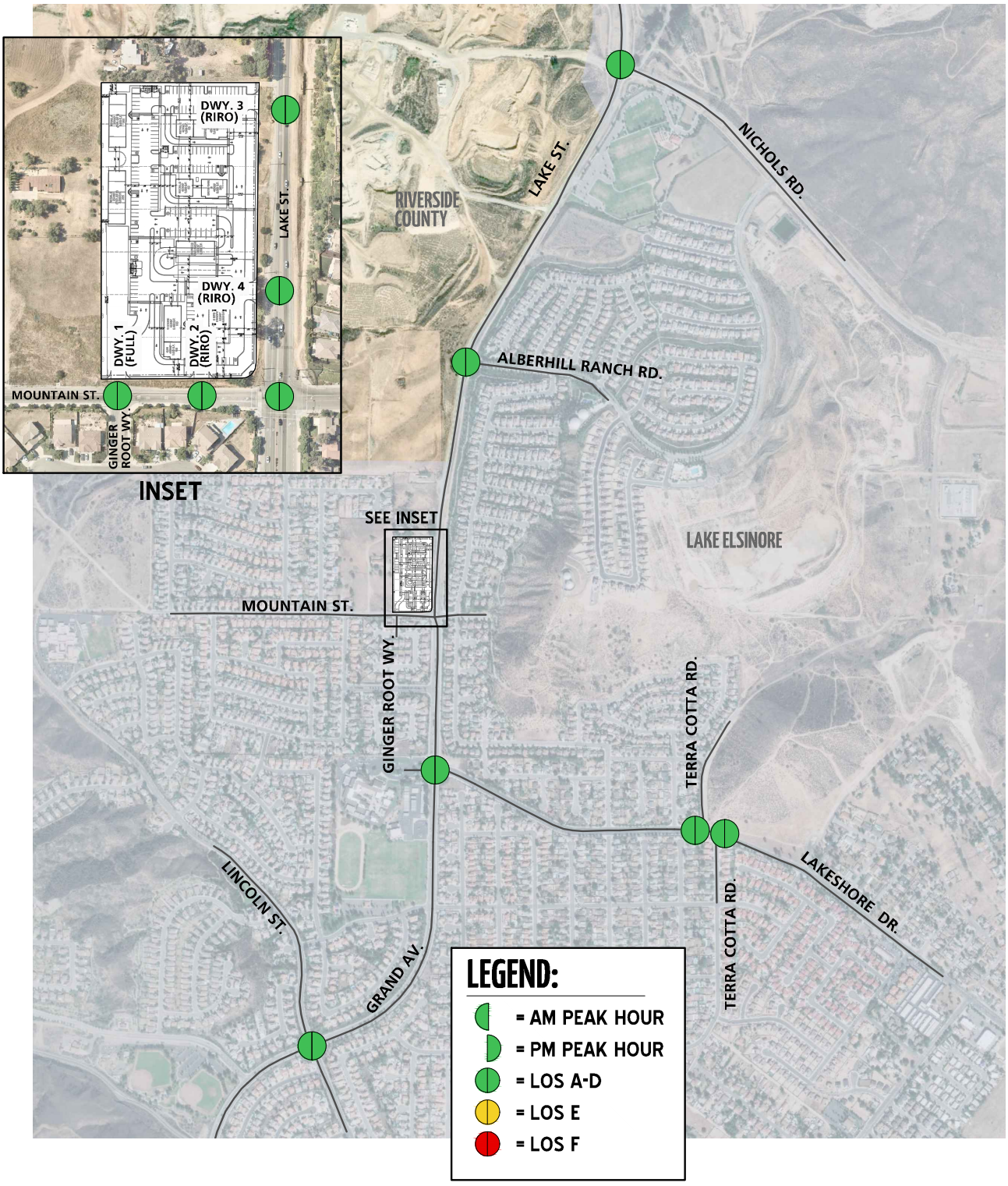


Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2019)				E+P			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1/Ginger Root Wy. & Mountain St.	CSS	9.9	8.8	A	A	21.8	23.0	C	C
2	Driveway 2 & Mountain St.	**CSS**	Future Intersection				10.0	10.7	B	B
3	Lake St. & Nichols Rd.	TS	18.6	21.3	B	C	19.3	22.2	B	C
4	Lake St. & Alberhill Ranch Rd.	TS	12.5	8.1	B	A	13.1	8.8	B	A
5	Lake St. & Driveway 3	**CSS**	Future Intersection				12.9	24.2	B	C
6	Lake St. & Driveway 4	**CSS**	Future Intersection				10.8	14.6	B	B
7	Lake St. & Mountain St.	TS	19.6	11.6	B	B	32.6	42.9	C	D
8	Lake St./Grand Av. & Lakeshore Dr.	TS	34.9	20.5	C	C	37.1	21.4	D	C
9	Lincoln St. & Grand Av.	TS	28.2	18.5	C	B	29.3	18.8	C	B
10	Terra Cotta Rd. (N) & Lakeshore Dr.	CSS	16.6	12.5	C	B	17.8	13.0	C	B
11	Terra Cotta Rd. (S) & Lakeshore Dr.	TS	9.2	8.4	A	A	10.6	9.2	B	A

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

5.5 RECOMMENDED IMPROVEMENTS

As shown in Table 5-1, the study area intersections are anticipated to operate at an acceptable LOS during the peak hours under E+P traffic conditions. As such, no improvements have been recommended.

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6 EAP (2021) TRAFFIC CONDITIONS

This section discusses the methods used to develop EAP (2021) traffic forecasts, and the resulting intersection operations and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAP (2021) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAP (2021) conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).

6.2 EAP (2021) TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 4.04% (2% per year compounded annually for two years). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for EAP (2021) traffic conditions are shown on Exhibit 6-1.

6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAP (2021) traffic conditions with the roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, there are no study area intersections anticipated to operate at an unacceptable LOS during the peak hours under EAP (2021) traffic conditions, consistent with Existing (2019) traffic conditions.

A summary of the peak hour intersection LOS for EAP (2021) traffic conditions is shown on Exhibit 6-2. The intersection operations analysis worksheets for EAP (2021) traffic conditions are included in Appendix 6.1.

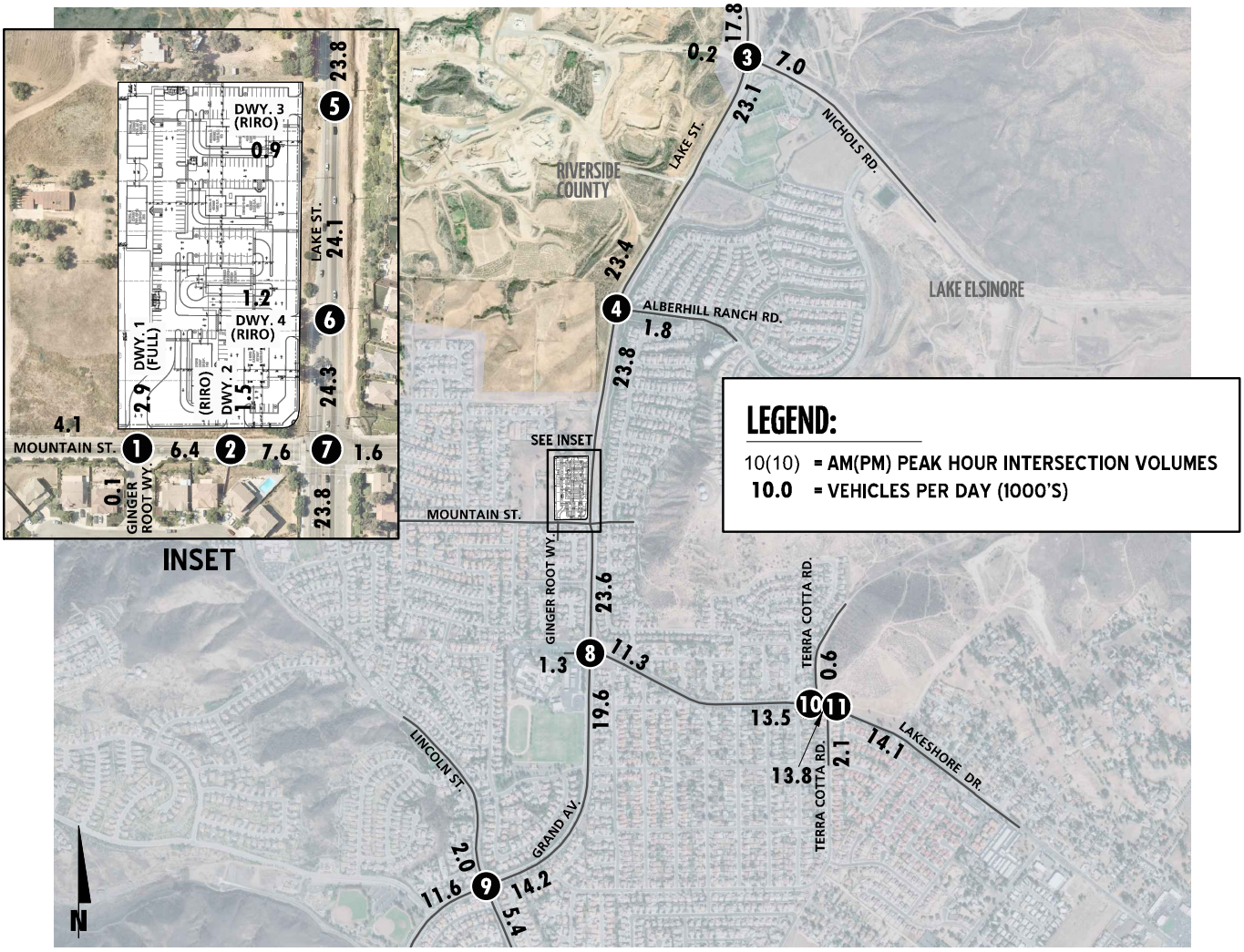
6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no additional unsignalized study area intersections that are anticipated to warrant a traffic signal for EAP (2021) traffic conditions, in addition to the intersection identified under E+P traffic conditions. EAP (2021) conditions traffic signal warrant analysis worksheets are provided in Appendix 6.2.

6.5 RECOMMENDED IMPROVEMENTS

As shown in Table 6-1, the study area intersections are anticipated to operate at an acceptable LOS during the peak hours under EAP (2021) traffic conditions. As such, no improvements have been recommended.

EXHIBIT 6-1: EAP (2021) TRAFFIC VOLUMES



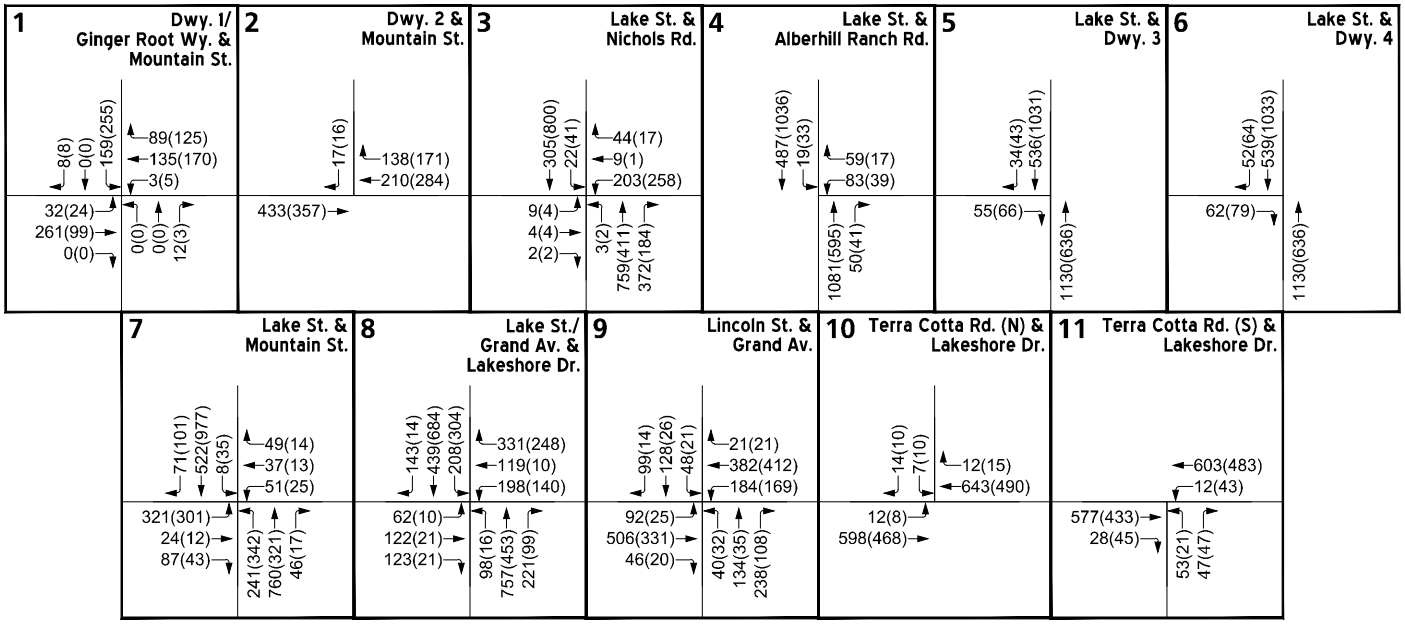


EXHIBIT 6-2: EAP (2021) SUMMARY OF LOS

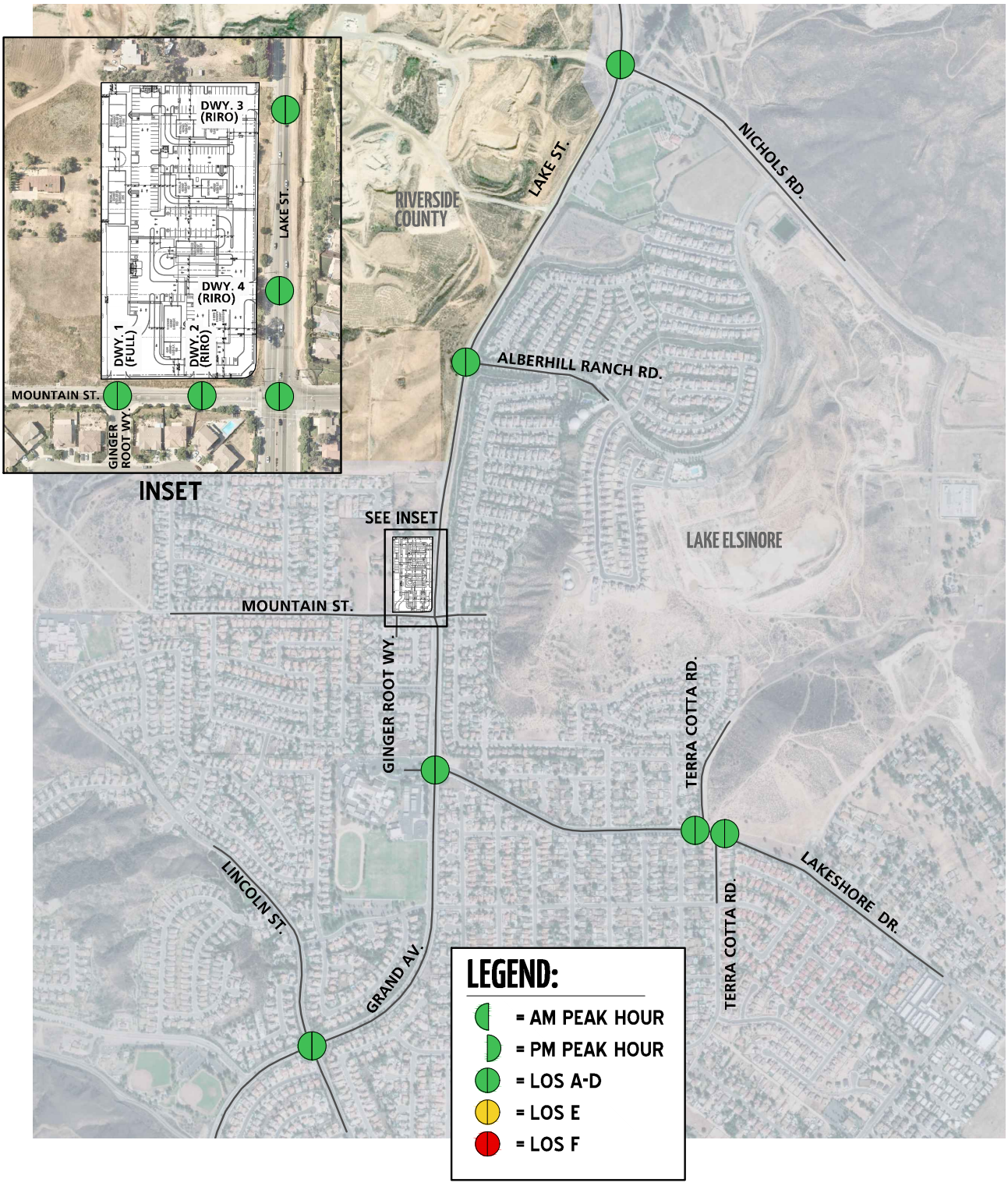


Table 6-1

Intersection Analysis for EAP (2021) Conditions

#	Intersection	Traffic Control[2]	Existing (2019)				EAP (2021)			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1/Ginger Root Wy. & Mountain St.	CSS	9.9	8.8	A	A	22.6	23.8	C	C
2	Driveway 2 & Mountain St.	**CSS**	Future Intersection				10.0	10.7	B	B
3	Lake St. & Nichols Rd.	TS	18.6	21.3	B	C	20.1	23.5	C	C
4	Lake St. & Alberhill Ranch Rd.	TS	12.5	8.1	B	A	13.9	9.2	B	A
5	Lake St. & Driveway 3	**CSS**	Future Intersection				13.2	25.9	B	D
6	Lake St. & Driveway 4	**CSS**	Future Intersection				10.9	15.0	B	C
7	Lake St. & Mountain St.	TS	19.6	11.6	B	B	33.4	44.5	C	D
8	Lake St./Grand Av. & Lakeshore Dr.	TS	34.9	20.5	C	C	38.6	21.9	D	C
9	Lincoln St. & Grand Av.	TS	28.2	18.5	C	B	30.0	19.0	C	B
10	Terra Cotta Rd. (N) & Lakeshore Dr.	CSS	16.6	12.5	C	B	18.4	13.2	C	B
11	Terra Cotta Rd. (S) & Lakeshore Dr.	TS	9.2	8.4	A	A	11.0	9.3	B	A

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

7 EAPC (2021) TRAFFIC CONDITIONS

This section discusses the methods used to develop EAPC (2021) traffic forecasts, and the resulting intersection operations and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC (2021) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAPC (2021) conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for EAPC (2021) conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

7.2 EAPC (2021) TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 4.04% (2% per year compounded annually for two years) plus traffic from pending and approved but not yet constructed known development projects in the area, in conjunction with Project traffic. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for EAPC (2021) traffic conditions are shown on Exhibit 7-1.

7.3 INTERSECTION OPERATIONS ANALYSIS

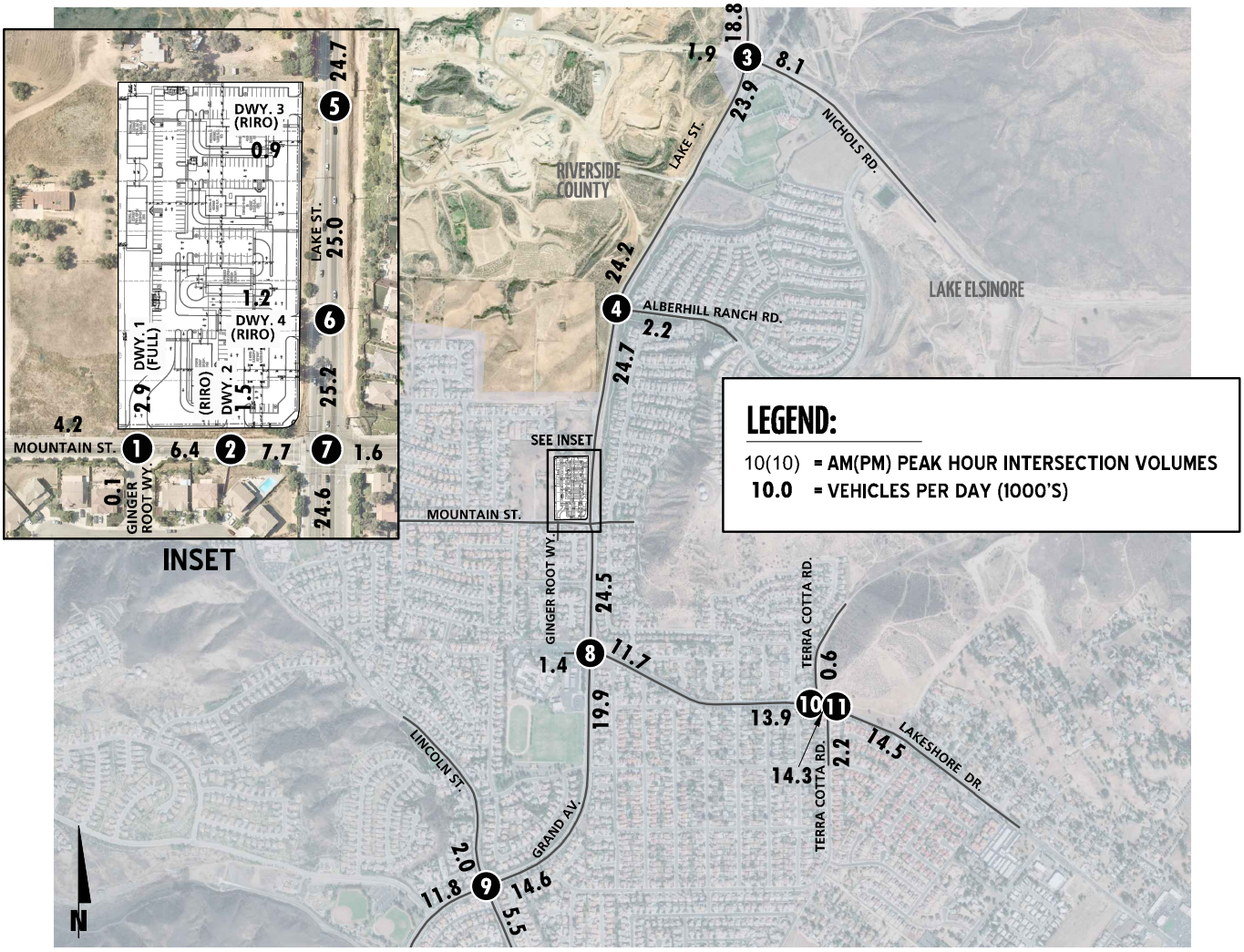
LOS calculations were conducted for the study intersections to evaluate their operations under EAPC (2021) traffic conditions with the roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown in Table 7-1, there are no study area intersections anticipated to operate at an unacceptable LOS during the peak hours under EAPC (2021) traffic conditions, consistent with Existing (2019) traffic conditions.

A summary of the peak hour intersection LOS for EAPC (2021) traffic conditions is shown on Exhibit 7-2. The intersection operations analysis worksheets for EAPC (2021) traffic conditions is included in Appendix 7.1.

7.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no additional unsignalized study area intersections that are anticipated to warrant a traffic signal for EAPC (2021) traffic conditions, in addition to the intersection identified under E+P traffic conditions. EAPC (2021) conditions traffic signal warrant analysis worksheets are provided in Appendix 7.2.

EXHIBIT 7-1: EAPC (2021) TRAFFIC VOLUMES



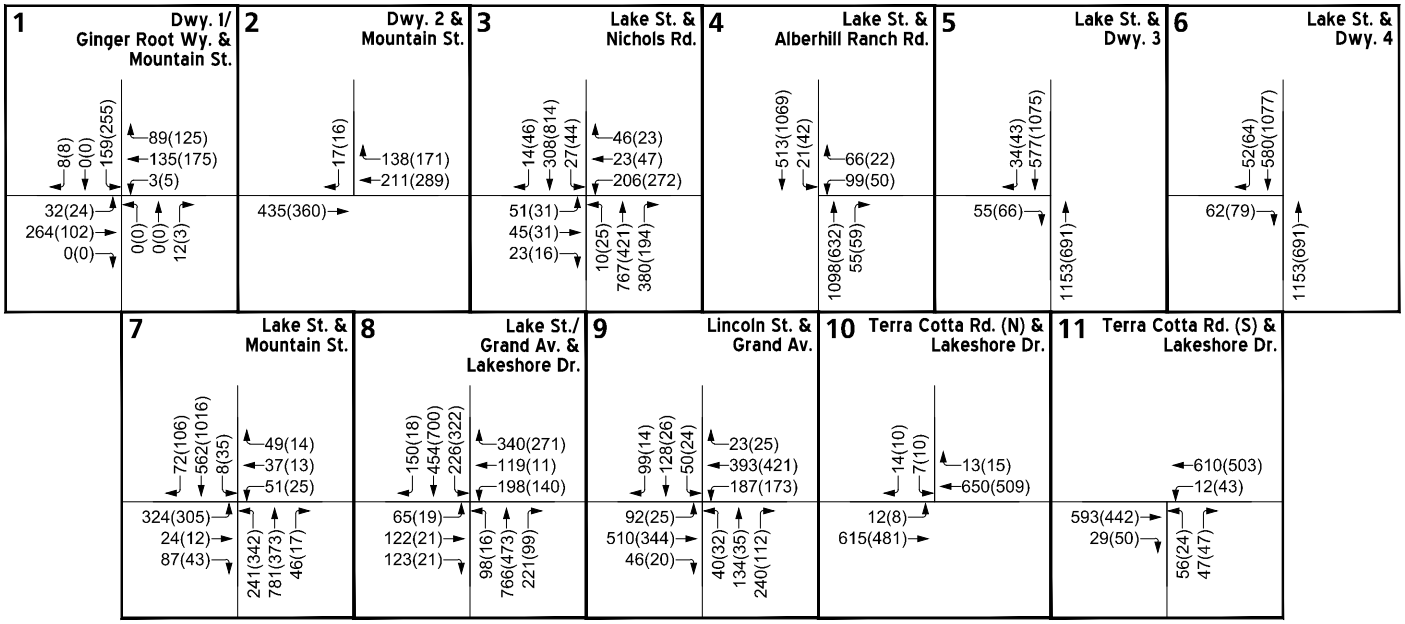


EXHIBIT 7-2: EAPC (2021) SUMMARY OF LOS

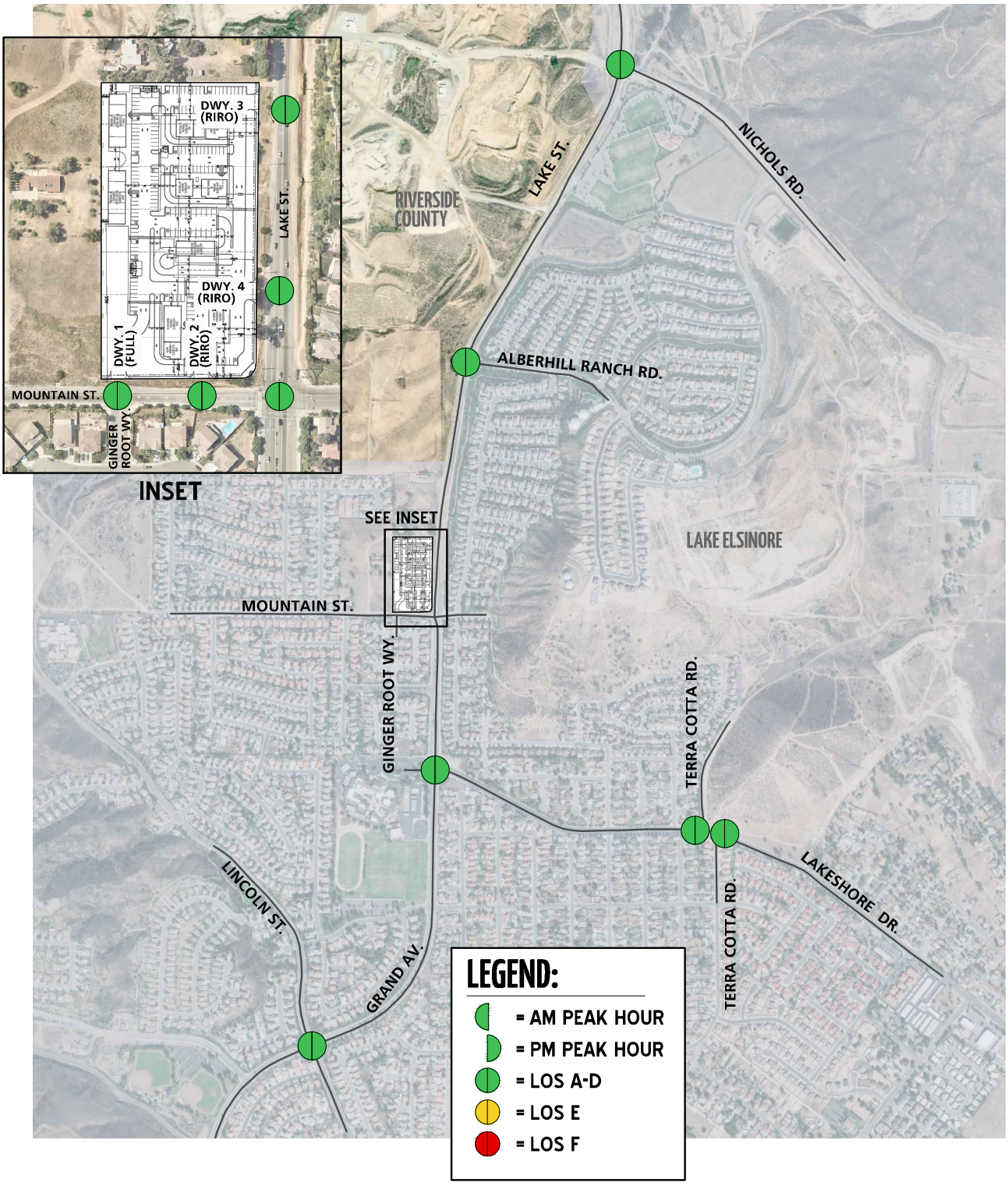


Table 7-1

Intersection Analysis for EAPC (2021) Conditions

#	Intersection	Traffic Control[2]	EAPC (2021) Delay[1] (secs.) AM	EAPC (2021) Delay[1] (secs.) PM	EAPC (2021) Level of Service AM	EAPC (2021) Level of Service PM
1	Driveway 1/Ginger Root Wy. & Mountain St.	CSS	22.8	24.4	C	C
2	Driveway 2 & Mountain St.	**CSS**	10.0	10.7	B	B
3	Lake St. & Nichols Rd.	TS	23.7	34.1	C	C
4	Lake St. & Alberhill Ranch Rd.	TS	15.1	10.7	B	B
5	Lake St. & Driveway 3	**CSS**	13.7	27.9	B	D
6	Lake St. & Driveway 4	**CSS**	11.1	15.4	B	C
7	Lake St. & Mountain St.	TS	33.9	46.3	C	D
8	Lake St./Grand Av. & Lakeshore Dr.	TS	39.6	23.0	D	C
9	Lincoln St. & Grand Av.	TS	30.3	19.0	C	B
10	Terra Cotta Rd. (N) & Lakeshore Dr.	CSS	18.6	13.4	C	B
11	Terra Cotta Rd. (S) & Lakeshore Dr.	TS	11.3	9.4	B	A

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

7.5 RECOMMENDED IMPROVEMENTS

As shown in Table 7-1, the study area intersections are anticipated to operate at an acceptable LOS during the peak hours under EAPC (2021) traffic conditions. As such, no improvements have been recommended.

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8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Lake Elsinore are funded through a combination of improvements constructed by the Project, development impact fee programs or fair share contributions. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

8.1 CITY OF LAKE ELSINORE TRANSPORTATION IMPACT FEE (TIF) PROGRAM

Transportation improvements throughout the City of Lake Elsinore are funded through a combination of project mitigation, fair share contributions or development impact fee programs, such as the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) program or the City's Transportation Impact Fee (TIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases.

Fees from new residential, commercial and industrial development are collected to fund local facilities. Under the City's TIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the TIF program.

The timing to use the TIF fees is established through periodic capital improvement programs which are overseen by the City's Engineering Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds. The City's TIF program establishes a timeline to fund, design, and build the improvements.

8.2 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by the WRCOG based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (8) This regional program was put into place to ensure that development pays its fair share and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

TUMF guidelines empower a local zone committee to prioritize and arbitrate certain projects. The Project is located in the Southwest Zone. The zone has developed a 5-year capital improvement program to prioritize public construction of certain roads. TUMF is focused on improvements necessitated by regional growth.

8.3 FAIR SHARE CONTRIBUTION

Project improvement may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. These fees are collected with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases.

9 REFERENCES

1. **Riverside County Transportation Department.** *Traffic Impact Analysis Preparation Guide.* Riverside County : s.n., April 2008.
2. **California Department of Transportation.** *Guide for the Preparation of Traffic Impact Studies.* December 2002.
3. **Institute of Transportation Engineers.** *Trip Generation Manual.* 10th Edition. 2017.
4. **Riverside County Transportation Commission.** *2011 Riverside County Congestion Management Program.* County of Riverside : RCTC, December 14, 2011.
5. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
6. **Caltrans.** Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2014.
7. **Instittue of Transportation Engineers.** *Trip Generation Handbook.* 3rd Edition. 2017.
8. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Lake Elsinore requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated February 2008.

Case No. _____
Related Cases -
SP No. _____
EIR No. _____
GPA No. _____
CZ No. _____
Project Name: Lake & Mountain Shopping Center
Project Address: Northwest Corner of Lake Street and Mountain Street
Project Description: 3,400 sf super convenience market w/ gas station and 1,525 SF QSR, 13,200 SF of shopping center, 5,840 SF of fast-food with drive-through window, 3,150 SF express car wash (with 1 tunnel)

	Consultant	Developer Representative
Name:	Urban Crossroads, Inc. - Charlene So	Empire Design Group, Inc.
Address:	260 E. Baker St., Suite 200	24861 Washington Av.
	Costa Mesa, CA 92626	Murrieta, CA 92562
Telephone:	949-336-5982	951-696-1490
Fax:		

A. Trip Generation Source: (ITE lastest Edition) ITE Trip Generation Manual, 10th Edition (2017)

Current GP Land Use	Retail/Commercial	Proposed Land Use	Retail/Commercial
Current Zoning	C-2 - General Commercial	Proposed Zoning	C-2 - General Commercial

Current Trip Generation	In	Out	Total	Proposed Trip Generation	In	Out	Total
AM Trips	0	0	0		212	168	380
PM Trips	0	0	0		162	157	319

Internal Trip Allowance [X] Yes [ ] No (Per ITE % Trip Discount)
Pass-By Trip Allowance [X] Yes [ ] No (Per ITE % Trip Discount)

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: N 19 % S 24 % E 24 % W 33 %
(attach exhibit for detailed assignment)

C. Background Traffic

Project Build-out Year: *2021* Annual Ambient Growth Rate: 2.0 %

Phase Year(s) No Phasing
Other area projects to be analyzed: Latest list of cumulative projects to be provided by the City's Planning Department

Model/Forecast methodology Not Applicable - No Horizon Year analysis scenario proposed

D. Study intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. Driveway 1/Ginger Root Wy. & Mountain St.
2. Driveway 2 & Mountain St. (RIRO)
3. Lake St. & Nichols Rd.
4. Lake St. & Alberhill Ranch Rd.
5. Lake St. & Driveway 3 (RIRO)
6. Lake St. & Driveway 4 (RIRO)
7. Lake St. & Mountain St.
8. Lake St. & Lakeshore Dr.
9. Lincoln St. & Lake St.
10. Terra Cotta Rd. & Lakeshore Dr.

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. None
2.
3.
4.
5.
6.
7.
8.
9.
10.

E. Other Jurisdictional Impacts

Is this project within another Sphere of Influence or one-mile radius of City boundaries? [X] Yes [ ] No

If so, name of Jurisdiction: Unincorporated County of Riverside

F. Site Plan (please attach reduced copy)

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by City Staff)

(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

Site access queues; On-site Circulation/traffic calming measures; TIA to discuss how RIRO driveways will be restricted/enforced

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts Counts to be taken when schools are in session and operating on normal bell schedules on a Tues, Wed or Thurs

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

Charlene So — 09/25/2019
Consultant's Representative — Date

Approved Scoping Agreement:

NRL — 10/1/2019
City of Lake Elsinore — Date

Scoping Agreement Submitted on 08/30/2019

Revised on 09/09/2019, 09/25/2019, _____, _____

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

Date: September 25, 2019

Mr. Justin Kirk
City of Lake Elsinore
130 South Main Street
Lake Elsinore, CA 92530

SUBJECT: LAKE & MOUNTAIN SHOPPING CENTER SCOPING AGREEMENT

Dear Mr. Justin Kirk:

The firm of Urban Crossroads, Inc. is pleased to submit this Scoping Agreement for the proposed Lake & Mountain Shopping Center development (referred to as "Project"), which is located on the northwest corner of Lake Street and Mountain Street in the City of Lake Elsinore. It is our understanding that the Project is to consist of the following uses:

- Retail A: 5,000 sf of shopping center use
- Retail B: 5,000 sf of shopping center use
- Retail C: 1,600 sf of shopping center use
- Retail D: 1,600 sf of shopping center use
- Drive Thru A: 3,320 sf of fast-food with drive-through window
- Drive Thru B: 2,520 sf of fast-food with drive-through window
- 3,150 sf Express Car Wash
- 1,525 sf Quick Serve Restaurant with drive-through window
- 12 vehicle fueling position gas station (with 3,400 sf convenience store)

For purposes of the traffic analysis it is anticipated that the Project will be developed in a single phase with an anticipated Opening Year of 2021.

Our goal is to obtain comments from City of Lake Elsinore staff, to ensure that the traffic study fully addresses the potential impacts of the proposed Project. The remainder of this letter describes the draft proposed analysis methodology, project trip generation, trip distribution, and project traffic assignment/project trips on the surrounding roadway network, which have been used to establish the draft proposed project study area and analysis locations.

Exhibit 1 depicts the location of the proposed Project in relation to the existing roadway network. As indicated on Exhibit 1, access to the Project site is proposed to be provided to both Mountain Street and Lake Street. Driveway 1 on Mountain Street will be the only full access driveway while Driveway 2 and the driveways on Lake Street will be limited to right-in/right-out access only.

STUDY AREA

Exhibit 2 identifies the proposed study area intersections based on the Project's trip generation, trip distribution patterns, and contribution of 50 or more peak hour trips.

ANALYSIS SCENARIOS

Consistent with traffic study guidelines adopted by multiple local jurisdictions throughout the County of Riverside, peak hour operations at each of the study area intersections and site access driveways will be assessed for the following analysis scenarios:

1. Existing (2019) Conditions (Baseline)
2. Existing plus Project (E+P) Conditions
3. Existing plus Ambient Growth plus Project (2021) Conditions
4. Existing plus Ambient Growth plus Project plus Cumulative (2021) Conditions

Analysis Scenario #1 establishes the baseline for CEQA purposes.

Consistent with recent CEQA case law, Analysis Scenarios #2 (compared to Scenario #1) and #4 (compared to Scenario #3) identify significant traffic impacts associated with the proposed Project.

Analysis Scenario #5 would identify cumulative impacts for Opening Year Cumulative traffic conditions. It is assumed that intersection improvements required to address Opening Year Cumulative traffic impacts will be addressed through either an existing fee program, or through a fair-share contribution.

Peak hour operations and level of service for study area intersections will be evaluated for the following time periods:

- Weekday AM Peak Hour (7PM-9PM)
- Weekday PM Peak Hour (4PM-6PM)

TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

Trip generation rates used to estimate Project traffic are shown in Table 1. The trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition, 2017. The trip generation rates are

based upon data collected by the ITE for Shopping Center (ITE Land Use Code 820), Fast-Food with Drive-Through Window Restaurant (ITE Land Use Code 934), Super Convenience Market/Gas Station (ITE Land Use Code 960), and Automated Car Wash (ITE Land Use Code 948).

As the project is proposed to include shopping center, gas station, and other complementary uses, pass-by percentages have been obtained from the ITE Trip Generation Handbook (3rd Edition, 2017). Patrons of the gas station may also visit other uses on-site, including the restaurants, car wash, and retail uses, without leaving the site. The ITE Trip Generation Handbook has been utilized to determine the internal capture for the applicable mix of uses.

Internal capture is a percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internal to the site. In other words, trips may be made between individual retail uses on-site and can be made either by walking or using internal roadways without using external streets. As the trip generation for the site was conservatively estimated based on individual land uses as opposed to the average ITE Shopping Center rate, an internal capture reduction was applied to recognize the interactions that would occur between the various complementary land uses. The internal capture is based on the National Cooperative Highway Research Program's (Report 684) internal capture trip capture estimation tool. These internal capture worksheets are attached to this scoping agreement.

As shown in Table 2, the proposed Project is anticipated to generate a net total of 3,696 trip-ends per day, 380 AM peak hour trips and 319 PM peak hour trips.

TRIP DISTRIBUTION

The Project trip distribution patterns were developed based on an understanding of existing travel patterns in the area, the geographical location of the site, and the site's proximity to the regional arterial and state highway system. Project travel patterns were derived for each of the proposed land uses. Exhibit 3 shows the trip distribution patterns for the Project.

LEVEL OF SERVICE (LOS) CRITERIA

The City of Lake Elsinore has established LOS D as the minimum level of service for its intersections. Therefore, any intersection operating at LOS E or F will be considered deficient for the purposes of this analysis.

CEQA COMPLIANCE AND DOCUMENTATION

The following types of traffic impacts are considered to be significant under CEQA:

- When existing traffic conditions exceed the General Plan target LOS (e.g., LOS D or better).
- When project traffic, when added to existing traffic, will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.
- When cumulative traffic exceeds the target LOS, and impacts cannot be mitigated through the TUMF network (or other funding mechanism), project conditions of approval, or other implementation mechanism.

EXISTING COUNT DATA

The weekday traffic counts will be conducted on a typical day (Tuesday, Wednesday, or Thursday), when local schools are in session and operating on normal bell schedules.

AMBIENT GROWTH

Consistent with other studies performed in the area, an ambient growth rate of 2% per year is proposed for the study area intersections to approximate background traffic growth not identified by nearby cumulative development projects. The rate will be compounded over a two-year period (i.e., $1.02^{2\text{years}} = 1.0404$ or 4.04% for 2021).

SPECIAL ISSUES

The following special issues will also be addressed as part of the TIA:

- *Site Access Evaluation:* The turn pocket lengths will be determined through peak hour traffic simulations developed using SimTraffic software in an effort to identify the required storage capacity for turn lanes at each applicable Project driveway.
- *On-site Circulation:* Provide a qualitative assessment of the on-site circulation and potential traffic calming measures.
- *Right-in/Right-out Access:* Provide a discussion on how the proposed right-in/right-out driveways will be restricted/enforced.

CUMULATIVE DEVELOPMENT PROJECTS

The updated list of cumulative projects is provided on Table 3 and shown graphically on Exhibit 4 based on information provided by City staff.

If you have any questions, please contact me directly at (949) 336-5982.

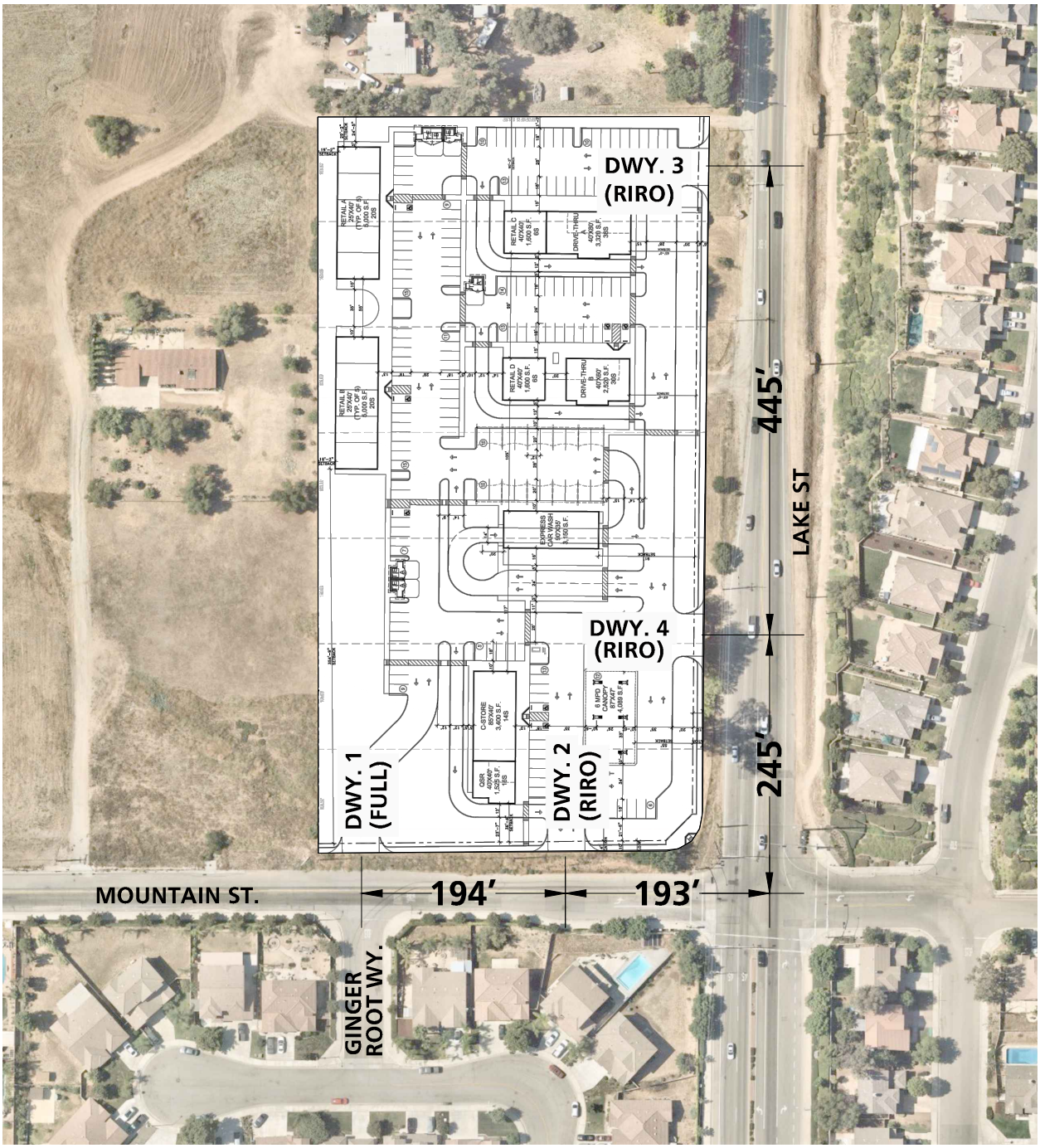
Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, PE
Associate Principal

EXHIBIT 1: PRELIMINARY SITE PLAN



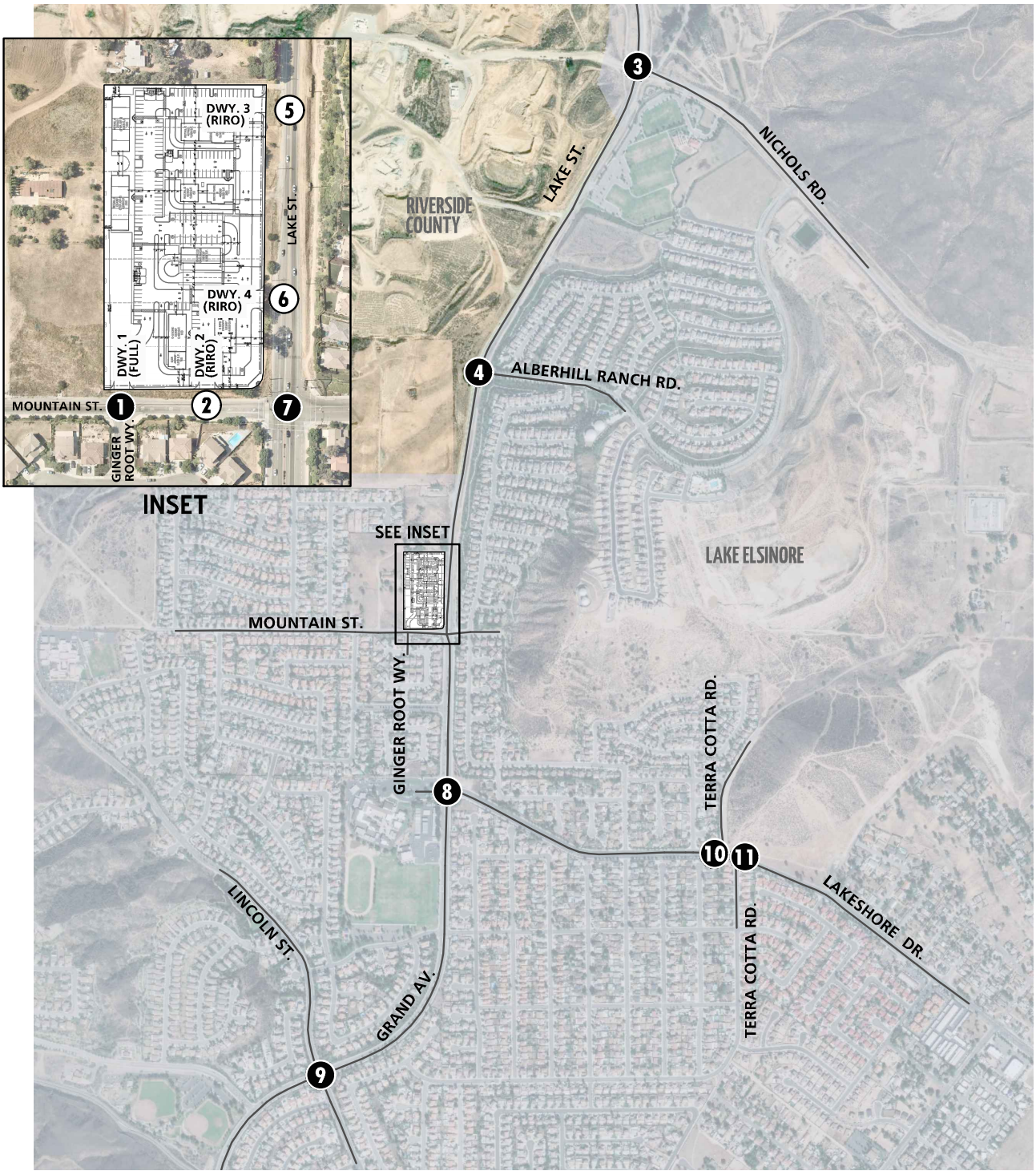
LEGEND:

RIRO = RIGHT-IN/RIGHT-OUT ONLY ACCESS

N

12768 - siteplan.dwg

EXHIBIT 2: LOCATION MAP



LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

(0) = FUTURE INTERSECTION ANALYSIS LOCATION

N

12768 - locmap.dwg

URBAN CROSSROADS

EXHIBIT 3: PROJECT TRIP DISTRIBUTION

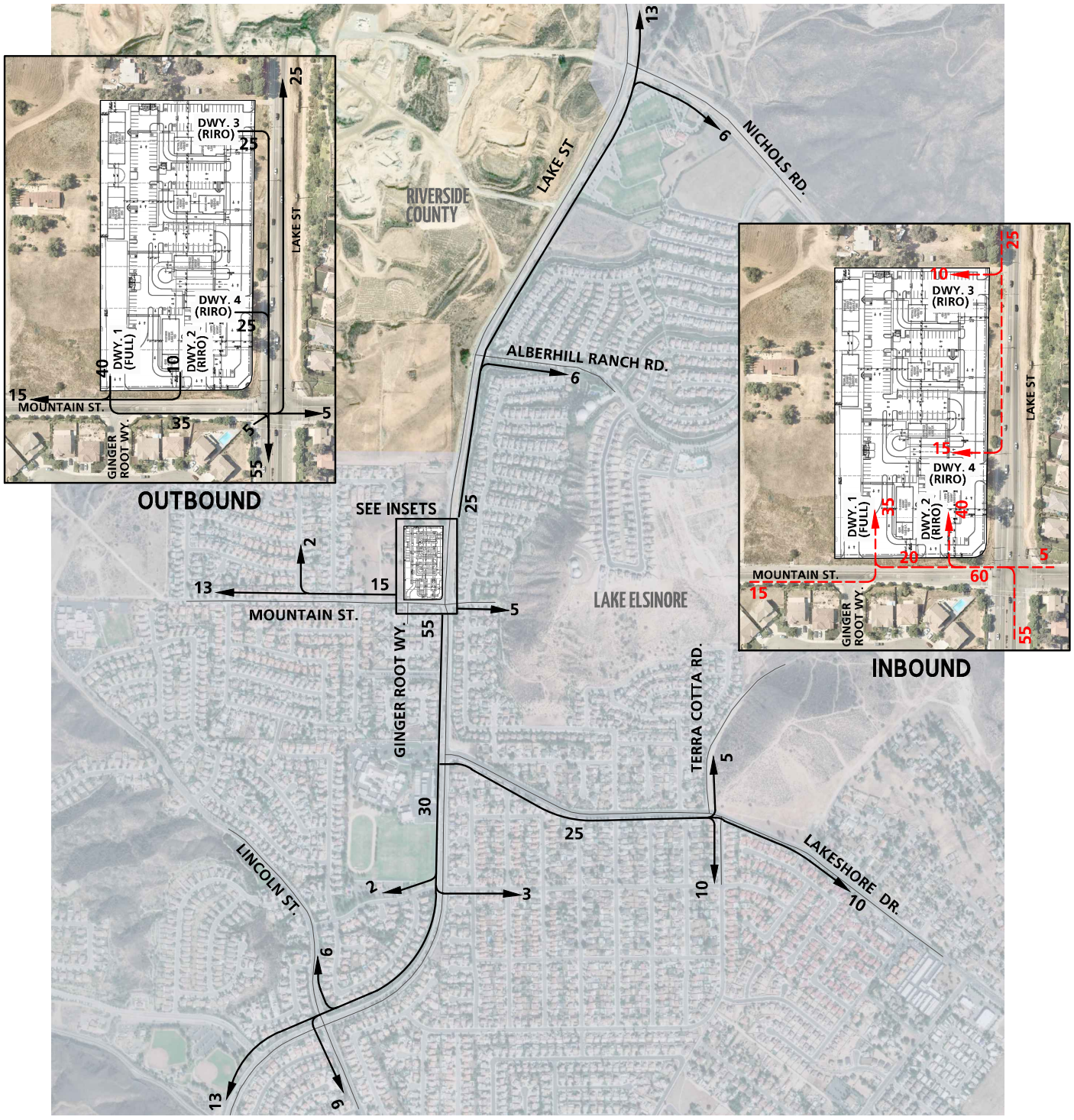


EXHIBIT 4: CUMULATIVE DEVELOPMENT LOCATION MAP

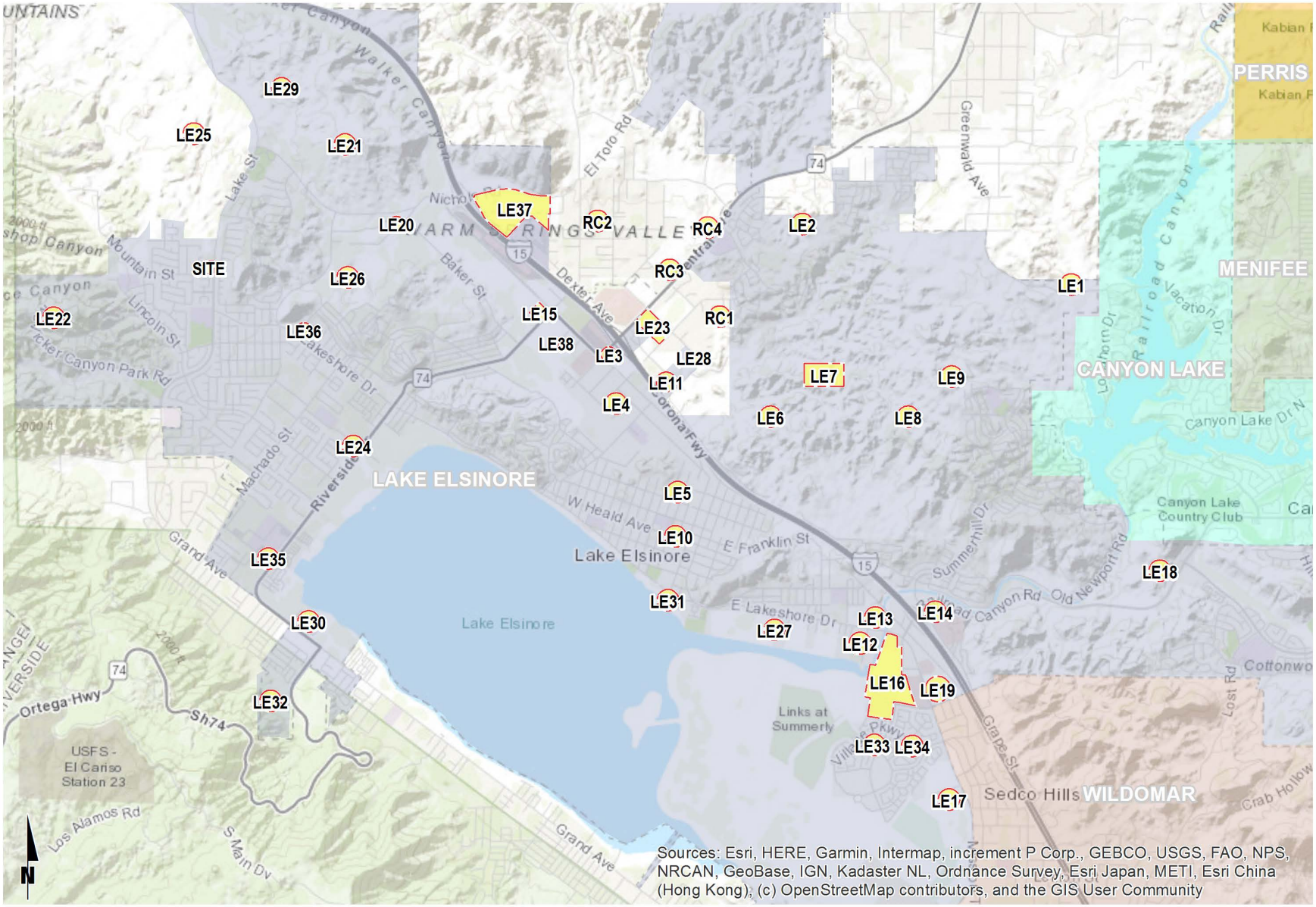


Table 1

Project Trip Generation Rates

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Shopping Center[3]	TSF	820	7.440	4.560	12.000	4.420	4.780	9.200	114.930
Fast-Food Restaurant with Drive-Through Window	TSF	934	20.497	19.693	40.190	16.988	15.682	32.670	470.950
Super Convenience Mkt./Gas Station	TSF	960	41.570	41.570	83.140	34.640	34.640	69.280	837.580
Automated Car Wash[4]	TUN	948	N/A	N/A	N/A	38.750	38.750	77.500	775.000

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet; TUN = Tunnels

[3] Trip generation rates are based on the regression equation.

[4] AM peak hour and daily trip generation rate not available. Daily rate estimated at 10 times the PM peak hour rate.

Table 2

Project Trip Generation Summary

Project Land Uses	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Shopping Center	13.200	TSF	98	60	158	58	63	121	1,517
Internal Capture (Retail to Restaurant)[2]:			-1	-1	-2	-5	-4	-9	-113
Net External Trips:			97	59	156	53	59	112	1,404
Pass-by Reduction (PM/Daily: 34%)[2]:			0	0	0	-18	-18	-36	-478
Shopping Center Total:			*97*	*59*	*156*	*35*	*41*	*76*	*926*
Gasoline/Service Station w/Convenience Mkt.	3.400	TSF	141	141	282	118	118	236	2,848
Internal Capture (Retail to Restaurant)[2]:			-18	-25	-43	-42	-32	-74	-894
Net External Trips:			123	116	239	76	86	162	1,954
Pass-by Reduction (AM: 62%; PM/Daily: 56%)[2]:			-72	-72	-144	-43	-43	-86	-1,094
Gasoline/Service Station w/Conven. Mkt. Total:			*51*	*44*	*95*	*33*	*43*	*76*	*860*
Fast-Food Restaurant with Drive-Through Window	7.365	TSF	151	145	296	125	115	240	3,470
Internal Capture (Restaurant to Retail)[2]:			-26	-19	-45	-36	-47	-83	-1,202
Net External Trips:			125	126	251	89	68	157	2,268
Pass-by Reduction (AM: 49%, PM: 50%, Daily: 50%)[3]:			-61	-61	-122	-34	-34	-68	-1,134
Fast-Food Restaurant with Drive-Through Window Total:			*64*	*65*	*129*	*55*	*34*	*89*	*1,134*
Automated Car Wash	1.000	TUN	N/A	N/A	N/A	39	39	78	776
Total Net Trips			***212***	***168***	***380***	***162***	***157***	***319***	***3,696***

[1] TSF = thousand square feet; TUN = Tunnels

[2] Internal capture calculated from NCHRP 684 Internal Trip Capture Estimation Tool.

[3] Source: ITE Trip Generation Handbook, 3rd Edition, 2017.

Table 3

Summary of Cumulative Development Land Uses

No.	Project Name	Location	Land Use	Quantity[1]	
City of Lake Elsinore					
LE1	Greenwald[2]	Lake Elsinore	Shopping Center	104.450	TSF
LE2	Ramsgate	Lake Elsinore	Single Family Residential	1,306	DU
			Condo/Townhomes	120	DU
LE3	Honda	Lake Elsinore	Automobile Sales	53.400	TSF
LE4	Fairway Business Park	Lake Elsinore	Warehouse	279.445	TSF
LE5	Ness Industrial Garage	Lake Elsinore	Warehouse	12.000	TSF
LE6	Spyglass Ranch[3]	Lake Elsinore	Single Family Residential	523	DU
			Condo/Townhomes	171	DU
			Shopping Center	145.00	TSF
LE7	South Shore I (Tract 31593)	Lake Elsinore	Single Family Residential	521	DU
	South Shore II (Tract 36567)	Lake Elsinore	Single Family Residential	147	DU
LE8	La Strada (Tract 32077)	Lake Elsinore	Single Family Residential	134	DU
LE9	Tuscany West (Tract 25473)	Lake Elsinore	Single Family Residential	164	DU
LE10	Marina Village Condos (Tract 33820)[6]	Lake Elsinore	Condo/Townhomes	94	DU
LE11	La Quinta Inn	Lake Elsinore	Hotel	64	RM
LE12	LE Sports Complex	Lake Elsinore	Recreational Community Center	525.000	TSF
LE13	TAG Property[4]	Lake Elsinore	New Car Sales	50.000	TSF
LE14	City Center Condos[4]	Lake Elsinore	Condo/Townhomes	144	DU
LE15	Kassab Travel Center	Lake Elsinore	High Turnover (Sit-Down) Restaurant	17.200	TSF
LE16	Diamond Specific Plan[5]	Lake Elsinore	Condo/Townhomes	600	DU
			Hotel	150	RM
			General Office	425.000	TSF
			Shopping Center	472.000	TSF
LE17	The Colony[4]	Lake Elsinore	Apartments	211	DU
	Back Basin Specific Plan & East Lake Specific Plan	Lake Elsinore	Single Family Residential	2,407	DU
			Condo/Townhomes	324	DU
	John Laing Homes (Phase 2)	Lake Elsinore	Single Family Residential	506	DU
			Condo/Townhomes	1,141	DU
			Apartments	308	DU
			Shopping Center	117.000	TSF
LE18	Canyon Hills Estates (Tract 34249)	Lake Elsinore	Single Family Residential	302	DU
	Canyon Hills (Multiple Tracts)	Lake Elsinore	Single Family Residential	2,700	DU
			Apartments	1,575	DU
	Audie Murphy (Tract 36484)	Lake Elsinore	Single Family Residential	109	DU
	Audie Murphy (Tract 36485)	Lake Elsinore	Single Family Residential	1,003	DU
LE19	Artisan Alley	Lake Elsinore	Shopping Center	95.100	TSF
LE20	Quikrete Plant	Lake Elsinore	Warehouse	163.900	TSF
LE21	Alberhill Ridge (Tract 35001)	Lake Elsinore	Single Family Residential	1,056	DU
			Apartments	345	DU
			Shopping Center	679.000	TSF
			General Office	679.000	TSF

Table 3

Summary of Cumulative Development Land Uses

No.	Project Name	Location	Land Use	Quantity[1]	
LE22	Alberhill Ranch	Lake Elsinore	Single Family Residential	1,986	DU
LE23	Lake Elsinore Walmart	Lake Elsinore	Free-Standing Discount Superstore	154.487	TSF
			Specialty Retail	4.600	TSF
			Fast Food w/Drive Thru	6.800	TSF
			Fast Food w/o Drive Thru	4.600	TSF
LE24	Circle K	Lake Elsinore	Gas Station	4.500	TSF
LE25	Alberhill Villages	Lake Elsinore	Single Family Residential	9,536	DU
LE26	Terracina	Lake Elsinore	Single Family Residential	365	DU
LE27	Lakeshore Senior Apartments	Lake Elsinore	Senior Adult Housing Attached	121	DU
LE28	North Peak Plaza	Lake Elsinore	Condo/Townhomes	92	DU
			Shopping Center	92.000	TSF
LE29	Running Deer (TR 31957)	Lake Elsinore	Single Family Residential	101	DU
LE30	Wake Rider Beach Resort	Lake Elsinore	Beach Resort	11.350	TSF
LE31	Lakeshore Town Center	Lake Elsinore	Town Center	237.400	TSF
LE32	Ortega	Lake Elsinore	Single Family Residential	105	DU
LE33	Summerly	Lake Elsinore	Single Family Residential	142	DU
LE34	Beazer, KB Homes, McMillin Homes, Richmond American	Lake Elsinore	Single Family Residential	395	DU
LE35	Village at Lake Elsinore SPA #1	Lake Elsinore	Single Family Residential	163	DU
LE36	Lakeview Manor	Lake Elsinore	Condo/Townhomes	104	DU
LE37	Nichols Ranch	Lake Elsinore	Single Family Residential	168	DU
			Park	8.3	AC
			Hotel	130	RM
			Fast-food with Drive-Through	6.000	TSF
			Fast-food without Drive-Through	5.500	TSF
			High Turnover (Sit-Down) Restaurant	9.400	TSF
			Shopping Center	4.400	TSF
			Health & Fitness Club	8.000	TSF
			General Office	43.000	TSF
			Gas Station w/ Market and Car Wash	16	VFP
LE38	Tige Watersports	Lake Elsinore	Shopping Center	34.500	TSF
County of Riverside					
RC1	Lennar (Tract 31792)	County of Riverside	Single Family Residential	191	DU
RC2	PM33840	County of Riverside	Single Family Residential	4	DU
RC3	PP20158R1	County of Riverside	Storage Facility	103.727	TSF
RC4	CUP03651	County of Riverside	Recycling Facility	0.504	TSF

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; AC = Acres; STU = Students; VFP = Vehicle Fueling Positions

[2] Source: Greenwald Avenue Commercial Center TIA, Urban Crossroads, Inc., May 2008.

[3] Source: Spyglass Ranch TIA (Revised), Kunzman Associates, February 2007.

[4] Source: Lake Elsinore TAG Property TIA (Revised), Urban Crossroads, Inc., August 2008.

[5] Source: The Diamond Specific Plan TIA, Urban Crossroads, Inc., April 2009.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Lake and Mountain	**Organization:**	Urban Crossroads, Inc.
Project Location:	NWC Lake and Mountain	**Performed By:**	CS
Scenario Description:		**Date:**	9/9/2019
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				440	239	201
Restaurant				296	151	145
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
				736	390	346

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		26	0	0	0
Restaurant	0	19		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	736	390	346
Internal Capture Percentage	12%	12%	13%
External Vehicle-Trips[5]	646	345	301
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	8%	13%
Restaurant	17%	13%
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Lake and Mountain	**Organization:**	Urban Crossroads, Inc.
Project Location:	NWC Lake and Mountain	**Performed By:**	CS
Scenario Description:		**Date:**	9/9/2019
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				435	215	220
Restaurant				240	125	115
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
				675	340	335

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		36	0	0	0
Restaurant	0	47		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	675	340	335
Internal Capture Percentage	25%	24%	25%
External Vehicle-Trips[5]	509	257	252
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	22%	16%
Restaurant	29%	41%
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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APPENDIX 1.2:

SITE ADJACENT QUEUING WORKSHEETS

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Existing (2019) Conditions

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Intersection: 1: Ginger Root Wy./Dwy. 1 & Mountain St.

Movement	WB	NB
Directions Served	LT	LTR
Maximum Queue (ft)	21	39
Average Queue (ft)	1	9
95th Queue (ft)	9	33
Link Distance (ft)	128	160
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Lake St. & Mountain St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	TR
Maximum Queue (ft)	98	182	74	89	108	489	44	46	125	140
Average Queue (ft)	76	95	30	33	26	162	10	9	50	56
95th Queue (ft)	109	189	64	73	82	365	32	32	110	122
Link Distance (ft)		98		435		1317	1317		141	141
Upstream Blk Time (%)	8	11							0	0
Queuing Penalty (veh)	0	28							0	1
Storage Bay Dist (ft)	75		85		170			145		
Storage Blk Time (%)	26	5	1	1		6			0	
Queuing Penalty (veh)	24	9	1	0		1			0	

Zone Summary

Zone wide Queuing Penalty: 64

Intersection: 1: Ginger Root Wy./Dwy. 1 & Mountain St.

Movement	WB	NB
Directions Served	LT	LTR
Maximum Queue (ft)	16	31
Average Queue (ft)	1	4
95th Queue (ft)	8	21
Link Distance (ft)	128	160
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Lake St. & Mountain St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	TR
Maximum Queue (ft)	81	106	53	37	91	222	26	94	157	152
Average Queue (ft)	42	30	16	9	41	76	3	31	79	76
95th Queue (ft)	75	75	40	27	80	174	17	73	148	150
Link Distance (ft)		98		435		1317	1317		141	141
Upstream Blk Time (%)	0	0						0	1	1
Queuing Penalty (veh)	0	0						0	5	4
Storage Bay Dist (ft)	75		85		170			145		
Storage Blk Time (%)	5	0				1		0	1	
Queuing Penalty (veh)	2	0				0		0	0	

Zone Summary

Zone wide Queuing Penalty: 12

E+P Conditions

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Intersection: 1: Ginger Root Wy./Dwy. 1 & Mountain St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	94	28	56	97
Average Queue (ft)	16	1	13	53
95th Queue (ft)	61	9	42	85
Link Distance (ft)	724	130	160	176
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Mountain St. & Dwy. 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	201	31
Average Queue (ft)	62	11
95th Queue (ft)	167	35
Link Distance (ft)	130	167
Upstream Blk Time (%)	4	
Queuing Penalty (veh)	17	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lake St. & Dwy. 3

Movement	EB
Directions Served	R
Maximum Queue (ft)	87
Average Queue (ft)	28
95th Queue (ft)	59
Link Distance (ft)	180
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Lake St. & Dwy. 4

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	96	73	49
Average Queue (ft)	36	5	6
95th Queue (ft)	63	30	27
Link Distance (ft)	81	394	394
Upstream Blk Time (%)	2		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Lake St. & Mountain St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	TR
Maximum Queue (ft)	98	208	81	83	250	496	27	30	159	162
Average Queue (ft)	95	158	30	36	170	191	8	6	103	110
95th Queue (ft)	104	199	67	68	255	365	27	24	162	163
Link Distance (ft)		98		435		1317	1317		141	141
Upstream Blk Time (%)	21	28							4	4
Queuing Penalty (veh)	0	117							12	13
Storage Bay Dist (ft)	75		85		170			145		
Storage Blk Time (%)	50	8	0	1	10	8			4	
Queuing Penalty (veh)	53	27	0	0	75	18			0	

Zone Summary

Zone wide Queuing Penalty: 332

Intersection: 1: Ginger Root Wy./Dwy. 1 & Mountain St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	53	51	31	122
Average Queue (ft)	5	2	2	70
95th Queue (ft)	26	17	15	108
Link Distance (ft)	724	130	160	176
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Mountain St. & Dwy. 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	158	55
Average Queue (ft)	39	17
95th Queue (ft)	121	46
Link Distance (ft)	130	167
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	3	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lake St. & Dwy. 3

Movement	EB
Directions Served	R
Maximum Queue (ft)	51
Average Queue (ft)	30
95th Queue (ft)	47
Link Distance (ft)	180
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Lake St. & Dwy. 4

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	133	290	228
Average Queue (ft)	72	118	104
95th Queue (ft)	122	224	218
Link Distance (ft)	81	394	394
Upstream Blk Time (%)	27		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Lake St. & Mountain St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	TR
Maximum Queue (ft)	98	219	45	41	249	410	27	96	203	180
Average Queue (ft)	88	147	10	17	201	182	4	36	151	149
95th Queue (ft)	115	221	33	38	272	386	20	76	184	177
Link Distance (ft)		98		435		1317	1317		141	141
Upstream Blk Time (%)	16	25							27	26
Queuing Penalty (veh)	0	87							147	138
Storage Bay Dist (ft)	75		85		170			145		
Storage Blk Time (%)	40	10			24	1			27	
Queuing Penalty (veh)	22	31			72	4			9	

Zone Summary

Zone wide Queuing Penalty: 513

EAP Conditions

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Intersection: 1: Ginger Root Wy./Dwy. 1 & Mountain St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	27	31	144
Average Queue (ft)	11	2	12	53
95th Queue (ft)	37	11	35	97
Link Distance (ft)	724	130	160	176
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Mountain St. & Dwy. 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	158	31
Average Queue (ft)	49	11
95th Queue (ft)	141	35
Link Distance (ft)	130	167
Upstream Blk Time (%)	2	
Queuing Penalty (veh)	7	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lake St. & Dwy. 3

Movement	EB
Directions Served	R
Maximum Queue (ft)	93
Average Queue (ft)	29
95th Queue (ft)	56
Link Distance (ft)	180
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Lake St. & Dwy. 4

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	113	74	74
Average Queue (ft)	36	16	10
95th Queue (ft)	72	65	44
Link Distance (ft)	81	394	394
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Lake St. & Mountain St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	TR
Maximum Queue (ft)	98	171	62	83	250	584	31	31	181	169
Average Queue (ft)	90	150	21	32	170	262	11	9	107	125
95th Queue (ft)	109	209	48	70	261	481	32	29	168	174
Link Distance (ft)		98		435		1317	1317		141	141
Upstream Blk Time (%)	16	25							5	5
Queuing Penalty (veh)	0	108							15	16
Storage Bay Dist (ft)	75		85		170			145		
Storage Blk Time (%)	40	8		0	8	16			5	
Queuing Penalty (veh)	45	24		0	58	38			0	

Zone Summary

Zone wide Queuing Penalty: 311

Intersection: 1: Ginger Root Wy./Dwy. 1 & Mountain St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	24	30	159
Average Queue (ft)	10	1	3	79
95th Queue (ft)	38	9	19	138
Link Distance (ft)	724	130	160	176
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Mountain St. & Dwy. 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	174	42
Average Queue (ft)	67	14
95th Queue (ft)	167	40
Link Distance (ft)	130	167
Upstream Blk Time (%)	4	
Queuing Penalty (veh)	15	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lake St. & Dwy. 3

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	88	8
Average Queue (ft)	30	0
95th Queue (ft)	63	5
Link Distance (ft)	180	1691
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Lake St. & Dwy. 4

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	110	244	258
Average Queue (ft)	58	129	120
95th Queue (ft)	105	224	226
Link Distance (ft)	81	394	394
Upstream Blk Time (%)	11		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Lake St. & Mountain St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	TR
Maximum Queue (ft)	98	195	57	46	250	494	42	140	188	189
Average Queue (ft)	94	161	16	11	207	204	6	36	152	152
95th Queue (ft)	107	204	46	33	280	429	26	93	176	178
Link Distance (ft)		98		435		1317	1317		141	141
Upstream Blk Time (%)	26	34						0	29	27
Queuing Penalty (veh)	0	120						0	162	149
Storage Bay Dist (ft)	75		85		170			145		
Storage Blk Time (%)	53	10			26	2		0	29	
Queuing Penalty (veh)	29	29			85	6		0	10	

Zone Summary

Zone wide Queuing Penalty: 605

EAPC Conditions

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Intersection: 1: Ginger Root Wy./Dwy. 1 & Mountain St.

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	135	41	31	153
Average Queue (ft)	24	3	8	64
95th Queue (ft)	95	21	30	127
Link Distance (ft)	724	130	160	176
Upstream Blk Time (%)				3
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Mountain St. & Dwy. 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	186	31
Average Queue (ft)	72	12
95th Queue (ft)	176	37
Link Distance (ft)	130	167
Upstream Blk Time (%)	8	
Queuing Penalty (veh)	36	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lake St. & Dwy. 3

Movement	EB
Directions Served	R
Maximum Queue (ft)	57
Average Queue (ft)	25
95th Queue (ft)	48
Link Distance (ft)	180
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Lake St. & Dwy. 4

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	75	92	91
Average Queue (ft)	31	9	11
95th Queue (ft)	61	47	51
Link Distance (ft)	82	394	394
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Lake St. & Mountain St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	TR
Maximum Queue (ft)	105	193	96	109	250	535	38	64	161	160
Average Queue (ft)	97	162	28	37	174	251	13	12	113	118
95th Queue (ft)	116	219	70	79	262	431	35	47	163	174
Link Distance (ft)		105		440		1367	1367		142	142
Upstream Blk Time (%)	21	35						0	3	5
Queuing Penalty (veh)	0	151						0	11	16
Storage Bay Dist (ft)	75		85		170			145		
Storage Blk Time (%)	59	7	2	1	11	11		0	3	
Queuing Penalty (veh)	65	22	2	1	82	28		0	0	

Network Summary

Network wide Queuing Penalty: 413

Intersection: 1: Ginger Root Wy./Dwy. 1 & Mountain St.

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	60	31	30	146
Average Queue (ft)	9	1	2	70
95th Queue (ft)	36	13	15	116
Link Distance (ft)	724	130	160	176
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Mountain St. & Dwy. 2

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	160	36
Average Queue (ft)	46	12
95th Queue (ft)	135	37
Link Distance (ft)	130	167
Upstream Blk Time (%)	2	
Queuing Penalty (veh)	6	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Lake St. & Dwy. 3

Movement	EB
Directions Served	R
Maximum Queue (ft)	69
Average Queue (ft)	28
95th Queue (ft)	55
Link Distance (ft)	180
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Lake St. & Dwy. 4

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	106	284	294
Average Queue (ft)	63	140	148
95th Queue (ft)	112	265	271
Link Distance (ft)	82	394	394
Upstream Blk Time (%)	22		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Lake St. & Mountain St.

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	TR
Maximum Queue (ft)	105	200	62	46	250	608	28	142	184	175
Average Queue (ft)	99	154	18	14	212	244	4	37	152	151
95th Queue (ft)	114	227	48	39	282	485	20	96	172	167
Link Distance (ft)		105		440		1392	1392		142	142
Upstream Blk Time (%)	19	26						0	28	30
Queuing Penalty (veh)	0	94						0	162	176
Storage Bay Dist (ft)	75		85		170			145		
Storage Blk Time (%)	52	4	0		30	2		0	28	
Queuing Penalty (veh)	29	13	0		111	7		0	10	

Network Summary

Network wide Queuing Penalty: 608

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – SEPTEMBER 2019

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Sep 19, 19

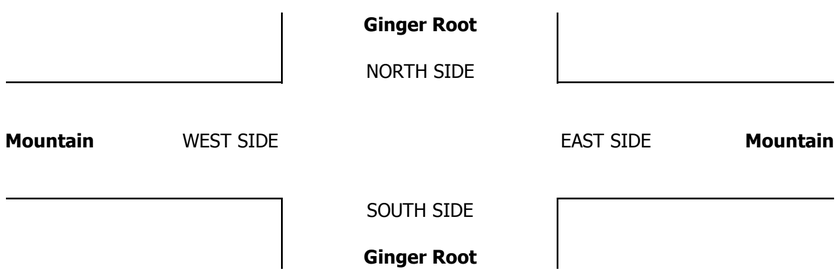
LOCATION: Lake Elsinore
NORTH & SOUTH: Ginger Root
EAST & WEST: Mountain
PROJECT #: SC2352
LOCATION #: 1
CONTROL: STOP N

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

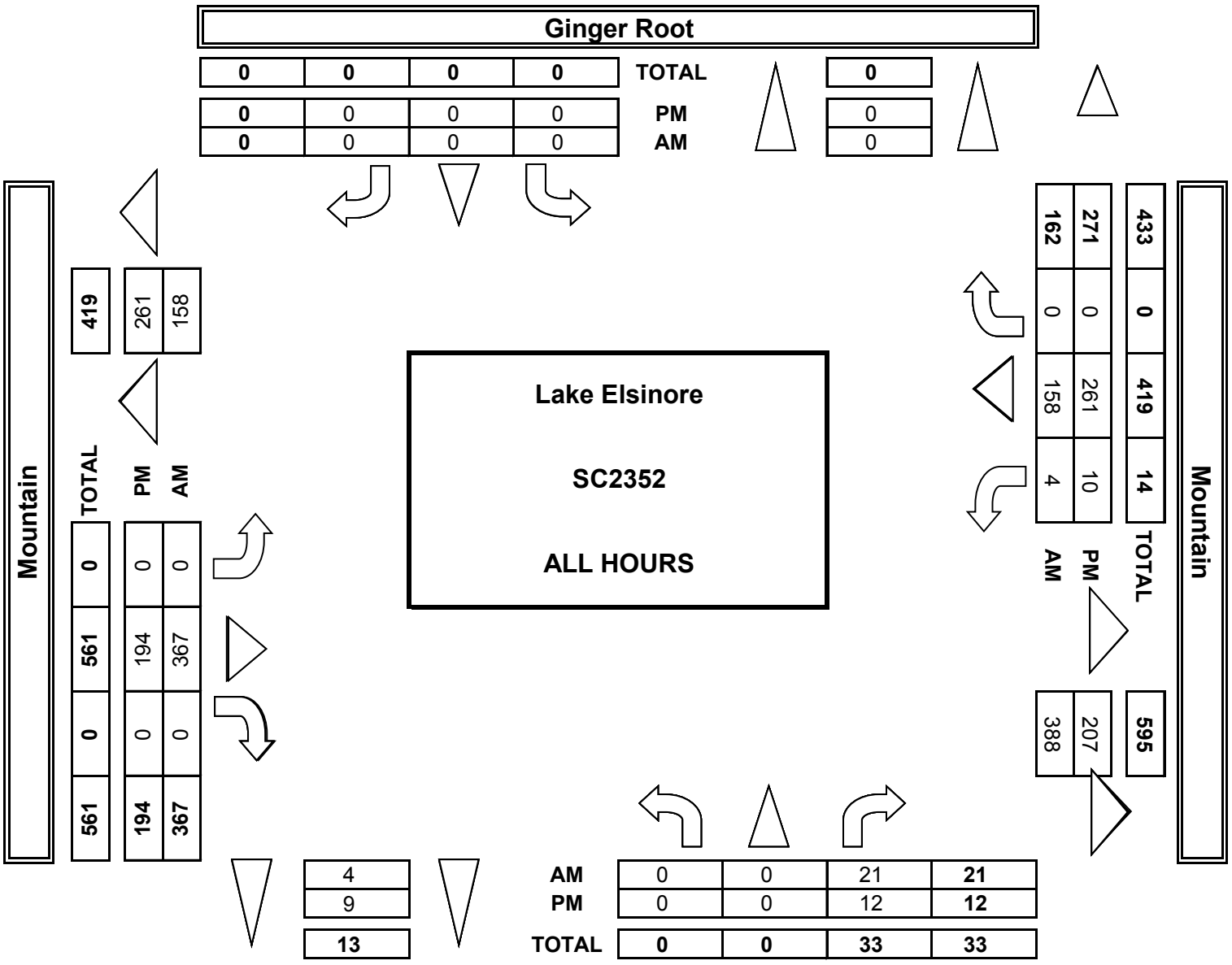
		NORTHBOUND Ginger Root			SOUTHBOUND Ginger Root			EASTBOUND Mountain			WESTBOUND Mountain				U-TURNS					RTOR			
	LANES:	NL 0	NT X	NR 0	SL X	ST X	SR X	EL X	ET 1	ER 0	WL 0	WT 1	WR X	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL	NRR X	SRR X	ERR X	WRR X
AM	7:00 AM	0	0	3	0	0	0	0	59	0	0	19	0	81	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	2	0	0	0	0	61	0	0	38	0	101	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	7	0	0	0	0	64	0	1	39	0	111	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	66	0	2	16	0	84	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	31	0	1	13	0	45	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	2	0	0	0	0	34	0	0	9	0	45	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	7	0	0	0	0	31	0	0	14	0	52	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	21	0	0	10	0	31	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	21	0	0	0	0	367	0	4	158	0	550	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	2%	98%	0%										
	APP/DEPART	21	/	0	0	/	4	367	/	388	162	/	158	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	0	0	12	0	0	0	0	250	0	3	112	0	377						0	0	0	0
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	3%	97%	0%										
	PEAK HR FACTOR		0.429			0.000			0.947			0.719		0.849									
	APP/DEPART	12	/	0	0	/	3	250	/	262	115	/	112	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	23	0	2	20	0	45	0	0	0	1	1	0	0	0	0
	4:15 PM	0	0	4	0	0	0	0	22	0	0	29	0	55	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	4	0	0	0	0	27	0	0	33	0	64	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	1	0	0	0	0	27	0	3	33	0	64	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	1	0	0	0	0	21	0	3	32	0	57	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	1	0	0	0	0	24	0	0	34	0	59	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	1	0	0	0	0	21	0	1	36	0	59	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	29	0	1	44	0	74	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	12	0	0	0	0	194	0	10	261	0	477	0	0	0	1	1	0	0	0	0
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	4%	96%	0%										
	APP/DEPART	12	/	0	0	/	9	194	/	207	271	/	261	0									
	BEGIN PEAK HR		5:00 PM																				
	VOLUMES	0	0	3	0	0	0	0	95	0	5	146	0	249						0	0	0	0
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	3%	97%	0%										
	PEAK HR FACTOR		0.750			0.000			0.819			0.839		0.841									
	APP/DEPART	3	/	0	0	/	5	95	/	98	151	/	146	0									

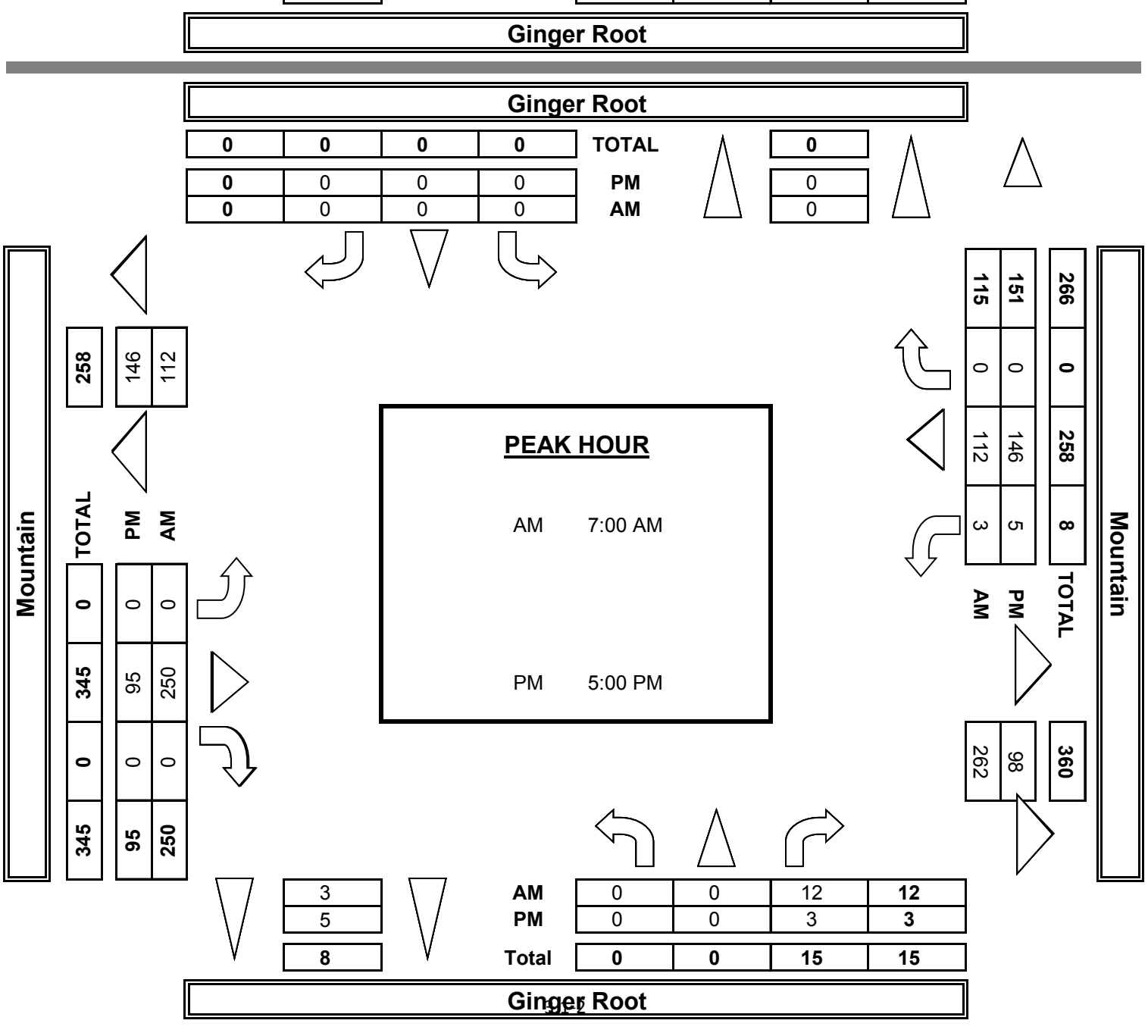


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	2	0	2	0	0	2	0	2	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	3	0	3	0	0	3	0	3	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1
	TOTAL	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Sep 19, 19

LOCATION: Lake Elsinore
NORTH & SOUTH: Lake
EAST & WEST: Nichols

PROJECT #: SC2352
LOCATION #: 3
CONTROL: SIGNAL

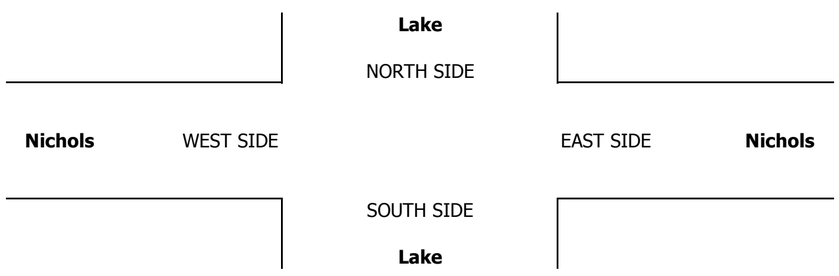
NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

☑ Add U-Turns to Left Turns

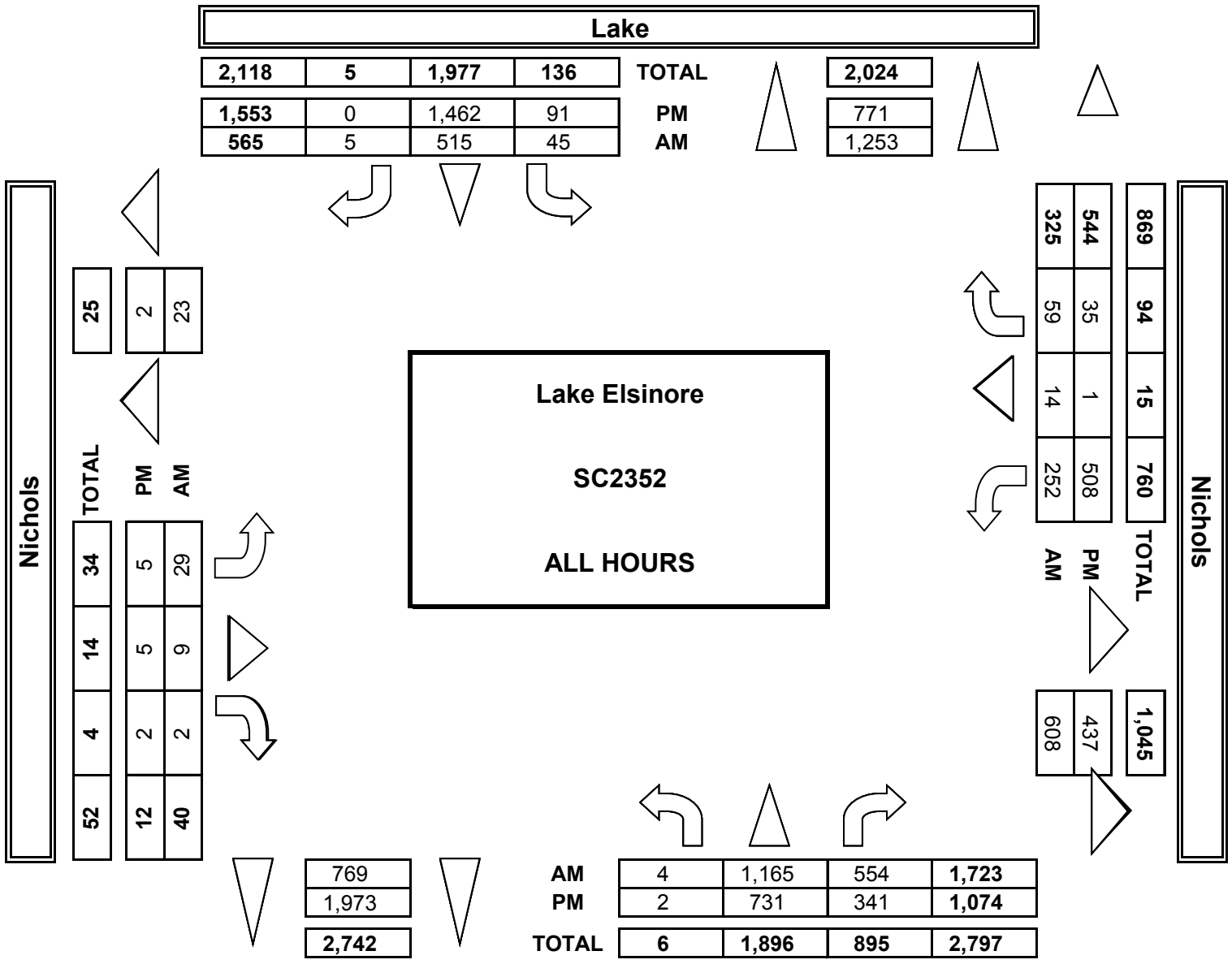
		NORTHBOUND Lake			SOUTHBOUND Lake			EASTBOUND Nichols			WESTBOUND Nichols				U-TURNS					RTOR			
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL	NRR X	SRR 0	ERR 0	WRR 0
AM	7:00 AM	1	168	97	4	81	0	2	1	0	48	2	8	412	0	0	0	0	0	0	0	0	3
	7:15 AM	0	148	82	3	63	1	2	3	2	76	4	13	397	0	0	0	0	0	0	0	0	2
	7:30 AM	0	186	92	5	52	1	3	0	0	47	0	10	396	0	0	0	0	0	0	1	0	1
	7:45 AM	2	206	77	9	70	0	2	0	0	12	3	11	392	0	0	0	0	0	0	0	0	7
	8:00 AM	1	148	52	5	72	0	2	1	0	14	3	5	303	0	0	0	0	0	0	0	0	3
	8:15 AM	0	128	55	6	64	1	3	0	0	15	1	4	277	0	0	0	0	0	0	0	0	2
	8:30 AM	0	85	57	5	55	1	8	1	0	20	0	4	236	0	0	0	0	0	0	0	0	3
	8:45 AM	0	96	42	8	58	1	7	3	0	20	1	4	240	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	4	1,165	554	45	515	5	29	9	2	252	14	59	2,653	0	0	0	0	0	0	1	0	21
	APPROACH %	0%	68%	32%	8%	91%	1%	73%	23%	5%	78%	4%	18%										
	APP/DEPART	1,723	/	1,253	565	/	769	40	/	608	325	/	23	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	3	708	348	21	266	2	9	4	2	183	9	42	1,597						0	1	0	13
	APPROACH %	0%	67%	33%	7%	92%	1%	60%	27%	13%	78%	4%	18%										
	PEAK HR FACTOR		0.929			0.850			0.536			0.629		0.969									
	APP/DEPART	1,059	/	759	289	/	451	15	/	373	234	/	14	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	96	38	9	175	0	3	2	0	45	0	6	374	0	0	0	0	0	0	0	0	3
	4:15 PM	0	94	35	8	162	0	0	1	0	64	0	6	370	0	0	0	0	0	0	0	0	3
	4:30 PM	0	97	44	13	218	0	1	1	2	58	0	3	437	0	0	0	0	0	0	0	1	0
	4:45 PM	2	89	51	9	194	0	0	0	0	71	1	1	418	1	0	0	0	1	0	0	0	1
	5:00 PM	0	86	35	8	159	0	1	0	0	58	0	4	351	0	0	0	0	0	0	0	0	1
	5:15 PM	0	88	41	11	180	0	0	0	0	63	0	5	388	0	0	0	0	0	0	0	0	3
	5:30 PM	0	106	35	16	195	0	0	0	0	80	0	6	438	0	0	0	0	0	0	0	0	0
	5:45 PM	0	75	62	17	179	0	0	1	0	69	0	4	407	0	0	0	0	0	0	0	0	1
	VOLUMES	2	731	341	91	1,462	0	5	5	2	508	1	35	3,183	1	0	0	0	1	0	0	1	12
	APPROACH %	0%	68%	32%	6%	94%	0%	42%	42%	17%	93%	0%	6%										
	APP/DEPART	1,074	/	771	1,553	/	1,973	12	/	437	544	/	2	0									
	BEGIN PEAK HR		4:00 PM																				
	VOLUMES	2	376	168	39	749	0	4	4	2	238	1	16	1,599						0	0	1	7
	APPROACH %	0%	69%	31%	5%	95%	0%	40%	40%	20%	93%	0%	6%										
	PEAK HR FACTOR		0.961			0.853			0.500			0.873		0.915									
	APP/DEPART	546	/	396	788	/	990	10	/	211	255	/	2	0									

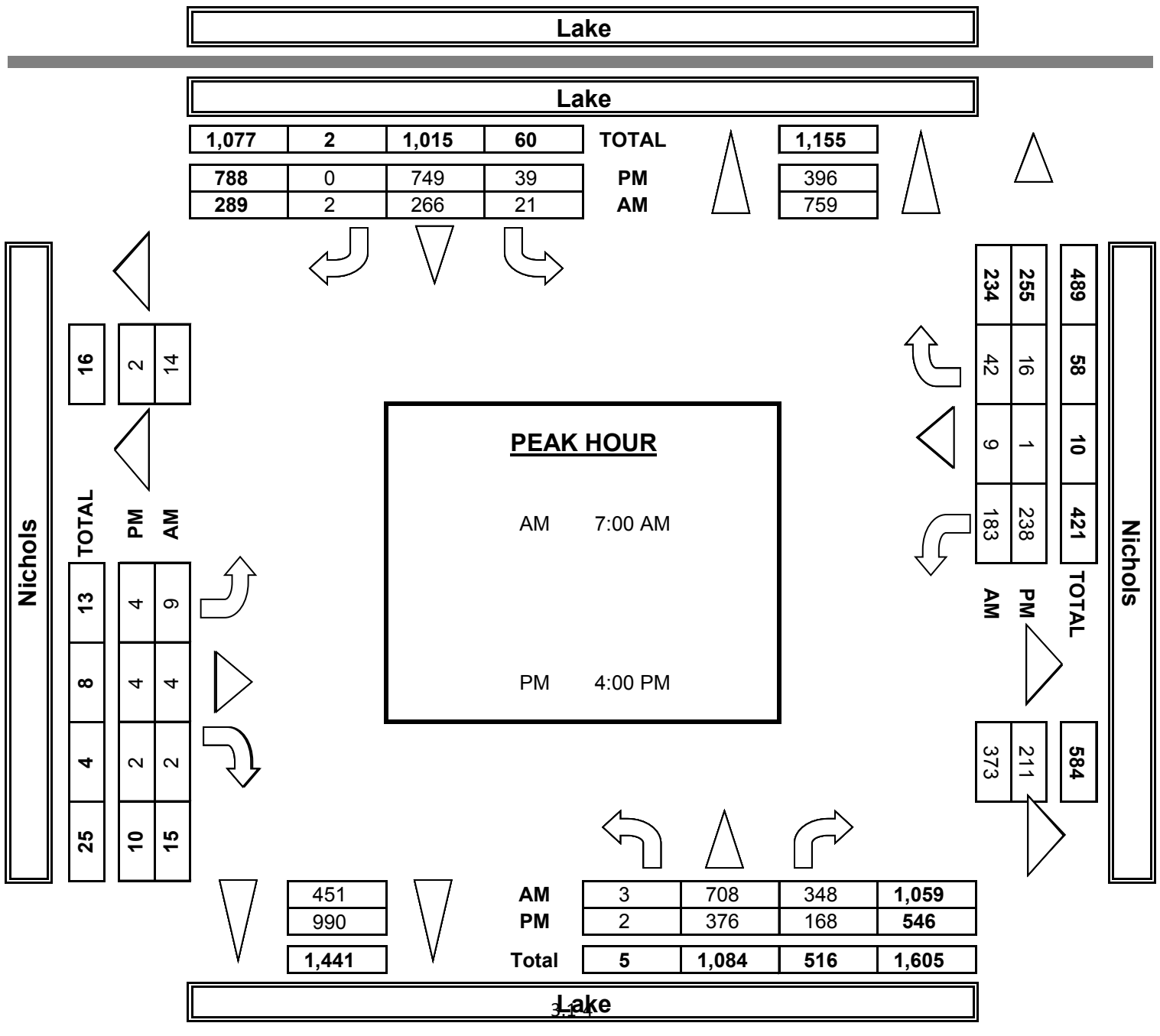


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Lake Elsinore	PROJECT #:	SC2352
Thu, Sep 19, 19	NORTH & SOUTH:	Lake	LOCATION #:	4
	EAST & WEST:	Aberhill Ranch	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

☑ Add U-Turns to Left Turns

	NORTHBOUND Lake			SOUTHBOUND Lake			EASTBOUND Aberhill Ranch			WESTBOUND Aberhill Ranch			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	1	1	1	1	X	X	X	X	1	X	1	
AM 7:00 AM	0	253	8	5	122	0	0	0	0	22	0	11	421
7:15 AM	0	223	8	3	135	0	0	0	0	23	0	19	411
7:30 AM	0	262	11	5	90	0	0	0	0	15	0	12	395
7:45 AM	0	264	11	5	80	0	0	0	0	7	0	15	382
8:00 AM	0	199	6	8	65	0	0	0	0	6	0	11	295
8:15 AM	0	176	6	8	72	0	0	0	0	6	0	8	276
8:30 AM	0	138	1	2	64	0	0	0	0	3	0	5	213
8:45 AM	0	130	3	3	72	0	0	0	0	2	0	8	218
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	1,645	54	39	700	0	0	0	0	84	0	89	2,611
APPROACH %	0%	97%	3%	5%	95%	0%	0%	0%	0%	49%	0%	51%	
APP/DEPART	1,699	/	1,734	739	/	784	0	/	93	173	/	0	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	1,002	38	18	427	0	0	0	0	67	0	57	1,609
APPROACH %	0%	96%	4%	4%	96%	0%	0%	0%	0%	54%	0%	46%	
PEAK HR FACTOR		0.945			0.806			0.000			0.738		0.955
APP/DEPART	1,040	/	1,059	445	/	494	0	/	56	124	/	0	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	112	4	8	192	0	0	0	0	5	0	3	324
4:15 PM	0	130	13	8	227	0	0	0	0	1	0	1	380
4:30 PM	0	135	3	12	248	0	0	0	0	6	0	6	410
4:45 PM	0	135	6	9	270	0	0	0	0	11	0	7	438
5:00 PM	0	117	7	8	198	0	0	0	0	7	0	2	339
5:15 PM	0	133	12	8	238	0	0	0	0	5	0	4	400
5:30 PM	0	141	6	7	260	0	0	0	0	5	0	3	422
5:45 PM	0	155	9	9	243	0	0	0	0	7	0	4	427
VOLUMES	0	1,058	60	69	1,876	0	0	0	0	47	0	30	3,140
APPROACH %	0%	95%	5%	4%	96%	0%	0%	0%	0%	61%	0%	39%	
APP/DEPART	1,118	/	1,088	1,945	/	1,923	0	/	129	77	/	0	0
BEGIN PEAK HR		4:45 PM											
VOLUMES	0	526	31	32	966	0	0	0	0	28	0	16	1,599
APPROACH %	0%	94%	6%	3%	97%	0%	0%	0%	0%	64%	0%	36%	
PEAK HR FACTOR		0.947			0.894			0.000			0.611		0.913
APP/DEPART	557	/	542	998	/	994	0	/	63	44	/	0	0

	U-TURNS					RTOR			
	NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
LANES:	0	0	0	0		0	X	X	0
7:00 AM	0	0	0	0	0	5	0	0	3
7:15 AM	0	0	0	0	0	1	0	0	4
7:30 AM	0	0	0	0	0	4	0	0	4
7:45 AM	0	0	0	0	0	3	0	0	2
8:00 AM	0	0	0	0	0	1	0	0	3
8:15 AM	0	0	0	0	0	2	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	4
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	16	0	0	22
PEAK HR VOLUMES						13	0	0	13
03:00 PM	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	1	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	0	1	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	2	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	3
VOLUMES	0	0	0	0	0	4	0	0	16
PEAK HR VOLUMES						3	0	0	8

Lake

NORTH SIDE

Aberhill Ranch WEST SIDE EAST SIDE **Aberhill Ranch**

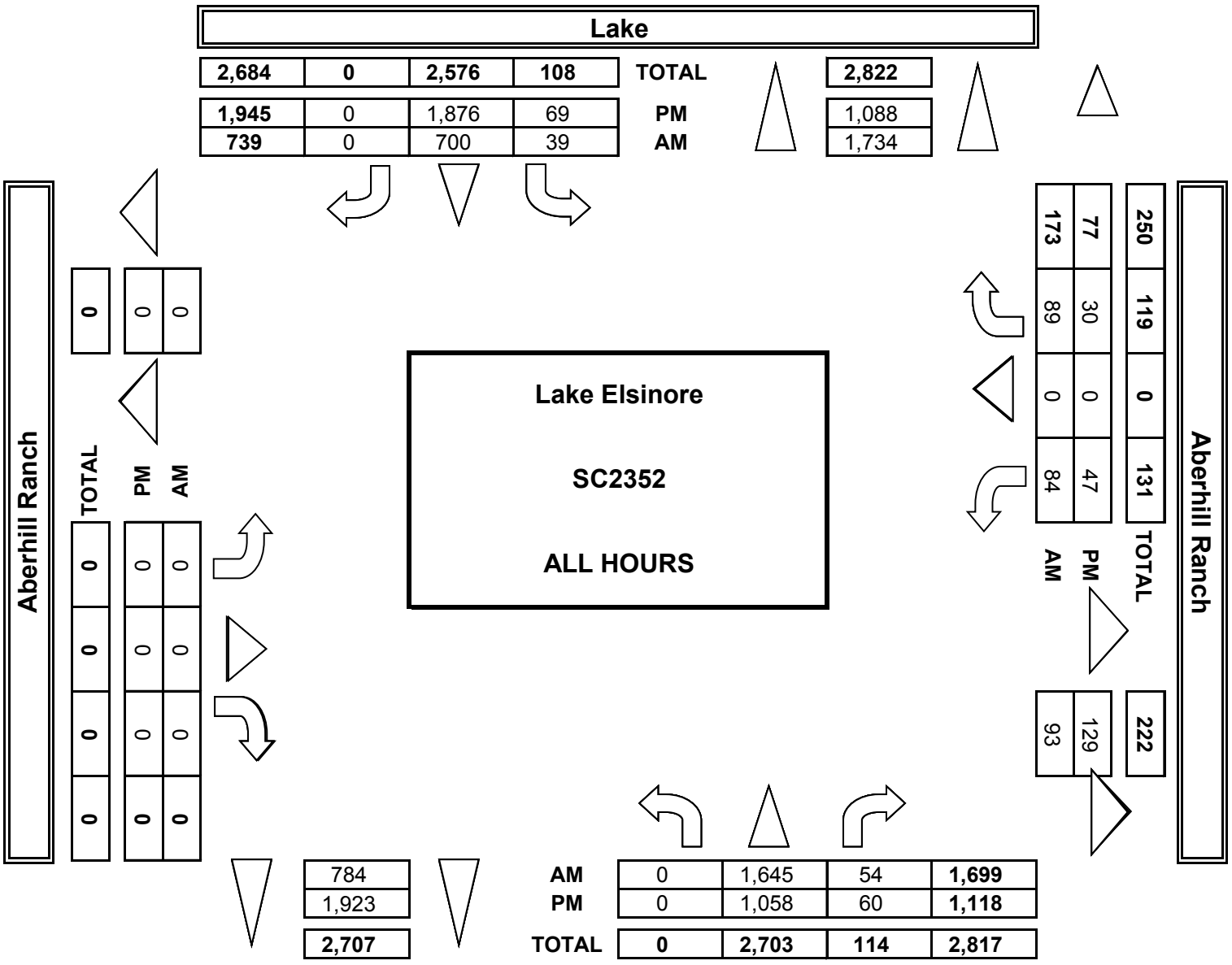
SOUTH SIDE

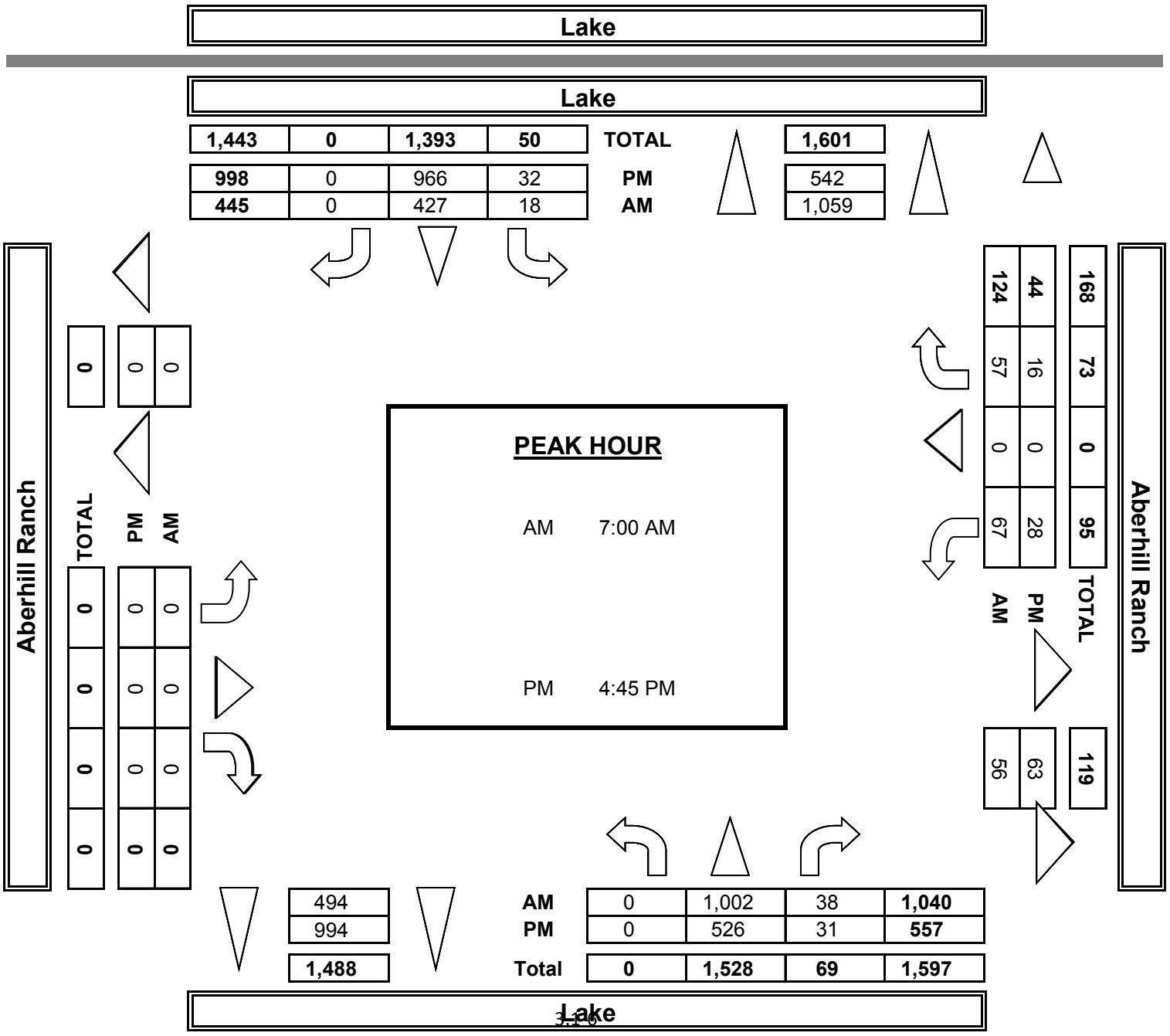
Lake

	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T816

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Sep 19, 19

LOCATION: Lake Elsinore
NORTH & SOUTH: Lake
EAST & WEST: Mountain

PROJECT #: SC2352
LOCATION #: 7
CONTROL: SIGNAL

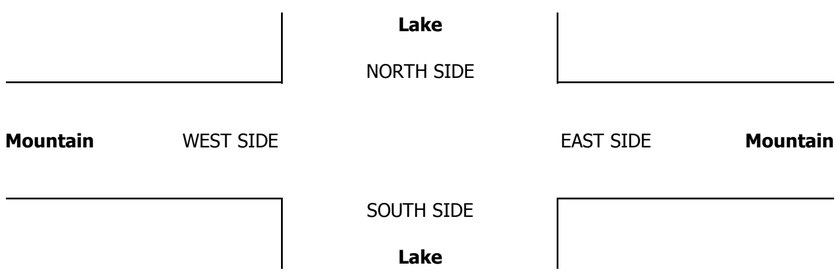
NOTES:

AM
PM
MD
OTHER
OTHER

◄ W
N ▲
S ▼
E ►

☑ Add U-Turns to Left Turns

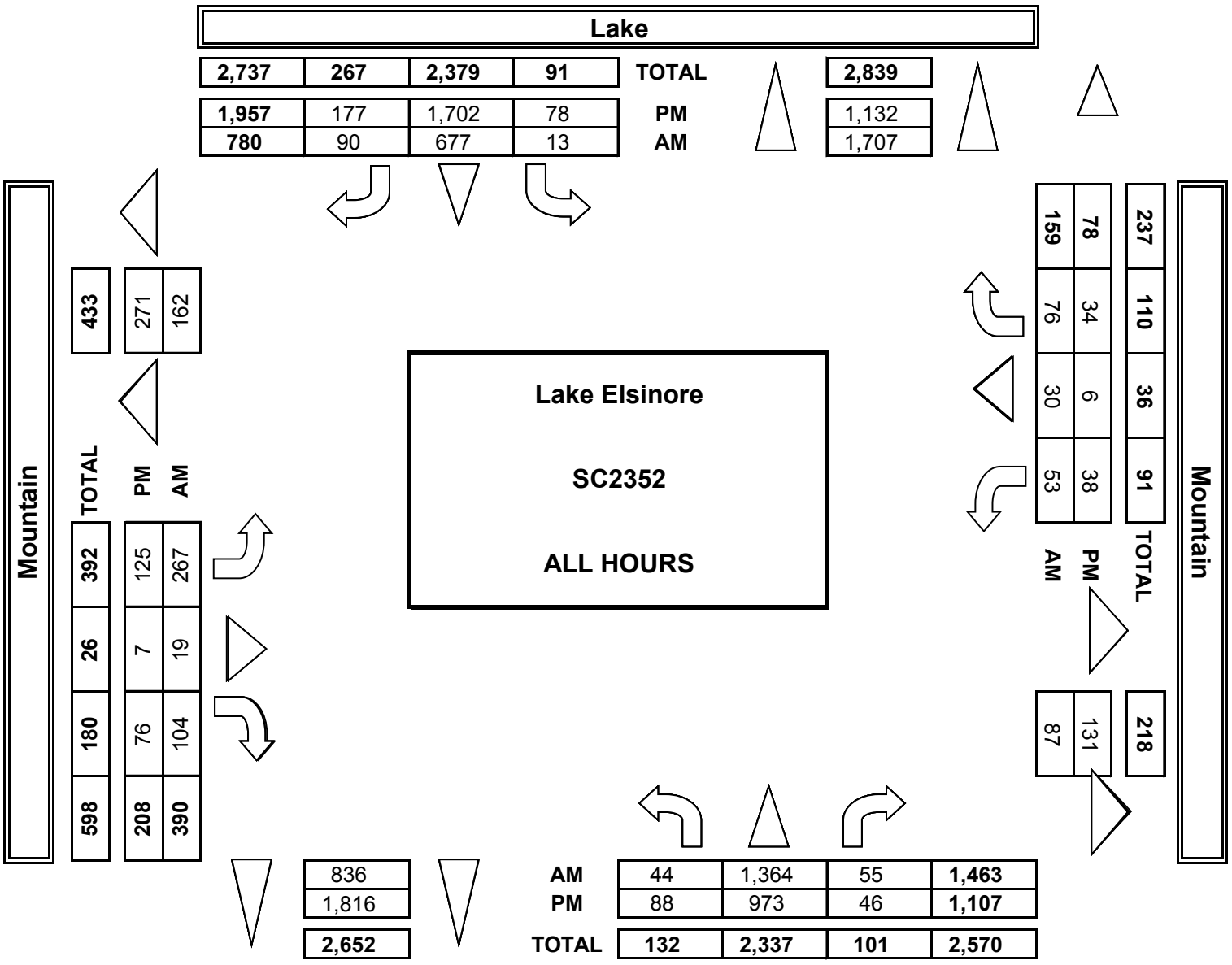
		NORTHBOUND Lake			SOUTHBOUND Lake			EASTBOUND Mountain			WESTBOUND Mountain				U-TURNS					RTOR			
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL	NRR 0	SRR 0	ERR 0	WRR 0
AM	7:00 AM	3	205	2	3	131	11	38	3	24	12	4	13	449	0	0	0	0	0	0	1	13	5
	7:15 AM	6	193	11	3	125	28	33	0	26	19	6	13	463	1	0	0	0	1	4	4	11	2
	7:30 AM	11	210	22	2	89	18	53	5	12	13	11	10	456	0	0	0	0	0	5	2	4	1
	7:45 AM	3	219	9	0	76	11	48	7	14	5	4	11	407	0	0	0	0	0	3	3	7	4
	8:00 AM	9	155	6	1	64	5	25	1	5	0	0	12	283	0	0	0	0	0	0	1	3	3
	8:15 AM	3	159	1	2	73	5	23	2	11	2	2	5	288	1	0	0	0	1	0	1	8	1
	8:30 AM	5	106	2	1	60	5	29	1	6	2	3	4	224	0	0	0	0	0	2	0	6	3
	8:45 AM	4	117	2	1	59	7	18	0	6	0	0	8	222	0	0	0	0	0	0	0	4	2
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	44	1,364	55	13	677	90	267	19	104	53	30	76	2,792	2	0	0	0	2	14	12	56	21
	APPROACH %	3%	93%	4%	2%	87%	12%	68%	5%	27%	33%	19%	48%										
	APP/DEPART	1,463	/	1,707	780	/	836	390	/	87	159	/	162	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	23	827	44	8	421	68	172	15	76	49	25	47	1,775						12	10	35	12
	APPROACH %	3%	93%	5%	2%	85%	14%	65%	6%	29%	40%	21%	39%										
	PEAK HR FACTOR		0.920			0.796			0.939			0.796		0.958									
	APP/DEPART	894	/	1,046	497	/	547	263	/	67	121	/	115	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	7	114	7	5	211	15	13	1	10	5	0	2	390	0	0	0	0	0	2	2	5	1
	4:15 PM	9	119	12	11	194	20	15	0	11	4	0	7	402	0	0	0	0	0	0	1	6	5
	4:30 PM	11	113	5	17	215	22	23	0	9	5	0	6	426	0	0	0	0	0	1	3	5	4
	4:45 PM	10	126	6	12	237	25	14	2	12	0	1	6	451	0	0	0	0	0	1	2	9	3
	5:00 PM	7	111	3	4	187	25	10	1	10	8	3	3	372	0	0	0	0	0	1	1	8	2
	5:15 PM	15	121	2	9	215	18	16	3	8	4	1	2	414	0	0	0	0	0	0	2	4	1
	5:30 PM	14	130	5	9	227	23	13	0	7	6	0	5	439	0	0	0	0	0	1	1	6	2
	5:45 PM	15	139	6	11	216	29	21	0	9	6	1	3	456	0	0	0	0	0	1	2	2	3
	VOLUMES	88	973	46	78	1,702	177	125	7	76	38	6	34	3,350	0	0	0	0	0	7	14	45	21
	APPROACH %	8%	88%	4%	4%	87%	9%	60%	3%	37%	49%	8%	44%										
	APP/DEPART	1,107	/	1,132	1,957	/	1,816	208	/	131	78	/	271	0									
	BEGIN PEAK HR		5:00 PM																				
	VOLUMES	51	501	16	33	845	95	60	4	34	24	5	13	1,681						3	6	20	8
	APPROACH %	9%	88%	3%	3%	87%	10%	61%	4%	35%	57%	12%	31%										
	PEAK HR FACTOR		0.888			0.939			0.817			0.750		0.922									
	APP/DEPART	568	/	574	973	/	903	98	/	53	42	/	151	0									

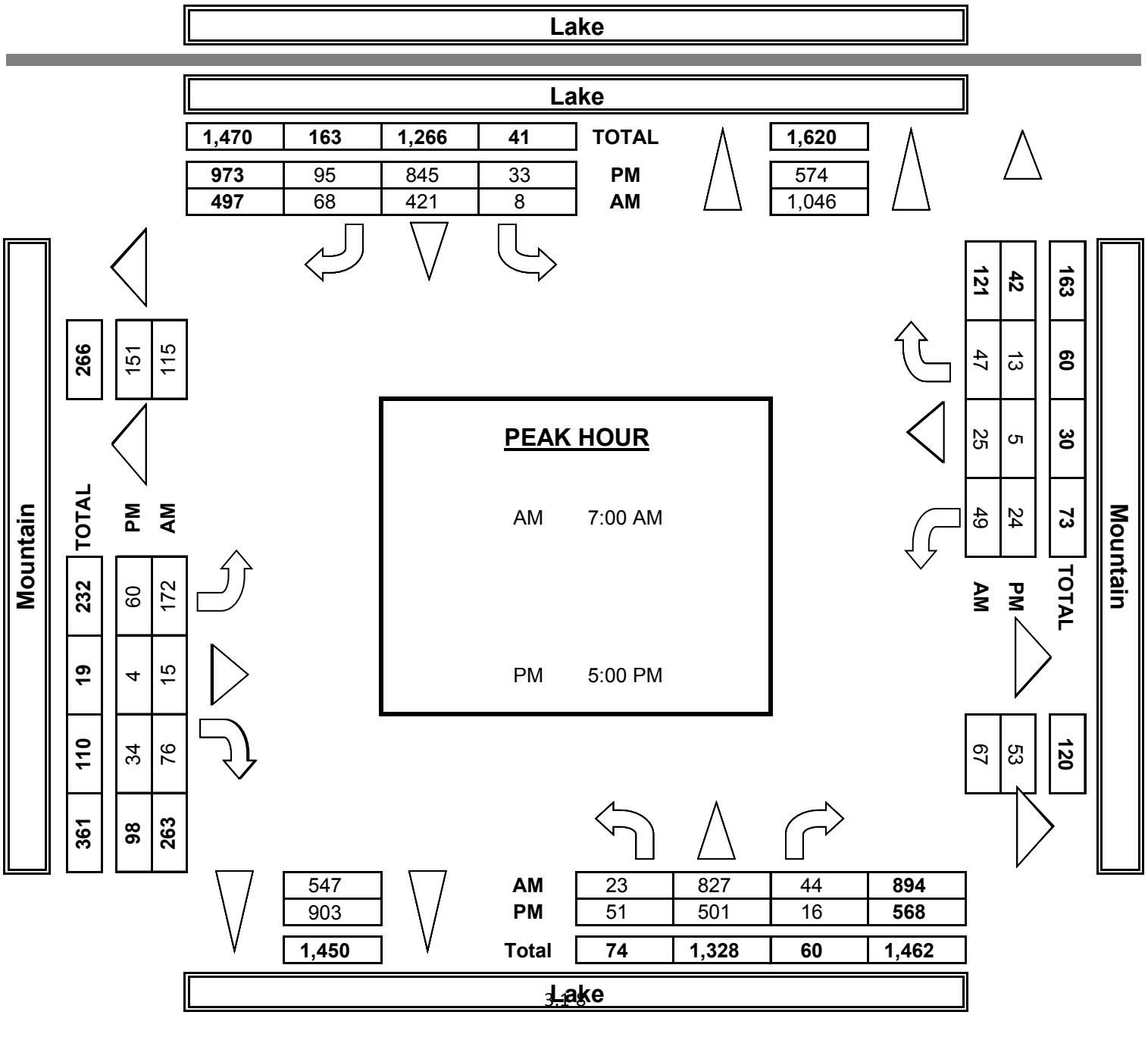


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	4	0	4	0	8	4	0	4	0	8	0	0	0	0	0
	7:15 AM	3	0	8	0	11	3	0	8	0	11	0	0	0	0	0
	7:30 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	7:45 AM	2	0	0	0	2	2	0	0	0	2	0	0	0	0	0
	8:00 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	8:15 AM	2	2	2	0	6	2	2	2	0	6	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	11	2	17	0	30	11	2	17	0	30	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Sep 19, 19

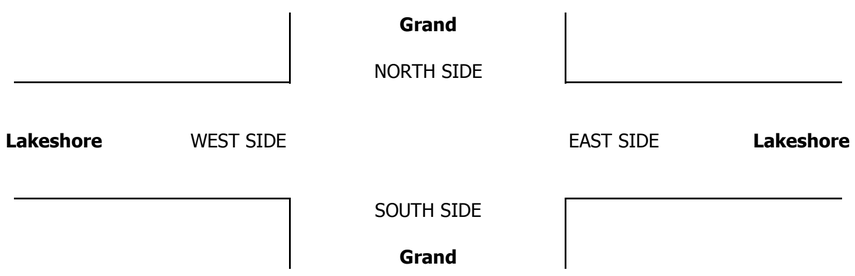
LOCATION: Lake Elsinore
NORTH & SOUTH: Grand
EAST & WEST: Lakeshore
PROJECT #: SC2352
LOCATION #: 8
CONTROL: SIGNAL

NOTES: Queue WB AM 7:00-7:30

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

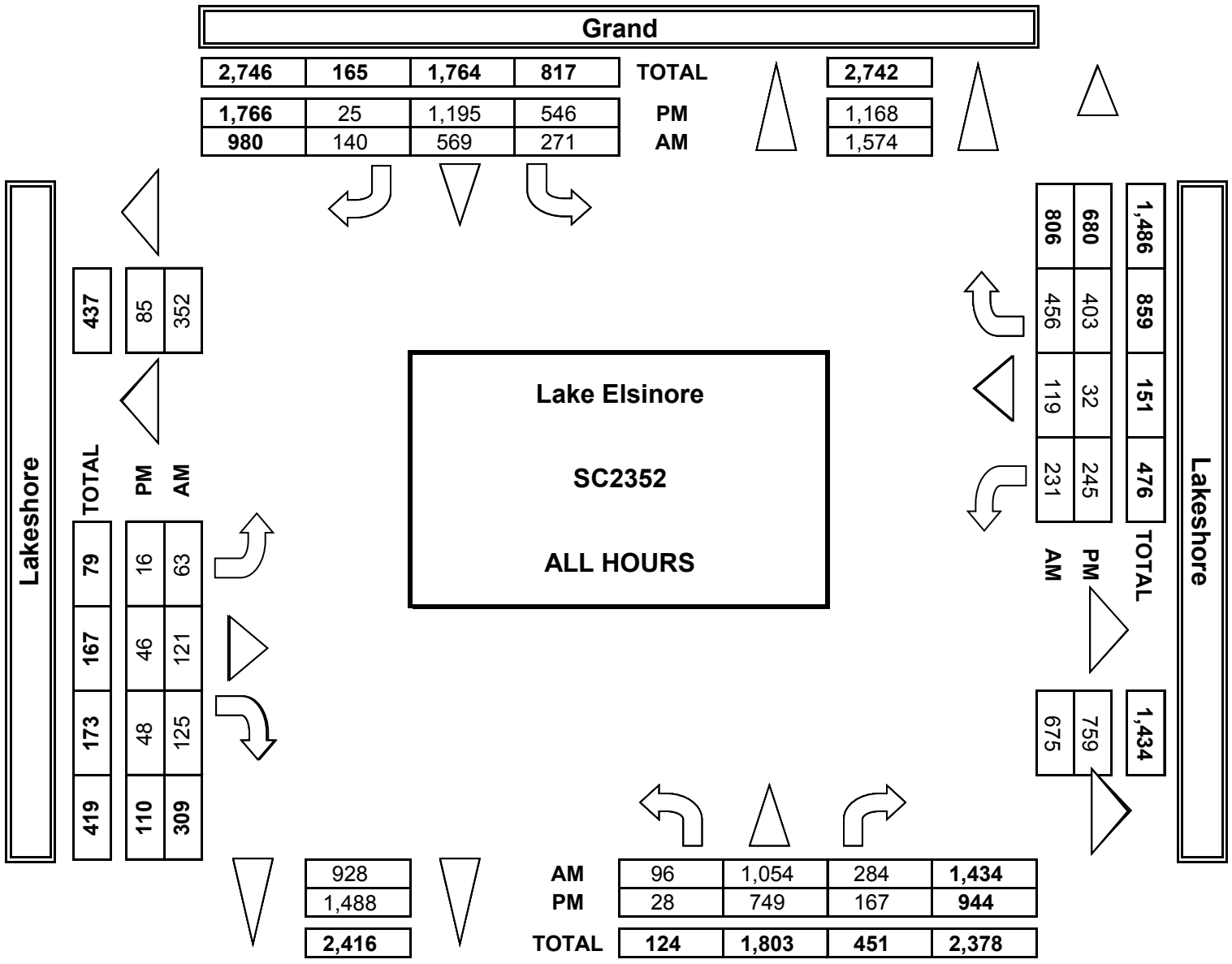
		NORTHBOUND Grand			SOUTHBOUND Grand			EASTBOUND Lakeshore			WESTBOUND Lakeshore				U-TURNS					RTOR			
	LANES:	NL 1	NT 2	NR 1	SL 2	ST 2	SR 0	EL 0.5	ET 1	ER 0.5	WL 1	WT 1	WR 2	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL	NRR 0	SRR 0	ERR 0	WRR 0
AM	7:00 AM	37	161	22	41	116	41	16	30	22	36	41	43	606	0	0	0	0	0	14	18	8	15
	7:15 AM	26	159	72	36	119	64	25	44	45	84	44	79	797	2	1	0	0	3	36	34	10	28
	7:30 AM	28	201	79	41	84	31	17	41	48	57	28	80	735	1	0	0	0	1	35	10	18	25
	7:45 AM	3	145	39	42	55	1	2	2	3	13	1	65	371	0	0	0	0	0	28	0	1	27
	8:00 AM	1	128	28	28	53	0	0	1	1	13	2	58	313	0	0	0	0	0	23	0	1	21
	8:15 AM	1	116	13	26	58	1	1	2	2	14	2	47	283	0	0	0	0	0	11	0	0	22
	8:30 AM	0	70	20	30	44	2	1	1	2	10	1	43	224	0	0	0	0	0	14	1	0	27
	8:45 AM	0	74	11	27	40	0	1	0	2	4	0	41	200	0	0	0	0	0	10	0	2	17
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	96	1,054	284	271	569	140	63	121	125	231	119	456	3,529	3	1	0	0	4	171	63	40	182
	APPROACH %	7%	74%	20%	28%	58%	14%	20%	39%	40%	29%	15%	57%										
	APP/DEPART	1,434	/	1,574	980	/	928	309	/	675	806	/	352	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	94	666	212	160	374	137	60	117	118	190	114	267	2,509						113	62	37	95
	APPROACH %	10%	69%	22%	24%	56%	20%	20%	40%	40%	33%	20%	47%										
	PEAK HR FACTOR		0.789			0.766			0.647			0.690		0.787									
	APP/DEPART	972	/	994	671	/	685	295	/	488	571	/	342	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	6	76	9	63	143	4	4	7	12	26	8	56	414	0	0	0	0	0	5	1	5	22
	4:15 PM	4	102	17	71	138	1	1	7	6	28	6	42	423	0	0	0	0	0	14	0	5	12
	4:30 PM	2	96	24	79	148	2	0	7	4	26	4	55	447	0	0	0	0	0	18	0	3	12
	4:45 PM	1	87	22	78	154	5	1	5	6	30	4	51	444	0	0	0	0	0	13	0	3	11
	5:00 PM	1	84	22	60	135	3	2	1	5	29	5	49	396	0	0	0	0	0	14	0	4	15
	5:15 PM	7	93	28	74	147	2	2	5	5	30	2	43	438	0	0	0	0	0	14	0	3	12
	5:30 PM	5	92	19	56	168	5	1	9	2	40	3	63	463	0	0	0	0	0	15	1	1	15
	5:45 PM	2	119	26	65	162	3	5	5	8	36	0	44	475	0	0	0	0	0	16	1	2	9
	VOLUMES	28	749	167	546	1,195	25	16	46	48	245	32	403	3,500	0	0	0	0	0	109	3	26	108
	APPROACH %	3%	79%	18%	31%	68%	1%	15%	42%	44%	36%	5%	59%										
	APP/DEPART	944	/	1,168	1,766	/	1,488	110	/	759	680	/	85	0									
	BEGIN PEAK HR		5:00 PM																				
	VOLUMES	15	388	95	255	612	13	10	20	20	135	10	199	1,772						59	2	10	51
	APPROACH %	3%	78%	19%	29%	70%	1%	20%	40%	40%	39%	3%	58%										
	PEAK HR FACTOR		0.847			0.957			0.694			0.811		0.933									
	APP/DEPART	498	/	597	880	/	767	50	/	370	344	/	38	0									

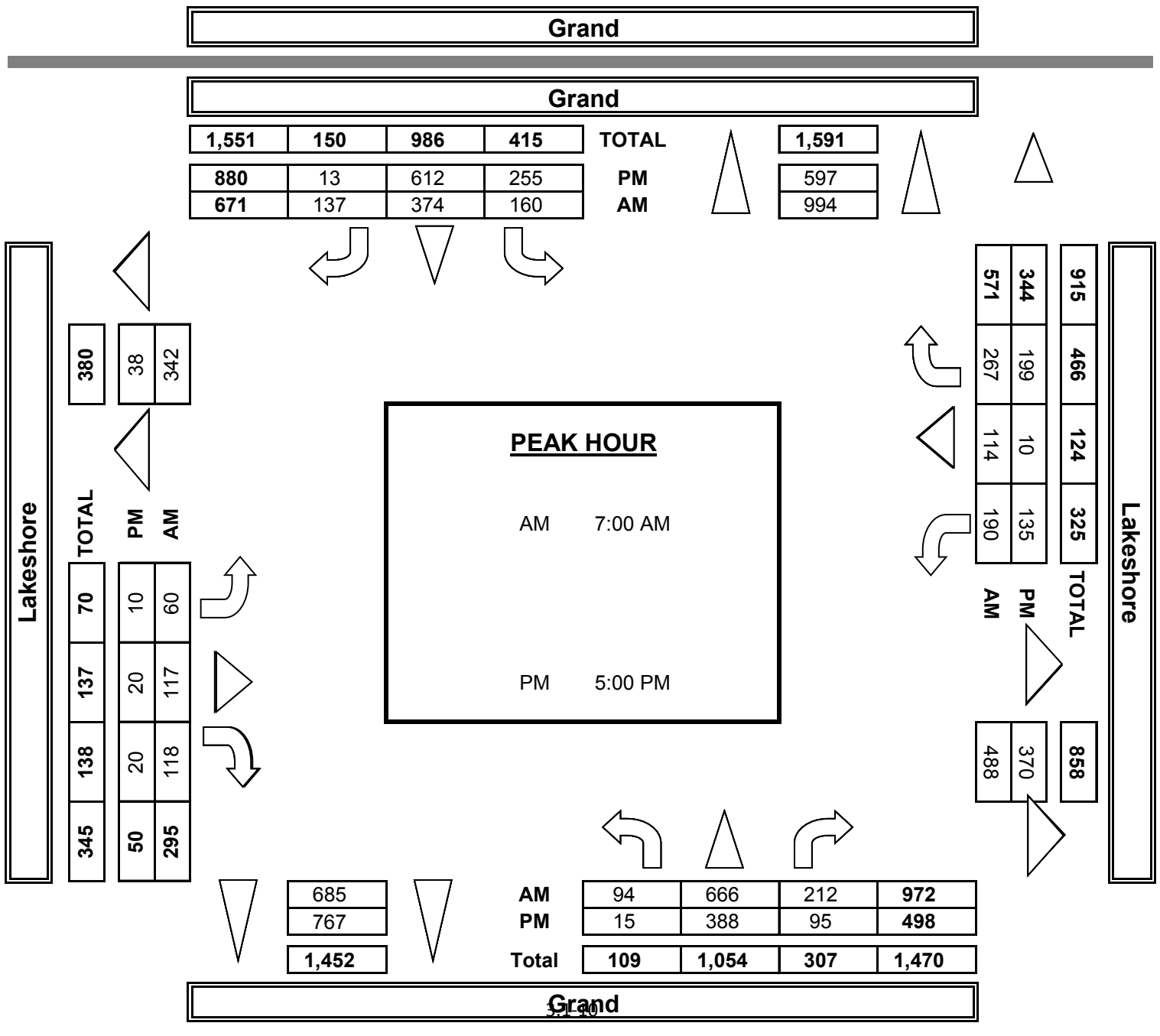


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	1	1	17	0	19	1	1	17	0	19	0	0	0	0	0
	7:15 AM	8	1	62	0	71	8	1	62	0	71	0	0	0	0	0
	7:30 AM	7	2	49	0	58	7	2	49	0	58	0	0	0	0	0
	7:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	8:00 AM	3	0	2	0	5	3	0	2	0	5	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	19	6	130	0	155	19	6	130	0	155	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0
	4:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	1	0	1	0	2	1	0	1	0	2	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	2	1	0	3	0	1	1	0	2	0	1	0	0	1
	TOTAL	1	5	2	0	8	1	4	2	0	7	0	1	0	0	1

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T816

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Sep 19, 19

LOCATION: Lake Elsinore
NORTH & SOUTH: Lincoln
EAST & WEST: Grand

PROJECT #: SC2352
LOCATION #: 9
CONTROL: SIGNAL

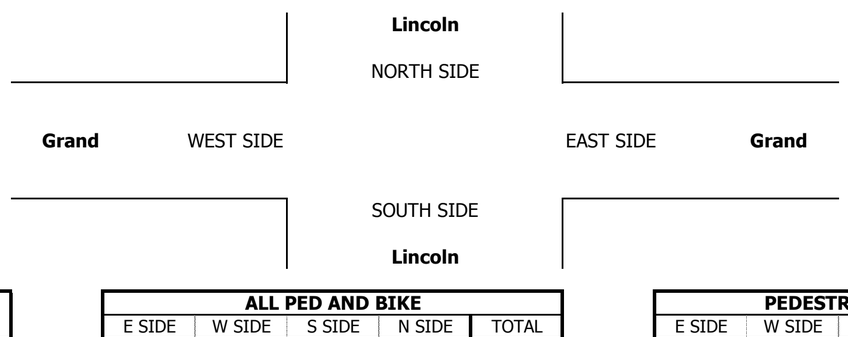
NOTES:

AM PM MD OTHER OTHER

▲ N
◄ W E ►
S ▼

☑ Add U-Turns to Left Turns

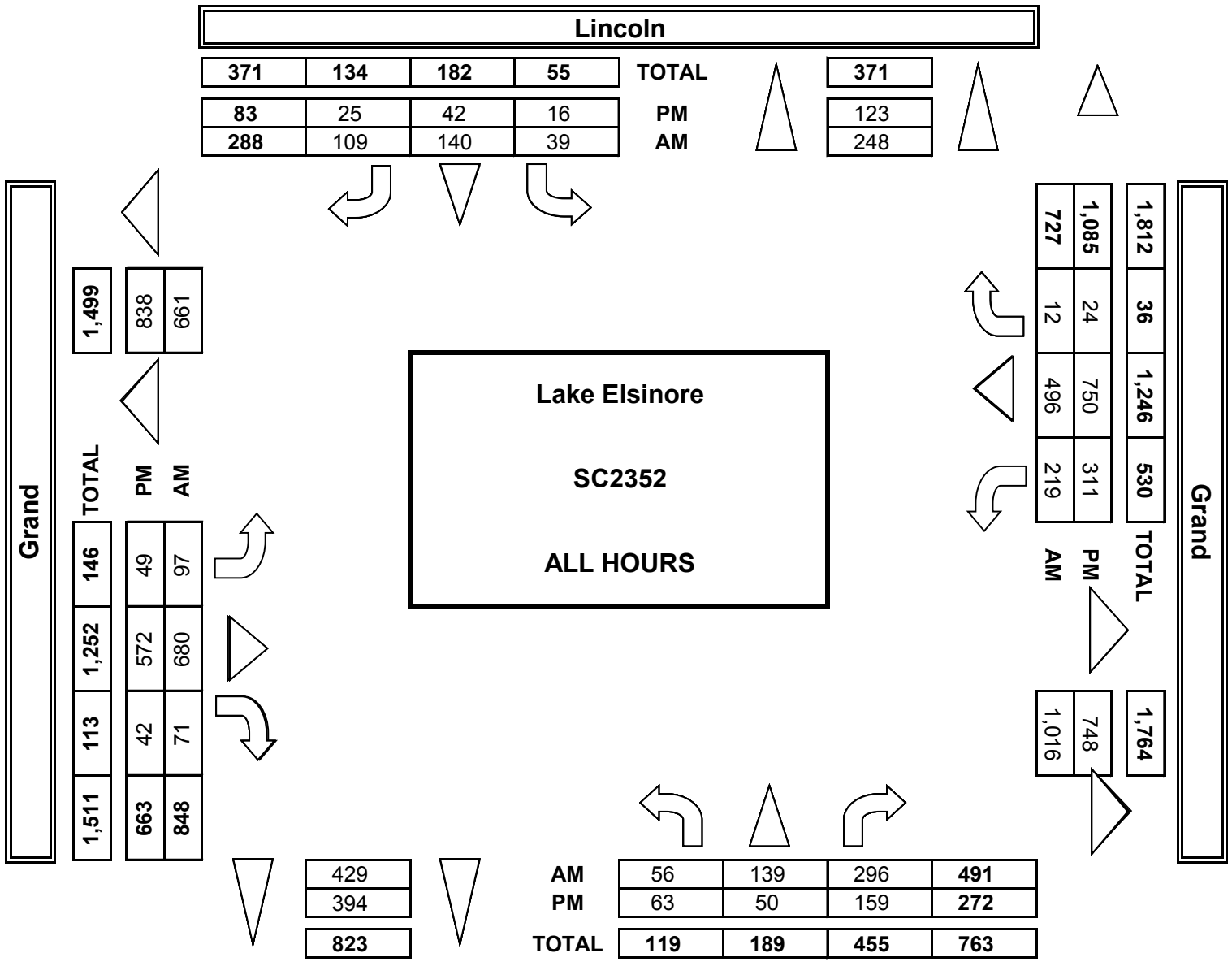
		NORTHBOUND Lincoln			SOUTHBOUND Lincoln			EASTBOUND Grand			WESTBOUND Grand				U-TURNS					RTOR			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL	NRR 0	SRR 0	ERR 0	WRR 0
AM	7:00 AM	3	20	58	2	28	17	11	126	13	43	81	1	403	0	0	0	0	0	15	6	6	0
	7:15 AM	13	44	80	5	27	31	38	138	11	68	123	5	583	0	0	0	0	0	20	9	1	1
	7:30 AM	9	41	46	15	35	23	30	123	12	43	97	4	478	0	0	0	0	0	11	5	2	2
	7:45 AM	13	24	32	12	33	24	9	72	8	13	45	1	286	0	0	0	0	0	8	4	5	0
	8:00 AM	5	1	22	3	10	6	2	61	6	14	38	0	168	0	0	0	1	1	12	1	1	0
	8:15 AM	3	3	20	1	4	2	2	67	8	18	47	0	175	0	0	0	0	0	9	0	5	0
	8:30 AM	4	2	20	1	1	5	3	49	5	8	35	1	134	0	0	0	0	0	5	4	0	0
	8:45 AM	6	4	18	0	2	1	2	44	8	12	30	0	127	0	0	0	0	0	6	0	1	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	56	139	296	39	140	109	97	680	71	219	496	12	2,354	0	0	0	1	1	86	29	21	3
	APPROACH %	11%	28%	60%	14%	49%	38%	11%	80%	8%	30%	68%	2%										
	APP/DEPART	491	/	248	288	/	429	848	/	1,016	727	/	661	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	38	129	216	34	123	95	88	459	44	167	346	11	1,750						54	24	14	3
	APPROACH %	10%	34%	56%	13%	49%	38%	15%	78%	7%	32%	66%	2%										
	PEAK HR FACTOR		0.699			0.863			0.790			0.668		0.750									
	APP/DEPART	383	/	228	252	/	334	591	/	709	524	/	479	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	12	3	13	1	3	2	5	58	4	45	100	3	249	0	0	0	0	0	5	2	0	0
	4:15 PM	8	6	22	0	2	3	8	73	5	32	94	0	253	0	0	0	0	0	14	3	0	0
	4:30 PM	6	4	17	3	5	2	5	72	5	38	89	3	249	0	0	0	0	0	12	0	2	1
	4:45 PM	6	3	13	1	7	5	7	71	9	42	90	6	260	0	0	0	0	0	7	4	0	0
	5:00 PM	7	8	16	2	6	3	4	63	4	38	97	6	254	0	0	0	1	1	9	1	1	2
	5:15 PM	15	9	32	4	10	4	3	85	3	33	75	2	275	0	0	0	0	0	12	4	0	0
	5:30 PM	4	7	25	1	3	4	7	73	6	43	107	2	282	0	0	0	0	0	10	4	0	0
	5:45 PM	5	10	21	4	6	2	10	77	6	40	98	2	281	0	0	0	0	0	7	1	1	1
	VOLUMES	63	50	159	16	42	25	49	572	42	311	750	24	2,103	0	0	0	1	1	76	19	4	4
	APPROACH %	23%	18%	58%	19%	51%	30%	7%	86%	6%	29%	69%	2%										
	APP/DEPART	272	/	123	83	/	394	663	/	748	1,085	/	838	0									
	BEGIN PEAK HR		5:00 PM																				
	VOLUMES	31	34	94	11	25	13	24	298	19	154	377	12	1,092						38	10	2	3
	APPROACH %	19%	21%	59%	22%	51%	27%	7%	87%	6%	28%	69%	2%										
	PEAK HR FACTOR		0.710			0.681			0.917			0.893		0.968									
	APP/DEPART	159	/	70	49	/	197	341	/	404	543	/	421	0									

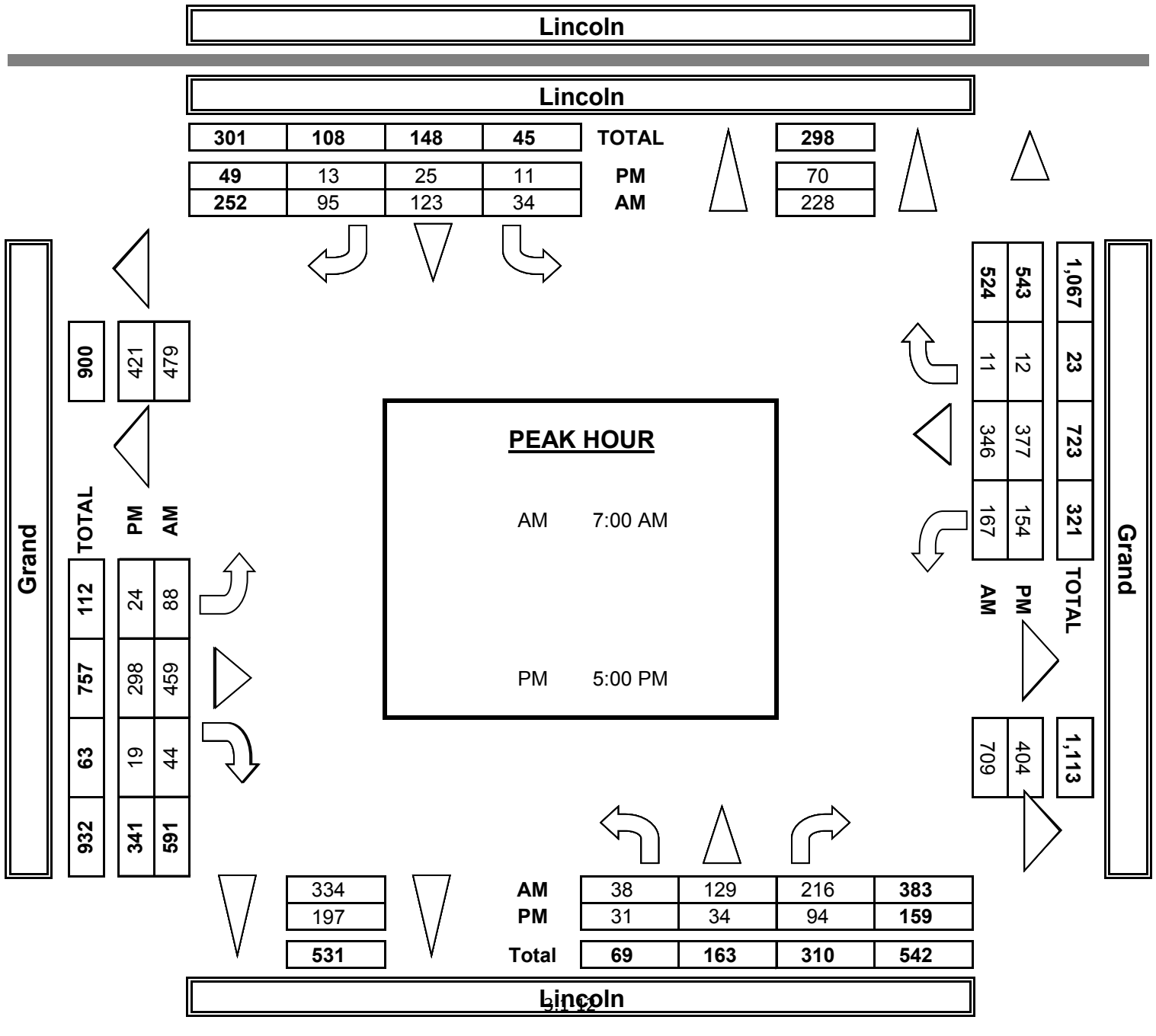


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	9	2	3	3	17	9	2	3	3	17	0	0	0	0	0
	7:15 AM	1	0	0	1	2	1	0	0	0	1	0	0	0	1	1
	7:30 AM	0	1	2	0	3	0	1	2	0	3	0	0	0	0	0
	7:45 AM	4	0	1	1	6	4	0	0	1	5	0	0	1	0	1
	8:00 AM	1	1	0	0	2	1	1	0	0	2	0	0	0	0	0
	8:15 AM	2	1	4	0	7	2	1	3	0	6	0	0	1	0	1
	8:30 AM	1	1	3	1	6	1	1	3	1	6	0	0	0	0	0
	8:45 AM	2	1	0	0	3	2	1	0	0	3	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	20	7	13	6	46	20	7	11	5	43	0	0	2	1	3
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	2	0	2	4	0	2	0	2	4	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	1	0	2	3	0	1	0	2	3	0	0	0	0	0
	5:15 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0
	5:30 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	5:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	TOTAL	0	7	1	4	12	0	7	1	4	12	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T816

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Sep 19, 19

LOCATION: Lake Elsinore
NORTH & SOUTH: Terra Cotta
EAST & WEST: Lakeshore

PROJECT #: SC2352
LOCATION #: 10
CONTROL: SIGNAL

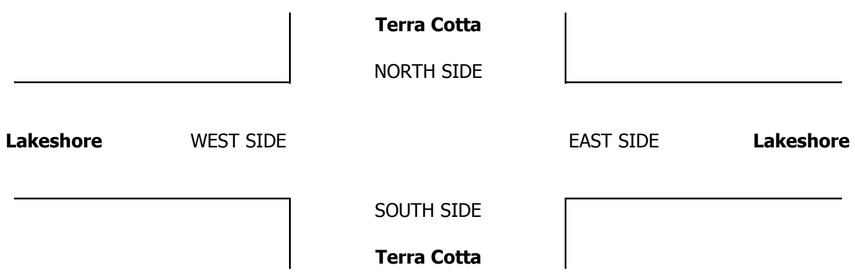
NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

☑ Add U-Turns to Left Turns

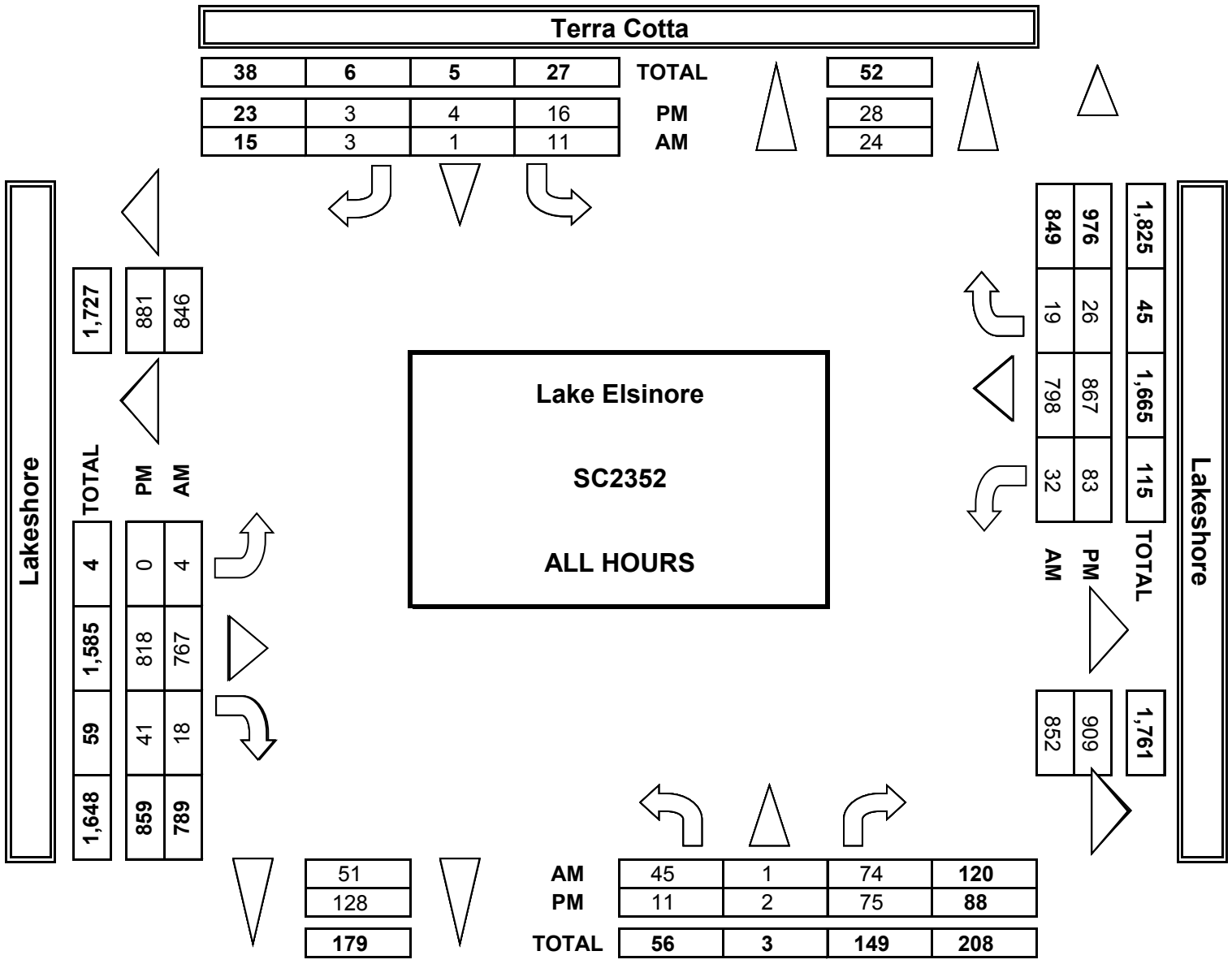
		NORTHBOUND Terra Cotta			SOUTHBOUND Terra Cotta			EASTBOUND Lakeshore			WESTBOUND Lakeshore				U-TURNS					RTOR			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL	NRR 0	SRR X	ERR 0	WRR X
AM	7:00 AM	8	0	12	0	0	1	1	115	1	2	150	3	293	0	0	0	0	0	0	0	0	0
	7:15 AM	10	0	16	1	0	2	1	167	3	2	222	4	428	0	0	0	0	0	1	0	1	0
	7:30 AM	7	0	10	5	0	0	2	164	6	5	97	4	300	0	0	0	0	0	0	0	1	0
	7:45 AM	6	0	7	1	0	0	0	96	1	3	90	1	205	0	0	0	0	0	0	0	0	0
	8:00 AM	5	0	9	2	0	0	0	68	1	7	68	2	162	0	0	0	0	0	0	0	0	0
	8:15 AM	5	0	5	1	1	0	0	58	2	8	73	2	155	0	0	0	0	0	0	0	0	0
	8:30 AM	2	0	7	0	0	0	0	48	4	4	52	1	118	0	0	0	0	0	0	0	0	0
	8:45 AM	2	1	8	1	0	0	0	51	0	1	46	2	112	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	45	1	74	11	1	3	4	767	18	32	798	19	1,773	0	0	0	0	0	1	0	2	0
	APPROACH %	38%	1%	62%	73%	7%	20%	1%	97%	2%	4%	94%	2%										
	APP/DEPART	120	/	24	15	/	51	789	/	852	849	/	846	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	31	0	45	7	0	3	4	542	11	12	559	12	1,226						1	0	2	0
	APPROACH %	41%	0%	59%	70%	0%	30%	1%	97%	2%	2%	96%	2%										
	PEAK HR FACTOR		0.731			0.500			0.810			0.639		0.716									
	APP/DEPART	76	/	16	10	/	23	557	/	594	583	/	593	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	1	0	8	1	1	0	0	84	4	9	98	3	209	0	0	0	0	0	0	0	0	0
	4:15 PM	2	1	8	1	0	0	0	106	6	13	113	4	254	0	0	0	0	0	2	0	1	0
	4:30 PM	1	0	6	3	0	1	0	115	3	8	98	2	237	0	0	0	0	0	1	0	0	0
	4:45 PM	2	0	14	3	0	2	0	126	8	9	104	2	270	0	0	0	0	0	1	0	2	0
	5:00 PM	0	0	10	4	2	0	0	94	4	14	114	7	249	0	0	0	0	0	1	0	1	0
	5:15 PM	1	0	7	1	1	0	0	107	7	8	111	1	244	0	0	0	0	0	0	0	2	0
	5:30 PM	2	0	14	2	0	0	0	92	9	10	120	4	253	0	0	0	0	0	1	0	1	0
	5:45 PM	2	1	8	1	0	0	0	94	0	12	109	3	230	0	0	0	0	0	2	0	0	0
	VOLUMES	11	2	75	16	4	3	0	818	41	83	867	26	1,946	0	0	0	0	0	8	0	7	0
	APPROACH %	13%	2%	85%	70%	17%	13%	0%	95%	5%	9%	89%	3%										
	APP/DEPART	88	/	28	23	/	128	859	/	909	976	/	881	0									
	BEGIN PEAK HR		4:45 PM																				
	VOLUMES	5	0	45	10	3	2	0	419	28	41	449	14	1,016						3	0	6	0
	APPROACH %	10%	0%	90%	67%	20%	13%	0%	94%	6%	8%	89%	3%										
	PEAK HR FACTOR		0.781			0.625			0.834			0.933		0.941									
	APP/DEPART	50	/	14	15	/	72	447	/	474	504	/	456	0									

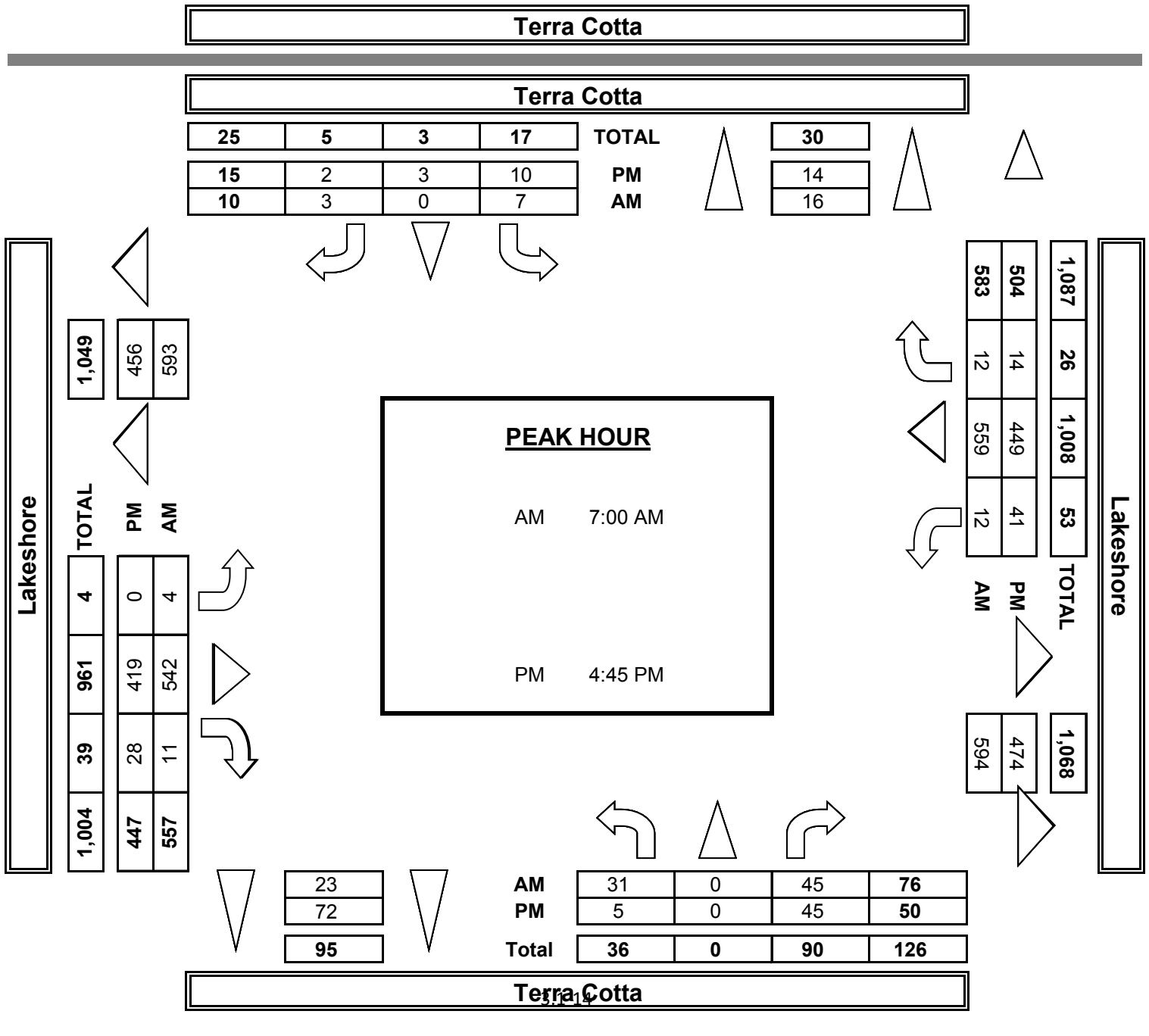


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	6	0	6	0	0	6	0	6	0	0	0	0	0
	7:15 AM	0	0	3	0	3	0	0	2	0	2	0	0	1	0	1
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	3	0	3	0	0	2	0	2	0	0	1	0	1
	8:00 AM	0	0	3	0	3	0	0	3	0	3	0	0	0	0	0
	8:15 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	8:30 AM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	8:45 AM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	2	18	0	20	0	2	16	0	18	0	0	2	0	2
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	2	0	2	0	0	2	0	2	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	3	0	3	0	0	3	0	3	0	0	0	0	0
	5:00 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	7	0	7	0	0	7	0	7	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





Thursday, September 19, 2019 Location: Lake Elsinore PROJECT: SC2352

ADT1 Grand east of Lincoln. **Prepared by AimTD tel. 714 253 7888**

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
0:00			9		18			12:00			58		56		
0:15			10		18			12:15			63		40		
0:30			3		30			12:30			52		31		
0:45			14	36	18	84	120	12:45			52	225	38	165	390
1:00			4		26			13:00			77		52		
1:15			5		7			13:15			69		63		
1:30			8		19			13:30			75		63		
1:45			9	26	9	61	87	13:45			128	349	74	252	601
2:00			6		8			14:00			146		187		
2:15			9		7			14:15			85		124		
2:30			12		7			14:30			114		114		
2:45			15	42	11	33	75	14:45			128	473	146	571	1044
3:00			23		8			15:00			89		100		
3:15			35		3			15:15			80		92		
3:30			45		11			15:30			98		98		
3:45			82	185	11	33	218	15:45			85	352	145	435	787
4:00			86		10			16:00			73		147		
4:15			84		9			16:15			96		127		
4:30			105		17			16:30			93		136		
4:45			91	366	17	53	419	16:45			83	345	131	541	886
5:00			113		25			17:00			85		145		
5:15			98		36			17:15			112		116		
5:30			97		34			17:30			100		147		
5:45			103	411	37	132	543	17:45			103	400	135	543	943
6:00			120		35			18:00			91		146		
6:15			168		44			18:15			99		153		
6:30			122		65			18:30			80		126		
6:45			121	531	50	194	725	18:45			70	340	139	564	904
7:00			185		141			19:00			69		109		
7:15			211		187			19:15			77		116		
7:30			181		153			19:30			47		116		
7:45			123	700	70	551	1251	19:45			47	240	114	455	695
8:00			85		53			20:00			42		82		
8:15			94		38			20:15			37		77		
8:30			71		43			20:30			42		99		
8:45			63	313	43	177	490	20:45			35	156	63	321	477
9:00			83		51			21:00			32		82		
9:15			67		52			21:15			27		76		
9:30			79		38			21:30			26		56		
9:45			51	280	52	193	473	21:45			25	110	80	294	404
10:00			67		46			22:00			22		52		
10:15			84		51			22:15			18		52		
10:30			63		39			22:30			18		50		
10:45			62	276	39	175	451	22:45			16	74	43	197	271
11:00			48		51			23:00			15		30		
11:15			55		28			23:15			12		45		
11:30			54		58			23:30			14		29		
11:45			40	197	33	170	367	23:45			10	51	27	131	182
Total Vol.				3363		1856	**5219**					3115		4469	**7584**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
			6478	6325	**12803**

	AM			**PM**		
Split %	64.4%	35.6%	**40.8%**	41.1%	58.9%	**59.2%**
Peak Hour	7:00	7:00	**7:00**	13:45	17:30	**14:00**
Volume	700	551	**1251**	473	581	**1044**
P.H.F.	0.83	0.74	**0.79**	0.81	0.95	**0.78**

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Thursday, September 19, 2019 Location: Lake Elsinore PROJECT: SC2352

ADT2 Mountain west of Lake. **Prepared by AimTD tel. 714 253 7888**

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
0:00			3		4			12:00			19		14		
0:15			2		3			12:15			29		12		
0:30			3		4			12:30			17		17		
0:45			0	8	5	16	24	12:45			23	88	23	66	154
1:00			0		3			13:00			23		31		
1:15			0		0			13:15			20		26		
1:30			0		3			13:30			17		24		
1:45			2	2	0	6	8	13:45			29	89	32	113	202
2:00			4		2			14:00			51		40		
2:15			0		0			14:15			35		29		
2:30			5		2			14:30			25		31		
2:45			3	12	4	8	20	14:45			28	139	37	137	276
3:00			4		0			15:00			40		45		
3:15			8		4			15:15			32		32		
3:30			15		3			15:30			26		23		
3:45			16	43	3	10	53	15:45			30	128	42	142	270
4:00			15		0			16:00			25		21		
4:15			17		0			16:15			28		30		
4:30			20		0			16:30			32		34		
4:45			29	81	2	2	83	16:45			27	112	35	120	232
5:00			22		4			17:00			21		35		
5:15			41		2			17:15			28		33		
5:30			26		3			17:30			19		38		
5:45			29	118	0	9	127	17:45			28	96	44	150	246
6:00			27		3			18:00			26		45		
6:15			36		6			18:15			31		29		
6:30			49		9			18:30			22		34		
6:45			60	172	12	30	202	18:45			17	96	19	127	223
7:00			63		17			19:00			23		24		
7:15			63		38			19:15			14		26		
7:30			69		41			19:30			21		22		
7:45			66	261	18	114	375	19:45			18	76	31	103	179
8:00			29		15			20:00			14		29		
8:15			35		9			20:15			18		25		
8:30			42		15			20:30			16		23		
8:45			22	128	10	49	177	20:45			14	62	19	96	158
9:00			29		6			21:00			9		22		
9:15			31		7			21:15			13		21		
9:30			24		19			21:30			9		13		
9:45			23	107	12	44	151	21:45			6	37	20	76	113
10:00			22		18			22:00			4		21		
10:15			28		16			22:15			3		11		
10:30			18		10			22:30			8		13		
10:45			19	87	17	61	148	22:45			2	17	4	49	66
11:00			24		10			23:00			4		6		
11:15			23		16			23:15			4		8		
11:30			29		17			23:30			3		6		
11:45			19	95	12	55	150	23:45			0	11	5	25	36
Total Vol.			1114		404	**1518**					951		1204		**2155**

Daily Totals

NB	SB	EB	WB	Combined
		2065	1608	**3673**

	AM			**PM**		
Split %	73.4%	26.6%	**41.3%**	44.1%	55.9%	**58.7%**
Peak Hour	7:00	7:00	**7:00**	13:45	17:15	**14:00**
Volume	261	114	**375**	140	160	**276**
P.H.F.	0.95	0.70	**0.85**	0.69	0.89	**0.76**

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Thursday, September 19, 2019 Location: Lake Elsinore PROJECT: SC2352

ADT3 Lake north of Mountain. **Prepared by AimTD tel. 714 253 7888**

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
0:00	15		37					12:00	126		94				
0:15	18		35					12:15	122		82				
0:30	8		42					12:30	104		99				
0:45	15	56	44	158			214	12:45	117	469	109	384			853
1:00	10		38					13:00	129		134				
1:15	14		21					13:15	131		143				
1:30	15		27					13:30	118		138				
1:45	20	59	19	105			164	13:45	142	520	172	587			1107
2:00	16		16					14:00	177		168				
2:15	16		16					14:15	173		167				
2:30	24		18					14:30	141		180				
2:45	31	87	18	68			155	14:45	163	654	216	731			1385
3:00	51		8					15:00	157		170				
3:15	72		12					15:15	124		208				
3:30	92		13					15:30	147		179				
3:45	148	363	13	46			409	15:45	146	574	246	803			1377
4:00	183		18					16:00	131		232				
4:15	174		23					16:15	142		224				
4:30	211		22					16:30	139		258				
4:45	196	764	24	87			851	16:45	139	551	271	985			1536
5:00	220		25					17:00	130		218				
5:15	220		35					17:15	140		238				
5:30	201		50					17:30	147		260				
5:45	208	849	46	156			1005	17:45	160	577	257	973			1550
6:00	208		53					18:00	128		265				
6:15	246		58					18:15	140		265				
6:30	253		73					18:30	116		222				
6:45	252	959	84	268			1227	18:45	102	486	252	1004			1490
7:00	256		142					19:00	102		196				
7:15	231		156					19:15	95		192				
7:30	274		111					19:30	79		188				
7:45	271	1032	86	495			1527	19:45	87	363	191	767			1130
8:00	202		69					20:00	60		170				
8:15	186		79					20:15	66		155				
8:30	151		70					20:30	85		171				
8:45	134	673	68	286			959	20:45	59	270	132	628			898
9:00	157		83					21:00	54		148				
9:15	162		72					21:15	52		146				
9:30	118		85					21:30	45		107				
9:45	116	553	89	329			882	21:45	33	184	147	548			732
10:00	127		93					22:00	27		116				
10:15	155		87					22:15	34		93				
10:30	121		78					22:30	25		98				
10:45	111	514	77	335			849	22:45	17	103	75	382			485
11:00	103		90					23:00	24		63				
11:15	98		86					23:15	16		67				
11:30	118		111					23:30	23		51				
11:45	87	406	82	369			775	23:45	18	81	47	228			309
Total Vol.		6315		2702			**9017**			4832		8020			**12852**

Daily Totals

NB	SB	EB	WB	**Combined**
11147	10722			**21869**

	AM			**PM**		
Split %	70.0%	30.0%	**41.2%**	37.6%	62.4%	**58.8%**
Peak Hour	7:00	7:00	**7:00**	14:00	17:30	**17:30**
Volume	1032	495	**1527**	654	1047	**1622**
P.H.F.	0.94	0.79	**0.96**	0.89	0.99	**0.97**

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APPENDIX 3.2:

EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	251	0	3	113	0	0	0	12	0	0	0
Future Vol, veh/h	0	251	0	3	113	0	0	0	12	0	0	0
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	295	0	4	133	0	0	0	14	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	-	295	0	0	436	436	295	443	436	133
Stage 1	-	-	-	-	-	-	295	295	-	141	141	-
Stage 2	-	-	-	-	-	-	141	141	-	302	295	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	0	1266	-	-	531	514	744	525	514	916
Stage 1	-	-	0	-	-	-	713	669	-	862	780	-
Stage 2	-	-	0	-	-	-	862	780	-	707	669	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1452	-	-	1266	-	-	530	512	744	514	512	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	530	512	-	514	512	-
Stage 1	-	-	-	-	-	-	713	669	-	862	778	-
Stage 2	-	-	-	-	-	-	859	778	-	694	669	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	9.9	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	744	1452	-	1266	-	-	-
HCM Lane V/C Ratio	0.019	-	-	0.003	-	-	-
HCM Control Delay (s)	9.9	0	-	7.9	-	-	0
HCM Lane LOS	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	0	-	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	4	183	9	3	708	348	21	266
Future Volume (vph)	9	4	183	9	3	708	348	21	266
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	15.8	15.8	9.6	16.2	16.2	9.6	16.2
Total Split (s)	38.0	38.0	38.0	38.0	9.6	70.2	70.2	11.8	72.4
Total Split (%)	31.7%	31.7%	31.7%	31.7%	8.0%	58.5%	58.5%	9.8%	60.3%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		5.8	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)		23.8		22.6	5.1	66.1	66.1	5.9	68.6
Actuated g/C Ratio		0.23		0.22	0.05	0.63	0.63	0.06	0.65
v/c Ratio		0.04		0.79	0.04	0.62	0.34	0.22	0.23
Control Delay		29.1		56.5	54.3	17.6	6.5	56.8	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		29.1		56.5	54.3	17.6	6.5	56.8	9.6
LOS		C		E	D	B	A	E	A
Approach Delay		29.1		56.5		14.0			13.1
Approach LOS		C		E		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 105	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 64.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Lake St. & Nichols Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	4	2	183	9	42	3	708	348	21	266	0
Future Volume (veh/h)	9	4	2	183	9	42	3	708	348	21	266	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	9	4	2	189	9	30	3	730	0	22	274	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	221	94	40	283	10	35	7	1185		41	1220	0
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.00	0.63	0.00	0.02	0.65	0.00
Sat Flow, veh/h	911	520	220	1209	58	192	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	15	0	0	228	0	0	3	730	0	22	274	0
Grp Sat Flow(s),veh/h/ln	1651	0	0	1458	0	0	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	14.7	0.0	0.0	0.2	23.8	0.0	1.2	6.1	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	15.4	0.0	0.0	0.2	23.8	0.0	1.2	6.1	0.0
Prop In Lane	0.60		0.13	0.83		0.13	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	355	0	0	328	0	0	7	1185		41	1220	0
V/C Ratio(X)	0.04	0.00	0.00	0.70	0.00	0.00	0.42	0.62		0.54	0.22	0.00
Avail Cap(c_a), veh/h	578	0	0	526	0	0	88	1185		126	1220	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.4	0.0	0.0	40.3	0.0	0.0	50.4	11.2	0.0	49.1	7.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.7	0.0	0.0	14.0	2.4	0.0	4.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	5.5	0.0	0.0	0.1	8.6	0.0	0.6	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	0.0	0.0	43.0	0.0	0.0	64.5	13.6	0.0	53.2	7.6	0.0
LnGrp LOS	C	A	A	D	A	A	E	B		D	A	A
Approach Vol, veh/h		15			228			733	A		296	
Approach Delay, s/veh		34.4			43.0			13.8			11.0	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	70.5		24.1	5.0	72.4		24.1				
Change Period (Y+Rc), s	4.6	6.2		* 5.8	4.6	6.2		5.8				
Max Green Setting (Gmax), s	7.2	64.0		* 33	5.0	66.2		32.2				
Max Q Clear Time (g_c+I1), s	3.2	25.8		2.7	2.2	8.1		17.4				
Green Ext Time (p_c), s	0.0	5.1		0.0	0.0	1.5		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			18.6									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	57	1008	38	18	430
Future Volume (vph)	67	57	1008	38	18	430
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.7	14.7	16.2	16.2	9.6	16.2
Total Split (s)	15.3	15.3	94.6	94.6	10.1	104.7
Total Split (%)	12.8%	12.8%	78.8%	78.8%	8.4%	87.3%
Yellow Time (s)	3.7	3.7	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.2	6.2	4.6	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.2	10.2	98.7	98.7	5.3	102.7
Actuated g/C Ratio	0.09	0.09	0.82	0.82	0.04	0.86
v/c Ratio	0.47	0.44	0.69	0.03	0.24	0.28
Control Delay	62.9	63.0	9.8	1.4	63.0	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	63.0	9.8	1.4	63.0	2.7
LOS	E	E	A	A	E	A
Approach Delay	62.9		9.5			5.1
Approach LOS	E		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.7	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 70.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Lake St. & Alberhill Ranch Rd.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	57	1008	38	18	430
Future Volume (veh/h)	67	57	1008	38	18	430
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	60	1061	26	19	453
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	147	131	1436	1217	35	1545
Arrive On Green	0.08	0.08	0.77	0.77	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	71	60	1061	26	19	453
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	4.5	4.3	36.3	0.5	1.3	6.6
Cycle Q Clear(g_c), s	4.5	4.3	36.3	0.5	1.3	6.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	147	131	1436	1217	35	1545
V/C Ratio(X)	0.48	0.46	0.74	0.02	0.54	0.29
Avail Cap(c_a), veh/h	158	141	1436	1217	82	1545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	52.1	7.4	3.3	57.9	2.4
Incr Delay (d2), s/veh	0.9	0.9	3.4	0.0	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.7	11.0	0.1	0.6	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.2	53.1	10.9	3.3	62.8	2.9
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	131		1087			472
Approach Delay, s/veh	53.1		10.7			5.3
Approach LOS	D		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.9	97.8			104.7	14.6
Change Period (Y+Rc), s	4.6	6.2			6.2	4.7
Max Green Setting (Gmax), s	5.5	88.4			98.5	10.6
Max Q Clear Time (g_c+I1), s	3.3	38.3			8.6	6.5
Green Ext Time (p_c), s	0.0	10.5			2.7	0.1

Intersection Summary		
HCM 6th Ctrl Delay	12.5	
HCM 6th LOS	B	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	172	15	49	25	23	827	44	8	421
Future Volume (vph)	172	15	49	25	23	827	44	8	421
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.7	34.7	21.7	21.7	9.6	26.8	26.8	9.6	23.2
Total Split (s)	34.7	34.7	34.7	34.7	10.5	75.7	75.7	9.6	74.8
Total Split (%)	28.9%	28.9%	28.9%	28.9%	8.8%	63.1%	63.1%	8.0%	62.3%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.6	4.8	4.8	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	4.7	4.7	4.6	5.8	5.8	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	19.8	19.8	19.8	19.8	5.5	75.5	75.5	5.0	70.9
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.05	0.70	0.70	0.05	0.66
v/c Ratio	0.74	0.27	0.22	0.22	0.26	0.66	0.04	0.10	0.22
Control Delay	60.0	13.1	39.2	17.7	60.0	14.2	2.0	56.4	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	13.1	39.2	17.7	60.0	14.2	2.0	56.4	8.7
LOS	E	B	D	B	E	B	A	E	A
Approach Delay		43.7		26.4		14.8			9.5
Approach LOS		D		C		B			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 18.4	Intersection LOS: B
Intersection Capacity Utilization 71.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Lake St. & Mountain St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	15	76	49	25	47	23	827	44	8	421	68
Future Volume (veh/h)	172	15	76	49	25	47	23	827	44	8	421	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.98		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	179	16	43	51	26	37	24	861	34	8	439	61
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	88	238	291	140	199	42	1210	1018	18	1985	274
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.65	0.65	0.01	0.63	0.63
Sat Flow, veh/h	1339	442	1187	1322	698	993	1781	1870	1574	1781	3136	433
Grp Volume(v), veh/h	179	0	59	51	0	63	24	861	34	8	248	252
Grp Sat Flow(s),veh/h/ln	1339	0	1629	1322	0	1692	1781	1870	1574	1781	1777	1792
Q Serve(g_s), s	13.9	0.0	3.3	3.6	0.0	3.4	1.4	32.6	0.8	0.5	6.4	6.5
Cycle Q Clear(g_c), s	17.2	0.0	3.3	6.9	0.0	3.4	1.4	32.6	0.8	0.5	6.4	6.5
Prop In Lane	1.00		0.73	1.00		0.59	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	293	0	326	291	0	339	42	1210	1018	18	1125	1135
V/C Ratio(X)	0.61	0.00	0.18	0.18	0.00	0.19	0.57	0.71	0.03	0.45	0.22	0.22
Avail Cap(c_a), veh/h	396	0	451	393	0	468	97	1210	1018	82	1125	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	0.0	36.0	38.8	0.0	36.0	52.3	12.5	6.9	53.4	8.5	8.5
Incr Delay (d2), s/veh	2.1	0.0	0.3	0.3	0.0	0.3	4.4	3.6	0.1	6.7	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	1.3	1.2	0.0	1.4	0.7	12.5	0.3	0.2	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.2	0.0	36.2	39.1	0.0	36.3	56.7	16.1	7.0	60.0	8.9	8.9
LnGrp LOS	D	A	D	D	A	D	E	B	A	E	A	A
Approach Vol, veh/h		238			114			919			508	
Approach Delay, s/veh		43.0			37.5			16.8			9.7	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	76.3		26.4	7.2	74.8		26.4				
Change Period (Y+Rc), s	4.6	* 6.2		* 4.7	4.6	6.2		* 4.7				
Max Green Setting (Gmax), s	5.0	* 70		* 30	5.9	68.6		* 30				
Max Q Clear Time (g_c+I1), s	2.5	34.6		19.2	3.4	8.5		8.9				
Green Ext Time (p_c), s	0.0	7.0		0.6	0.0	2.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		19.6	
HCM 6th LOS		B	

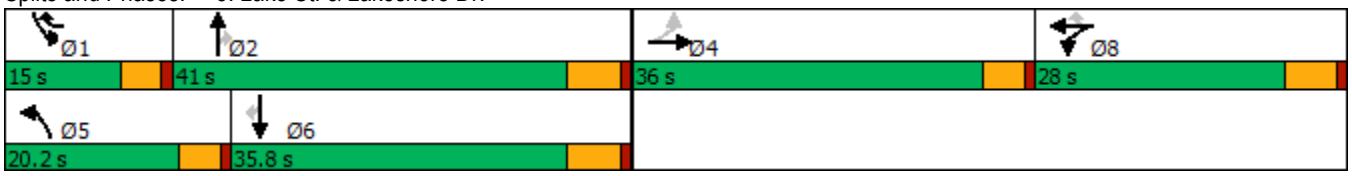
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	60	117	190	114	267	94	666	212	160	374	137
Future Volume (vph)	60	117	190	114	267	94	666	212	160	374	137
Turn Type	Perm	NA	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4	8	8	1	5	2		1	6	
Permitted Phases	4				8			2			6
Detector Phase	4	4	8	8	1	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.6	35.6	15.8	15.8	9.6	9.6	33.8	33.8	9.6	22.8	22.8
Total Split (s)	36.0	36.0	28.0	28.0	15.0	20.2	41.0	41.0	15.0	35.8	35.8
Total Split (%)	30.0%	30.0%	23.3%	23.3%	12.5%	16.8%	34.2%	34.2%	12.5%	29.8%	29.8%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	5.8	5.8	4.6	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		21.6	18.5	18.5	29.2	11.2	35.7	35.7	9.5	33.9	33.9
Actuated g/C Ratio		0.20	0.17	0.17	0.27	0.11	0.34	0.34	0.09	0.32	0.32
v/c Ratio		0.82	0.79	0.44	0.37	0.64	0.71	0.43	0.67	0.42	0.36
Control Delay		41.2	61.7	45.5	4.3	63.4	36.9	6.2	60.2	32.7	10.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.2	61.7	45.5	4.3	63.4	36.9	6.2	60.2	32.7	10.2
LOS		D	E	D	A	E	D	A	E	C	B
Approach Delay		41.2		31.7			32.8			34.7	
Approach LOS		D		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 106.4	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 34.0	Intersection LOS: C
Intersection Capacity Utilization 77.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Lake St. & Lakeshore Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	117	118	190	114	267	94	666	212	160	374	137
Future Volume (veh/h)	60	117	118	190	114	267	94	666	212	160	374	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.81	1.00		0.71	1.00		0.88	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	148	102	241	144	218	119	843	125	203	473	95
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	299	204	296	310	548	148	1236	487	269	1218	481
Arrive On Green	0.20	0.20	0.20	0.17	0.17	0.17	0.08	0.35	0.35	0.08	0.34	0.34
Sat Flow, veh/h	759	1473	1006	1781	1870	1991	1781	3554	1401	3456	3554	1405
Grp Volume(v), veh/h	183	0	143	241	144	218	119	843	125	203	473	95
Grp Sat Flow(s),veh/h/ln	1832	0	1405	1781	1870	996	1781	1777	1401	1728	1777	1405
Q Serve(g_s), s	9.0	0.0	9.1	13.2	7.0	9.4	6.6	20.5	6.5	5.8	10.2	4.8
Cycle Q Clear(g_c), s	9.0	0.0	9.1	13.2	7.0	9.4	6.6	20.5	6.5	5.8	10.2	4.8
Prop In Lane	0.41		0.72	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	0	285	296	310	548	148	1236	487	269	1218	481
V/C Ratio(X)	0.49	0.00	0.50	0.82	0.46	0.40	0.80	0.68	0.26	0.75	0.39	0.20
Avail Cap(c_a), veh/h	569	0	436	391	410	654	275	1236	487	355	1218	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	0.0	35.8	40.7	38.1	32.5	45.6	28.2	23.6	45.7	25.2	23.4
Incr Delay (d2), s/veh	1.0	0.0	1.4	9.6	1.1	0.5	3.8	3.1	1.3	4.2	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	3.2	6.3	3.2	2.2	3.0	8.7	2.2	2.6	4.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	0.0	37.1	50.3	39.2	33.0	49.4	31.3	24.9	49.9	26.2	24.4
LnGrp LOS	D	A	D	D	D	C	D	C	C	D	C	C
Approach Vol, veh/h		326			603			1087			771	
Approach Delay, s/veh		36.9			41.4			32.5			32.2	
Approach LOS		D			D			C			C	

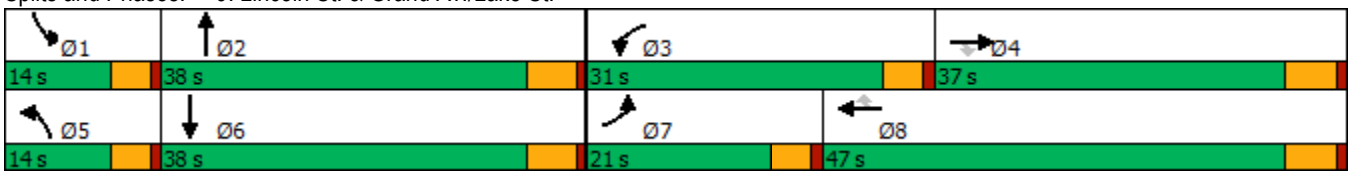
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	41.0		25.1	13.0	40.5		22.6				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	35.2		31.4	15.6	30.0		22.2				
Max Q Clear Time (g_c+I1), s	7.8	22.5		11.1	8.6	12.2		15.2				
Green Ext Time (p_c), s	0.1	4.7		2.1	0.1	3.0		1.6				

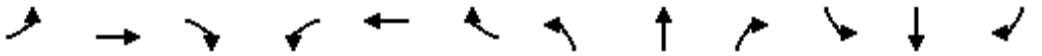
Intersection Summary			
HCM 6th Ctrl Delay		34.9	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	88	459	44	167	346	11	38	129	34	123
Future Volume (vph)	88	459	44	167	346	11	38	129	34	123
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.8	32.8	9.6	31.8	31.8	9.6	34.4	9.6	34.4
Total Split (s)	21.0	37.0	37.0	31.0	47.0	47.0	14.0	38.0	14.0	38.0
Total Split (%)	17.5%	30.8%	30.8%	25.8%	39.2%	39.2%	11.7%	31.7%	11.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	10.5	37.0	37.0	15.9	42.4	42.4	7.1	14.0	6.9	13.9
Actuated g/C Ratio	0.12	0.41	0.41	0.18	0.47	0.47	0.08	0.16	0.08	0.15
v/c Ratio	0.57	0.42	0.08	0.71	0.28	0.02	0.37	0.63	0.33	0.47
Control Delay	51.5	23.8	0.2	49.7	18.0	0.0	51.7	17.5	51.0	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	23.8	0.2	49.7	18.0	0.0	51.7	17.5	51.0	22.4
LOS	D	C	A	D	B	A	D	B	D	C
Approach Delay		26.1			27.7			21.0		26.2
Approach LOS		C			C			C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 89.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 25.5	Intersection LOS: C
Intersection Capacity Utilization 69.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Lincoln St. & Grand Av./Lake St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	459	44	167	346	11	38	129	216	34	123	95
Future Volume (veh/h)	88	459	44	167	346	11	38	129	216	34	123	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	612	40	223	461	11	51	172	216	45	164	95
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	1384	607	260	1610	707	71	360	314	67	442	243
Arrive On Green	0.08	0.39	0.39	0.15	0.45	0.45	0.04	0.20	0.20	0.04	0.20	0.20
Sat Flow, veh/h	1781	3554	1559	1781	3554	1561	1781	1777	1552	1781	2209	1213
Grp Volume(v), veh/h	117	612	40	223	461	11	51	172	216	45	130	129
Grp Sat Flow(s),veh/h/ln	1781	1777	1559	1781	1777	1561	1781	1777	1552	1781	1777	1646
Q Serve(g_s), s	5.9	11.5	1.5	11.1	7.4	0.4	2.6	7.8	11.7	2.3	5.7	6.2
Cycle Q Clear(g_c), s	5.9	11.5	1.5	11.1	7.4	0.4	2.6	7.8	11.7	2.3	5.7	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	147	1384	607	260	1610	707	71	360	314	67	355	329
V/C Ratio(X)	0.79	0.44	0.07	0.86	0.29	0.02	0.72	0.48	0.69	0.68	0.37	0.39
Avail Cap(c_a), veh/h	321	1384	607	517	1610	707	184	637	556	184	637	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	20.5	17.4	37.9	15.6	13.7	43.2	32.0	33.6	43.2	31.4	31.6
Incr Delay (d2), s/veh	3.6	1.0	0.2	3.1	0.4	0.0	5.0	1.0	2.7	4.4	0.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.6	0.5	4.8	2.8	0.1	1.2	3.3	4.4	1.0	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	21.5	17.6	41.0	16.1	13.7	48.2	33.0	36.3	47.6	32.0	32.3
LnGrp LOS	D	C	B	D	B	B	D	C	D	D	C	C
Approach Vol, veh/h		769			695			439			304	
Approach Delay, s/veh		24.8			24.0			36.4			34.5	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	23.8	17.9	41.2	8.2	23.6	12.1	47.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	32.6	26.4	31.2	9.4	32.6	16.4	41.2
Max Q Clear Time (g_c+I1), s	4.3	13.7	13.1	13.5	4.6	8.2	7.9	9.4
Green Ext Time (p_c), s	0.0	2.1	0.2	3.6	0.0	1.4	0.1	3.0

Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	542	578	12	7	3
Future Vol, veh/h	4	542	578	12	7	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	753	803	17	10	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	820	0	-	0	1201	812
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	389	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	807	-	-	-	190	378
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	807	-	-	-	189	378
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	655	-

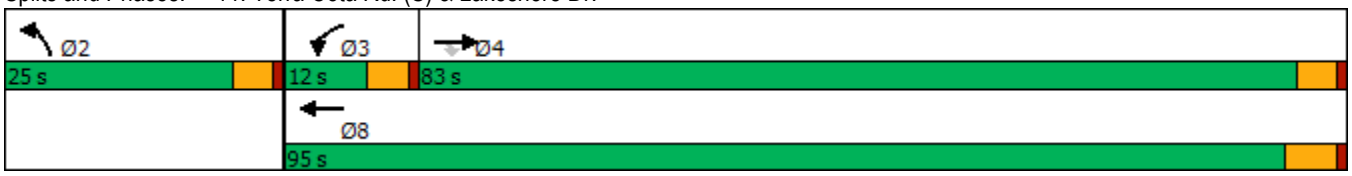
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	807	-	-	-	319	378
HCM Lane V/C Ratio	0.007	-	-	-	0.03	0.011
HCM Control Delay (s)	9.5	-	-	-	16.6	14.6
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Configurations					
Traffic Volume (vph)	538	11	12	559	31
Future Volume (vph)	538	11	12	559	31
Turn Type	NA	Perm	Prot	NA	Prot
Protected Phases	4		3	8	2
Permitted Phases		4			
Detector Phase	4	4	3	8	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	15.8	14.6
Total Split (s)	83.0	83.0	12.0	95.0	25.0
Total Split (%)	69.2%	69.2%	10.0%	79.2%	20.8%
Yellow Time (s)	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		
Recall Mode	Max	Max	None	Max	None
Act Effct Green (s)	86.0	86.0	5.8	89.2	12.9
Actuated g/C Ratio	0.76	0.76	0.05	0.79	0.11
v/c Ratio	0.52	0.01	0.19	0.53	0.55
Control Delay	8.3	2.8	56.5	6.0	58.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	2.8	56.5	6.0	58.3
LOS	A	A	E	A	E
Approach Delay	8.2			7.0	58.3
Approach LOS	A			A	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 10.8	Intersection LOS: B
Intersection Capacity Utilization 46.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Terra Cota Rd. (S) & Lakeshore Dr.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	538	11	12	559	31	45
Future Volume (veh/h)	538	11	12	559	31	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	747	12	17	776	43	62
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	1415	1166	33	1528	59	85
Arrive On Green	0.76	0.76	0.02	0.82	0.09	0.09
Sat Flow, veh/h	1870	1542	1781	1870	674	972
Grp Volume(v), veh/h	747	12	17	776	106	0
Grp Sat Flow(s),veh/h/ln	1870	1542	1781	1870	1662	0
Q Serve(g_s), s	17.7	0.2	1.0	14.2	6.8	0.0
Cycle Q Clear(g_c), s	17.7	0.2	1.0	14.2	6.8	0.0
Prop In Lane		1.00	1.00		0.41	0.58
Lane Grp Cap(c), veh/h	1415	1166	33	1528	146	0
V/C Ratio(X)	0.53	0.01	0.52	0.51	0.73	0.00
Avail Cap(c_a), veh/h	1415	1166	121	1528	310	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.4	3.3	53.1	3.1	48.5	0.0
Incr Delay (d2), s/veh	1.4	0.0	4.6	1.2	6.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.1	0.5	3.2	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.8	3.3	57.7	4.3	55.2	0.0
LnGrp LOS	A	A	E	A	E	A
Approach Vol, veh/h	759			793	106	
Approach Delay, s/veh	6.8			5.5	55.2	
Approach LOS	A			A	E	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		14.2	6.6	88.4		95.0
Change Period (Y+Rc), s		4.6	4.6	* 5.8		5.8
Max Green Setting (Gmax), s		20.4	7.4	* 78		89.2
Max Q Clear Time (g_c+I1), s		8.8	3.0	19.7		16.2
Green Ext Time (p_c), s		0.2	0.0	5.7		6.0

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	95	0	5	148	0	0	0	3	0	0	0
Future Vol, veh/h	0	95	0	5	148	0	0	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	113	0	6	176	0	0	0	4	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	176	0	-	113	0	0	301	301	113	303	301	176
Stage 1	-	-	-	-	-	-	113	113	-	188	188	-
Stage 2	-	-	-	-	-	-	188	188	-	115	113	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1400	-	0	1476	-	-	651	612	940	649	612	867
Stage 1	-	-	0	-	-	-	892	802	-	814	745	-
Stage 2	-	-	0	-	-	-	814	745	-	890	802	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1400	-	-	1476	-	-	648	609	940	644	609	867
Mov Cap-2 Maneuver	-	-	-	-	-	-	648	609	-	644	609	-
Stage 1	-	-	-	-	-	-	892	802	-	814	741	-
Stage 2	-	-	-	-	-	-	810	741	-	887	802	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	8.8	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	940	1400	-	1476	-	-	-
HCM Lane V/C Ratio	0.004	-	-	0.004	-	-	-
HCM Control Delay (s)	8.8	0	-	7.4	-	-	0
HCM Lane LOS	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	0	-	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	4	238	1	2	376	168	39	749
Future Volume (vph)	4	4	238	1	2	376	168	39	749
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	15.8	15.8	9.6	16.2	16.2	9.6	16.2
Total Split (s)	38.0	38.0	38.0	38.0	9.6	70.2	70.2	11.8	72.4
Total Split (%)	31.7%	31.7%	31.7%	31.7%	8.0%	58.5%	58.5%	9.8%	60.3%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		5.8	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)		27.8		26.6	5.0	65.6	65.6	6.5	70.4
Actuated g/C Ratio		0.25		0.24	0.05	0.59	0.59	0.06	0.63
v/c Ratio		0.02		0.85	0.03	0.37	0.18	0.41	0.69
Control Delay		28.8		63.8	55.5	15.1	2.9	65.5	18.8
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.8		63.8	55.5	15.1	2.9	65.5	18.8
LOS		C		E	E	B	A	E	B
Approach Delay		28.8		63.8		11.5			21.1
Approach LOS		C		E		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 70.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Lake St. & Nichols Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	2	238	1	16	2	376	168	39	749	0
Future Volume (veh/h)	4	4	2	238	1	16	2	376	168	39	749	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	4	4	1	259	1	9	2	409	0	42	814	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	199	188	42	356	1	10	5	1122		59	1179	0
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.00	0.60	0.00	0.03	0.63	0.00
Sat Flow, veh/h	710	890	200	1371	5	48	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	9	0	0	269	0	0	2	409	0	42	814	0
Grp Sat Flow(s),veh/h/ln	1800	0	0	1424	0	0	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	19.2	0.0	0.0	0.1	11.9	0.0	2.5	30.4	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	19.6	0.0	0.0	0.1	11.9	0.0	2.5	30.4	0.0
Prop In Lane	0.44		0.11	0.96		0.03	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	429	0	0	367	0	0	5	1122		59	1179	0
V/C Ratio(X)	0.02	0.00	0.00	0.73	0.00	0.00	0.42	0.36		0.71	0.69	0.00
Avail Cap(c_a), veh/h	592	0	0	495	0	0	83	1122		120	1179	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	0.0	0.0	40.9	0.0	0.0	53.1	10.9	0.0	51.1	12.9	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.7	0.0	0.0	19.9	0.9	0.0	5.6	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	6.9	0.0	0.0	0.1	4.5	0.0	1.2	11.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	0.0	0.0	44.6	0.0	0.0	73.0	11.9	0.0	56.7	16.2	0.0
LnGrp LOS	C	A	A	D	A	A	E	B		E	B	A
Approach Vol, veh/h		9			269			411	A		856	
Approach Delay, s/veh		33.4			44.6			12.1			18.2	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	70.2		28.3	4.9	73.5		28.3				
Change Period (Y+Rc), s	4.6	6.2		* 5.8	4.6	6.2		5.8				
Max Green Setting (Gmax), s	7.2	64.0		* 33	5.0	66.2		32.2				
Max Q Clear Time (g_c+I1), s	4.5	13.9		2.4	2.1	32.4		21.6				
Green Ext Time (p_c), s	0.0	2.3		0.0	0.0	5.9		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		21.3
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

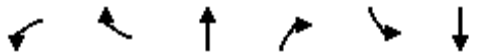
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	28	16	543	31	32	966
Future Volume (vph)	28	16	543	31	32	966
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.7	14.7	16.2	16.2	9.6	16.2
Total Split (s)	15.3	15.3	94.6	94.6	10.1	104.7
Total Split (%)	12.8%	12.8%	78.8%	78.8%	8.4%	87.3%
Yellow Time (s)	3.7	3.7	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.2	6.2	4.6	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.0	10.0	98.4	98.4	5.4	104.3
Actuated g/C Ratio	0.09	0.09	0.84	0.84	0.05	0.90
v/c Ratio	0.20	0.13	0.38	0.03	0.43	0.64
Control Delay	54.0	52.9	5.0	1.4	71.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	52.9	5.0	1.4	71.0	5.2
LOS	D	D	A	A	E	A
Approach Delay	53.6		4.9			7.3
Approach LOS	D		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 68.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Lake St. & Alberhill Ranch Rd.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	28	16	543	31	32	966
Future Volume (veh/h)	28	16	543	31	32	966
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	18	597	31	35	1062
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	121	108	1442	1222	52	1570
Arrive On Green	0.07	0.07	0.77	0.77	0.03	0.84
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	31	18	597	31	35	1062
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	1.9	1.3	12.6	0.5	2.3	24.8
Cycle Q Clear(g_c), s	1.9	1.3	12.6	0.5	2.3	24.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	121	108	1442	1222	52	1570
V/C Ratio(X)	0.26	0.17	0.41	0.03	0.68	0.68
Avail Cap(c_a), veh/h	161	143	1442	1222	83	1570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	51.6	4.5	3.1	56.4	3.5
Incr Delay (d2), s/veh	0.4	0.3	0.9	0.0	5.7	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.5	3.6	0.1	1.1	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.3	51.8	5.4	3.2	62.1	5.9
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	49		628			1097
Approach Delay, s/veh	52.1		5.3			7.7
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.0	96.7			104.7	12.7
Change Period (Y+Rc), s	4.6	6.2			6.2	4.7
Max Green Setting (Gmax), s	5.5	88.4			98.5	10.6
Max Q Clear Time (g_c+I1), s	4.3	14.6			26.8	3.9
Green Ext Time (p_c), s	0.0	3.9			10.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	60	4	24	5	51	501	16	34	863
Future Volume (vph)	60	4	24	5	51	501	16	34	863
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.7	34.7	21.7	21.7	9.6	26.8	26.8	9.6	23.2
Total Split (s)	34.7	34.7	34.7	34.7	10.5	75.7	75.7	9.6	74.8
Total Split (%)	28.9%	28.9%	28.9%	28.9%	8.8%	63.1%	63.1%	8.0%	62.3%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.6	4.8	4.8	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	4.7	4.7	4.6	5.8	5.8	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	13.8	13.8	13.8	13.8	5.7	77.2	77.2	5.0	74.2
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.06	0.75	0.75	0.05	0.72
v/c Ratio	0.35	0.16	0.14	0.08	0.56	0.39	0.01	0.43	0.41
Control Delay	45.3	15.0	40.2	21.4	71.5	8.7	0.0	66.0	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	15.0	40.2	21.4	71.5	8.7	0.0	66.0	9.0
LOS	D	B	D	C	E	A	A	E	A
Approach Delay		33.6		32.2		14.1			10.9
Approach LOS		C		C		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 102.5	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 54.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Lake St. & Mountain St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	4	34	24	5	13	51	501	16	34	863	97
Future Volume (veh/h)	60	4	34	24	5	13	51	501	16	34	863	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	4	15	26	5	5	55	545	14	37	938	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	34	127	195	84	84	71	1331	1127	58	2288	239
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.04	0.71	0.71	0.03	0.70	0.70
Sat Flow, veh/h	1405	345	1293	1393	858	858	1781	1870	1584	1781	3247	339
Grp Volume(v), veh/h	65	0	19	26	0	10	55	545	14	37	513	523
Grp Sat Flow(s),veh/h/ln	1405	0	1638	1393	0	1716	1781	1870	1584	1781	1777	1809
Q Serve(g_s), s	4.3	0.0	1.0	1.7	0.0	0.5	3.0	11.6	0.3	2.0	11.8	11.8
Cycle Q Clear(g_c), s	4.8	0.0	1.0	2.7	0.0	0.5	3.0	11.6	0.3	2.0	11.8	11.8
Prop In Lane	1.00		0.79	1.00		0.50	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	204	0	160	195	0	168	71	1331	1127	58	1252	1275
V/C Ratio(X)	0.32	0.00	0.12	0.13	0.00	0.06	0.78	0.41	0.01	0.64	0.41	0.41
Avail Cap(c_a), veh/h	495	0	500	484	0	524	107	1331	1127	91	1252	1275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.4	0.0	40.4	41.7	0.0	40.2	46.7	5.8	4.1	46.9	6.0	6.0
Incr Delay (d2), s/veh	0.9	0.0	0.3	0.3	0.0	0.1	8.8	0.9	0.0	4.4	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.4	0.6	0.0	0.2	1.5	3.6	0.1	0.9	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	0.0	40.7	42.0	0.0	40.3	55.5	6.7	4.1	51.3	7.0	7.0
LnGrp LOS	D	A	D	D	A	D	E	A	A	D	A	A
Approach Vol, veh/h		84			36			614			1073	
Approach Delay, s/veh		42.7			41.5			11.0			8.5	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	76.1		14.3	8.5	75.4		14.3				
Change Period (Y+Rc), s	4.6	* 6.2		* 4.7	4.6	6.2		* 4.7				
Max Green Setting (Gmax), s	5.0	* 70		* 30	5.9	68.6		* 30				
Max Q Clear Time (g_c+I1), s	4.0	13.6		6.8	5.0	13.8		4.7				
Green Ext Time (p_c), s	0.0	3.6		0.2	0.0	7.1		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

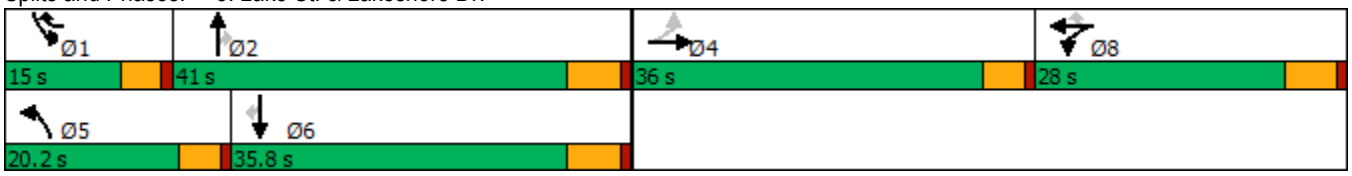
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	10	20	135	10	199	15	388	95	255	612	13
Future Volume (vph)	10	20	135	10	199	15	388	95	255	612	13
Turn Type	Perm	NA	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4	8	8	1	5	2		1	6	
Permitted Phases	4				8			2			6
Detector Phase	4	4	8	8	1	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.6	35.6	15.8	15.8	9.6	9.6	33.8	33.8	9.6	22.8	22.8
Total Split (s)	36.0	36.0	28.0	28.0	15.0	20.2	41.0	41.0	15.0	35.8	35.8
Total Split (%)	30.0%	30.0%	23.3%	23.3%	12.5%	16.8%	34.2%	34.2%	12.5%	29.8%	29.8%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	5.8	5.8	4.6	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		13.5	13.4	13.4	29.8	5.7	36.2	36.2	10.4	49.4	49.4
Actuated g/C Ratio		0.15	0.15	0.15	0.33	0.06	0.40	0.40	0.11	0.54	0.54
v/c Ratio		0.18	0.56	0.04	0.20	0.14	0.30	0.15	0.70	0.34	0.02
Control Delay		24.9	47.1	37.2	4.3	49.1	22.4	5.4	52.0	16.5	0.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		24.9	47.1	37.2	4.3	49.1	22.4	5.4	52.0	16.5	0.0
LOS		C	D	D	A	D	C	A	D	B	A
Approach Delay		24.9		22.1			20.0			26.5	
Approach LOS		C		C			B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 91.1	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 23.8	Intersection LOS: C
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Lake St. & Lakeshore Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	20	135	10	199	15	388	95	255	612	13
Future Volume (veh/h)	10	20	20	135	10	199	15	388	95	255	612	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	22	0	145	11	205	16	417	99	274	658	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	160	0	224	235	640	33	1575	702	358	1877	837
Arrive On Green	0.07	0.07	0.00	0.13	0.13	0.13	0.02	0.44	0.44	0.10	0.53	0.53
Sat Flow, veh/h	1128	2556	0	1781	1870	2790	1781	3554	1584	3456	3554	1585
Grp Volume(v), veh/h	18	15	0	145	11	205	16	417	99	274	658	8
Grp Sat Flow(s),veh/h/ln	1814	1777	0	1781	1870	1395	1781	1777	1584	1728	1777	1585
Q Serve(g_s), s	0.7	0.6	0.0	6.2	0.4	4.9	0.7	5.9	2.9	6.1	8.5	0.2
Cycle Q Clear(g_c), s	0.7	0.6	0.0	6.2	0.4	4.9	0.7	5.9	2.9	6.1	8.5	0.2
Prop In Lane	0.62		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	116	0	224	235	640	33	1575	702	358	1877	837
V/C Ratio(X)	0.15	0.13	0.00	0.65	0.05	0.32	0.48	0.26	0.14	0.76	0.35	0.01
Avail Cap(c_a), veh/h	717	703	0	498	523	1069	350	1575	702	453	1877	837
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	35.0	0.0	33.0	30.5	25.4	38.6	13.9	13.1	34.6	10.8	8.9
Incr Delay (d2), s/veh	0.6	0.5	0.0	3.1	0.1	0.3	3.9	0.4	0.4	4.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.0	2.7	0.2	1.5	0.3	2.1	1.0	2.6	2.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	35.5	0.0	36.1	30.6	25.7	42.5	14.3	13.5	38.9	11.4	8.9
LnGrp LOS	D	D	A	D	C	C	D	B	B	D	B	A
Approach Vol, veh/h		33			361			532			940	
Approach Delay, s/veh		35.6			30.0			15.0			19.4	
Approach LOS		D			C			B			B	

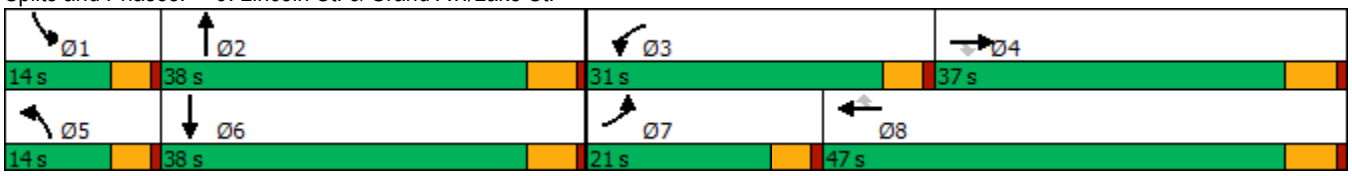
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	41.0		9.8	6.1	47.7		15.8				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	35.2		31.4	15.6	30.0		22.2				
Max Q Clear Time (g_c+I1), s	8.1	7.9		2.7	2.7	10.5		8.2				
Green Ext Time (p_c), s	0.1	2.9		0.1	0.0	4.0		1.0				

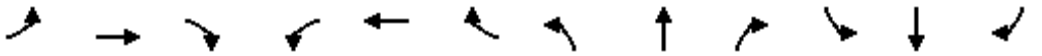
Intersection Summary			
HCM 6th Ctrl Delay		20.5	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	24	298	19	154	377	12	31	34	11	25
Future Volume (vph)	24	298	19	154	377	12	31	34	11	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.8	32.8	9.6	31.8	31.8	9.6	34.4	9.6	34.4
Total Split (s)	21.0	37.0	37.0	31.0	47.0	47.0	14.0	38.0	14.0	38.0
Total Split (%)	17.5%	30.8%	30.8%	25.8%	39.2%	39.2%	11.7%	31.7%	11.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	6.0	33.5	33.5	11.7	46.0	46.0	6.2	17.8	5.5	13.2
Actuated g/C Ratio	0.07	0.41	0.41	0.14	0.57	0.57	0.08	0.22	0.07	0.16
v/c Ratio	0.19	0.21	0.03	0.62	0.19	0.01	0.24	0.17	0.09	0.07
Control Delay	44.6	19.3	0.1	45.7	12.4	0.0	44.8	10.0	44.5	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	19.3	0.1	45.7	12.4	0.0	44.8	10.0	44.5	23.2
LOS	D	B	A	D	B	A	D	B	D	C
Approach Delay		20.0			21.6			16.8		27.9
Approach LOS		C			C			B		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 81.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 55.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: Lincoln St. & Grand Av./Lake St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	298	19	154	377	12	31	34	94	11	25	13
Future Volume (veh/h)	24	298	19	154	377	12	31	34	94	11	25	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	307	18	159	389	9	32	35	58	11	26	3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1611	718	199	1912	852	57	275	246	24	438	50
Arrive On Green	0.03	0.45	0.45	0.11	0.54	0.54	0.03	0.16	0.16	0.01	0.14	0.14
Sat Flow, veh/h	1781	3554	1584	1781	3554	1583	1781	1777	1585	1781	3213	364
Grp Volume(v), veh/h	25	307	18	159	389	9	32	35	58	11	14	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1583	1781	1777	1585	1781	1777	1800
Q Serve(g_s), s	1.1	4.0	0.5	6.7	4.3	0.2	1.4	1.3	2.5	0.5	0.5	0.6
Cycle Q Clear(g_c), s	1.1	4.0	0.5	6.7	4.3	0.2	1.4	1.3	2.5	0.5	0.5	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	48	1611	718	199	1912	852	57	275	246	24	242	246
V/C Ratio(X)	0.52	0.19	0.03	0.80	0.20	0.01	0.56	0.13	0.24	0.45	0.06	0.06
Avail Cap(c_a), veh/h	382	1611	718	614	1912	852	219	756	675	219	756	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	12.5	11.6	33.2	9.2	8.2	36.5	27.9	28.4	37.5	28.8	28.8
Incr Delay (d2), s/veh	3.2	0.3	0.1	2.8	0.2	0.0	3.1	0.2	0.5	4.8	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	0.2	2.8	1.4	0.1	0.6	0.5	0.9	0.2	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	12.8	11.6	36.0	9.4	8.2	39.6	28.1	28.9	42.3	28.9	28.9
LnGrp LOS	D	B	B	D	A	A	D	C	C	D	C	C
Approach Vol, veh/h		350			557			125			40	
Approach Delay, s/veh		14.7			17.0			31.4			32.6	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	17.3	13.1	40.5	7.1	15.8	6.7	47.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	32.6	26.4	31.2	9.4	32.6	16.4	41.2
Max Q Clear Time (g_c+I1), s	2.5	4.5	8.7	6.0	3.4	2.6	3.1	6.3
Green Ext Time (p_c), s	0.0	0.4	0.2	1.8	0.0	0.1	0.0	2.5

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	419	440	14	10	2
Future Vol, veh/h	0	419	440	14	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	446	468	15	11	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	483	0	-	0	699	476
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	223	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1078	-	-	-	390	588
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	793	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1078	-	-	-	390	588
Mov Cap-2 Maneuver	-	-	-	-	491	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	793	-

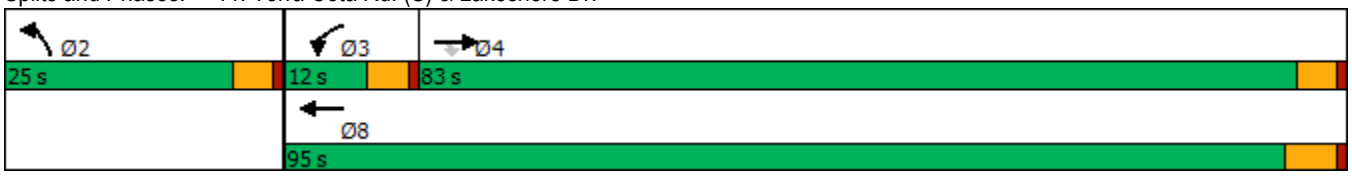
Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1078	-	-	-	491	588
HCM Lane V/C Ratio	-	-	-	-	0.022	0.004
HCM Control Delay (s)	0	-	-	-	12.5	11.1
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Configurations					
Traffic Volume (vph)	401	28	41	449	5
Future Volume (vph)	401	28	41	449	5
Turn Type	NA	Perm	Prot	NA	Prot
Protected Phases	4		3	8	2
Permitted Phases		4			
Detector Phase	4	4	3	8	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	15.8	14.6
Total Split (s)	83.0	83.0	12.0	95.0	25.0
Total Split (%)	69.2%	69.2%	10.0%	79.2%	20.8%
Yellow Time (s)	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		
Recall Mode	Max	Max	None	Max	None
Act Effct Green (s)	85.1	85.1	6.6	93.4	10.5
Actuated g/C Ratio	0.77	0.77	0.06	0.85	0.10
v/c Ratio	0.30	0.03	0.42	0.30	0.34
Control Delay	5.9	1.8	62.1	3.0	53.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	1.8	62.1	3.0	53.0
LOS	A	A	E	A	D
Approach Delay	5.6			8.0	53.0
Approach LOS	A			A	D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.2	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.42	
Intersection Signal Delay: 9.2	Intersection LOS: A
Intersection Capacity Utilization 45.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Terra Cota Rd. (S) & Lakeshore Dr.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	401	28	41	449	5	45
Future Volume (veh/h)	401	28	41	449	5	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	427	24	44	478	5	48
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	1407	1188	61	1550	11	106
Arrive On Green	0.75	0.75	0.03	0.83	0.07	0.07
Sat Flow, veh/h	1870	1580	1781	1870	149	1428
Grp Volume(v), veh/h	427	24	44	478	54	0
Grp Sat Flow(s),veh/h/ln	1870	1580	1781	1870	1606	0
Q Serve(g_s), s	7.9	0.4	2.6	6.3	3.5	0.0
Cycle Q Clear(g_c), s	7.9	0.4	2.6	6.3	3.5	0.0
Prop In Lane		1.00	1.00		0.09	0.89
Lane Grp Cap(c), veh/h	1407	1188	61	1550	120	0
V/C Ratio(X)	0.30	0.02	0.73	0.31	0.45	0.00
Avail Cap(c_a), veh/h	1407	1188	122	1550	304	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.3	3.4	51.5	2.1	47.7	0.0
Incr Delay (d2), s/veh	0.6	0.0	6.0	0.5	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.1	1.2	1.2	1.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.8	3.4	57.5	2.6	50.3	0.0
LnGrp LOS	A	A	E	A	D	A
Approach Vol, veh/h	451			522	54	
Approach Delay, s/veh	4.8			7.3	50.3	
Approach LOS	A			A	D	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	12.6	8.3	86.7	95.0
Change Period (Y+Rc), s	4.6	4.6	* 5.8	5.8
Max Green Setting (Gmax), s	20.4	7.4	* 78	89.2
Max Q Clear Time (g_c+I1), s	5.5	4.6	9.9	8.3
Green Ext Time (p_c), s	0.1	0.0	2.7	3.0

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 3.3:

EXISTING (2019) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

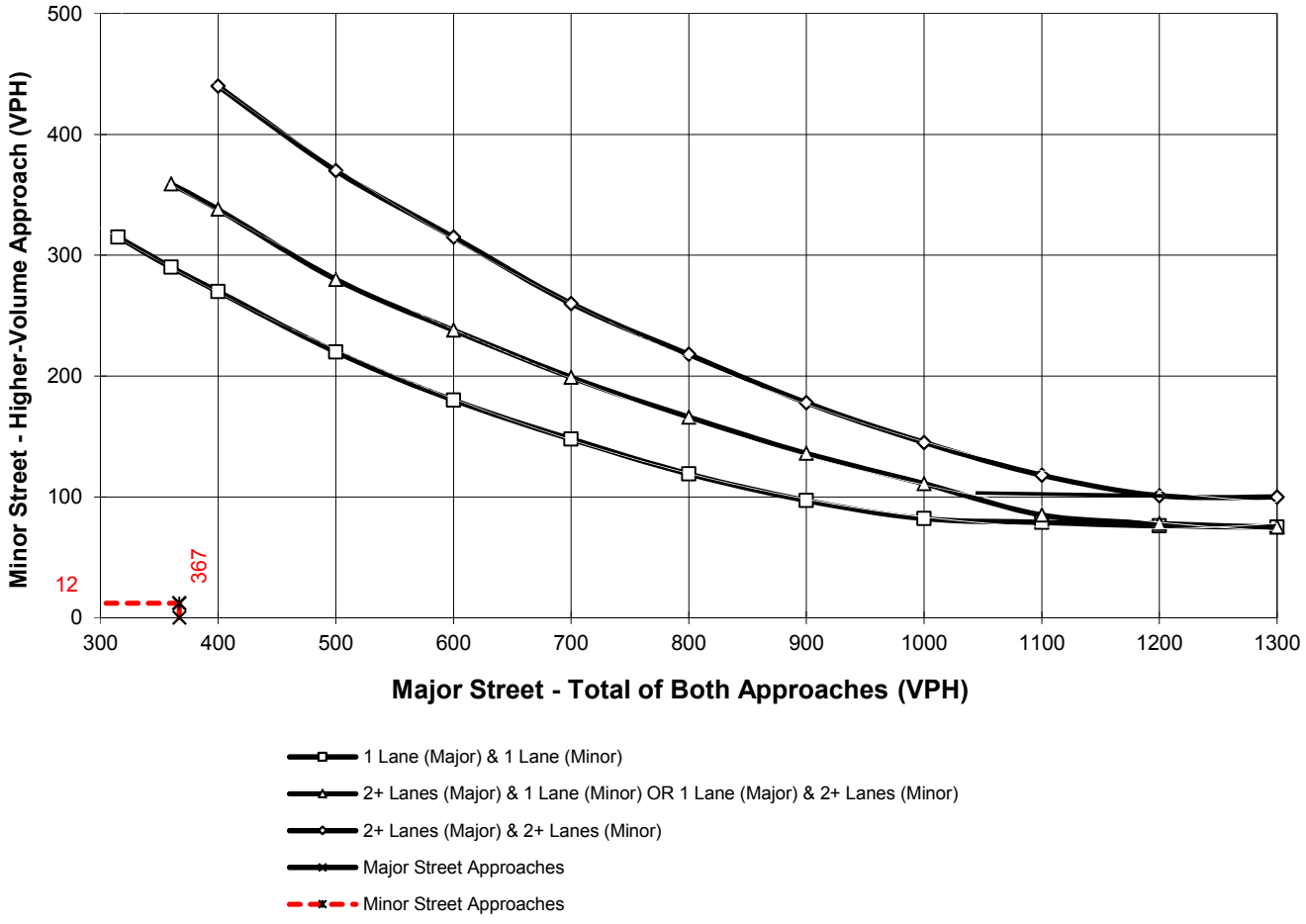
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2019) Conditions - Weekday AM Peak Hour**

Major Street Name = **Mountain St.** Total of Both Approaches (VPH) = **367**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Ginger Root Wy.** High Volume Approach (VPH) = **12**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

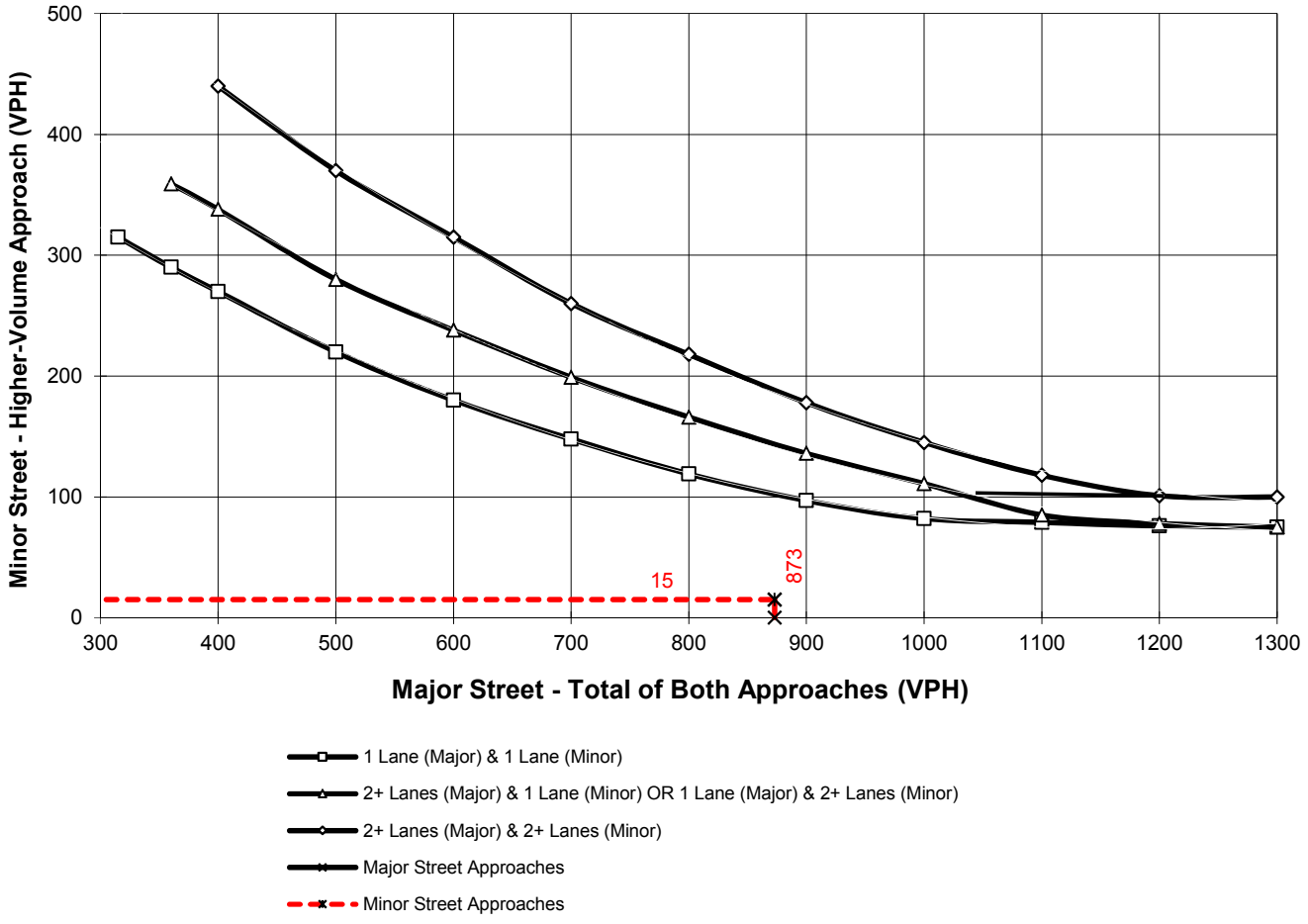
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2019) Conditions - Weekday PM Peak Hour**

Major Street Name = **Lakeshore Dr.** Total of Both Approaches (VPH) = **873**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Terra Cotta Rd. (N)** High Volume Approach (VPH) = **15**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 4.1:

CUMULATIVE DEVELOPMENT TRIP GENERATION

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Cumulative Projects Trip Generation Rates

Land Use	Units[1]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates									
Single Family Detached Residential	DU	210	0.19	0.56	0.74	0.62	0.37	0.99	9.44
Shopping Center	TSF	820	0.58	0.36	0.94	1.83	1.98	3.81	37.75
Multifamily Housing (low)	TSF	220	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Warehouse (Truck)	TSF	150	0.03	0.01	0.04	0.01	0.03	0.04	0.35
Warehouse (Passenger Car)	TSF	150	0.10	0.03	0.14	0.04	0.11	0.15	1.39
Hotel	RM	310	0.28	0.19	0.47	0.31	0.29	0.60	8.36
Recreation Community Center	TSF	495	1.16	0.60	1.76	1.09	1.22	2.31	28.82
Senior Adult Housing Attached	DU	252	0.07	0.13	0.20	0.14	0.12	0.26	3.70
Mini Warehouse (Storage)	TSF	151	0.06	0.04	0.10	0.08	0.09	0.17	1.51
Automobile Sales	TSF	840	1.37	0.50	1.87	0.97	1.46	2.43	27.84
High Turnover Sit-Down Restaurant	TSF	932	5.47	4.47	9.94	6.06	3.71	9.77	112.18
Resort Hotel	RM	330	0.23	0.09	0.32	0.18	0.23	0.41	8.36
General Office	TSF	710	1.00	0.16	1.16	0.18	0.97	1.15	9.74
University	TSF	550	0.84	0.25	1.09	0.37	0.80	1.17	26.04
Recycling	TSF	897	4.89	4.89	9.78	5.25	4.85	10.10	101.00

[1] DU = Dwelling Units; TSF = thousand square feet; RM = Rooms

Cumulative Projects Trip Generation Summary

No.	Project Name	Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
City of Lake Elsinore											
LE1	Greenwald[2]	Shopping Center	104.450	TSF	61	37	98	143	155	298	2,957
LE2	Ramsgate	Single Family Residential	1,306	DU	242	725	966	815	478	1,293	12,329
		Condo/Townhomes	120	DU	13	43	55	42	25	67	878
LE3	Trieste Residential (Tract 36624)	Single Family Residential	75	DU	14	42	56	47	27	74	708
LE4	Fairway Business Park	Warehouse	279.445	TSF	29	9	38	11	31	42	389
LE5	Ness Industrial Garage	Warehouse	12.000	TSF	1	0	2	0	1	2	17
LE6	Spyglass Ranch[3]	Single Family Residential	523	DU	97	290	387	326	192	518	4,937
		Condo/Townhomes	171	DU	18	61	79	60	35	96	1,252
		Shopping Center	145.00	TSF	85	52	136	265	287	552	5,474
LE7	South Shore I (Tract 31593)	Single Family Residential	521	DU	96	289	386	325	191	516	4,918
	South Shore II (Tract 36567)	Single Family Residential	147	DU	27	82	109	92	54	146	1,388
LE8	La Strada (Tract 32077)	Single Family Residential	134	DU	25	74	99	84	49	133	1,265
LE9	Tuscany West (Tract 25473)	Single Family Residential	164	DU	30	91	121	102	60	162	1,548
LE10	Marina Village Condos (Tract 33820)[6]	Condo/Townhomes	94	DU	10	33	43	33	19	53	688
LE11	La Quinta Inn	Hotel	64	RM	18	12	30	20	19	38	535
LE12	LE Sports Complex	Recreational Community Center	525.000	TSF	610	314	924	570	643	1,213	924
LE13	TAG Property[4]	New Car Sales	50.000	TSF	68	25	94	49	73	122	1,392
LE14	City Center Condos	Condo/Townhomes	144	DU	15	51	66	51	30	81	1,054
LE15	Central & Collier	Shopping Center	75.000	TSF	44	27	71	137	149	286	2,831
LE16	Diamond Specific Plan[5]	Condo/Townhomes	600	DU	63	213	276	212	124	336	4,392
		Hotel	150	RM	42	29	71	46	44	90	1,254
		General Office	425.000	TSF	424	69	493	78	411	489	4,140
		Shopping Center	472.000	TSF	275	169	444	863	935	1,798	17,818
LE17	The Colony	Apartments	211	DU	22	75	97	74	44	118	1,545
	Back Basin Specific Plan & East Lake Specific Plan	Single Family Residential	2,407	DU	445	1,336	1,781	1,501	882	2,383	22,722
		Condo/Townhomes	324	DU	34	115	149	114	67	181	2,372
	John Laing Homes (Phase 2)	Single Family Residential	506	DU	94	281	374	316	185	501	4,777
		Condo/Townhomes	1,141	DU	121	404	525	403	236	639	8,352
		Apartments	308	DU	33	109	142	109	64	172	2,255
		Shopping Center	117.000	TSF	68	42	110	214	232	446	4,417
LE18	Canyon Hills Estates (Tract 34249)	Single Family Residential	302	DU	56	168	223	188	111	299	2,851
	Canyon Hills (Multiple Tracts)	Single Family Residential	2,700	DU	500	1,499	1,998	1,684	989	2,673	25,488
		Apartments	1,575	DU	167	558	725	556	326	882	11,529
	Audie Murphy (Tract 36484)	Single Family Residential	109	DU	20	60	81	68	40	108	1,029
	Audie Murphy (Tract 36485)	Single Family Residential	1,003	DU	186	557	742	626	367	993	9,468
LE19	Artisan Alley	Shopping Center	95.100	TSF	55	34	89	174	188	362	3,590
LE20	Quikrete Plant	Warehouse	163.900	TSF	17	5	22	7	18	25	228

Cumulative Projects Trip Generation Summary

No.	Project Name	Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
LE21	Alberhill Ridge (Tract 35001)	Single Family Residential	1,056	DU	195	586	781	659	387	1,045	9,969
		Apartments	345	DU	37	122	159	122	71	193	2,525
		Shopping Center	679.000	TSF	396	243	638	1,242	1,345	2,587	25,632
		General Office	679.000	TSF	677	110	788	125	656	781	6,613
LE22	Alberhill Ranch	Single Family Residential	1,986	DU	367	1,102	1,470	1,239	727	1,966	18,748
LE23	Lake Elsinore Walmart[6]	Free-Standing Discount Superstore	154.487	TSF	148	112	260	296	310	606	7,056
		Specialty Retail	4.600	TSF	3	2	5	4	6	10	184
		Fast Food w/Drive Thru	6.800	TSF	157	151	308	115	107	222	3,374
		Fast Food w/o Drive Thru	4.600	TSF	113	73	186	55	53	108	2,965
LE24	Circle K	Gas Station	4.500	TSF	46	46	91	50	50	101	892
LE25	Alberhill Villages	Single Family Residential	8,244	DU	1,525	4,575	6,101	5,142	3,020	8,162	77,823
		University	6.000	TSF	5	2	7	2	5	7	156
LE26	Terracina	Single Family Residential	365	DU	68	203	270	228	134	361	3,446
LE27	Lakeshore Senior Apartments	Senior Adult Housing Attached	121	DU	8	16	24	17	14	31	448
LE28	North Peak Plaza	Condo/Townhomes	92	DU	10	33	42	32	19	52	673
		Shopping Center	92.000	TSF	54	33	86	168	182	351	3,473
LE29	Running Deer (TR 31957)	Single Family Residential	101	DU	19	56	75	63	37	100	953
LE30	Wake Rider Beach Resort	Beach Resort	50	RM	12	5	16	9	12	21	418
LE31	Lakeshore Town Center	Town Center	237.400	TSF	138	85	223	434	470	904	8,962
LE32	Ortega	Single Family Residential	105	DU	19	58	78	65	38	104	991
LE33	Summerly	Single Family Residential	142	DU	26	79	105	89	52	141	1,340
LE34	Beazer, KB Homes, McMillin Homes, Richmond	Single Family Residential	395	DU	73	219	292	246	145	391	3,729
LE35	Village at Lake Elsinore SPA #1	Single Family Residential	163	DU	30	90	121	102	60	161	1,539
LE36	Lakeview Manor	Condo/Townhomes	104	DU	11	37	48	37	22	58	761
LE37	Golden Corral Restaurant	Restaurant	7.798	TSF	43	35	78	47	29	76	875
LE38	Tige Watersports	Shopping Center	34.500	TSF	20	12	32	63	68	131	1,302
LE39	Kassab Travel Center	Restaurant	17.200	TSF	94	77	171	104	64	168	1,929
LE40	Honda	Automobile Sales	53.400	TSF	73	27	100	52	78	130	1,487
		County of Riverside									
RC1	Lennar (Tract 31792)	Single Family Residential	191	DU	35	106	141	119	70	189	1,803
RC2	PM33840	Single Family Residential	4	DU	1	2	3	2	1	3	38
RC3	PP20158R1	Storage Facility	103.727	TSF	6	4	10	8	9	18	157
RC4	CUP03651	Recycling Facility	0.504	TSF	2	2	4	3	2	5	51
				Total:	**8,535**	**16,279**	**24,814**	**21,343**	**16,026**	**37,370**	**364,022**

[1] DU = Dwelling Units; TSF = thousand square feet; RM = Rooms

[2] Source: Greenwald Avenue Commercial Center TIA, Urban Crossroads, Inc., May 2008.

[3] Source: Spyglass Ranch TIA (Revised), Kunzman Associates, February 2007.

[4] Source: Lake Elsinore TAG Property TIA (Revised), Urban Crossroads, Inc., August 2008.

[5] Source: The Diamond Specific Plan TIA, Urban Crossroads, Inc., April 2009.

[6] Source: Lake Elsinore Walmart TIA, Urban Crossroads, Inc., April 2015.

APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	251	0	3	130	89	0	0	12	159	0	8
Future Vol, veh/h	32	251	0	3	130	89	0	0	12	159	0	8
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	295	0	4	153	105	0	0	14	187	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	258	0	-	295	0	0	589	637	295	592	585	206
Stage 1	-	-	-	-	-	-	371	371	-	214	214	-
Stage 2	-	-	-	-	-	-	218	266	-	378	371	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1307	-	0	1266	-	-	420	395	744	418	423	835
Stage 1	-	-	0	-	-	-	649	620	-	788	725	-
Stage 2	-	-	0	-	-	-	784	689	-	644	620	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1307	-	-	1266	-	-	403	380	744	398	407	835
Mov Cap-2 Maneuver	-	-	-	-	-	-	403	380	-	398	407	-
Stage 1	-	-	-	-	-	-	626	598	-	760	722	-
Stage 2	-	-	-	-	-	-	772	686	-	610	598	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	9.9	21.8
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	744	1307	-	1266	-	-	408
HCM Lane V/C Ratio	0.019	0.029	-	0.003	-	-	0.482
HCM Control Delay (s)	9.9	7.8	0	7.9	-	-	21.8
HCM Lane LOS	A	A	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	0	-	-	2.5

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	422	205	138	0	17
Future Vol, veh/h	0	422	205	138	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	459	223	150	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	298
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	741
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	741
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	741
HCM Lane V/C Ratio	-	-	-	0.025
HCM Control Delay (s)	-	-	-	10
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	4	196	9	3	730	358	21	294
Future Volume (vph)	9	4	196	9	3	730	358	21	294
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	15.8	15.8	9.6	16.2	16.2	9.6	16.2
Total Split (s)	38.0	38.0	38.0	38.0	9.6	70.2	70.2	11.8	72.4
Total Split (%)	31.7%	31.7%	31.7%	31.7%	8.0%	58.5%	58.5%	9.8%	60.3%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		5.8	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)		24.8		23.6	5.1	66.1	66.1	5.9	68.6
Actuated g/C Ratio		0.23		0.22	0.05	0.62	0.62	0.06	0.65
v/c Ratio		0.04		0.81	0.04	0.65	0.35	0.22	0.25
Control Delay		28.9		58.1	54.7	18.7	6.9	57.3	10.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.9		58.1	54.7	18.7	6.9	57.3	10.1
LOS		C		E	D	B	A	E	B
Approach Delay		28.9		58.1		14.9			13.3
Approach LOS		C		E		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 106	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 67.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Lake St. & Nichols Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	4	2	196	9	42	3	730	358	21	294	0
Future Volume (veh/h)	9	4	2	196	9	42	3	730	358	21	294	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	9	4	2	202	9	30	3	753	0	22	303	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	231	98	42	296	10	34	7	1171		40	1206	0
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.00	0.63	0.00	0.02	0.64	0.00
Sat Flow, veh/h	921	518	221	1220	54	181	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	15	0	0	241	0	0	3	753	0	22	303	0
Grp Sat Flow(s),veh/h/ln	1661	0	0	1455	0	0	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	15.8	0.0	0.0	0.2	25.9	0.0	1.3	7.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	16.5	0.0	0.0	0.2	25.9	0.0	1.3	7.0	0.0
Prop In Lane	0.60		0.13	0.84		0.12	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	371	0	0	340	0	0	7	1171		40	1206	0
V/C Ratio(X)	0.04	0.00	0.00	0.71	0.00	0.00	0.42	0.64		0.54	0.25	0.00
Avail Cap(c_a), veh/h	575	0	0	519	0	0	87	1171		125	1206	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.0	0.0	0.0	40.3	0.0	0.0	51.0	12.0	0.0	49.6	7.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.7	0.0	0.0	14.0	2.7	0.0	4.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	5.9	0.0	0.0	0.1	9.5	0.0	0.6	2.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	0.0	0.0	43.0	0.0	0.0	65.1	14.7	0.0	53.8	8.2	0.0
LnGrp LOS	C	A	A	D	A	A	E	B		D	A	A
Approach Vol, veh/h		15			241			756	A		325	
Approach Delay, s/veh		34.0			43.0			14.9			11.3	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	70.5		25.2	5.0	72.4		25.2				
Change Period (Y+Rc), s	4.6	6.2		* 5.8	4.6	6.2		5.8				
Max Green Setting (Gmax), s	7.2	64.0		* 33	5.0	66.2		32.2				
Max Q Clear Time (g_c+I1), s	3.3	27.9		2.7	2.2	9.0		18.5				
Green Ext Time (p_c), s	0.0	5.3		0.0	0.0	1.7		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		19.3
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	57	1040	48	18	470
Future Volume (vph)	80	57	1040	48	18	470
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.7	14.7	16.2	16.2	9.6	16.2
Total Split (s)	15.3	15.3	94.6	94.6	10.1	104.7
Total Split (%)	12.8%	12.8%	78.8%	78.8%	8.4%	87.3%
Yellow Time (s)	3.7	3.7	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.2	6.2	4.6	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.2	10.2	94.4	94.4	5.3	98.5
Actuated g/C Ratio	0.09	0.09	0.79	0.79	0.04	0.82
v/c Ratio	0.56	0.44	0.74	0.04	0.24	0.32
Control Delay	67.1	63.0	11.6	1.4	62.9	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	63.0	11.6	1.4	62.9	3.2
LOS	E	E	B	A	E	A
Approach Delay	65.4		11.2			5.4
Approach LOS	E		B			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Lake St. & Alberhill Ranch Rd.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	57	1040	48	18	470
Future Volume (veh/h)	80	57	1040	48	18	470
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	60	1095	37	19	495
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	148	132	1435	1216	35	1544
Arrive On Green	0.08	0.08	0.77	0.77	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	84	60	1095	37	19	495
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	5.4	4.3	39.2	0.7	1.3	7.5
Cycle Q Clear(g_c), s	5.4	4.3	39.2	0.7	1.3	7.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	148	132	1435	1216	35	1544
V/C Ratio(X)	0.57	0.46	0.76	0.03	0.54	0.32
Avail Cap(c_a), veh/h	158	141	1435	1216	82	1544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	52.1	7.8	3.3	58.0	2.5
Incr Delay (d2), s/veh	2.2	0.9	3.9	0.0	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.7	11.9	0.2	0.6	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.8	53.0	11.7	3.4	62.8	3.0
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	144		1132			514
Approach Delay, s/veh	54.1		11.4			5.2
Approach LOS	D		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.9	97.8			104.7	14.6
Change Period (Y+Rc), s	4.6	6.2			6.2	4.7
Max Green Setting (Gmax), s	5.5	88.4			98.5	10.6
Max Q Clear Time (g_c+I1), s	3.3	41.2			9.5	7.4
Green Ext Time (p_c), s	0.0	11.3			3.0	0.1

Intersection Summary			
HCM 6th Ctrl Delay		13.1	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	55	0	1088	516	34
Future Vol, veh/h	0	55	0	1088	516	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	60	0	1183	561	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	580	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	514	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	514	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	514	-	-
HCM Lane V/C Ratio	-	0.116	-	-
HCM Control Delay (s)	-	12.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	62	0	1088	519	52
Future Vol, veh/h	0	62	0	1088	519	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	67	0	1183	564	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	311	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	686	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	686	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

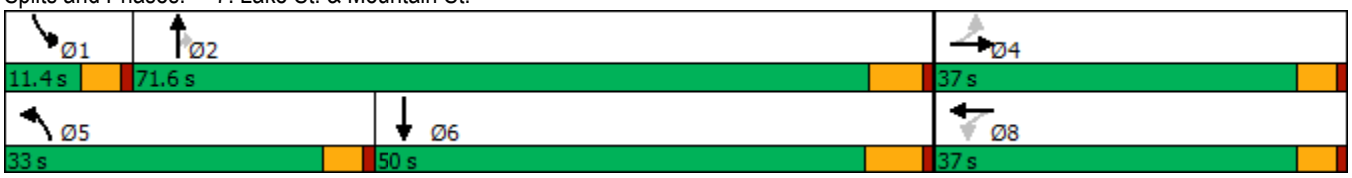
Approach	EB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	686	-	-
HCM Lane V/C Ratio	-	0.098	-	-
HCM Control Delay (s)	-	10.8	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	314	23	49	36	240	727	44	8	505
Future Volume (vph)	314	23	49	36	240	727	44	8	505
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.7	34.7	21.7	21.7	9.6	26.8	26.8	9.6	23.2
Total Split (s)	37.0	37.0	37.0	37.0	33.0	71.6	71.6	11.4	50.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	27.5%	59.7%	59.7%	9.5%	41.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.6	4.8	4.8	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	4.7	4.7	4.6	5.8	5.8	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	30.9	30.9	30.9	30.9	19.9	67.9	67.9	5.4	45.0
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.18	0.61	0.61	0.05	0.40
v/c Ratio	0.90	0.22	0.15	0.17	0.79	0.67	0.05	0.10	0.42
Control Delay	68.3	11.4	32.9	16.8	61.7	19.0	2.4	55.6	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	11.4	32.9	16.8	61.7	19.0	2.4	55.6	25.6
LOS	E	B	C	B	E	B	A	E	C
Approach Delay		53.8		22.7		28.4			26.0
Approach LOS		D		C		C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 32.4	Intersection LOS: C
Intersection Capacity Utilization 79.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Lake St. & Mountain St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	314	23	84	49	36	47	240	727	44	8	505	68
Future Volume (veh/h)	314	23	84	49	36	47	240	727	44	8	505	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	327	24	52	51	38	37	250	757	34	8	526	61
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	392	147	318	386	245	239	280	1073	902	17	1368	158
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.16	0.57	0.57	0.01	0.43	0.43
Sat Flow, veh/h	1325	521	1128	1308	870	847	1781	1870	1573	1781	3209	371
Grp Volume(v), veh/h	327	0	76	51	0	75	250	757	34	8	290	297
Grp Sat Flow(s),veh/h/ln	1325	0	1649	1308	0	1718	1781	1870	1573	1781	1777	1804
Q Serve(g_s), s	28.3	0.0	4.0	3.5	0.0	3.8	15.8	33.3	1.1	0.5	12.9	13.0
Cycle Q Clear(g_c), s	32.0	0.0	4.0	7.5	0.0	3.8	15.8	33.3	1.1	0.5	12.9	13.0
Prop In Lane	1.00		0.68	1.00		0.49	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	392	0	464	386	0	484	280	1073	902	17	757	769
V/C Ratio(X)	0.83	0.00	0.16	0.13	0.00	0.16	0.89	0.71	0.04	0.46	0.38	0.39
Avail Cap(c_a), veh/h	392	0	464	386	0	484	441	1073	902	106	757	769
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	0.0	31.0	33.9	0.0	31.0	47.4	17.5	10.7	56.5	22.6	22.6
Incr Delay (d2), s/veh	14.3	0.0	0.2	0.2	0.0	0.1	9.2	3.9	0.1	6.8	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	1.6	1.1	0.0	1.6	7.5	13.9	0.4	0.3	5.3	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	0.0	31.2	34.0	0.0	31.1	56.6	21.4	10.7	63.3	24.0	24.1
LnGrp LOS	E	A	C	C	A	C	E	C	B	E	C	C
Approach Vol, veh/h		403			126			1041			595	
Approach Delay, s/veh		52.4			32.3			29.5			24.6	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	72.0		37.0	22.6	55.1		37.0				
Change Period (Y+Rc), s	4.6	* 6.2		* 4.7	4.6	6.2		* 4.7				
Max Green Setting (Gmax), s	6.8	* 66		* 32	28.4	43.8		* 32				
Max Q Clear Time (g_c+I1), s	2.5	35.3		34.0	17.8	15.0		9.5				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.2	3.2		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		32.6	
HCM 6th LOS		C	

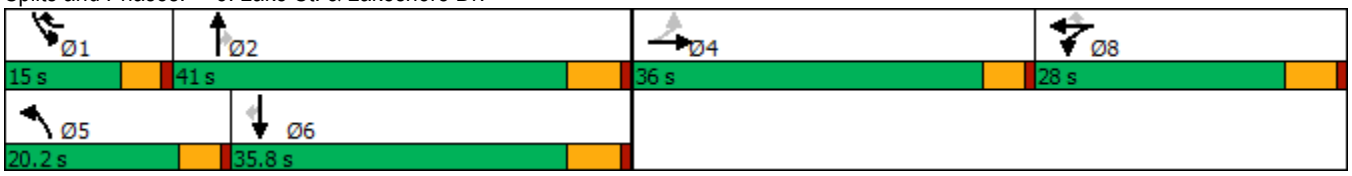
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	60	117	190	114	320	94	730	212	202	424	137
Future Volume (vph)	60	117	190	114	320	94	730	212	202	424	137
Turn Type	Perm	NA	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4	8	8	1	5	2		1	6	
Permitted Phases	4				8			2			6
Detector Phase	4	4	8	8	1	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.6	35.6	15.8	15.8	9.6	9.6	33.8	33.8	9.6	22.8	22.8
Total Split (s)	36.0	36.0	28.0	28.0	15.0	20.2	41.0	41.0	15.0	35.8	35.8
Total Split (%)	30.0%	30.0%	23.3%	23.3%	12.5%	16.8%	34.2%	34.2%	12.5%	29.8%	29.8%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	5.8	5.8	4.6	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		21.7	18.6	18.6	30.0	11.3	35.6	35.6	10.2	34.5	34.5
Actuated g/C Ratio		0.20	0.17	0.17	0.28	0.11	0.33	0.33	0.10	0.32	0.32
v/c Ratio		0.82	0.79	0.45	0.42	0.64	0.79	0.44	0.78	0.47	0.35
Control Delay		41.5	62.2	45.7	4.2	63.7	39.9	6.7	66.6	33.5	10.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.5	62.2	45.7	4.2	63.7	39.9	6.7	66.6	33.5	10.1
LOS		D	E	D	A	E	D	A	E	C	B
Approach Delay		41.5		29.5			35.2			38.1	
Approach LOS		D		C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.1	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 35.4	Intersection LOS: D
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Lake St. & Lakeshore Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	117	118	190	114	320	94	730	212	202	424	137
Future Volume (veh/h)	60	117	118	190	114	320	94	730	212	202	424	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.81	1.00		0.72	1.00		0.88	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	148	102	241	144	285	119	924	125	256	537	95
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	295	202	297	312	590	148	1207	474	319	1240	491
Arrive On Green	0.20	0.20	0.20	0.17	0.17	0.17	0.08	0.34	0.34	0.09	0.35	0.35
Sat Flow, veh/h	759	1472	1004	1781	1870	1995	1781	3554	1397	3456	3554	1408
Grp Volume(v), veh/h	184	0	142	241	144	285	119	924	125	256	537	95
Grp Sat Flow(s),veh/h/ln	1832	0	1403	1781	1870	998	1781	1777	1397	1728	1777	1408
Q Serve(g_s), s	9.2	0.0	9.4	13.5	7.2	12.8	6.8	24.1	6.7	7.5	12.0	4.9
Cycle Q Clear(g_c), s	9.2	0.0	9.4	13.5	7.2	12.8	6.8	24.1	6.7	7.5	12.0	4.9
Prop In Lane	0.41		0.72	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	368	0	281	297	312	590	148	1207	474	319	1240	491
V/C Ratio(X)	0.50	0.00	0.51	0.81	0.46	0.48	0.81	0.77	0.26	0.80	0.43	0.19
Avail Cap(c_a), veh/h	555	0	425	382	401	685	268	1207	474	347	1240	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	36.9	41.6	39.0	33.2	46.7	30.5	24.8	46.1	25.9	23.5
Incr Delay (d2), s/veh	1.0	0.0	1.4	9.9	1.1	0.6	3.9	4.7	1.4	10.6	1.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	3.3	6.5	3.3	3.0	3.1	10.4	2.3	3.6	5.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	38.3	51.5	40.0	33.8	50.6	35.2	26.2	56.7	27.0	24.4
LnGrp LOS	D	A	D	D	D	C	D	D	C	E	C	C
Approach Vol, veh/h		326			670			1168			888	
Approach Delay, s/veh		38.0			41.5			35.8			35.3	
Approach LOS		D			D			D			D	

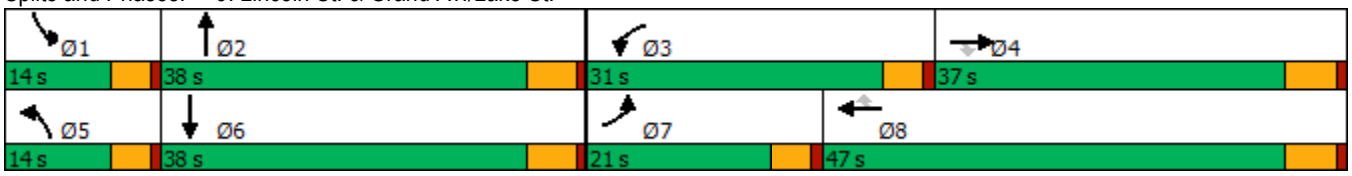
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.2	41.0		25.4	13.2	42.0		23.1				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	35.2		31.4	15.6	30.0		22.2				
Max Q Clear Time (g_c+I1), s	9.5	26.1		11.4	8.8	14.0		15.5				
Green Ext Time (p_c), s	0.0	4.2		2.1	0.1	3.2		1.8				

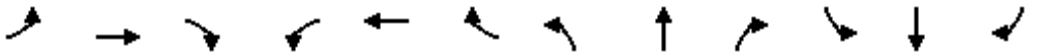
Intersection Summary			
HCM 6th Ctrl Delay		37.1	
HCM 6th LOS		D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	88	487	44	177	368	21	38	129	47	123
Future Volume (vph)	88	487	44	177	368	21	38	129	47	123
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.8	32.8	9.6	31.8	31.8	9.6	34.4	9.6	34.4
Total Split (s)	21.0	37.0	37.0	31.0	47.0	47.0	14.0	38.0	14.0	38.0
Total Split (%)	17.5%	30.8%	30.8%	25.8%	39.2%	39.2%	11.7%	31.7%	11.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	10.5	36.1	36.1	16.6	42.2	42.2	7.1	14.3	7.5	16.9
Actuated g/C Ratio	0.11	0.39	0.39	0.18	0.45	0.45	0.08	0.15	0.08	0.18
v/c Ratio	0.58	0.47	0.09	0.75	0.31	0.04	0.38	0.64	0.44	0.41
Control Delay	53.7	26.2	0.2	52.5	19.4	0.1	53.3	17.7	55.0	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	26.2	0.2	52.5	19.4	0.1	53.3	17.7	55.0	21.1
LOS	D	C	A	D	B	A	D	B	D	C
Approach Delay		28.3			29.1			21.1		27.2
Approach LOS		C			C			C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 69.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Lincoln St. & Grand Av./Lake St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	487	44	177	368	21	38	129	229	47	123	95
Future Volume (veh/h)	88	487	44	177	368	21	38	129	229	47	123	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	649	40	236	491	24	51	172	233	63	164	95
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	1323	580	273	1574	691	70	373	326	81	477	262
Arrive On Green	0.08	0.37	0.37	0.15	0.44	0.44	0.04	0.21	0.21	0.05	0.22	0.22
Sat Flow, veh/h	1781	3554	1559	1781	3554	1561	1781	1777	1553	1781	2209	1213
Grp Volume(v), veh/h	117	649	40	236	491	24	51	172	233	63	130	129
Grp Sat Flow(s),veh/h/ln	1781	1777	1559	1781	1777	1561	1781	1777	1553	1781	1777	1646
Q Serve(g_s), s	6.0	13.1	1.5	12.0	8.3	0.8	2.6	7.9	13.0	3.3	5.8	6.2
Cycle Q Clear(g_c), s	6.0	13.1	1.5	12.0	8.3	0.8	2.6	7.9	13.0	3.3	5.8	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	147	1323	580	273	1574	691	70	373	326	81	384	356
V/C Ratio(X)	0.80	0.49	0.07	0.87	0.31	0.03	0.73	0.46	0.71	0.78	0.34	0.36
Avail Cap(c_a), veh/h	314	1323	580	505	1574	691	180	623	544	180	623	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	22.4	18.8	38.5	16.8	14.7	44.2	32.2	34.2	43.9	30.9	31.0
Incr Delay (d2), s/veh	3.7	1.3	0.2	3.2	0.5	0.1	5.3	0.9	2.9	5.8	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	5.3	0.6	5.2	3.2	0.3	1.2	3.3	4.9	1.5	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	23.7	19.0	41.7	17.3	14.8	49.5	33.1	37.1	49.8	31.4	31.6
LnGrp LOS	D	C	B	D	B	B	D	C	D	D	C	C
Approach Vol, veh/h		806			751			456			322	
Approach Delay, s/veh		26.7			24.9			37.0			35.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	24.9	18.8	40.4	8.3	25.5	12.3	47.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	32.6	26.4	31.2	9.4	32.6	16.4	41.2
Max Q Clear Time (g_c+I1), s	5.3	15.0	14.0	15.1	4.6	8.2	8.0	10.3
Green Ext Time (p_c), s	0.0	2.2	0.2	3.7	0.0	1.4	0.1	3.2

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	576	620	12	7	14
Future Vol, veh/h	12	576	620	12	7	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	800	861	17	10	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	878	0	-	0	1304	870
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	434	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	767	-	-	-	164	350
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	622	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	767	-	-	-	160	350
Mov Cap-2 Maneuver	-	-	-	-	290	-
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	622	-

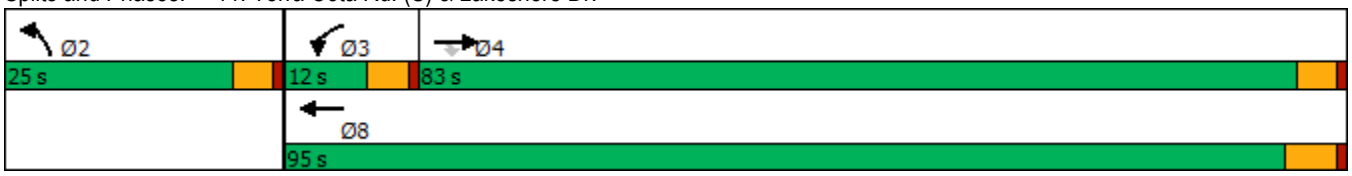
Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	16.5
HCM LOS			C

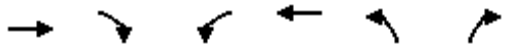
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	767	-	-	-	290	350
HCM Lane V/C Ratio	0.022	-	-	-	0.034	0.056
HCM Control Delay (s)	9.8	-	-	-	17.8	15.9
HCM Lane LOS	A	-	-	-	C	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Configurations					
Traffic Volume (vph)	555	28	12	580	52
Future Volume (vph)	555	28	12	580	52
Turn Type	NA	Perm	Prot	NA	Prot
Protected Phases	4		3	8	2
Permitted Phases		4			
Detector Phase	4	4	3	8	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	15.8	14.6
Total Split (s)	83.0	83.0	12.0	95.0	25.0
Total Split (%)	69.2%	69.2%	10.0%	79.2%	20.8%
Yellow Time (s)	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		
Recall Mode	Max	Max	None	Max	None
Act Effct Green (s)	86.1	86.1	5.8	89.3	14.6
Actuated g/C Ratio	0.75	0.75	0.05	0.78	0.13
v/c Ratio	0.55	0.03	0.19	0.55	0.62
Control Delay	9.4	2.2	57.9	7.0	60.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	2.2	57.9	7.0	60.1
LOS	A	A	E	A	E
Approach Delay	9.1			8.1	60.1
Approach LOS	A			A	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 114.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 47.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Terra Cota Rd. (S) & Lakeshore Dr.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	555	28	12	580	52	45
Future Volume (veh/h)	555	28	12	580	52	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	771	36	17	806	72	62
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	1400	1154	33	1512	87	75
Arrive On Green	0.75	0.75	0.02	0.81	0.10	0.10
Sat Flow, veh/h	1870	1541	1781	1870	899	774
Grp Volume(v), veh/h	771	36	17	806	135	0
Grp Sat Flow(s),veh/h/ln	1870	1541	1781	1870	1686	0
Q Serve(g_s), s	19.5	0.7	1.0	16.0	8.7	0.0
Cycle Q Clear(g_c), s	19.5	0.7	1.0	16.0	8.7	0.0
Prop In Lane		1.00	1.00		0.53	0.46
Lane Grp Cap(c), veh/h	1400	1154	33	1512	164	0
V/C Ratio(X)	0.55	0.03	0.52	0.53	0.82	0.00
Avail Cap(c_a), veh/h	1400	1154	119	1512	312	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.9	3.6	53.7	3.6	48.9	0.0
Incr Delay (d2), s/veh	1.6	0.1	4.6	1.4	9.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.2	0.5	3.8	4.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.5	3.6	58.3	4.9	58.7	0.0
LnGrp LOS	A	A	E	A	E	A
Approach Vol, veh/h	807			823	135	
Approach Delay, s/veh	7.3			6.0	58.7	
Approach LOS	A			A	E	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.3	6.6	88.4		95.0
Change Period (Y+Rc), s		4.6	4.6	* 5.8		5.8
Max Green Setting (Gmax), s		20.4	7.4	* 78		89.2
Max Q Clear Time (g_c+I1), s		10.7	3.0	21.5		18.0
Green Ext Time (p_c), s		0.2	0.0	6.1		6.4

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	95	0	5	164	125	0	0	3	255	0	8
Future Vol, veh/h	24	95	0	5	164	125	0	0	3	255	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	113	0	6	195	149	0	0	4	304	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	344	0	-	113	0	0	458	527	113	455	453	270
Stage 1	-	-	-	-	-	-	171	171	-	282	282	-
Stage 2	-	-	-	-	-	-	287	356	-	173	171	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1215	-	0	1476	-	-	513	456	940	515	503	769
Stage 1	-	-	0	-	-	-	831	757	-	725	678	-
Stage 2	-	-	0	-	-	-	720	629	-	829	757	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1215	-	-	1476	-	-	495	442	940	501	488	769
Mov Cap-2 Maneuver	-	-	-	-	-	-	495	442	-	501	488	-
Stage 1	-	-	-	-	-	-	810	738	-	707	675	-
Stage 2	-	-	-	-	-	-	708	626	-	805	738	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.1	8.8	23
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	940	1215	-	1476	-	-	506
HCM Lane V/C Ratio	0.004	0.024	-	0.004	-	-	0.619
HCM Control Delay (s)	8.8	8	0	7.4	-	-	23
HCM Lane LOS	A	A	A	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	0	-	-	4.2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	353	278	171	0	16
Future Vol, veh/h	0	353	278	171	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	384	302	186	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	395
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	654
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	654
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

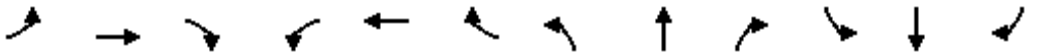
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	654
HCM Lane V/C Ratio	-	-	-	0.027
HCM Control Delay (s)	-	-	-	10.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	4	248	1	2	396	177	39	770
Future Volume (vph)	4	4	248	1	2	396	177	39	770
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	15.8	15.8	9.6	16.2	16.2	9.6	16.2
Total Split (s)	38.0	38.0	38.0	38.0	9.6	70.2	70.2	11.8	72.4
Total Split (%)	31.7%	31.7%	31.7%	31.7%	8.0%	58.5%	58.5%	9.8%	60.3%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		5.8	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)		28.6		27.4	5.0	65.6	65.6	6.5	70.4
Actuated g/C Ratio		0.26		0.25	0.04	0.59	0.59	0.06	0.63
v/c Ratio		0.02		0.86	0.03	0.39	0.19	0.41	0.71
Control Delay		28.8		65.1	56.0	15.7	3.3	65.9	20.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.8		65.1	56.0	15.7	3.3	65.9	20.0
LOS		C		E	E	B	A	E	B
Approach Delay		28.8		65.1		12.0			22.2
Approach LOS		C		E		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 25.5	Intersection LOS: C
Intersection Capacity Utilization 72.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Lake St. & Nichols Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	2	248	1	16	2	396	177	39	770	0
Future Volume (veh/h)	4	4	2	248	1	16	2	396	177	39	770	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	4	4	1	270	1	9	2	430	0	42	837	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	204	194	44	366	1	10	5	1111		59	1168	0
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.59	0.00	0.03	0.62	0.00
Sat Flow, veh/h	714	887	200	1373	5	46	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	9	0	0	280	0	0	2	430	0	42	837	0
Grp Sat Flow(s),veh/h/ln	1802	0	0	1424	0	0	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	20.2	0.0	0.0	0.1	13.1	0.0	2.5	32.7	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	20.6	0.0	0.0	0.1	13.1	0.0	2.5	32.7	0.0
Prop In Lane	0.44		0.11	0.96		0.03	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	442	0	0	377	0	0	5	1111		59	1168	0
V/C Ratio(X)	0.02	0.00	0.00	0.74	0.00	0.00	0.42	0.39		0.71	0.72	0.00
Avail Cap(c_a), veh/h	589	0	0	491	0	0	83	1111		119	1168	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.1	0.0	0.0	40.9	0.0	0.0	53.6	11.5	0.0	51.6	13.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	4.3	0.0	0.0	19.9	1.0	0.0	5.7	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	7.4	0.0	0.0	0.1	5.0	0.0	1.2	12.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.1	0.0	0.0	45.2	0.0	0.0	73.6	12.5	0.0	57.3	17.5	0.0
LnGrp LOS	C	A	A	D	A	A	E	B		E	B	A
Approach Vol, veh/h		9			280			432	A		879	
Approach Delay, s/veh		33.1			45.2			12.8			19.4	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	70.2		29.3	4.9	73.5		29.3				
Change Period (Y+Rc), s	4.6	6.2		* 5.8	4.6	6.2		5.8				
Max Green Setting (Gmax), s	7.2	64.0		* 33	5.0	66.2		32.2				
Max Q Clear Time (g_c+I1), s	4.5	15.1		2.4	2.1	34.7		22.6				
Green Ext Time (p_c), s	0.0	2.5		0.0	0.0	6.1		1.0				

Intersection Summary		
HCM 6th Ctrl Delay	22.2	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	38	16	573	40	32	997
Future Volume (vph)	38	16	573	40	32	997
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.7	14.7	16.2	16.2	9.6	16.2
Total Split (s)	15.3	15.3	94.6	94.6	10.1	104.7
Total Split (%)	12.8%	12.8%	78.8%	78.8%	8.4%	87.3%
Yellow Time (s)	3.7	3.7	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.2	6.2	4.6	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.1	10.1	96.7	96.7	5.4	102.7
Actuated g/C Ratio	0.08	0.08	0.81	0.81	0.05	0.86
v/c Ratio	0.28	0.14	0.42	0.03	0.44	0.68
Control Delay	56.7	53.3	5.8	1.3	72.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	53.3	5.8	1.3	72.9	6.7
LOS	E	D	A	A	E	A
Approach Delay	55.7		5.5			8.7
Approach LOS	E		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.5	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 9.1	Intersection LOS: A
Intersection Capacity Utilization 69.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Lake St. & Alberhill Ranch Rd.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	16	573	40	32	997
Future Volume (veh/h)	38	16	573	40	32	997
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	18	630	41	35	1096
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	130	116	1434	1215	52	1561
Arrive On Green	0.07	0.07	0.77	0.77	0.03	0.83
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	42	18	630	41	35	1096
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	2.6	1.3	14.0	0.7	2.3	27.6
Cycle Q Clear(g_c), s	2.6	1.3	14.0	0.7	2.3	27.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	130	116	1434	1215	52	1561
V/C Ratio(X)	0.32	0.16	0.44	0.03	0.68	0.70
Avail Cap(c_a), veh/h	160	142	1434	1215	83	1561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	51.3	4.8	3.3	56.8	3.9
Incr Delay (d2), s/veh	0.5	0.2	1.0	0.1	5.7	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.5	4.1	0.2	1.1	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.5	51.5	5.8	3.3	62.5	6.6
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	60		671			1131
Approach Delay, s/veh	52.2		5.7			8.3
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.0	96.7			104.7	13.3
Change Period (Y+Rc), s	4.6	6.2			6.2	4.7
Max Green Setting (Gmax), s	5.5	88.4			98.5	10.6
Max Q Clear Time (g_c+I1), s	4.3	16.0			29.6	4.6
Green Ext Time (p_c), s	0.0	4.3			11.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	66	0	613	991	43
Future Vol, veh/h	0	66	0	613	991	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	72	0	666	1077	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1101	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	258	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	258	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	258	-	-
HCM Lane V/C Ratio	-	0.278	-	-
HCM Control Delay (s)	-	24.2	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	79	0	613	993	64
Future Vol, veh/h	0	79	0	613	993	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	86	0	666	1079	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	575	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	462	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	462	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	462	-	-
HCM Lane V/C Ratio	-	0.186	-	-
HCM Control Delay (s)	-	14.6	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.7	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	299	12	24	13	340	301	16	34	942
Future Volume (vph)	299	12	24	13	340	301	16	34	942
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.7	34.7	21.7	21.7	9.6	26.8	26.8	9.6	23.2
Total Split (s)	37.0	37.0	37.0	37.0	33.0	71.6	71.6	11.4	50.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	27.5%	59.7%	59.7%	9.5%	41.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.6	4.8	4.8	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	4.7	4.7	4.6	5.8	5.8	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	29.9	29.9	29.9	29.9	26.4	68.8	68.8	6.2	44.0
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.23	0.59	0.59	0.05	0.38
v/c Ratio	0.92	0.13	0.08	0.06	0.92	0.30	0.02	0.39	0.85
Control Delay	73.3	13.7	33.5	20.9	73.2	13.9	0.1	66.8	40.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	13.7	33.5	20.9	73.2	13.9	0.1	66.8	40.7
LOS	E	B	C	C	E	B	A	E	D
Approach Delay		64.1		27.0		44.3			41.6
Approach LOS		E		C		D			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.8	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 45.8	Intersection LOS: D
Intersection Capacity Utilization 84.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Lake St. & Mountain St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	299	12	42	24	13	13	340	301	16	34	942	97
Future Volume (veh/h)	299	12	42	24	13	13	340	301	16	34	942	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	13	24	26	14	5	370	327	14	37	1024	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	411	152	280	393	339	121	397	1078	913	54	1258	120
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.22	0.58	0.58	0.03	0.38	0.38
Sat Flow, veh/h	1393	588	1086	1371	1316	470	1781	1870	1584	1781	3277	314
Grp Volume(v), veh/h	325	0	37	26	0	19	370	327	14	37	555	567
Grp Sat Flow(s),veh/h/ln	1393	0	1675	1371	0	1786	1781	1870	1584	1781	1777	1814
Q Serve(g_s), s	26.1	0.0	1.9	1.7	0.0	0.9	23.3	10.2	0.4	2.3	32.0	32.0
Cycle Q Clear(g_c), s	27.0	0.0	1.9	3.6	0.0	0.9	23.3	10.2	0.4	2.3	32.0	32.0
Prop In Lane	1.00		0.65	1.00		0.26	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	411	0	431	393	0	460	397	1078	913	54	682	696
V/C Ratio(X)	0.79	0.00	0.09	0.07	0.00	0.04	0.93	0.30	0.02	0.69	0.81	0.81
Avail Cap(c_a), veh/h	446	0	474	428	0	505	443	1078	913	106	682	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	0.0	32.2	33.5	0.0	31.8	43.5	12.4	10.3	54.8	31.5	31.5
Incr Delay (d2), s/veh	8.7	0.0	0.1	0.1	0.0	0.0	24.1	0.7	0.0	5.6	10.3	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	0.8	0.6	0.0	0.4	12.5	4.1	0.1	1.1	14.7	15.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	0.0	32.3	33.6	0.0	31.8	67.6	13.1	10.4	60.5	41.8	41.7
LnGrp LOS	D	A	C	C	A	C	E	B	B	E	D	D
Approach Vol, veh/h		362			45			711			1159	
Approach Delay, s/veh		48.8			32.9			41.4			42.3	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	72.0		34.1	30.1	50.0		34.1				
Change Period (Y+Rc), s	4.6	* 6.2		* 4.7	4.6	6.2		* 4.7				
Max Green Setting (Gmax), s	6.8	* 66		* 32	28.4	43.8		* 32				
Max Q Clear Time (g_c+I1), s	4.3	12.2		29.0	25.3	34.0		5.6				
Green Ext Time (p_c), s	0.0	1.9		0.4	0.2	4.5		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			42.9									
HCM 6th LOS			D									

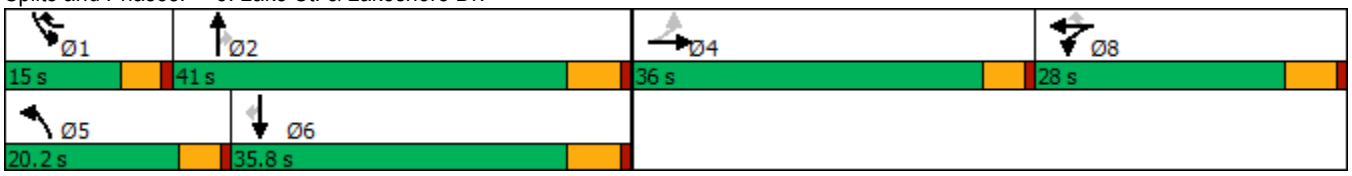
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	10	20	135	10	240	15	437	95	294	659	13
Future Volume (vph)	10	20	135	10	240	15	437	95	294	659	13
Turn Type	Perm	NA	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4	8	8	1	5	2		1	6	
Permitted Phases	4				8			2			6
Detector Phase	4	4	8	8	1	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.6	35.6	15.8	15.8	9.6	9.6	33.8	33.8	9.6	22.8	22.8
Total Split (s)	36.0	36.0	28.0	28.0	15.0	20.2	41.0	41.0	15.0	35.8	35.8
Total Split (%)	30.0%	30.0%	23.3%	23.3%	12.5%	16.8%	34.2%	34.2%	12.5%	29.8%	29.8%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	5.8	5.8	4.6	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		13.5	13.4	13.4	30.0	5.7	36.1	36.1	10.7	49.6	49.6
Actuated g/C Ratio		0.15	0.15	0.15	0.33	0.06	0.40	0.40	0.12	0.54	0.54
v/c Ratio		0.18	0.56	0.04	0.24	0.14	0.34	0.15	0.79	0.37	0.02
Control Delay		25.0	47.2	37.2	4.0	49.1	22.9	5.4	56.8	16.8	0.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.0	47.2	37.2	4.0	49.1	22.9	5.4	56.8	16.8	0.0
LOS		C	D	D	A	D	C	A	E	B	A
Approach Delay		25.0		20.0			20.6			28.7	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 91.3	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 59.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Lake St. & Lakeshore Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	20	135	10	240	15	437	95	294	659	13
Future Volume (veh/h)	10	20	20	135	10	240	15	437	95	294	659	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	22	0	145	11	249	16	470	99	316	709	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	160	0	221	232	667	33	1555	693	397	1897	846
Arrive On Green	0.06	0.06	0.00	0.12	0.12	0.12	0.02	0.44	0.44	0.11	0.53	0.53
Sat Flow, veh/h	1128	2556	0	1781	1870	2790	1781	3554	1584	3456	3554	1585
Grp Volume(v), veh/h	18	15	0	145	11	249	16	470	99	316	709	8
Grp Sat Flow(s),veh/h/ln	1814	1777	0	1781	1870	1395	1781	1777	1584	1728	1777	1585
Q Serve(g_s), s	0.7	0.7	0.0	6.2	0.4	6.0	0.7	6.9	3.0	7.2	9.4	0.2
Cycle Q Clear(g_c), s	0.7	0.7	0.0	6.2	0.4	6.0	0.7	6.9	3.0	7.2	9.4	0.2
Prop In Lane	0.62		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	115	0	221	232	667	33	1555	693	397	1897	846
V/C Ratio(X)	0.15	0.13	0.00	0.66	0.05	0.37	0.48	0.30	0.14	0.80	0.37	0.01
Avail Cap(c_a), veh/h	708	693	0	491	516	1090	345	1555	693	447	1897	846
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	35.5	0.0	33.6	31.0	25.6	39.1	14.7	13.6	34.7	10.9	8.8
Incr Delay (d2), s/veh	0.6	0.5	0.0	3.3	0.1	0.3	4.0	0.5	0.4	7.5	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.0	2.7	0.2	1.9	0.3	2.5	1.0	3.2	3.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	36.0	0.0	36.9	31.1	25.9	43.0	15.2	14.0	42.2	11.5	8.8
LnGrp LOS	D	D	A	D	C	C	D	B	B	D	B	A
Approach Vol, veh/h		33			405			585			1033	
Approach Delay, s/veh		36.1			30.0			15.7			20.9	
Approach LOS		D			C			B			C	

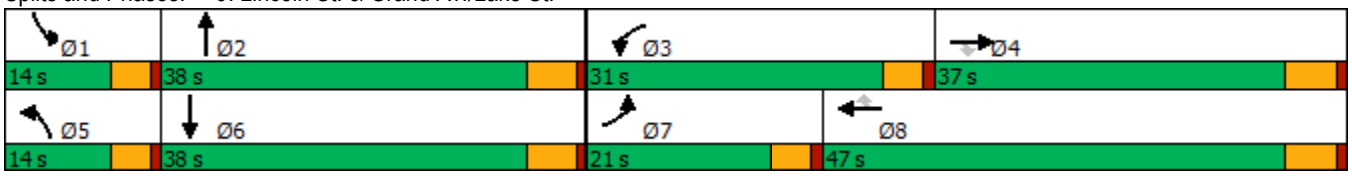
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.8	41.0		9.8	6.1	48.7		15.8				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	35.2		31.4	15.6	30.0		22.2				
Max Q Clear Time (g_c+I1), s	9.2	8.9		2.7	2.7	11.4		8.2				
Green Ext Time (p_c), s	0.1	3.2		0.1	0.0	4.3		1.2				

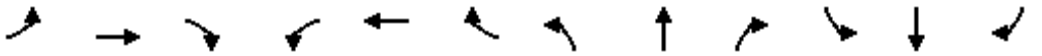
Intersection Summary			
HCM 6th Ctrl Delay		21.4	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	24	319	19	163	397	21	31	34	21	25
Future Volume (vph)	24	319	19	163	397	21	31	34	21	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.8	32.8	9.6	31.8	31.8	9.6	34.4	9.6	34.4
Total Split (s)	21.0	37.0	37.0	31.0	47.0	47.0	14.0	38.0	14.0	38.0
Total Split (%)	17.5%	30.8%	30.8%	25.8%	39.2%	39.2%	11.7%	31.7%	11.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	6.0	32.9	32.9	12.1	45.9	45.9	6.3	15.6	5.9	13.2
Actuated g/C Ratio	0.07	0.41	0.41	0.15	0.57	0.57	0.08	0.19	0.07	0.16
v/c Ratio	0.19	0.23	0.03	0.63	0.20	0.02	0.23	0.21	0.17	0.07
Control Delay	44.9	19.8	0.1	45.8	12.5	0.0	45.0	11.0	44.8	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	19.8	0.1	45.8	12.5	0.0	45.0	11.0	44.8	23.3
LOS	D	B	A	D	B	A	D	B	D	C
Approach Delay		20.4			21.4			17.2		31.1
Approach LOS		C			C			B		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 80.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 21.0	Intersection LOS: C
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: Lincoln St. & Grand Av./Lake St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	319	19	163	397	21	31	34	104	21	25	13
Future Volume (veh/h)	24	319	19	163	397	21	31	34	104	21	25	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	329	18	168	409	19	32	35	68	22	26	3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1586	707	208	1907	849	57	260	232	43	446	50
Arrive On Green	0.03	0.45	0.45	0.12	0.54	0.54	0.03	0.15	0.15	0.02	0.14	0.14
Sat Flow, veh/h	1781	3554	1584	1781	3554	1583	1781	1777	1585	1781	3214	364
Grp Volume(v), veh/h	25	329	18	168	409	19	32	35	68	22	14	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1583	1781	1777	1585	1781	1777	1800
Q Serve(g_s), s	1.1	4.3	0.5	7.1	4.6	0.4	1.4	1.3	2.9	0.9	0.5	0.6
Cycle Q Clear(g_c), s	1.1	4.3	0.5	7.1	4.6	0.4	1.4	1.3	2.9	0.9	0.5	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	48	1586	707	208	1907	849	57	260	232	43	246	250
V/C Ratio(X)	0.52	0.21	0.03	0.81	0.21	0.02	0.56	0.13	0.29	0.51	0.06	0.06
Avail Cap(c_a), veh/h	380	1586	707	612	1907	849	218	754	673	218	754	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	13.0	11.9	33.1	9.3	8.3	36.6	28.5	29.2	37.0	28.7	28.7
Incr Delay (d2), s/veh	3.2	0.3	0.1	2.8	0.3	0.0	3.1	0.2	0.7	3.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.6	0.2	3.0	1.5	0.1	0.6	0.5	1.1	0.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	13.3	12.0	35.8	9.6	8.4	39.7	28.8	29.9	40.4	28.8	28.8
LnGrp LOS	D	B	B	D	A	A	D	C	C	D	C	C
Approach Vol, veh/h		372			596			135			51	
Approach Delay, s/veh		15.0			16.9			31.9			33.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	16.7	13.6	40.1	7.1	16.1	6.7	47.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	32.6	26.4	31.2	9.4	32.6	16.4	41.2
Max Q Clear Time (g_c+I1), s	2.9	4.9	9.1	6.3	3.4	2.6	3.1	6.6
Green Ext Time (p_c), s	0.0	0.5	0.2	2.0	0.0	0.1	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	451	472	14	10	10
Future Vol, veh/h	8	451	472	14	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	480	502	15	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	517	0	-	0	768	510
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	258	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1047	-	-	-	354	562
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1047	-	-	-	351	562
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	762	-

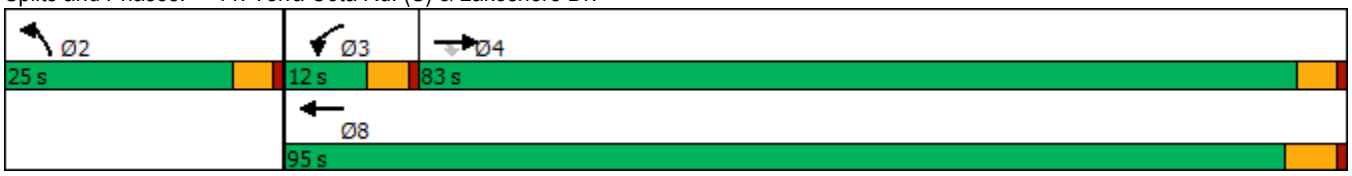
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1047	-	-	-	461	562
HCM Lane V/C Ratio	0.008	-	-	-	0.023	0.019
HCM Control Delay (s)	8.5	-	-	-	13	11.5
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Configurations					
Traffic Volume (vph)	417	44	41	465	21
Future Volume (vph)	417	44	41	465	21
Turn Type	NA	Perm	Prot	NA	Prot
Protected Phases	4		3	8	2
Permitted Phases		4			
Detector Phase	4	4	3	8	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	15.8	14.6
Total Split (s)	83.0	83.0	12.0	95.0	25.0
Total Split (%)	69.2%	69.2%	10.0%	79.2%	20.8%
Yellow Time (s)	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		
Recall Mode	Max	Max	None	Max	None
Act Effct Green (s)	85.1	85.1	6.6	93.4	11.1
Actuated g/C Ratio	0.77	0.77	0.06	0.84	0.10
v/c Ratio	0.31	0.04	0.42	0.32	0.42
Control Delay	6.3	1.6	62.8	3.2	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	1.6	62.8	3.2	54.8
LOS	A	A	E	A	D
Approach Delay	5.8			8.1	54.8
Approach LOS	A			A	D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.8	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.42	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 45.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Terra Cota Rd. (S) & Lakeshore Dr.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	417	44	41	465	21	45
Future Volume (veh/h)	417	44	41	465	21	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	444	41	44	495	22	48
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	1396	1179	60	1539	41	90
Arrive On Green	0.75	0.75	0.03	0.82	0.08	0.08
Sat Flow, veh/h	1870	1580	1781	1870	510	1112
Grp Volume(v), veh/h	444	41	44	495	71	0
Grp Sat Flow(s),veh/h/ln	1870	1580	1781	1870	1645	0
Q Serve(g_s), s	8.6	0.7	2.7	6.9	4.5	0.0
Cycle Q Clear(g_c), s	8.6	0.7	2.7	6.9	4.5	0.0
Prop In Lane		1.00	1.00		0.31	0.68
Lane Grp Cap(c), veh/h	1396	1179	60	1539	134	0
V/C Ratio(X)	0.32	0.03	0.73	0.32	0.53	0.00
Avail Cap(c_a), veh/h	1396	1179	122	1539	309	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.6	3.6	51.9	2.3	47.8	0.0
Incr Delay (d2), s/veh	0.6	0.1	6.1	0.6	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.2	1.3	1.4	2.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.2	3.6	58.0	2.9	51.0	0.0
LnGrp LOS	A	A	E	A	D	A
Approach Vol, veh/h	485			539	71	
Approach Delay, s/veh	5.0			7.4	51.0	
Approach LOS	A			A	D	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.4	8.3	86.7		95.0
Change Period (Y+Rc), s		4.6	4.6	* 5.8		5.8
Max Green Setting (Gmax), s		20.4	7.4	* 78		89.2
Max Q Clear Time (g_c+I1), s		6.5	4.7	10.6		8.9
Green Ext Time (p_c), s		0.1	0.0	2.8		3.1

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

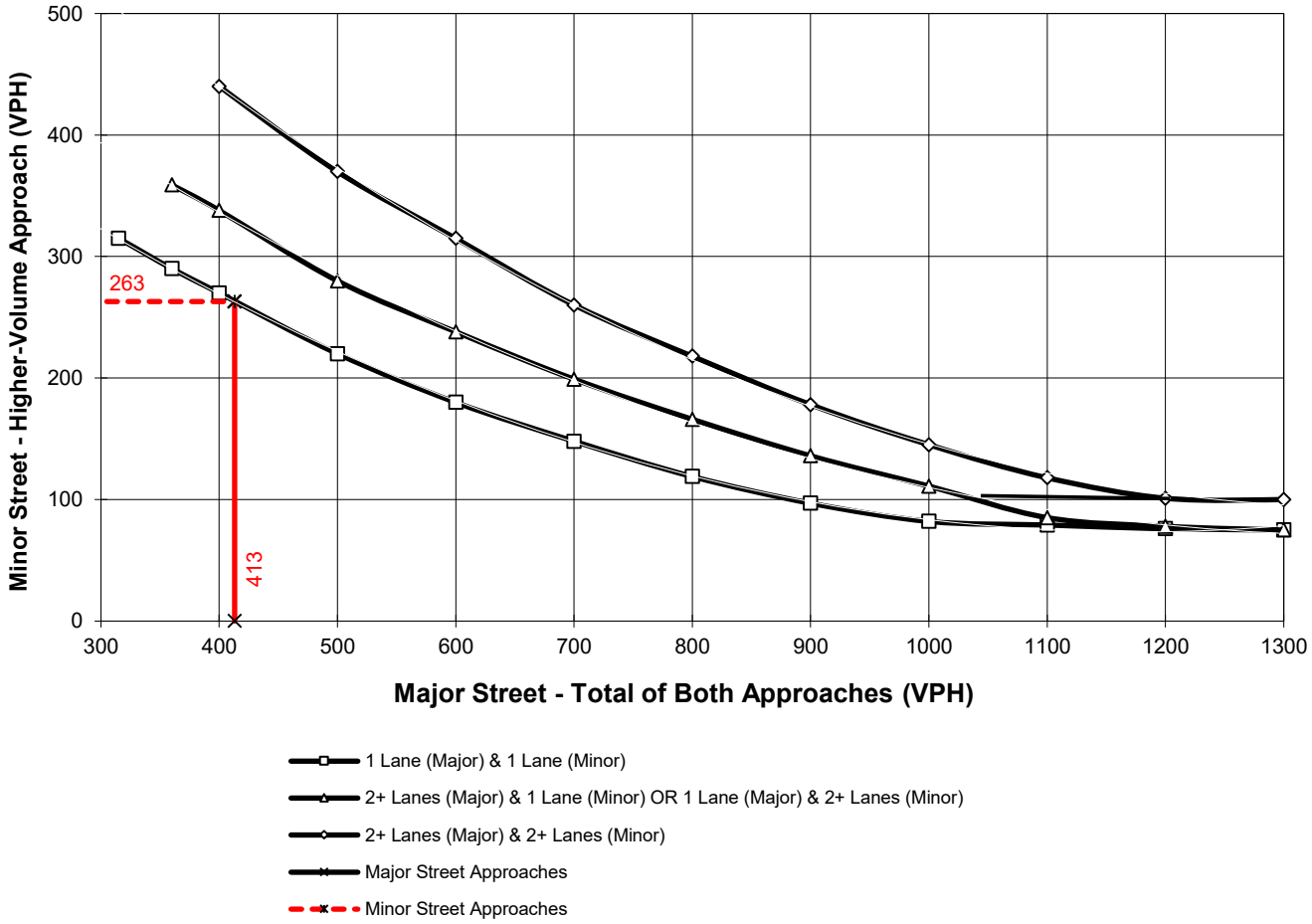
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Mountain St.** Total of Both Approaches (VPH) = **413**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Ginger Root Wy./Driveway 1** High Volume Approach (VPH) = **263**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

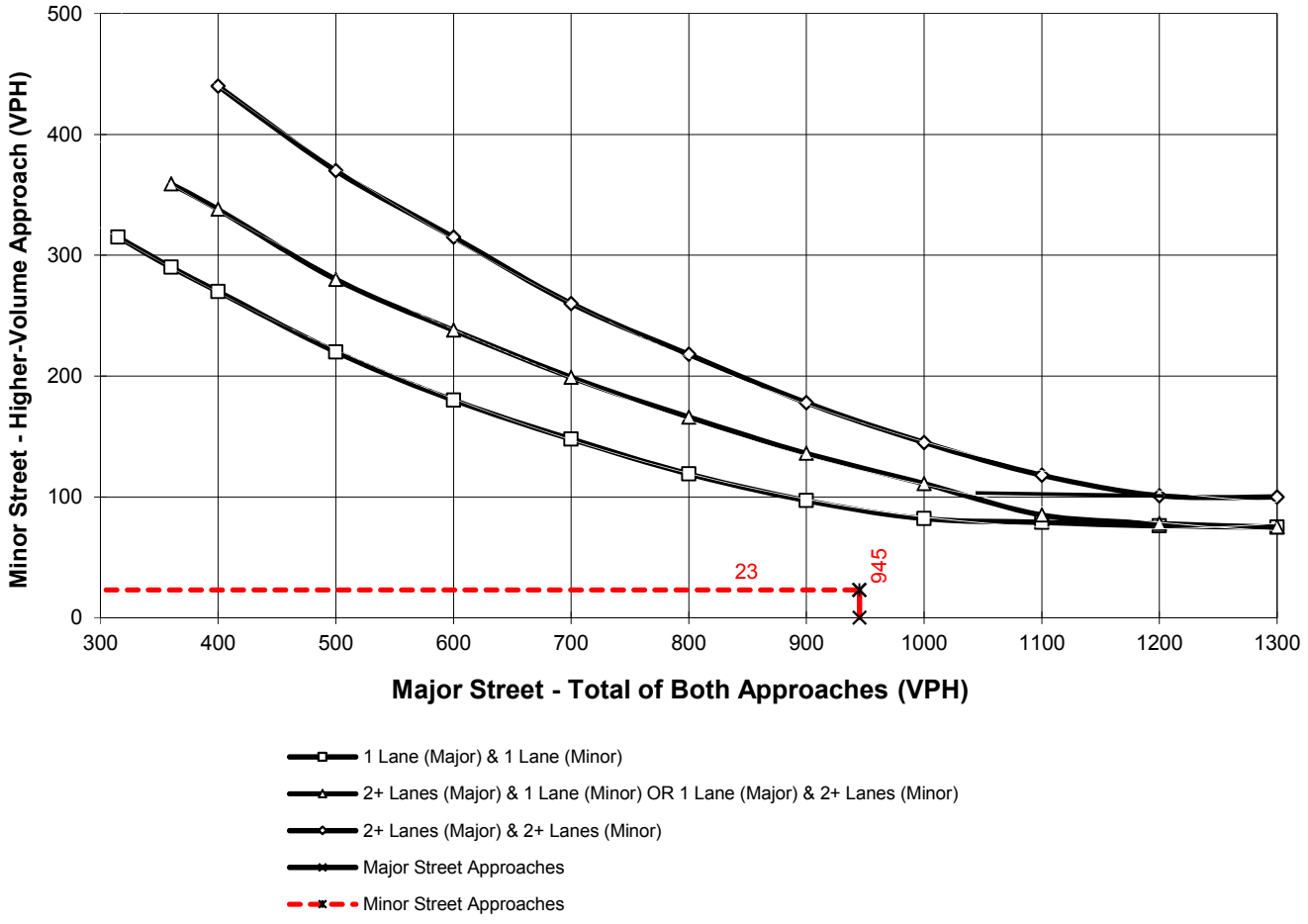
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Lakeshore Dr.** Total of Both Approaches (VPH) = **945**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Terra Cotta Rd. (N)** High Volume Approach (VPH) = **23**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 6.1:

EAP (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	261	0	3	135	89	0	0	12	159	0	8
Future Vol, veh/h	32	261	0	3	135	89	0	0	12	159	0	8
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	307	0	4	159	105	0	0	14	187	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	264	0	-	307	0	0	607	655	307	610	603	212
Stage 1	-	-	-	-	-	-	383	383	-	220	220	-
Stage 2	-	-	-	-	-	-	224	272	-	390	383	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1300	-	0	1254	-	-	408	386	733	407	413	828
Stage 1	-	-	0	-	-	-	640	612	-	782	721	-
Stage 2	-	-	0	-	-	-	779	685	-	634	612	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1300	-	-	1254	-	-	391	371	733	387	397	828
Mov Cap-2 Maneuver	-	-	-	-	-	-	391	371	-	387	397	-
Stage 1	-	-	-	-	-	-	618	591	-	755	718	-
Stage 2	-	-	-	-	-	-	767	682	-	600	591	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	10	22.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	733	1300	-	1254	-	-	397
HCM Lane V/C Ratio	0.019	0.029	-	0.003	-	-	0.495
HCM Control Delay (s)	10	7.9	0	7.9	-	-	22.6
HCM Lane LOS	B	A	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	0	-	-	2.7

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	433	210	138	0	17
Future Vol, veh/h	0	433	210	138	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	471	228	150	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	303
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	737
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	737
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	737
HCM Lane V/C Ratio	-	-	-	0.025
HCM Control Delay (s)	-	-	-	10
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	4	203	9	3	759	372	22	305
Future Volume (vph)	9	4	203	9	3	759	372	22	305
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	15.8	15.8	9.6	16.2	16.2	9.6	16.2
Total Split (s)	38.0	38.0	38.0	38.0	9.6	70.2	70.2	11.8	72.4
Total Split (%)	31.7%	31.7%	31.7%	31.7%	8.0%	58.5%	58.5%	9.8%	60.3%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		5.8	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)		25.5		24.3	5.1	66.1	66.1	6.0	68.6
Actuated g/C Ratio		0.24		0.23	0.05	0.62	0.62	0.06	0.64
v/c Ratio		0.04		0.82	0.04	0.68	0.37	0.23	0.26
Control Delay		28.7		59.1	55.0	20.0	7.3	57.7	10.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.7		59.1	55.0	20.0	7.3	57.7	10.4
LOS		C		E	D	B	A	E	B
Approach Delay		28.7		59.1		15.9			13.6
Approach LOS		C		E		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 106.7	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 22.0	Intersection LOS: C
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Lake St. & Nichols Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	4	2	203	9	44	3	759	372	22	305	0
Future Volume (veh/h)	9	4	2	203	9	44	3	759	372	22	305	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	9	4	2	209	9	32	3	782	0	23	314	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	236	101	43	302	10	36	7	1161		42	1197	0
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.00	0.62	0.00	0.02	0.64	0.00
Sat Flow, veh/h	923	515	221	1216	52	186	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	15	0	0	250	0	0	3	782	0	23	314	0
Grp Sat Flow(s),veh/h/ln	1658	0	0	1455	0	0	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	16.5	0.0	0.0	0.2	28.2	0.0	1.3	7.5	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	17.2	0.0	0.0	0.2	28.2	0.0	1.3	7.5	0.0
Prop In Lane	0.60		0.13	0.84		0.13	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	380	0	0	348	0	0	7	1161		42	1197	0
V/C Ratio(X)	0.04	0.00	0.00	0.72	0.00	0.00	0.42	0.67		0.55	0.26	0.00
Avail Cap(c_a), veh/h	571	0	0	516	0	0	86	1161		124	1197	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.8	0.0	0.0	40.3	0.0	0.0	51.4	12.8	0.0	50.0	8.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.0	14.1	3.1	0.0	4.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	6.2	0.0	0.0	0.1	10.6	0.0	0.6	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.8	0.0	0.0	43.1	0.0	0.0	65.4	15.9	0.0	54.2	8.6	0.0
LnGrp LOS	C	A	A	D	A	A	E	B		D	A	A
Approach Vol, veh/h		15			250			785	A		337	
Approach Delay, s/veh		33.8			43.1			16.1			11.7	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	70.4		26.0	5.0	72.4		26.0				
Change Period (Y+Rc), s	4.6	6.2		* 5.8	4.6	6.2		5.8				
Max Green Setting (Gmax), s	7.2	64.0		* 33	5.0	66.2		32.2				
Max Q Clear Time (g_c+I1), s	3.3	30.2		2.7	2.2	9.5		19.2				
Green Ext Time (p_c), s	0.0	5.6		0.0	0.0	1.7		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		20.1
HCM 6th LOS		C

Notes

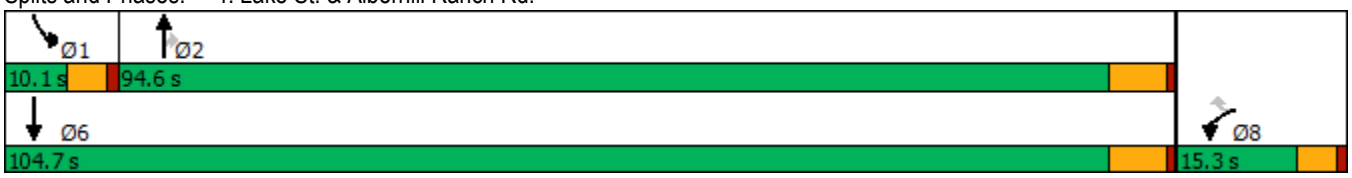
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

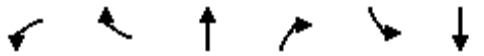
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	83	59	1081	50	19	487
Future Volume (vph)	83	59	1081	50	19	487
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.7	14.7	16.2	16.2	9.6	16.2
Total Split (s)	15.3	15.3	94.6	94.6	10.1	104.7
Total Split (%)	12.8%	12.8%	78.8%	78.8%	8.4%	87.3%
Yellow Time (s)	3.7	3.7	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.2	6.2	4.6	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.3	10.3	94.5	94.5	5.3	98.5
Actuated g/C Ratio	0.09	0.09	0.79	0.79	0.04	0.82
v/c Ratio	0.57	0.46	0.77	0.04	0.26	0.33
Control Delay	68.1	63.5	12.8	1.5	63.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	63.5	12.8	1.5	63.5	3.3
LOS	E	E	B	A	E	A
Approach Delay	66.2		12.3			5.5
Approach LOS	E		B			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 74.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Lake St. & Alberhill Ranch Rd.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	83	59	1081	50	19	487
Future Volume (veh/h)	83	59	1081	50	19	487
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	62	1138	39	20	513
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	148	132	1434	1215	36	1544
Arrive On Green	0.08	0.08	0.77	0.77	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	87	62	1138	39	20	513
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	5.6	4.5	43.3	0.7	1.3	7.9
Cycle Q Clear(g_c), s	5.6	4.5	43.3	0.7	1.3	7.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	148	132	1434	1215	36	1544
V/C Ratio(X)	0.59	0.47	0.79	0.03	0.55	0.33
Avail Cap(c_a), veh/h	158	141	1434	1215	82	1544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	52.2	8.3	3.3	57.9	2.5
Incr Delay (d2), s/veh	2.9	1.0	4.6	0.0	4.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	1.8	13.3	0.2	0.6	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.6	53.2	12.9	3.4	62.7	3.1
LnGrp LOS	E	D	B	A	E	A
Approach Vol, veh/h	149		1177			533
Approach Delay, s/veh	54.6		12.6			5.3
Approach LOS	D		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.0	97.7			104.7	14.6
Change Period (Y+Rc), s	4.6	6.2			6.2	4.7
Max Green Setting (Gmax), s	5.5	88.4			98.5	10.6
Max Q Clear Time (g_c+I1), s	3.3	45.3			9.9	7.6
Green Ext Time (p_c), s	0.0	12.1			3.1	0.1

Intersection Summary			
HCM 6th Ctrl Delay		13.9	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	55	0	1130	536	34
Future Vol, veh/h	0	55	0	1130	536	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	60	0	1228	583	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	602	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	500	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	500	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	500	-	-
HCM Lane V/C Ratio	-	0.12	-	-
HCM Control Delay (s)	-	13.2	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	62	0	1130	539	52
Future Vol, veh/h	0	62	0	1130	539	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	67	0	1228	586	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	322	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	674	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	674	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

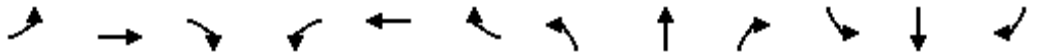
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	674	-	-
HCM Lane V/C Ratio	-	0.1	-	-
HCM Control Delay (s)	-	10.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	321	24	51	37	241	760	46	8	522
Future Volume (vph)	321	24	51	37	241	760	46	8	522
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.7	34.7	21.7	21.7	9.6	26.8	26.8	9.6	23.2
Total Split (s)	37.0	37.0	37.0	37.0	33.0	71.6	71.6	11.4	50.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	27.5%	59.7%	59.7%	9.5%	41.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.6	4.8	4.8	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	4.7	4.7	4.6	5.8	5.8	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	31.3	31.3	31.3	31.3	20.0	67.9	67.9	5.4	44.9
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.18	0.61	0.61	0.05	0.40
v/c Ratio	0.92	0.22	0.15	0.18	0.79	0.70	0.05	0.10	0.44
Control Delay	70.6	11.4	33.0	16.7	61.9	20.2	2.5	55.8	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	11.4	33.0	16.7	61.9	20.2	2.5	55.8	26.0
LOS	E	B	C	B	E	C	A	E	C
Approach Delay		55.3		22.8		29.0			26.4
Approach LOS		E		C		C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Lake St. & Mountain St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	321	24	87	51	37	49	241	760	46	8	522	71
Future Volume (veh/h)	321	24	87	51	37	49	241	760	46	8	522	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	334	25	55	53	39	39	251	792	36	8	544	64
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	145	319	382	242	242	281	1073	902	17	1364	160
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.16	0.57	0.57	0.01	0.43	0.43
Sat Flow, veh/h	1321	515	1133	1304	858	858	1781	1870	1573	1781	3204	376
Grp Volume(v), veh/h	334	0	80	53	0	78	251	792	36	8	301	307
Grp Sat Flow(s),veh/h/ln	1321	0	1648	1304	0	1716	1781	1870	1573	1781	1777	1803
Q Serve(g_s), s	28.4	0.0	4.2	3.7	0.0	3.9	15.8	35.9	1.1	0.5	13.4	13.5
Cycle Q Clear(g_c), s	32.3	0.0	4.2	7.9	0.0	3.9	15.8	35.9	1.1	0.5	13.4	13.5
Prop In Lane	1.00		0.69	1.00		0.50	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	389	0	464	382	0	483	281	1073	902	17	756	767
V/C Ratio(X)	0.86	0.00	0.17	0.14	0.00	0.16	0.89	0.74	0.04	0.46	0.40	0.40
Avail Cap(c_a), veh/h	389	0	464	382	0	483	441	1073	902	106	756	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	0.0	31.1	34.1	0.0	31.0	47.4	18.1	10.7	56.5	22.8	22.8
Incr Delay (d2), s/veh	17.1	0.0	0.2	0.2	0.0	0.2	9.3	4.6	0.1	6.8	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	0.0	1.7	1.2	0.0	1.7	7.5	15.1	0.4	0.3	5.6	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	0.0	31.3	34.3	0.0	31.2	56.7	22.7	10.8	63.3	24.3	24.4
LnGrp LOS	E	A	C	C	A	C	E	C	B	E	C	C
Approach Vol, veh/h		414			131			1079			616	
Approach Delay, s/veh		54.9			32.4			30.2			24.9	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	72.0		37.0	22.7	55.0		37.0				
Change Period (Y+Rc), s	4.6	* 6.2		* 4.7	4.6	6.2		* 4.7				
Max Green Setting (Gmax), s	6.8	* 66		* 32	28.4	43.8		* 32				
Max Q Clear Time (g_c+I1), s	2.5	37.9		34.3	17.8	15.5		9.9				
Green Ext Time (p_c), s	0.0	5.8		0.0	0.2	3.3		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		33.4
HCM 6th LOS		C

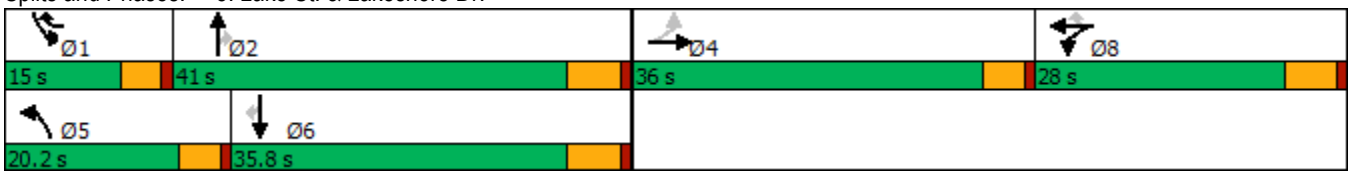
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	62	122	198	119	331	98	757	221	208	439	143
Future Volume (vph)	62	122	198	119	331	98	757	221	208	439	143
Turn Type	Perm	NA	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4	8	8	1	5	2		1	6	
Permitted Phases	4				8			2			6
Detector Phase	4	4	8	8	1	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.6	35.6	15.8	15.8	9.6	9.6	33.8	33.8	9.6	22.8	22.8
Total Split (s)	36.0	36.0	28.0	28.0	15.0	20.2	41.0	41.0	15.0	35.8	35.8
Total Split (%)	30.0%	30.0%	23.3%	23.3%	12.5%	16.8%	34.2%	34.2%	12.5%	29.8%	29.8%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	5.8	5.8	4.6	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		22.7	19.1	19.1	30.6	11.6	35.6	35.6	10.3	34.3	34.3
Actuated g/C Ratio		0.21	0.18	0.18	0.28	0.11	0.33	0.33	0.09	0.32	0.32
v/c Ratio		0.83	0.81	0.46	0.42	0.66	0.83	0.46	0.81	0.50	0.38
Control Delay		43.0	64.4	46.4	4.2	65.0	42.7	7.5	69.7	34.9	11.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		43.0	64.4	46.4	4.2	65.0	42.7	7.5	69.7	34.9	11.2
LOS		D	E	D	A	E	D	A	E	C	B
Approach Delay		43.0		30.4			37.5			39.8	
Approach LOS		D		C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.7	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 37.1	Intersection LOS: D
Intersection Capacity Utilization 78.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Lake St. & Lakeshore Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	122	123	198	119	331	98	757	221	208	439	143
Future Volume (veh/h)	62	122	123	198	119	331	98	757	221	208	439	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.81	1.00		0.72	1.00		0.88	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	154	109	251	151	299	124	958	137	263	556	103
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	296	208	305	320	607	153	1190	467	325	1219	482
Arrive On Green	0.20	0.20	0.20	0.17	0.17	0.17	0.09	0.33	0.33	0.09	0.34	0.34
Sat Flow, veh/h	742	1461	1026	1781	1870	2016	1781	3554	1395	3456	3554	1405
Grp Volume(v), veh/h	193	0	148	251	151	299	124	958	137	263	556	103
Grp Sat Flow(s),veh/h/ln	1833	0	1395	1781	1870	1008	1781	1777	1395	1728	1777	1405
Q Serve(g_s), s	9.9	0.0	10.0	14.3	7.7	13.5	7.2	25.8	7.6	7.8	12.8	5.5
Cycle Q Clear(g_c), s	9.9	0.0	10.0	14.3	7.7	13.5	7.2	25.8	7.6	7.8	12.8	5.5
Prop In Lane	0.40		0.74	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	0	282	305	320	607	153	1190	467	325	1219	482
V/C Ratio(X)	0.52	0.00	0.53	0.82	0.47	0.49	0.81	0.81	0.29	0.81	0.46	0.21
Avail Cap(c_a), veh/h	547	0	417	376	395	687	264	1190	467	342	1219	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	37.4	42.0	39.3	33.3	47.2	31.9	25.8	46.7	26.9	24.5
Incr Delay (d2), s/veh	1.1	0.0	1.5	11.5	1.1	0.6	3.9	5.9	1.6	12.0	1.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	3.5	7.0	3.5	3.2	3.2	11.4	2.6	3.8	5.4	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	38.9	53.5	40.4	34.0	51.1	37.7	27.4	58.7	28.1	25.5
LnGrp LOS	D	A	D	D	D	C	D	D	C	E	C	C
Approach Vol, veh/h		341			701			1219			922	
Approach Delay, s/veh		38.7			42.4			37.9			36.6	
Approach LOS		D			D			D			D	

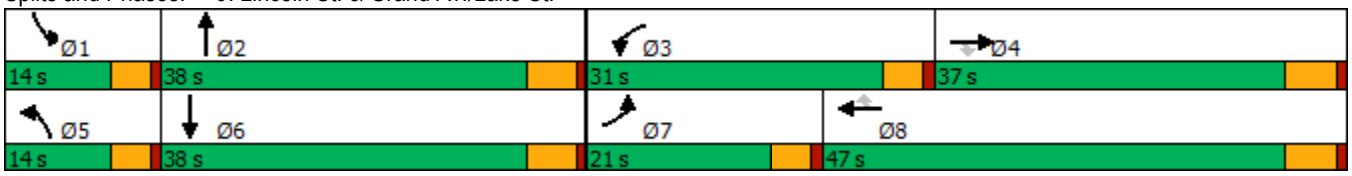
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.5	41.0		25.9	13.6	41.9		23.8				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	35.2		31.4	15.6	30.0		22.2				
Max Q Clear Time (g_c+I1), s	9.8	27.8		12.0	9.2	14.8		16.3				
Green Ext Time (p_c), s	0.0	3.8		2.2	0.1	3.3		1.7				

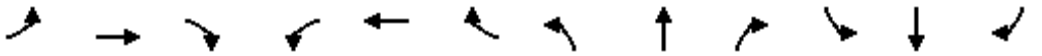
Intersection Summary												
HCM 6th Ctrl Delay			38.6									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	92	506	46	184	382	21	40	134	48	128
Future Volume (vph)	92	506	46	184	382	21	40	134	48	128
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.8	32.8	9.6	31.8	31.8	9.6	34.4	9.6	34.4
Total Split (s)	21.0	37.0	37.0	31.0	47.0	47.0	14.0	38.0	14.0	38.0
Total Split (%)	17.5%	30.8%	30.8%	25.8%	39.2%	39.2%	11.7%	31.7%	11.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	10.8	36.0	36.0	17.0	42.2	42.2	7.1	14.4	7.5	14.8
Actuated g/C Ratio	0.12	0.39	0.39	0.18	0.45	0.45	0.08	0.15	0.08	0.16
v/c Ratio	0.60	0.49	0.09	0.76	0.32	0.04	0.39	0.66	0.45	0.48
Control Delay	54.4	26.9	0.3	53.2	19.8	0.1	53.9	17.9	55.4	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	26.9	0.3	53.2	19.8	0.1	53.9	17.9	55.4	22.7
LOS	D	C	A	D	B	A	D	B	E	C
Approach Delay		28.9			29.5			21.4		28.4
Approach LOS		C			C			C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 93.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 70.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Lincoln St. & Grand Av./Lake St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	506	46	184	382	21	40	134	238	48	128	99
Future Volume (veh/h)	92	506	46	184	382	21	40	134	238	48	128	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	675	42	245	509	24	53	179	245	64	171	100
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	1296	568	281	1550	681	71	382	334	82	488	271
Arrive On Green	0.09	0.36	0.36	0.16	0.44	0.44	0.04	0.22	0.22	0.05	0.22	0.22
Sat Flow, veh/h	1781	3554	1559	1781	3554	1561	1781	1777	1554	1781	2200	1221
Grp Volume(v), veh/h	123	675	42	245	509	24	53	179	245	64	136	135
Grp Sat Flow(s),veh/h/ln	1781	1777	1559	1781	1777	1561	1781	1777	1554	1781	1777	1645
Q Serve(g_s), s	6.4	14.1	1.7	12.7	8.9	0.8	2.8	8.3	13.9	3.4	6.1	6.6
Cycle Q Clear(g_c), s	6.4	14.1	1.7	12.7	8.9	0.8	2.8	8.3	13.9	3.4	6.1	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	154	1296	568	281	1550	681	71	382	334	82	394	365
V/C Ratio(X)	0.80	0.52	0.07	0.87	0.33	0.04	0.75	0.47	0.73	0.78	0.35	0.37
Avail Cap(c_a), veh/h	309	1296	568	498	1550	681	177	613	536	177	613	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.4	23.5	19.6	38.8	17.5	15.2	44.9	32.3	34.5	44.6	31.0	31.2
Incr Delay (d2), s/veh	3.6	1.5	0.3	3.3	0.6	0.1	5.8	0.9	3.1	5.7	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.7	0.6	5.5	3.5	0.3	1.3	3.5	5.3	1.6	2.6	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	25.0	19.8	42.1	18.1	15.3	50.6	33.2	37.6	50.3	31.5	31.8
LnGrp LOS	D	C	B	D	B	B	D	C	D	D	C	C
Approach Vol, veh/h		840			778			477			335	
Approach Delay, s/veh		27.8			25.6			37.4			35.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	25.7	19.5	40.2	8.4	26.3	12.7	47.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	32.6	26.4	31.2	9.4	32.6	16.4	41.2
Max Q Clear Time (g_c+I1), s	5.4	15.9	14.7	16.1	4.8	8.6	8.4	10.9
Green Ext Time (p_c), s	0.0	2.2	0.3	3.8	0.0	1.4	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	598	643	12	7	14
Future Vol, veh/h	12	598	643	12	7	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	831	893	17	10	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	910	0	-	0	1352	902
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	450	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	746	-	-	-	153	335
Stage 1	-	-	-	-	395	-
Stage 2	-	-	-	-	610	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	746	-	-	-	149	335
Mov Cap-2 Maneuver	-	-	-	-	279	-
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	610	-

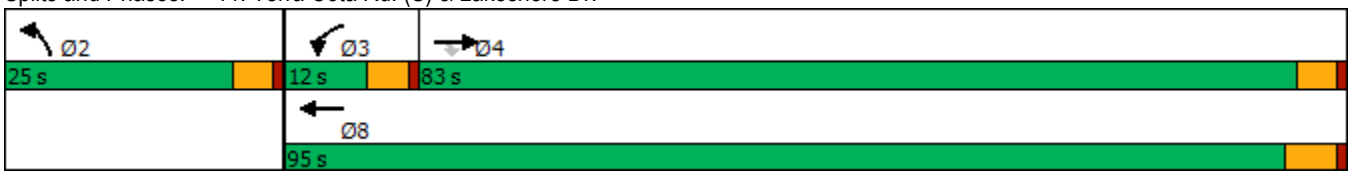
Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	17.1
HCM LOS			C

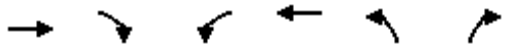
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	746	-	-	-	279	335
HCM Lane V/C Ratio	0.022	-	-	-	0.035	0.058
HCM Control Delay (s)	9.9	-	-	-	18.4	16.4
HCM Lane LOS	A	-	-	-	C	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Configurations					
Traffic Volume (vph)	577	28	12	603	53
Future Volume (vph)	577	28	12	603	53
Turn Type	NA	Perm	Prot	NA	Prot
Protected Phases	4		3	8	2
Permitted Phases		4			
Detector Phase	4	4	3	8	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	15.8	14.6
Total Split (s)	83.0	83.0	12.0	95.0	25.0
Total Split (%)	69.2%	69.2%	10.0%	79.2%	20.8%
Yellow Time (s)	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		
Recall Mode	Max	Max	None	Max	None
Act Effct Green (s)	86.0	86.0	5.8	89.3	14.7
Actuated g/C Ratio	0.75	0.75	0.05	0.78	0.13
v/c Ratio	0.57	0.03	0.19	0.58	0.64
Control Delay	9.9	2.2	58.0	7.4	60.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	2.2	58.0	7.4	60.7
LOS	A	A	E	A	E
Approach Delay	9.5			8.4	60.7
Approach LOS	A			A	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 114.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 48.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Terra Cota Rd. (S) & Lakeshore Dr.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	577	28	12	603	53	47
Future Volume (veh/h)	577	28	12	603	53	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	801	36	17	838	74	65
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	1395	1149	33	1507	89	79
Arrive On Green	0.75	0.75	0.02	0.81	0.10	0.10
Sat Flow, veh/h	1870	1541	1781	1870	891	782
Grp Volume(v), veh/h	801	36	17	838	140	0
Grp Sat Flow(s),veh/h/ln	1870	1541	1781	1870	1685	0
Q Serve(g_s), s	21.1	0.7	1.0	17.5	9.0	0.0
Cycle Q Clear(g_c), s	21.1	0.7	1.0	17.5	9.0	0.0
Prop In Lane		1.00	1.00		0.53	0.46
Lane Grp Cap(c), veh/h	1395	1149	33	1507	169	0
V/C Ratio(X)	0.57	0.03	0.52	0.56	0.83	0.00
Avail Cap(c_a), veh/h	1395	1149	119	1507	310	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.3	3.7	53.9	3.8	48.9	0.0
Incr Delay (d2), s/veh	1.7	0.1	4.7	1.5	9.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.2	0.5	4.3	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	3.7	58.5	5.3	58.7	0.0
LnGrp LOS	A	A	E	A	E	A
Approach Vol, veh/h	837			855	140	
Approach Delay, s/veh	7.8			6.3	58.7	
Approach LOS	A			A	E	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		15.7	6.6	88.4		95.0
Change Period (Y+Rc), s		4.6	4.6	* 5.8		5.8
Max Green Setting (Gmax), s		20.4	7.4	* 78		89.2
Max Q Clear Time (g_c+I1), s		11.0	3.0	23.1		19.5
Green Ext Time (p_c), s		0.2	0.0	6.5		6.9

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	99	0	5	170	125	0	0	3	255	0	8
Future Vol, veh/h	24	99	0	5	170	125	0	0	3	255	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	118	0	6	202	149	0	0	4	304	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	351	0	-	118	0	0	470	539	118	467	465	277
Stage 1	-	-	-	-	-	-	176	176	-	289	289	-
Stage 2	-	-	-	-	-	-	294	363	-	178	176	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1208	-	0	1470	-	-	504	449	934	506	495	762
Stage 1	-	-	0	-	-	-	826	753	-	719	673	-
Stage 2	-	-	0	-	-	-	714	625	-	824	753	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1208	-	-	1470	-	-	486	435	934	492	480	762
Mov Cap-2 Maneuver	-	-	-	-	-	-	486	435	-	492	480	-
Stage 1	-	-	-	-	-	-	805	733	-	700	670	-
Stage 2	-	-	-	-	-	-	702	622	-	800	733	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.1	8.9	23.8
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	934	1208	-	1470	-	-	497
HCM Lane V/C Ratio	0.004	0.024	-	0.004	-	-	0.63
HCM Control Delay (s)	8.9	8.1	0	7.5	-	-	23.8
HCM Lane LOS	A	A	A	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	0	-	-	4.3

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	357	284	171	0	16
Future Vol, veh/h	0	357	284	171	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	388	309	186	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	402
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	648
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	648
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	648
HCM Lane V/C Ratio	-	-	-	0.027
HCM Control Delay (s)	-	-	-	10.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	4	258	1	2	411	184	41	800
Future Volume (vph)	4	4	258	1	2	411	184	41	800
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	15.8	15.8	9.6	16.2	16.2	9.6	16.2
Total Split (s)	38.0	38.0	38.0	38.0	9.6	70.2	70.2	11.8	72.4
Total Split (%)	31.7%	31.7%	31.7%	31.7%	8.0%	58.5%	58.5%	9.8%	60.3%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		5.8	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)		29.4		28.2	5.0	64.9	64.9	6.5	72.0
Actuated g/C Ratio		0.26		0.25	0.04	0.57	0.57	0.06	0.63
v/c Ratio		0.02		0.89	0.03	0.42	0.21	0.45	0.74
Control Delay		28.2		69.4	56.0	17.1	3.6	68.5	21.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.2		69.4	56.0	17.1	3.6	68.5	21.2
LOS		C		E	E	B	A	E	C
Approach Delay		28.2		69.4		13.0			23.5
Approach LOS		C		E		B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 114.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 27.3	Intersection LOS: C
Intersection Capacity Utilization 74.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Lake St. & Nichols Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	2	258	1	17	2	411	184	41	800	0
Future Volume (veh/h)	4	4	2	258	1	17	2	411	184	41	800	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	4	4	1	280	1	10	2	447	0	45	870	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	210	200	45	374	1	11	5	1099		61	1158	0
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.00	0.59	0.00	0.03	0.62	0.00
Sat Flow, veh/h	718	884	200	1370	5	49	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	9	0	0	291	0	0	2	447	0	45	870	0
Grp Sat Flow(s),veh/h/ln	1803	0	0	1424	0	0	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	21.2	0.0	0.0	0.1	14.1	0.0	2.7	36.1	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	21.6	0.0	0.0	0.1	14.1	0.0	2.7	36.1	0.0
Prop In Lane	0.44		0.11	0.96		0.03	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	455	0	0	386	0	0	5	1099		61	1158	0
V/C Ratio(X)	0.02	0.00	0.00	0.75	0.00	0.00	0.42	0.41		0.74	0.75	0.00
Avail Cap(c_a), veh/h	584	0	0	485	0	0	82	1099		118	1158	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.8	0.0	0.0	41.0	0.0	0.0	54.2	12.2	0.0	52.1	14.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	5.1	0.0	0.0	20.0	1.1	0.0	6.4	4.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	7.8	0.0	0.0	0.1	5.4	0.0	1.3	14.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	0.0	0.0	46.0	0.0	0.0	74.2	13.3	0.0	58.5	19.3	0.0
LnGrp LOS	C	A	A	D	A	A	E	B		E	B	A
Approach Vol, veh/h		9			291			449	A		915	
Approach Delay, s/veh		32.8			46.0			13.5			21.2	
Approach LOS		C			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	70.2		30.4	4.9	73.6		30.4				
Change Period (Y+Rc), s	4.6	6.2		* 5.8	4.6	6.2		5.8				
Max Green Setting (Gmax), s	7.2	64.0		* 33	5.0	66.2		32.2				
Max Q Clear Time (g_c+I1), s	4.7	16.1		2.4	2.1	38.1		23.6				
Green Ext Time (p_c), s	0.0	2.6		0.0	0.0	6.4		0.9				

Intersection Summary		
HCM 6th Ctrl Delay		23.5
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	17	595	41	33	1036
Future Volume (vph)	39	17	595	41	33	1036
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.7	14.7	16.2	16.2	9.6	16.2
Total Split (s)	15.3	15.3	94.6	94.6	10.1	104.7
Total Split (%)	12.8%	12.8%	78.8%	78.8%	8.4%	87.3%
Yellow Time (s)	3.7	3.7	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.2	6.2	4.6	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.1	10.1	96.6	96.6	5.4	102.7
Actuated g/C Ratio	0.08	0.08	0.81	0.81	0.05	0.86
v/c Ratio	0.29	0.14	0.43	0.03	0.46	0.71
Control Delay	56.8	53.5	6.0	1.3	73.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	53.5	6.0	1.3	73.8	7.3
LOS	E	D	A	A	E	A
Approach Delay	55.8		5.7			9.4
Approach LOS	E		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 9.5	Intersection LOS: A
Intersection Capacity Utilization 71.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Lake St. & Alberhill Ranch Rd.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	39	17	595	41	33	1036
Future Volume (veh/h)	39	17	595	41	33	1036
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	19	654	42	36	1138
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	131	117	1432	1214	52	1560
Arrive On Green	0.07	0.07	0.77	0.77	0.03	0.83
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	43	19	654	42	36	1138
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	2.7	1.3	14.9	0.8	2.4	30.4
Cycle Q Clear(g_c), s	2.7	1.3	14.9	0.8	2.4	30.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	131	117	1432	1214	52	1560
V/C Ratio(X)	0.33	0.16	0.46	0.03	0.69	0.73
Avail Cap(c_a), veh/h	160	142	1432	1214	83	1560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	51.3	5.0	3.3	56.8	4.2
Incr Delay (d2), s/veh	0.5	0.2	1.1	0.1	5.9	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.5	4.3	0.2	1.1	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.5	51.5	6.0	3.4	62.6	7.2
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	62		696			1174
Approach Delay, s/veh	52.2		5.9			8.9
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.1	96.6			104.7	13.4
Change Period (Y+Rc), s	4.6	6.2			6.2	4.7
Max Green Setting (Gmax), s	5.5	88.4			98.5	10.6
Max Q Clear Time (g_c+I1), s	4.4	16.9			32.4	4.7
Green Ext Time (p_c), s	0.0	4.5			12.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	66	0	636	1031	43
Future Vol, veh/h	0	66	0	636	1031	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	72	0	691	1121	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1145	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	243	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	243	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	243	-	-
HCM Lane V/C Ratio	-	0.295	-	-
HCM Control Delay (s)	-	25.9	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	79	0	636	1033	64
Future Vol, veh/h	0	79	0	636	1033	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	86	0	691	1123	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	597	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	447	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	447	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

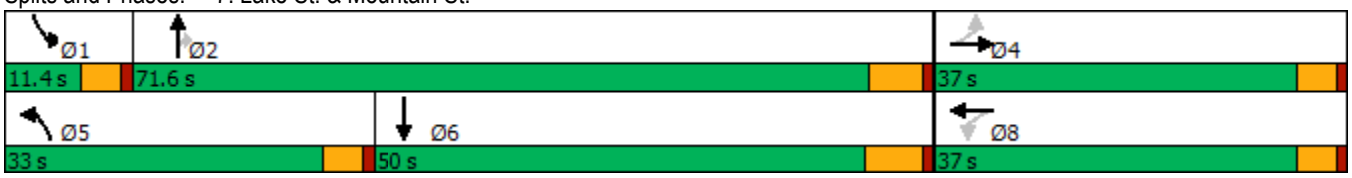
Approach	EB	NB	SB
HCM Control Delay, s	15	0	0
HCM LOS	C		

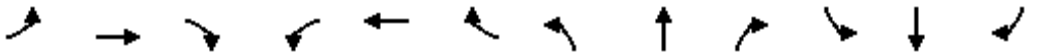
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	447	-	-
HCM Lane V/C Ratio	-	0.192	-	-
HCM Control Delay (s)	-	15	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.7	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	301	12	25	13	342	321	17	35	977
Future Volume (vph)	301	12	25	13	342	321	17	35	977
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.7	34.7	21.7	21.7	9.6	26.8	26.8	9.6	23.2
Total Split (s)	37.0	37.0	37.0	37.0	33.0	71.6	71.6	11.4	50.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	27.5%	59.7%	59.7%	9.5%	41.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.6	4.8	4.8	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	4.7	4.7	4.6	5.8	5.8	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	30.1	30.1	30.1	30.1	26.5	68.9	68.9	6.2	44.0
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.23	0.59	0.59	0.05	0.38
v/c Ratio	0.92	0.13	0.08	0.06	0.92	0.32	0.02	0.40	0.88
Control Delay	73.8	13.5	33.6	20.6	73.6	14.2	0.1	67.4	43.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.8	13.5	33.6	20.6	73.6	14.2	0.1	67.4	43.4
LOS	E	B	C	C	E	B	A	E	D
Approach Delay		64.5		26.9		43.8			44.2
Approach LOS		E		C		D			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 46.9	Intersection LOS: D
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Lake St. & Mountain St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	12	43	25	13	14	342	321	17	35	977	101
Future Volume (veh/h)	301	12	43	25	13	14	342	321	17	35	977	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	327	13	25	27	14	6	372	349	15	38	1062	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	412	148	285	394	322	138	399	1076	911	55	1249	121
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.22	0.58	0.58	0.03	0.38	0.38
Sat Flow, veh/h	1392	572	1100	1370	1242	532	1781	1870	1584	1781	3273	317
Grp Volume(v), veh/h	327	0	38	27	0	20	372	349	15	38	576	589
Grp Sat Flow(s),veh/h/ln	1392	0	1672	1370	0	1775	1781	1870	1584	1781	1777	1813
Q Serve(g_s), s	26.4	0.0	2.0	1.7	0.0	1.0	23.5	11.2	0.5	2.4	34.0	34.1
Cycle Q Clear(g_c), s	27.4	0.0	2.0	3.7	0.0	1.0	23.5	11.2	0.5	2.4	34.0	34.1
Prop In Lane	1.00		0.66	1.00		0.30	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	412	0	433	394	0	460	399	1076	911	55	678	692
V/C Ratio(X)	0.79	0.00	0.09	0.07	0.00	0.04	0.93	0.32	0.02	0.70	0.85	0.85
Avail Cap(c_a), veh/h	443	0	471	425	0	500	441	1076	911	106	678	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	32.2	33.6	0.0	31.8	43.7	12.7	10.5	55.1	32.5	32.5
Incr Delay (d2), s/veh	9.0	0.0	0.1	0.1	0.0	0.0	24.6	0.8	0.0	5.9	12.6	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	0.0	0.8	0.6	0.0	0.4	12.7	4.5	0.2	1.1	16.0	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	0.0	32.3	33.7	0.0	31.9	68.2	13.5	10.5	60.9	45.1	45.0
LnGrp LOS	D	A	C	C	A	C	E	B	B	E	D	D
Approach Vol, veh/h		365			47			736			1203	
Approach Delay, s/veh		49.2			32.9			41.1			45.5	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	72.2		34.4	30.3	50.0		34.4				
Change Period (Y+Rc), s	4.6	* 6.2		* 4.7	4.6	6.2		* 4.7				
Max Green Setting (Gmax), s	6.8	* 66		* 32	28.4	43.8		* 32				
Max Q Clear Time (g_c+I1), s	4.4	13.2		29.4	25.5	36.1		5.7				
Green Ext Time (p_c), s	0.0	2.1		0.4	0.2	4.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		44.5	
HCM 6th LOS		D	

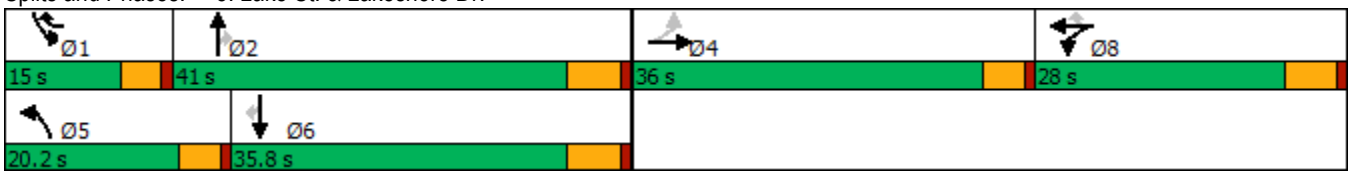
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	10	21	140	10	248	16	453	99	304	684	14
Future Volume (vph)	10	21	140	10	248	16	453	99	304	684	14
Turn Type	Perm	NA	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4	8	8	1	5	2		1	6	
Permitted Phases	4				8			2			6
Detector Phase	4	4	8	8	1	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.6	35.6	15.8	15.8	9.6	9.6	33.8	33.8	9.6	22.8	22.8
Total Split (s)	36.0	36.0	28.0	28.0	15.0	20.2	41.0	41.0	15.0	35.8	35.8
Total Split (%)	30.0%	30.0%	23.3%	23.3%	12.5%	16.8%	34.2%	34.2%	12.5%	29.8%	29.8%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	5.8	5.8	4.6	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		13.5	13.7	13.7	30.3	5.8	36.1	36.1	10.7	47.5	47.5
Actuated g/C Ratio		0.15	0.15	0.15	0.33	0.06	0.39	0.39	0.12	0.52	0.52
v/c Ratio		0.18	0.57	0.04	0.24	0.15	0.35	0.16	0.82	0.40	0.02
Control Delay		25.0	47.5	37.0	4.0	49.3	23.2	5.8	59.3	18.8	0.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.0	47.5	37.0	4.0	49.3	23.2	5.8	59.3	18.8	0.0
LOS		C	D	D	A	D	C	A	E	B	A
Approach Delay		25.0		20.1			20.9			30.8	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 91.6	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 59.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Lake St. & Lakeshore Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	21	21	140	10	248	16	453	99	304	684	14
Future Volume (veh/h)	10	21	21	140	10	248	16	453	99	304	684	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	23	1	151	11	258	17	487	103	327	735	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	166	7	220	231	673	35	1545	688	407	1893	844
Arrive On Green	0.07	0.07	0.07	0.12	0.12	0.12	0.02	0.43	0.43	0.12	0.53	0.53
Sat Flow, veh/h	1091	2465	111	1781	1870	2790	1781	3554	1584	3456	3554	1585
Grp Volume(v), veh/h	18	0	17	151	11	258	17	487	103	327	735	9
Grp Sat Flow(s),veh/h/ln	1816	0	1850	1781	1870	1395	1781	1777	1584	1728	1777	1585
Q Serve(g_s), s	0.8	0.0	0.7	6.6	0.4	6.3	0.8	7.3	3.2	7.5	9.9	0.2
Cycle Q Clear(g_c), s	0.8	0.0	0.7	6.6	0.4	6.3	0.8	7.3	3.2	7.5	9.9	0.2
Prop In Lane	0.60		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	0	125	220	231	673	35	1545	688	407	1893	844
V/C Ratio(X)	0.15	0.00	0.13	0.69	0.05	0.38	0.49	0.32	0.15	0.80	0.39	0.01
Avail Cap(c_a), veh/h	704	0	717	488	513	1093	343	1545	688	444	1893	844
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	0.0	35.5	34.0	31.3	25.7	39.3	15.0	13.8	34.8	11.1	8.9
Incr Delay (d2), s/veh	0.6	0.0	0.5	3.8	0.1	0.4	3.8	0.5	0.5	8.5	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.3	2.9	0.2	2.0	0.4	2.7	1.1	3.4	3.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	0.0	36.0	37.8	31.4	26.0	43.1	15.5	14.3	43.3	11.7	8.9
LnGrp LOS	D	A	D	D	C	C	D	B	B	D	B	A
Approach Vol, veh/h		35			420			607			1071	
Approach Delay, s/veh		36.1			30.4			16.1			21.4	
Approach LOS		D			C			B			C	

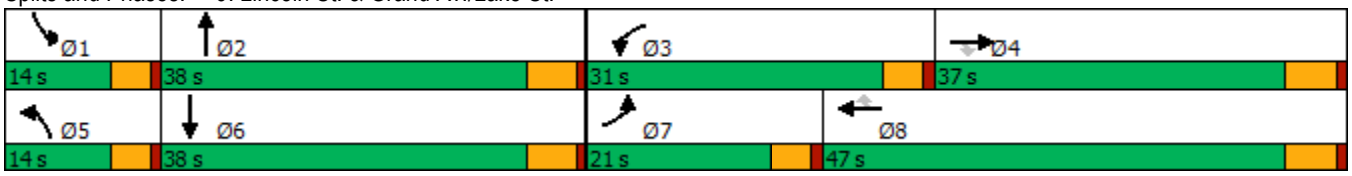
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.1	41.0		10.0	6.2	48.9		15.8				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	35.2		31.4	15.6	30.0		22.2				
Max Q Clear Time (g_c+I1), s	9.5	9.3		2.8	2.8	11.9		8.6				
Green Ext Time (p_c), s	0.1	3.3		0.1	0.0	4.4		1.2				

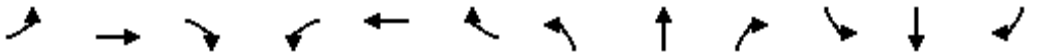
Intersection Summary												
HCM 6th Ctrl Delay			21.9									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	25	331	20	169	412	21	32	35	21	26
Future Volume (vph)	25	331	20	169	412	21	32	35	21	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.8	32.8	9.6	31.8	31.8	9.6	34.4	9.6	34.4
Total Split (s)	21.0	37.0	37.0	31.0	47.0	47.0	14.0	38.0	14.0	38.0
Total Split (%)	17.5%	30.8%	30.8%	25.8%	39.2%	39.2%	11.7%	31.7%	11.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	6.1	32.8	32.8	12.4	46.1	46.1	6.3	15.6	5.9	13.2
Actuated g/C Ratio	0.08	0.40	0.40	0.15	0.57	0.57	0.08	0.19	0.07	0.16
v/c Ratio	0.20	0.24	0.03	0.64	0.21	0.02	0.24	0.21	0.17	0.07
Control Delay	45.0	20.0	0.1	45.9	12.5	0.0	45.2	10.9	45.0	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	20.0	0.1	45.9	12.5	0.0	45.2	10.9	45.0	23.3
LOS	D	C	A	D	B	A	D	B	D	C
Approach Delay		20.6			21.4			17.2		30.9
Approach LOS		C			C			B		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 81.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 63.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: Lincoln St. & Grand Av./Lake St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	331	20	169	412	21	32	35	108	21	26	14
Future Volume (veh/h)	25	331	20	169	412	21	32	35	108	21	26	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	341	19	174	425	19	33	36	72	22	27	4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1572	701	215	1902	848	59	262	234	43	433	63
Arrive On Green	0.03	0.44	0.44	0.12	0.54	0.54	0.03	0.15	0.15	0.02	0.14	0.14
Sat Flow, veh/h	1781	3554	1584	1781	3554	1583	1781	1777	1585	1781	3111	449
Grp Volume(v), veh/h	26	341	19	174	425	19	33	36	72	22	15	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1583	1781	1777	1585	1781	1777	1784
Q Serve(g_s), s	1.1	4.6	0.5	7.3	4.9	0.4	1.4	1.4	3.1	0.9	0.6	0.6
Cycle Q Clear(g_c), s	1.1	4.6	0.5	7.3	4.9	0.4	1.4	1.4	3.1	0.9	0.6	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	49	1572	701	215	1902	848	59	262	234	43	247	248
V/C Ratio(X)	0.53	0.22	0.03	0.81	0.22	0.02	0.56	0.14	0.31	0.51	0.06	0.06
Avail Cap(c_a), veh/h	380	1572	701	611	1902	848	218	753	671	218	753	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	13.2	12.1	33.0	9.4	8.4	36.7	28.5	29.3	37.1	28.8	28.8
Incr Delay (d2), s/veh	3.2	0.3	0.1	2.8	0.3	0.0	3.1	0.2	0.7	3.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.6	0.2	3.1	1.6	0.1	0.6	0.6	1.2	0.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	13.6	12.2	35.8	9.7	8.5	39.8	28.8	30.0	40.5	28.9	28.9
LnGrp LOS	D	B	B	D	A	A	D	C	C	D	C	C
Approach Vol, veh/h		386			618			141			53	
Approach Delay, s/veh		15.3			17.0			32.0			33.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	16.8	13.9	39.8	7.1	16.1	6.7	47.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	32.6	26.4	31.2	9.4	32.6	16.4	41.2
Max Q Clear Time (g_c+I1), s	2.9	5.1	9.3	6.6	3.4	2.6	3.1	6.9
Green Ext Time (p_c), s	0.0	0.5	0.2	2.0	0.0	0.1	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	468	490	15	10	10
Future Vol, veh/h	8	468	490	15	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	498	521	16	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	537	0	-	0	796	529
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	267	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1029	-	-	-	340	549
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	754	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1029	-	-	-	337	549
Mov Cap-2 Maneuver	-	-	-	-	450	-
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	754	-

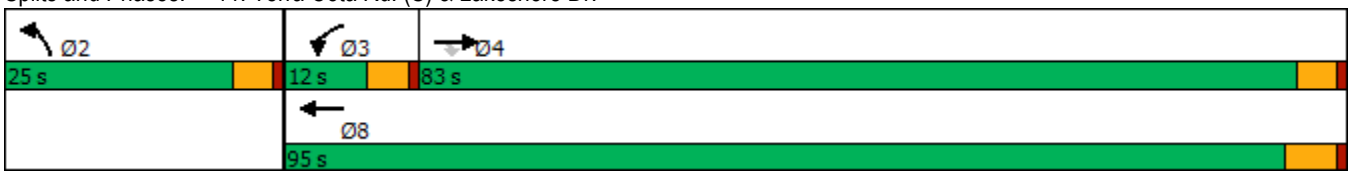
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1029	-	-	-	450	549
HCM Lane V/C Ratio	0.008	-	-	-	0.024	0.019
HCM Control Delay (s)	8.5	-	-	-	13.2	11.7
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Configurations					
Traffic Volume (vph)	433	45	43	483	21
Future Volume (vph)	433	45	43	483	21
Turn Type	NA	Perm	Prot	NA	Prot
Protected Phases	4		3	8	2
Permitted Phases		4			
Detector Phase	4	4	3	8	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	15.8	14.6
Total Split (s)	83.0	83.0	12.0	95.0	25.0
Total Split (%)	69.2%	69.2%	10.0%	79.2%	20.8%
Yellow Time (s)	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		
Recall Mode	Max	Max	None	Max	None
Act Effct Green (s)	85.1	85.1	6.6	93.4	11.2
Actuated g/C Ratio	0.77	0.77	0.06	0.84	0.10
v/c Ratio	0.32	0.04	0.44	0.33	0.43
Control Delay	6.4	1.7	63.8	3.3	55.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	1.7	63.8	3.3	55.0
LOS	A	A	E	A	E
Approach Delay	6.0			8.3	55.0
Approach LOS	A			A	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.9	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 10.2	Intersection LOS: B
Intersection Capacity Utilization 46.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Terra Cota Rd. (S) & Lakeshore Dr.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	433	45	43	483	21	47
Future Volume (veh/h)	433	45	43	483	21	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	461	42	46	514	22	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	1394	1177	62	1538	41	92
Arrive On Green	0.75	0.75	0.03	0.82	0.08	0.08
Sat Flow, veh/h	1870	1580	1781	1870	495	1125
Grp Volume(v), veh/h	461	42	46	514	73	0
Grp Sat Flow(s),veh/h/ln	1870	1580	1781	1870	1643	0
Q Serve(g_s), s	9.0	0.8	2.8	7.3	4.6	0.0
Cycle Q Clear(g_c), s	9.0	0.8	2.8	7.3	4.6	0.0
Prop In Lane		1.00	1.00		0.30	0.68
Lane Grp Cap(c), veh/h	1394	1177	62	1538	135	0
V/C Ratio(X)	0.33	0.04	0.75	0.33	0.54	0.00
Avail Cap(c_a), veh/h	1394	1177	121	1538	309	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.7	3.6	51.9	2.4	47.8	0.0
Incr Delay (d2), s/veh	0.6	0.1	6.6	0.6	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.2	1.3	1.5	2.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.3	3.7	58.5	3.0	51.2	0.0
LnGrp LOS	A	A	E	A	D	A
Approach Vol, veh/h	503			560	73	
Approach Delay, s/veh	5.2			7.5	51.2	
Approach LOS	A			A	D	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.5	8.3	86.7		95.0
Change Period (Y+Rc), s		4.6	4.6	* 5.8		5.8
Max Green Setting (Gmax), s		20.4	7.4	* 78		89.2
Max Q Clear Time (g_c+I1), s		6.6	4.8	11.0		9.3
Green Ext Time (p_c), s		0.1	0.0	3.0		3.3

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.2:

EAP (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

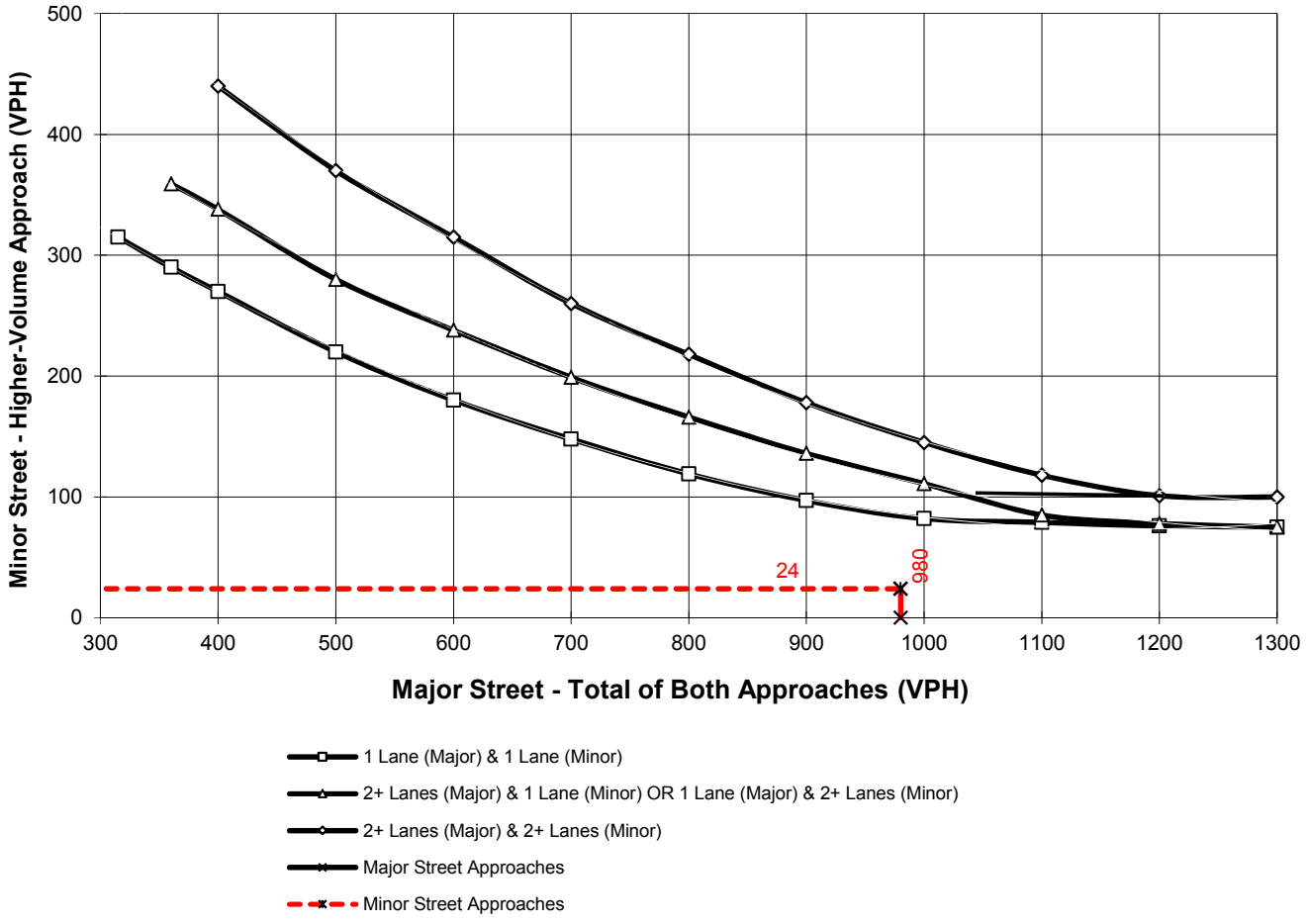
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2021) Conditions - Weekday PM Peak Hour**

Major Street Name = **Lakeshore Dr.** Total of Both Approaches (VPH) = **980**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Terra Cotta Rd. (N)** High Volume Approach (VPH) = **24**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.1:

EAPC (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	264	0	3	135	89	0	0	12	159	0	8
Future Vol, veh/h	32	264	0	3	135	89	0	0	12	159	0	8
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	311	0	4	159	105	0	0	14	187	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	264	0	-	311	0	0	611	659	311	614	607	212
Stage 1	-	-	-	-	-	-	387	387	-	220	220	-
Stage 2	-	-	-	-	-	-	224	272	-	394	387	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1300	-	0	1249	-	-	406	384	729	404	411	828
Stage 1	-	-	0	-	-	-	637	610	-	782	721	-
Stage 2	-	-	0	-	-	-	779	685	-	631	610	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1300	-	-	1249	-	-	389	369	729	385	395	828
Mov Cap-2 Maneuver	-	-	-	-	-	-	389	369	-	385	395	-
Stage 1	-	-	-	-	-	-	615	589	-	755	718	-
Stage 2	-	-	-	-	-	-	767	682	-	597	589	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.1	10	22.8
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	729	1300	-	1249	-	-	395
HCM Lane V/C Ratio	0.019	0.029	-	0.003	-	-	0.497
HCM Control Delay (s)	10	7.9	0	7.9	-	-	22.8
HCM Lane LOS	B	A	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	0	-	-	2.7

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	435	211	138	0	17
Future Vol, veh/h	0	435	211	138	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	473	229	150	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	304
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	736
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	736
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	736
HCM Lane V/C Ratio	-	-	-	0.025
HCM Control Delay (s)	-	-	-	10
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	51	45	206	23	10	767	380	27	308
Future Volume (vph)	51	45	206	23	10	767	380	27	308
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	15.8	15.8	9.6	16.2	16.2	9.6	16.2
Total Split (s)	38.0	38.0	38.0	38.0	9.6	70.2	70.2	11.8	72.4
Total Split (%)	31.7%	31.7%	31.7%	31.7%	8.0%	58.5%	58.5%	9.8%	60.3%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		5.8	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)		29.2		28.0	5.0	65.5	65.5	6.1	70.1
Actuated g/C Ratio		0.26		0.25	0.04	0.58	0.58	0.05	0.63
v/c Ratio		0.31		0.90	0.13	0.73	0.39	0.29	0.29
Control Delay		33.3		70.4	59.0	24.1	8.5	61.4	11.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		33.3		70.4	59.0	24.1	8.5	61.4	11.5
LOS		C		E	E	C	A	E	B
Approach Delay		33.3		70.4		19.3			15.4
Approach LOS		C		E		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 72.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Lake St. & Nichols Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	45	23	206	23	46	10	767	380	27	308	14
Future Volume (veh/h)	51	45	23	206	23	46	10	767	380	27	308	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	46	24	212	24	34	10	791	0	28	318	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	155	71	296	27	38	21	1126		47	1096	48
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.01	0.60	0.00	0.03	0.62	0.62
Sat Flow, veh/h	633	714	327	1088	123	174	1781	1870	1585	1781	1778	78
Grp Volume(v), veh/h	123	0	0	270	0	0	10	791	0	28	0	332
Grp Sat Flow(s),veh/h/ln	1673	0	0	1386	0	0	1781	1870	1585	1781	0	1856
Q Serve(g_s), s	0.0	0.0	0.0	13.9	0.0	0.0	0.6	31.4	0.0	1.7	0.0	9.0
Cycle Q Clear(g_c), s	6.4	0.0	0.0	20.4	0.0	0.0	0.6	31.4	0.0	1.7	0.0	9.0
Prop In Lane	0.43		0.20	0.79		0.13	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	412	0	0	361	0	0	21	1126		47	0	1144
V/C Ratio(X)	0.30	0.00	0.00	0.75	0.00	0.00	0.47	0.70		0.60	0.00	0.29
Avail Cap(c_a), veh/h	557	0	0	476	0	0	83	1126		119	0	1144
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	40.9	0.0	0.0	52.7	14.8	0.0	51.7	0.0	9.6
Incr Delay (d2), s/veh	0.4	0.0	0.0	4.6	0.0	0.0	5.8	3.7	0.0	4.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	7.1	0.0	0.0	0.3	12.2	0.0	0.8	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	0.0	45.5	0.0	0.0	58.5	18.4	0.0	56.2	0.0	10.3
LnGrp LOS	D	A	A	D	A	A	E	B		E	A	B
Approach Vol, veh/h		123			270			801	A		360	
Approach Delay, s/veh		35.8			45.5			18.9			13.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	70.9		29.2	5.9	72.4		29.2				
Change Period (Y+Rc), s	4.6	6.2		* 5.8	4.6	6.2		5.8				
Max Green Setting (Gmax), s	7.2	64.0		* 33	5.0	66.2		32.2				
Max Q Clear Time (g_c+I1), s	3.7	33.4		8.4	2.6	11.0		22.4				
Green Ext Time (p_c), s	0.0	5.6		0.7	0.0	1.8		1.0				

Intersection Summary		
HCM 6th Ctrl Delay	23.7	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	99	66	1098	55	21	513
Future Volume (vph)	99	66	1098	55	21	513
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.7	14.7	16.2	16.2	9.6	16.2
Total Split (s)	15.3	15.3	94.6	94.6	10.1	104.7
Total Split (%)	12.8%	12.8%	78.8%	78.8%	8.4%	87.3%
Yellow Time (s)	3.7	3.7	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.2	6.2	4.6	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.4	10.4	92.5	92.5	5.3	98.5
Actuated g/C Ratio	0.09	0.09	0.77	0.77	0.04	0.82
v/c Ratio	0.68	0.51	0.80	0.05	0.28	0.35
Control Delay	75.6	65.8	15.1	1.5	64.7	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	65.8	15.1	1.5	64.7	3.4
LOS	E	E	B	A	E	A
Approach Delay	71.7		14.5			5.8
Approach LOS	E		B			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 17.1	Intersection LOS: B
Intersection Capacity Utilization 75.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Lake St. & Alberhill Ranch Rd.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	99	66	1098	55	21	513
Future Volume (veh/h)	99	66	1098	55	21	513
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	104	69	1156	44	22	540
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	149	132	1431	1212	39	1543
Arrive On Green	0.08	0.08	0.76	0.76	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	104	69	1156	44	22	540
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	6.8	5.0	45.4	0.8	1.5	8.5
Cycle Q Clear(g_c), s	6.8	5.0	45.4	0.8	1.5	8.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	149	132	1431	1212	39	1543
V/C Ratio(X)	0.70	0.52	0.81	0.04	0.57	0.35
Avail Cap(c_a), veh/h	158	141	1431	1212	82	1543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	52.4	8.6	3.4	57.8	2.6
Incr Delay (d2), s/veh	9.7	1.2	5.0	0.1	4.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	2.0	14.1	0.2	0.7	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.9	53.6	13.6	3.4	62.7	3.2
LnGrp LOS	E	D	B	A	E	A
Approach Vol, veh/h	173		1200			562
Approach Delay, s/veh	59.2		13.3			5.5
Approach LOS	E		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.2	97.5			104.7	14.7
Change Period (Y+Rc), s	4.6	6.2			6.2	4.7
Max Green Setting (Gmax), s	5.5	88.4			98.5	10.6
Max Q Clear Time (g_c+I1), s	3.5	47.4			10.5	8.8
Green Ext Time (p_c), s	0.0	12.5			3.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	55	0	1153	577	34
Future Vol, veh/h	0	55	0	1153	577	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	60	0	1253	627	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	646	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	472	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	472	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	472	-	-
HCM Lane V/C Ratio	-	0.127	-	-
HCM Control Delay (s)	-	13.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	62	0	1153	580	52
Future Vol, veh/h	0	62	0	1153	580	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	67	0	1253	630	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	344	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	653	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	653	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

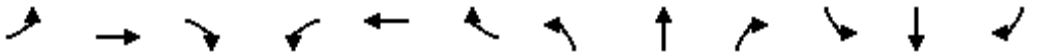
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	653	-	-
HCM Lane V/C Ratio	-	0.103	-	-
HCM Control Delay (s)	-	11.1	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	324	24	51	37	241	781	46	8	562
Future Volume (vph)	324	24	51	37	241	781	46	8	562
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.7	34.7	21.7	21.7	9.6	26.8	26.8	9.6	23.2
Total Split (s)	37.0	37.0	37.0	37.0	33.0	71.6	71.6	11.4	50.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	27.5%	59.7%	59.7%	9.5%	41.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.6	4.8	4.8	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	4.7	4.7	4.6	5.8	5.8	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	31.8	31.8	31.8	31.8	20.1	67.9	67.9	5.4	44.8
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.18	0.61	0.61	0.05	0.40
v/c Ratio	0.92	0.22	0.15	0.17	0.79	0.72	0.05	0.10	0.47
Control Delay	70.8	11.3	33.0	16.7	62.0	21.1	2.5	55.8	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.8	11.3	33.0	16.7	62.0	21.1	2.5	55.8	26.7
LOS	E	B	C	B	E	C	A	E	C
Approach Delay		55.6		22.7		29.5			27.1
Approach LOS		E		C		C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 33.4	Intersection LOS: C
Intersection Capacity Utilization 82.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Lake St. & Mountain St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	324	24	87	51	37	49	241	781	46	8	562	72
Future Volume (veh/h)	324	24	87	51	37	49	241	781	46	8	562	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	338	25	55	53	39	39	251	814	36	8	585	65
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	145	319	382	242	242	281	1073	902	17	1373	152
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.16	0.57	0.57	0.01	0.43	0.43
Sat Flow, veh/h	1321	515	1133	1304	858	858	1781	1870	1573	1781	3225	358
Grp Volume(v), veh/h	338	0	80	53	0	78	251	814	36	8	322	328
Grp Sat Flow(s),veh/h/ln	1321	0	1648	1304	0	1716	1781	1870	1573	1781	1777	1806
Q Serve(g_s), s	28.4	0.0	4.2	3.7	0.0	3.9	15.8	37.7	1.1	0.5	14.6	14.6
Cycle Q Clear(g_c), s	32.3	0.0	4.2	7.9	0.0	3.9	15.8	37.7	1.1	0.5	14.6	14.6
Prop In Lane	1.00		0.69	1.00		0.50	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	389	0	464	382	0	483	281	1073	902	17	756	769
V/C Ratio(X)	0.87	0.00	0.17	0.14	0.00	0.16	0.89	0.76	0.04	0.46	0.43	0.43
Avail Cap(c_a), veh/h	389	0	464	382	0	483	441	1073	902	106	756	769
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	31.1	34.1	0.0	31.0	47.4	18.5	10.7	56.5	23.1	23.1
Incr Delay (d2), s/veh	18.4	0.0	0.2	0.2	0.0	0.2	9.3	5.0	0.1	6.8	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	0.0	1.7	1.2	0.0	1.7	7.5	16.0	0.4	0.3	6.1	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.0	0.0	31.3	34.3	0.0	31.2	56.7	23.5	10.8	63.3	24.9	24.9
LnGrp LOS	E	A	C	C	A	C	E	C	B	E	C	C
Approach Vol, veh/h		418			131			1101			658	
Approach Delay, s/veh		56.1			32.4			30.7			25.3	
Approach LOS		E			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	72.0		37.0	22.7	55.0		37.0				
Change Period (Y+Rc), s	4.6	* 6.2		* 4.7	4.6	6.2		* 4.7				
Max Green Setting (Gmax), s	6.8	* 66		* 32	28.4	43.8		* 32				
Max Q Clear Time (g_c+I1), s	2.5	39.7		34.3	17.8	16.6		9.9				
Green Ext Time (p_c), s	0.0	6.0		0.0	0.2	3.6		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		33.9	
HCM 6th LOS		C	

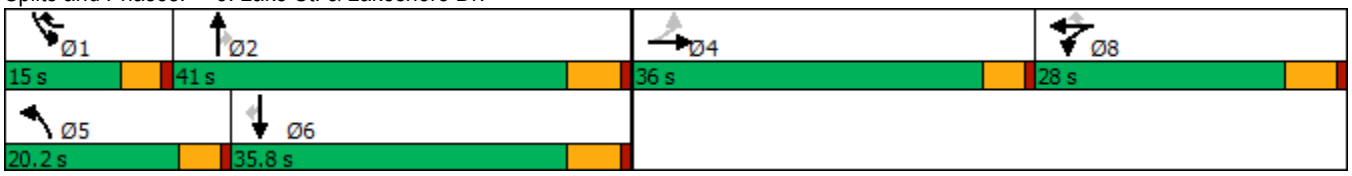
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	65	122	198	119	340	98	766	221	226	454	150
Future Volume (vph)	65	122	198	119	340	98	766	221	226	454	150
Turn Type	Perm	NA	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4	8	8	1	5	2		1	6	
Permitted Phases	4				8			2			6
Detector Phase	4	4	8	8	1	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.6	35.6	15.8	15.8	9.6	9.6	33.8	33.8	9.6	22.8	22.8
Total Split (s)	36.0	36.0	28.0	28.0	15.0	20.2	41.0	41.0	15.0	35.8	35.8
Total Split (%)	30.0%	30.0%	23.3%	23.3%	12.5%	16.8%	34.2%	34.2%	12.5%	29.8%	29.8%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	5.8	5.8	4.6	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		23.2	19.2	19.2	30.9	11.6	35.5	35.5	10.5	34.4	34.4
Actuated g/C Ratio		0.21	0.18	0.18	0.28	0.11	0.32	0.32	0.10	0.31	0.31
v/c Ratio		0.84	0.81	0.46	0.43	0.66	0.84	0.46	0.87	0.52	0.39
Control Delay		44.1	64.8	46.7	4.2	65.3	44.0	7.8	76.3	35.4	12.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		44.1	64.8	46.7	4.2	65.3	44.0	7.8	76.3	35.4	12.2
LOS		D	E	D	A	E	D	A	E	D	B
Approach Delay		44.1		30.2			38.5			42.4	
Approach LOS		D		C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 109.4	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 38.3	Intersection LOS: D
Intersection Capacity Utilization 79.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Lake St. & Lakeshore Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	122	123	198	119	340	98	766	221	226	454	150
Future Volume (veh/h)	65	122	123	198	119	340	98	766	221	226	454	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.81	1.00		0.72	1.00		0.88	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	154	109	251	151	310	124	970	137	286	575	112
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	292	206	305	320	618	153	1181	463	339	1225	485
Arrive On Green	0.20	0.20	0.20	0.17	0.17	0.17	0.09	0.33	0.33	0.10	0.34	0.34
Sat Flow, veh/h	771	1444	1016	1781	1870	2015	1781	3554	1393	3456	3554	1406
Grp Volume(v), veh/h	195	0	150	251	151	310	124	970	137	286	575	112
Grp Sat Flow(s),veh/h/ln	1832	0	1400	1781	1870	1007	1781	1777	1393	1728	1777	1406
Q Serve(g_s), s	10.1	0.0	10.2	14.4	7.7	14.1	7.2	26.6	7.7	8.6	13.4	6.0
Cycle Q Clear(g_c), s	10.1	0.0	10.2	14.4	7.7	14.1	7.2	26.6	7.7	8.6	13.4	6.0
Prop In Lane	0.42		0.73	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	0	283	305	320	618	153	1181	463	339	1225	485
V/C Ratio(X)	0.53	0.00	0.53	0.82	0.47	0.50	0.81	0.82	0.30	0.84	0.47	0.23
Avail Cap(c_a), veh/h	543	0	415	373	392	696	262	1181	463	339	1225	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	0.0	37.8	42.4	39.6	33.4	47.6	32.5	26.2	47.0	27.1	24.7
Incr Delay (d2), s/veh	1.2	0.0	1.5	11.7	1.1	0.6	3.9	6.5	1.6	16.5	1.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	3.6	7.1	3.5	3.3	3.3	11.8	2.7	4.4	5.6	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	0.0	39.3	54.1	40.7	34.1	51.5	39.0	27.8	63.4	28.4	25.8
LnGrp LOS	D	A	D	D	D	C	D	D	C	E	C	C
Approach Vol, veh/h		345			712			1231			973	
Approach Delay, s/veh		39.1			42.5			39.0			38.4	
Approach LOS		D			D			D			D	

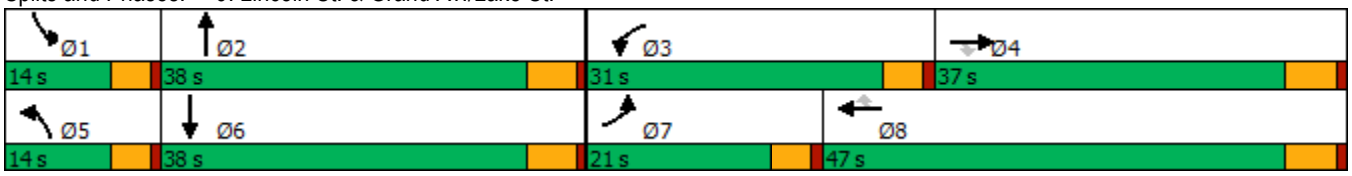
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	41.0		26.0	13.7	42.3		23.9				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	35.2		31.4	15.6	30.0		22.2				
Max Q Clear Time (g_c+I1), s	10.6	28.6		12.2	9.2	15.4		16.4				
Green Ext Time (p_c), s	0.0	3.5		2.2	0.1	3.4		1.7				

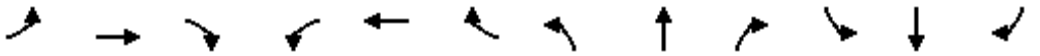
Intersection Summary			
HCM 6th Ctrl Delay		39.6	
HCM 6th LOS		D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	92	510	46	187	393	23	40	134	50	128
Future Volume (vph)	92	510	46	187	393	23	40	134	50	128
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.8	32.8	9.6	31.8	31.8	9.6	34.4	9.6	34.4
Total Split (s)	21.0	37.0	37.0	31.0	47.0	47.0	14.0	38.0	14.0	38.0
Total Split (%)	17.5%	30.8%	30.8%	25.8%	39.2%	39.2%	11.7%	31.7%	11.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	10.8	35.8	35.8	17.1	42.2	42.2	7.1	14.4	7.6	14.9
Actuated g/C Ratio	0.12	0.38	0.38	0.18	0.45	0.45	0.08	0.15	0.08	0.16
v/c Ratio	0.60	0.50	0.09	0.77	0.33	0.04	0.39	0.66	0.47	0.48
Control Delay	54.4	27.1	0.3	53.6	19.9	0.1	54.0	17.9	56.1	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	27.1	0.3	53.6	19.9	0.1	54.0	17.9	56.1	22.7
LOS	D	C	A	D	B	A	D	B	E	C
Approach Delay		29.1			29.6			21.4		28.7
Approach LOS		C			C			C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 93.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 27.5	Intersection LOS: C
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Lincoln St. & Grand Av./Lake St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	510	46	187	393	23	40	134	240	50	128	99
Future Volume (veh/h)	92	510	46	187	393	23	40	134	240	50	128	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	680	42	249	524	27	53	179	248	67	171	100
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	1280	561	285	1542	678	71	384	336	86	495	275
Arrive On Green	0.09	0.36	0.36	0.16	0.43	0.43	0.04	0.22	0.22	0.05	0.23	0.23
Sat Flow, veh/h	1781	3554	1559	1781	3554	1561	1781	1777	1554	1781	2200	1221
Grp Volume(v), veh/h	123	680	42	249	524	27	53	179	248	67	136	135
Grp Sat Flow(s),veh/h/ln	1781	1777	1559	1781	1777	1561	1781	1777	1554	1781	1777	1645
Q Serve(g_s), s	6.4	14.4	1.7	13.0	9.3	0.9	2.8	8.3	14.1	3.5	6.1	6.6
Cycle Q Clear(g_c), s	6.4	14.4	1.7	13.0	9.3	0.9	2.8	8.3	14.1	3.5	6.1	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.74
Lane Grp Cap(c), veh/h	154	1280	561	285	1542	678	71	384	336	86	400	370
V/C Ratio(X)	0.80	0.53	0.07	0.87	0.34	0.04	0.75	0.47	0.74	0.78	0.34	0.36
Avail Cap(c_a), veh/h	308	1280	561	495	1542	678	176	610	534	176	610	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.6	24.0	20.0	38.9	17.8	15.5	45.1	32.4	34.7	44.7	30.9	31.0
Incr Delay (d2), s/veh	3.6	1.6	0.3	3.5	0.6	0.1	5.8	0.9	3.2	5.5	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	5.9	0.6	5.7	3.6	0.3	1.3	3.5	5.4	1.6	2.6	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	25.6	20.2	42.4	18.4	15.6	51.0	33.3	37.8	50.2	31.4	31.6
LnGrp LOS	D	C	C	D	B	B	D	C	D	D	C	C
Approach Vol, veh/h		845			800			480			338	
Approach Delay, s/veh		28.3			25.8			37.6			35.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	25.9	19.8	40.0	8.4	26.8	12.8	47.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	32.6	26.4	31.2	9.4	32.6	16.4	41.2
Max Q Clear Time (g_c+I1), s	5.5	16.1	15.0	16.4	4.8	8.6	8.4	11.3
Green Ext Time (p_c), s	0.0	2.2	0.3	3.8	0.0	1.4	0.1	3.4

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	615	650	13	7	14
Future Vol, veh/h	12	615	650	13	7	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	854	903	18	10	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	921	0	-	0	1373	912
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	461	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	739	-	-	-	148	331
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	602	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	739	-	-	-	145	331
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	602	-

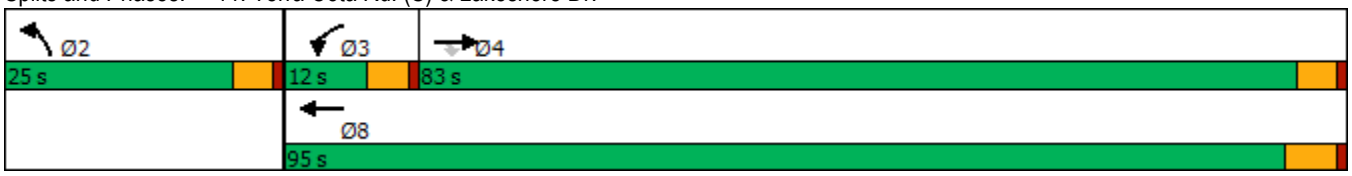
Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	739	-	-	-	275	331
HCM Lane V/C Ratio	0.023	-	-	-	0.035	0.059
HCM Control Delay (s)	10	-	-	-	18.6	16.6
HCM Lane LOS	A	-	-	-	C	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Configurations					
Traffic Volume (vph)	593	29	12	610	56
Future Volume (vph)	593	29	12	610	56
Turn Type	NA	Perm	Prot	NA	Prot
Protected Phases	4		3	8	2
Permitted Phases		4			
Detector Phase	4	4	3	8	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	15.8	14.6
Total Split (s)	83.0	83.0	12.0	95.0	25.0
Total Split (%)	69.2%	69.2%	10.0%	79.2%	20.8%
Yellow Time (s)	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		
Recall Mode	Max	Max	None	Max	None
Act Effct Green (s)	86.1	86.1	5.8	89.3	14.9
Actuated g/C Ratio	0.75	0.75	0.05	0.78	0.13
v/c Ratio	0.59	0.04	0.19	0.58	0.65
Control Delay	10.3	2.2	58.1	7.6	61.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	2.2	58.1	7.6	61.2
LOS	B	A	E	A	E
Approach Delay	9.9			8.6	61.2
Approach LOS	A			A	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 114.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 49.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Terra Cota Rd. (S) & Lakeshore Dr.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	593	29	12	610	56	47
Future Volume (veh/h)	593	29	12	610	56	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	824	37	17	847	78	65
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	1391	1146	33	1503	94	78
Arrive On Green	0.74	0.74	0.02	0.80	0.10	0.10
Sat Flow, veh/h	1870	1541	1781	1870	914	762
Grp Volume(v), veh/h	824	37	17	847	144	0
Grp Sat Flow(s),veh/h/ln	1870	1541	1781	1870	1688	0
Q Serve(g_s), s	22.4	0.7	1.0	18.0	9.3	0.0
Cycle Q Clear(g_c), s	22.4	0.7	1.0	18.0	9.3	0.0
Prop In Lane		1.00	1.00		0.54	0.45
Lane Grp Cap(c), veh/h	1391	1146	33	1503	173	0
V/C Ratio(X)	0.59	0.03	0.52	0.56	0.83	0.00
Avail Cap(c_a), veh/h	1391	1146	119	1503	310	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.5	3.7	54.0	3.9	48.9	0.0
Incr Delay (d2), s/veh	1.9	0.1	4.7	1.5	9.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.2	0.5	4.5	4.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.4	3.8	58.7	5.4	58.6	0.0
LnGrp LOS	A	A	E	A	E	A
Approach Vol, veh/h	861			864	144	
Approach Delay, s/veh	8.2			6.5	58.6	
Approach LOS	A			A	E	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.0	6.6	88.4		95.0
Change Period (Y+Rc), s		4.6	4.6	* 5.8		5.8
Max Green Setting (Gmax), s		20.4	7.4	* 78		89.2
Max Q Clear Time (g_c+I1), s		11.3	3.0	24.4		20.0
Green Ext Time (p_c), s		0.2	0.0	6.8		7.0

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	9.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	102	0	5	175	125	0	0	3	255	0	8
Future Vol, veh/h	24	102	0	5	175	125	0	0	3	255	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	121	0	6	208	149	0	0	4	304	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	357	0	-	121	0	0	479	548	121	476	474	283
Stage 1	-	-	-	-	-	-	179	179	-	295	295	-
Stage 2	-	-	-	-	-	-	300	369	-	181	179	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1202	-	0	1467	-	-	497	444	930	499	489	756
Stage 1	-	-	0	-	-	-	823	751	-	713	669	-
Stage 2	-	-	0	-	-	-	709	621	-	821	751	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1202	-	-	1467	-	-	479	430	930	486	474	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	479	430	-	486	474	-
Stage 1	-	-	-	-	-	-	802	731	-	694	666	-
Stage 2	-	-	-	-	-	-	697	618	-	797	731	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.1	8.9	24.4
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	930	1202	-	1467	-	-	491
HCM Lane V/C Ratio	0.004	0.024	-	0.004	-	-	0.638
HCM Control Delay (s)	8.9	8.1	0	7.5	-	-	24.4
HCM Lane LOS	A	A	A	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	0	-	-	4.4

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↱			↗
Traffic Vol, veh/h	0	360	289	171	0	16
Future Vol, veh/h	0	360	289	171	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	391	314	186	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	407
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	644
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	644
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	644
HCM Lane V/C Ratio	-	-	-	0.027
HCM Control Delay (s)	-	-	-	10.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	31	31	272	47	25	421	194	44	814
Future Volume (vph)	31	31	272	47	25	421	194	44	814
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	15.8	15.8	9.6	16.2	16.2	9.6	16.2
Total Split (s)	38.0	38.0	38.0	38.0	9.6	70.2	70.2	11.8	72.4
Total Split (%)	31.7%	31.7%	31.7%	31.7%	8.0%	58.5%	58.5%	9.8%	60.3%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		5.8	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)		33.4		32.2	5.0	64.5	64.5	6.6	68.0
Actuated g/C Ratio		0.28		0.27	0.04	0.55	0.55	0.06	0.58
v/c Ratio		0.19		1.02	0.36	0.45	0.22	0.49	0.88
Control Delay		30.4		95.4	69.6	18.4	3.8	71.6	33.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		30.4		95.4	69.6	18.4	3.8	71.6	33.5
LOS		C		F	E	B	A	E	C
Approach Delay		30.4		95.4		16.0			35.4
Approach LOS		C		F		B			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 39.3	Intersection LOS: D
Intersection Capacity Utilization 81.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Lake St. & Nichols Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	31	16	272	47	23	25	421	194	44	814	46
Future Volume (veh/h)	31	31	16	272	47	23	25	421	194	44	814	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	34	16	296	51	17	27	458	0	48	885	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	201	86	369	54	18	45	1044		62	996	56
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.03	0.56	0.00	0.03	0.57	0.57
Sat Flow, veh/h	622	762	326	1185	204	68	1781	1870	1585	1781	1753	99
Grp Volume(v), veh/h	84	0	0	364	0	0	27	458	0	48	0	935
Grp Sat Flow(s),veh/h/ln	1709	0	0	1457	0	0	1781	1870	1585	1781	0	1853
Q Serve(g_s), s	0.0	0.0	0.0	24.2	0.0	0.0	1.7	16.7	0.0	3.1	0.0	51.3
Cycle Q Clear(g_c), s	4.2	0.0	0.0	28.5	0.0	0.0	1.7	16.7	0.0	3.1	0.0	51.3
Prop In Lane	0.40		0.19	0.81		0.05	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	495	0	0	441	0	0	45	1044		62	0	1052
V/C Ratio(X)	0.17	0.00	0.00	0.82	0.00	0.00	0.61	0.44		0.78	0.00	0.89
Avail Cap(c_a), veh/h	530	0	0	458	0	0	76	1044		110	0	1052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.1	0.0	0.0	41.7	0.0	0.0	56.2	15.0	0.0	55.8	0.0	22.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	11.4	0.0	0.0	4.9	1.3	0.0	7.6	0.0	11.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	11.2	0.0	0.0	0.8	6.7	0.0	1.5	0.0	22.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.2	0.0	0.0	53.0	0.0	0.0	61.1	16.4	0.0	63.4	0.0	33.1
LnGrp LOS	C	A	A	D	A	A	E	B		E	A	C
Approach Vol, veh/h		84			364			485	A		983	
Approach Delay, s/veh		33.2			53.0			18.9			34.6	
Approach LOS		C			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	71.3		36.6	7.5	72.4		36.6				
Change Period (Y+Rc), s	4.6	6.2		* 5.8	4.6	6.2		5.8				
Max Green Setting (Gmax), s	7.2	64.0		* 33	5.0	66.2		32.2				
Max Q Clear Time (g_c+I1), s	5.1	18.7		6.2	3.7	53.3		30.5				
Green Ext Time (p_c), s	0.0	2.7		0.4	0.0	5.2		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Notes

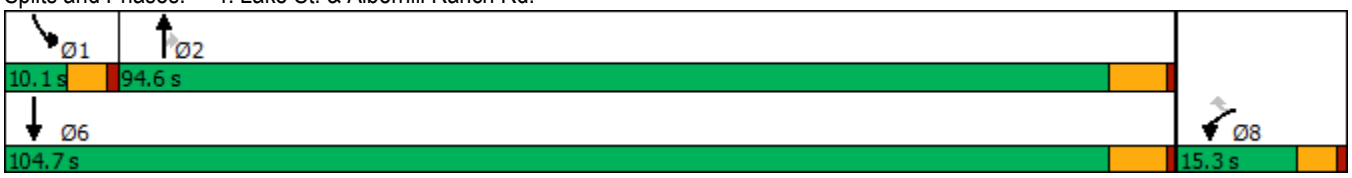
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	50	22	632	59	42	1069
Future Volume (vph)	50	22	632	59	42	1069
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.7	14.7	16.2	16.2	9.6	16.2
Total Split (s)	15.3	15.3	94.6	94.6	10.1	104.7
Total Split (%)	12.8%	12.8%	78.8%	78.8%	8.4%	87.3%
Yellow Time (s)	3.7	3.7	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.2	6.2	4.6	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	10.1	10.1	94.7	94.7	5.4	102.8
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.37	0.18	0.47	0.05	0.58	0.73
Control Delay	59.2	54.3	7.0	1.1	83.9	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	54.3	7.0	1.1	83.9	8.0
LOS	E	D	A	A	F	A
Approach Delay	57.7		6.5			10.9
Approach LOS	E		A			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.6	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 73.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Lake St. & Alberhill Ranch Rd.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	22	632	59	42	1069
Future Volume (veh/h)	50	22	632	59	42	1069
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	24	695	62	46	1175
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	139	124	1418	1202	59	1553
Arrive On Green	0.08	0.08	0.76	0.76	0.03	0.83
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	55	24	695	62	46	1175
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	3.5	1.7	17.0	1.2	3.0	34.1
Cycle Q Clear(g_c), s	3.5	1.7	17.0	1.2	3.0	34.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	139	124	1418	1202	59	1553
V/C Ratio(X)	0.40	0.19	0.49	0.05	0.78	0.76
Avail Cap(c_a), veh/h	159	142	1418	1202	83	1553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	51.2	5.5	3.6	56.9	4.6
Incr Delay (d2), s/veh	0.7	0.3	1.2	0.1	17.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.7	5.1	0.3	1.6	7.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.5	6.7	3.7	73.9	8.1
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	79		757			1221
Approach Delay, s/veh	52.3		6.5			10.6
Approach LOS	D		A			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.5	96.2			104.7	14.0
Change Period (Y+Rc), s	4.6	6.2			6.2	4.7
Max Green Setting (Gmax), s	5.5	88.4			98.5	10.6
Max Q Clear Time (g_c+I1), s	5.0	19.0			36.1	5.5
Green Ext Time (p_c), s	0.0	5.0			13.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	66	0	691	1075	43
Future Vol, veh/h	0	66	0	691	1075	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	72	0	751	1168	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1192	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	228	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	228	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	228	-	-
HCM Lane V/C Ratio	-	0.315	-	-
HCM Control Delay (s)	-	27.9	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1.3	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	79	0	691	1077	64
Future Vol, veh/h	0	79	0	691	1077	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	86	0	751	1171	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	621	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	431	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	431	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

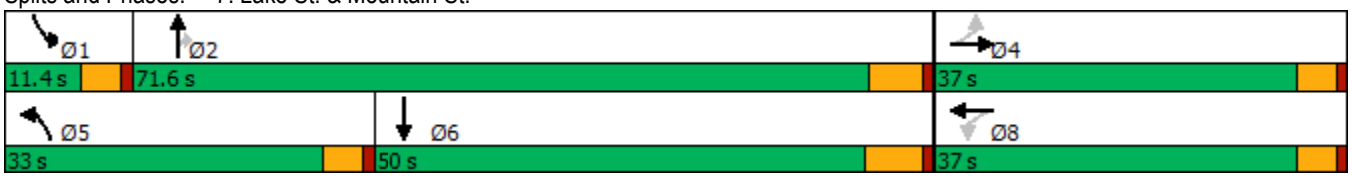
Approach	EB	NB	SB
HCM Control Delay, s	15.4	0	0
HCM LOS	C		

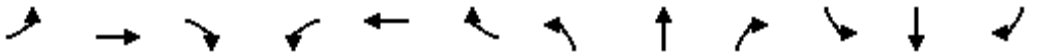
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	431	-	-
HCM Lane V/C Ratio	-	0.199	-	-
HCM Control Delay (s)	-	15.4	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.7	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	305	12	25	13	342	373	17	35	1016
Future Volume (vph)	305	12	25	13	342	373	17	35	1016
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.7	34.7	21.7	21.7	9.6	26.8	26.8	9.6	23.2
Total Split (s)	37.0	37.0	37.0	37.0	33.0	71.6	71.6	11.4	50.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	27.5%	59.7%	59.7%	9.5%	41.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.6	4.8	4.8	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	4.7	4.7	4.6	5.8	5.8	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	30.4	30.4	30.4	30.4	26.6	68.9	68.9	6.2	44.0
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.23	0.59	0.59	0.05	0.38
v/c Ratio	0.92	0.13	0.08	0.06	0.92	0.37	0.02	0.40	0.92
Control Delay	74.9	13.5	33.6	20.6	73.9	14.9	0.1	67.6	47.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	13.5	33.6	20.6	73.9	14.9	0.1	67.6	47.4
LOS	E	B	C	C	E	B	A	E	D
Approach Delay		65.5		26.9		42.2			48.0
Approach LOS		E		C		D			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.5	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 48.5	Intersection LOS: D
Intersection Capacity Utilization 86.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Lake St. & Mountain St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	12	43	25	13	14	342	373	17	35	1016	106
Future Volume (veh/h)	305	12	43	25	13	14	342	373	17	35	1016	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	332	13	25	27	14	6	372	405	15	38	1104	108
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	416	150	289	398	326	140	399	1072	907	54	1241	121
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.22	0.57	0.57	0.03	0.38	0.38
Sat Flow, veh/h	1392	572	1100	1370	1242	532	1781	1870	1584	1781	3270	320
Grp Volume(v), veh/h	332	0	38	27	0	20	372	405	15	38	599	613
Grp Sat Flow(s),veh/h/ln	1392	0	1672	1370	0	1775	1781	1870	1584	1781	1777	1813
Q Serve(g_s), s	27.0	0.0	2.0	1.8	0.0	1.0	23.6	13.6	0.5	2.4	36.4	36.5
Cycle Q Clear(g_c), s	27.9	0.0	2.0	3.7	0.0	1.0	23.6	13.6	0.5	2.4	36.4	36.5
Prop In Lane	1.00		0.66	1.00		0.30	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	416	0	439	398	0	465	399	1072	907	54	675	688
V/C Ratio(X)	0.80	0.00	0.09	0.07	0.00	0.04	0.93	0.38	0.02	0.70	0.89	0.89
Avail Cap(c_a), veh/h	440	0	468	422	0	497	438	1072	907	105	675	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	0.0	32.1	33.5	0.0	31.8	43.9	13.4	10.6	55.4	33.5	33.5
Incr Delay (d2), s/veh	9.5	0.0	0.1	0.1	0.0	0.0	24.9	1.0	0.0	5.9	16.1	16.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	0.0	0.8	0.6	0.0	0.4	12.8	5.5	0.2	1.1	17.6	18.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	0.0	32.2	33.6	0.0	31.8	68.8	14.4	10.7	61.3	49.6	49.5
LnGrp LOS	D	A	C	C	A	C	E	B	B	E	D	D
Approach Vol, veh/h		370			47			792			1250	
Approach Delay, s/veh		49.7			32.8			39.9			49.9	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	72.3		35.0	30.4	50.0		35.0				
Change Period (Y+Rc), s	4.6	* 6.2		* 4.7	4.6	6.2		* 4.7				
Max Green Setting (Gmax), s	6.8	* 66		* 32	28.4	43.8		* 32				
Max Q Clear Time (g_c+I1), s	4.4	15.6		29.9	25.6	38.5		5.7				
Green Ext Time (p_c), s	0.0	2.5		0.3	0.2	3.1		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		46.3	
HCM 6th LOS		D	

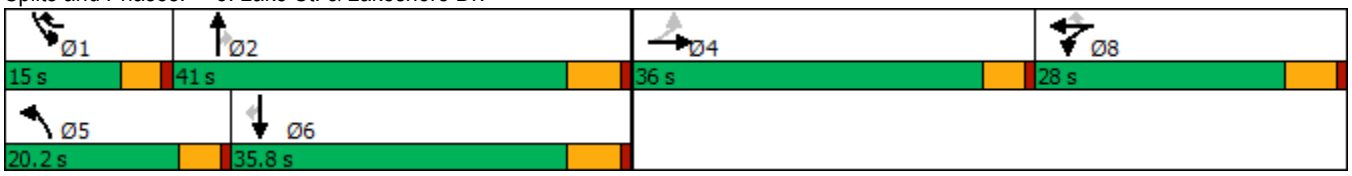
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	21	140	11	271	16	473	99	322	700	18
Future Volume (vph)	19	21	140	11	271	16	473	99	322	700	18
Turn Type	Perm	NA	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4	8	8	1	5	2		1	6	
Permitted Phases	4				8			2			6
Detector Phase	4	4	8	8	1	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.6	35.6	15.8	15.8	9.6	9.6	33.8	33.8	9.6	22.8	22.8
Total Split (s)	36.0	36.0	28.0	28.0	15.0	20.2	41.0	41.0	15.0	35.8	35.8
Total Split (%)	30.0%	30.0%	23.3%	23.3%	12.5%	16.8%	34.2%	34.2%	12.5%	29.8%	29.8%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	5.8	5.8	4.6	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		13.5	13.7	13.7	30.3	5.8	36.1	36.1	10.7	47.5	47.5
Actuated g/C Ratio		0.15	0.15	0.15	0.33	0.06	0.39	0.39	0.12	0.52	0.52
v/c Ratio		0.20	0.57	0.04	0.26	0.15	0.36	0.16	0.87	0.41	0.02
Control Delay		26.6	47.5	37.1	3.9	49.3	23.4	5.8	64.3	18.9	0.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		26.6	47.5	37.1	3.9	49.3	23.4	5.8	64.3	18.9	0.1
LOS		C	D	D	A	D	C	A	E	B	A
Approach Delay		26.6		19.3			21.1			32.6	
Approach LOS		C		B			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 91.6	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 26.6	Intersection LOS: C
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Lake St. & Lakeshore Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	21	21	140	11	271	16	473	99	322	700	18
Future Volume (veh/h)	19	21	21	140	11	271	16	473	99	322	700	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	23	1	151	12	282	17	509	103	346	753	13
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	154	7	222	233	688	35	1511	673	422	1875	836
Arrive On Green	0.08	0.08	0.08	0.12	0.12	0.12	0.02	0.43	0.43	0.12	0.53	0.53
Sat Flow, veh/h	1558	2000	88	1781	1870	2790	1781	3554	1584	3456	3554	1585
Grp Volume(v), veh/h	23	0	21	151	12	282	17	509	103	346	753	13
Grp Sat Flow(s),veh/h/ln	1792	0	1854	1781	1870	1395	1781	1777	1584	1728	1777	1585
Q Serve(g_s), s	1.0	0.0	0.9	6.7	0.5	7.0	0.8	8.0	3.3	8.1	10.5	0.3
Cycle Q Clear(g_c), s	1.0	0.0	0.9	6.7	0.5	7.0	0.8	8.0	3.3	8.1	10.5	0.3
Prop In Lane	0.87		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	0	143	222	233	688	35	1511	673	422	1875	836
V/C Ratio(X)	0.17	0.00	0.15	0.68	0.05	0.41	0.49	0.34	0.15	0.82	0.40	0.02
Avail Cap(c_a), veh/h	680	0	703	478	501	1089	336	1511	673	434	1875	836
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	0.0	35.7	34.7	31.9	26.1	40.2	16.0	14.6	35.5	11.7	9.3
Incr Delay (d2), s/veh	0.6	0.0	0.5	3.6	0.1	0.4	3.9	0.6	0.5	10.7	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.4	3.0	0.2	2.2	0.4	3.0	1.2	3.8	3.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	0.0	36.2	38.3	32.0	26.5	44.1	16.6	15.1	46.2	12.4	9.3
LnGrp LOS	D	A	D	D	C	C	D	B	B	D	B	A
Approach Vol, veh/h		44			445			629			1112	
Approach Delay, s/veh		36.2			30.7			17.1			22.9	
Approach LOS		D			C			B			C	

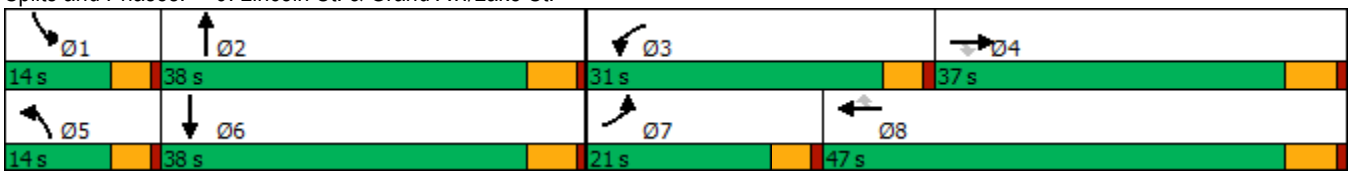
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	41.0		11.0	6.2	49.5		16.1				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	35.2		31.4	15.6	30.0		22.2				
Max Q Clear Time (g_c+I1), s	10.1	10.0		3.0	2.8	12.5		9.0				
Green Ext Time (p_c), s	0.0	3.5		0.2	0.0	4.5		1.3				

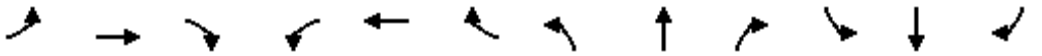
Intersection Summary												
HCM 6th Ctrl Delay			23.0									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	25	344	20	173	421	25	32	35	24	26
Future Volume (vph)	25	344	20	173	421	25	32	35	24	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases			4			8				
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	32.8	32.8	9.6	31.8	31.8	9.6	34.4	9.6	34.4
Total Split (s)	21.0	37.0	37.0	31.0	47.0	47.0	14.0	38.0	14.0	38.0
Total Split (%)	17.5%	30.8%	30.8%	25.8%	39.2%	39.2%	11.7%	31.7%	11.7%	31.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	6.1	32.8	32.8	12.6	46.2	46.2	6.4	15.5	6.0	13.2
Actuated g/C Ratio	0.08	0.40	0.40	0.15	0.57	0.57	0.08	0.19	0.07	0.16
v/c Ratio	0.20	0.25	0.03	0.65	0.22	0.03	0.24	0.22	0.19	0.07
Control Delay	45.2	20.2	0.1	46.0	12.6	0.0	45.3	10.8	45.2	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	20.2	0.1	46.0	12.6	0.0	45.3	10.8	45.2	23.4
LOS	D	C	A	D	B	A	D	B	D	C
Approach Delay		20.8			21.4			17.0		31.6
Approach LOS		C			C			B		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 81.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 64.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Lincoln St. & Grand Av./Lake St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	344	20	173	421	25	32	35	112	24	26	14
Future Volume (veh/h)	25	344	20	173	421	25	32	35	112	24	26	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	355	19	178	434	23	33	36	76	25	27	4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1562	696	219	1901	847	59	259	231	48	434	63
Arrive On Green	0.03	0.44	0.44	0.12	0.53	0.53	0.03	0.15	0.15	0.03	0.14	0.14
Sat Flow, veh/h	1781	3554	1584	1781	3554	1583	1781	1777	1585	1781	3111	449
Grp Volume(v), veh/h	26	355	19	178	434	23	33	36	76	25	15	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1583	1781	1777	1585	1781	1777	1784
Q Serve(g_s), s	1.1	4.8	0.5	7.5	5.0	0.5	1.4	1.4	3.3	1.1	0.6	0.6
Cycle Q Clear(g_c), s	1.1	4.8	0.5	7.5	5.0	0.5	1.4	1.4	3.3	1.1	0.6	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	49	1562	696	219	1901	847	59	259	231	48	248	249
V/C Ratio(X)	0.53	0.23	0.03	0.81	0.23	0.03	0.56	0.14	0.33	0.52	0.06	0.06
Avail Cap(c_a), veh/h	379	1562	696	611	1901	847	217	752	671	217	752	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	13.4	12.2	32.9	9.5	8.4	36.7	28.7	29.5	37.0	28.8	28.8
Incr Delay (d2), s/veh	3.2	0.3	0.1	2.8	0.3	0.1	3.1	0.2	0.8	3.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.7	0.2	3.2	1.7	0.2	0.6	0.6	1.2	0.5	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	13.8	12.3	35.7	9.8	8.5	39.8	28.9	30.4	40.2	28.9	28.9
LnGrp LOS	D	B	B	D	A	A	D	C	C	D	C	C
Approach Vol, veh/h		400			635			145			56	
Approach Delay, s/veh		15.4			17.0			32.2			33.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	16.6	14.1	39.7	7.1	16.1	6.7	47.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.8	4.6	5.4	4.6	5.8
Max Green Setting (Gmax), s	9.4	32.6	26.4	31.2	9.4	32.6	16.4	41.2
Max Q Clear Time (g_c+I1), s	3.1	5.3	9.5	6.8	3.4	2.6	3.1	7.0
Green Ext Time (p_c), s	0.0	0.6	0.2	2.1	0.0	0.1	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	481	509	15	10	10
Future Vol, veh/h	8	481	509	15	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	512	541	16	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	557	0	-	0	823	549
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1012	-	-	-	327	535
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	748	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1012	-	-	-	324	535
Mov Cap-2 Maneuver	-	-	-	-	439	-
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	748	-

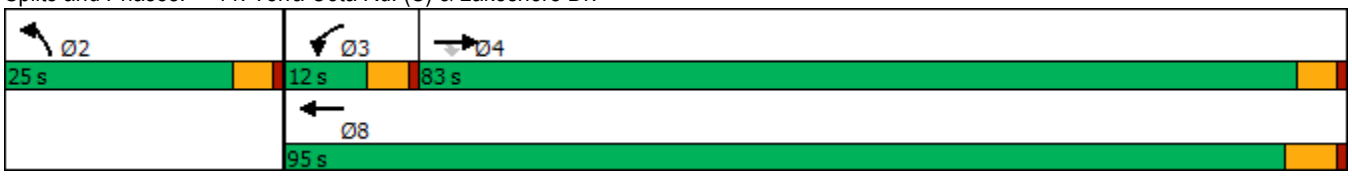
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1012	-	-	-	439	535
HCM Lane V/C Ratio	0.008	-	-	-	0.024	0.02
HCM Control Delay (s)	8.6	-	-	-	13.4	11.9
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Configurations					
Traffic Volume (vph)	442	50	43	503	24
Future Volume (vph)	442	50	43	503	24
Turn Type	NA	Perm	Prot	NA	Prot
Protected Phases	4		3	8	2
Permitted Phases		4			
Detector Phase	4	4	3	8	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	15.8	14.6
Total Split (s)	83.0	83.0	12.0	95.0	25.0
Total Split (%)	69.2%	69.2%	10.0%	79.2%	20.8%
Yellow Time (s)	3.6	3.6	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.8	4.6
Lead/Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes		
Recall Mode	Max	Max	None	Max	None
Act Effct Green (s)	85.1	85.1	6.6	93.5	11.4
Actuated g/C Ratio	0.77	0.77	0.06	0.84	0.10
v/c Ratio	0.33	0.04	0.44	0.34	0.45
Control Delay	6.5	1.6	63.9	3.5	55.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	1.6	63.9	3.5	55.4
LOS	A	A	E	A	E
Approach Delay	6.0			8.3	55.4
Approach LOS	A			A	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.1	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 47.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Terra Cota Rd. (S) & Lakeshore Dr.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	442	50	43	503	24	47
Future Volume (veh/h)	442	50	43	503	24	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	470	47	46	535	26	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	1392	1176	62	1536	46	89
Arrive On Green	0.74	0.74	0.03	0.82	0.08	0.08
Sat Flow, veh/h	1870	1580	1781	1870	557	1071
Grp Volume(v), veh/h	470	47	46	535	77	0
Grp Sat Flow(s),veh/h/ln	1870	1580	1781	1870	1650	0
Q Serve(g_s), s	9.3	0.9	2.8	7.8	4.9	0.0
Cycle Q Clear(g_c), s	9.3	0.9	2.8	7.8	4.9	0.0
Prop In Lane		1.00	1.00		0.34	0.65
Lane Grp Cap(c), veh/h	1392	1176	62	1536	137	0
V/C Ratio(X)	0.34	0.04	0.75	0.35	0.56	0.00
Avail Cap(c_a), veh/h	1392	1176	121	1536	310	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.7	3.7	52.0	2.4	47.9	0.0
Incr Delay (d2), s/veh	0.7	0.1	6.6	0.6	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.2	1.3	1.6	2.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.4	3.7	58.5	3.1	51.5	0.0
LnGrp LOS	A	A	E	A	D	A
Approach Vol, veh/h	517			581	77	
Approach Delay, s/veh	5.2			7.4	51.5	
Approach LOS	A			A	D	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		13.6	8.4	86.6		95.0
Change Period (Y+Rc), s		4.6	4.6	* 5.8		5.8
Max Green Setting (Gmax), s		20.4	7.4	* 78		89.2
Max Q Clear Time (g_c+I1), s		6.9	4.8	11.3		9.8
Green Ext Time (p_c), s		0.1	0.0	3.1		3.5

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 7.2:

EAPC (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

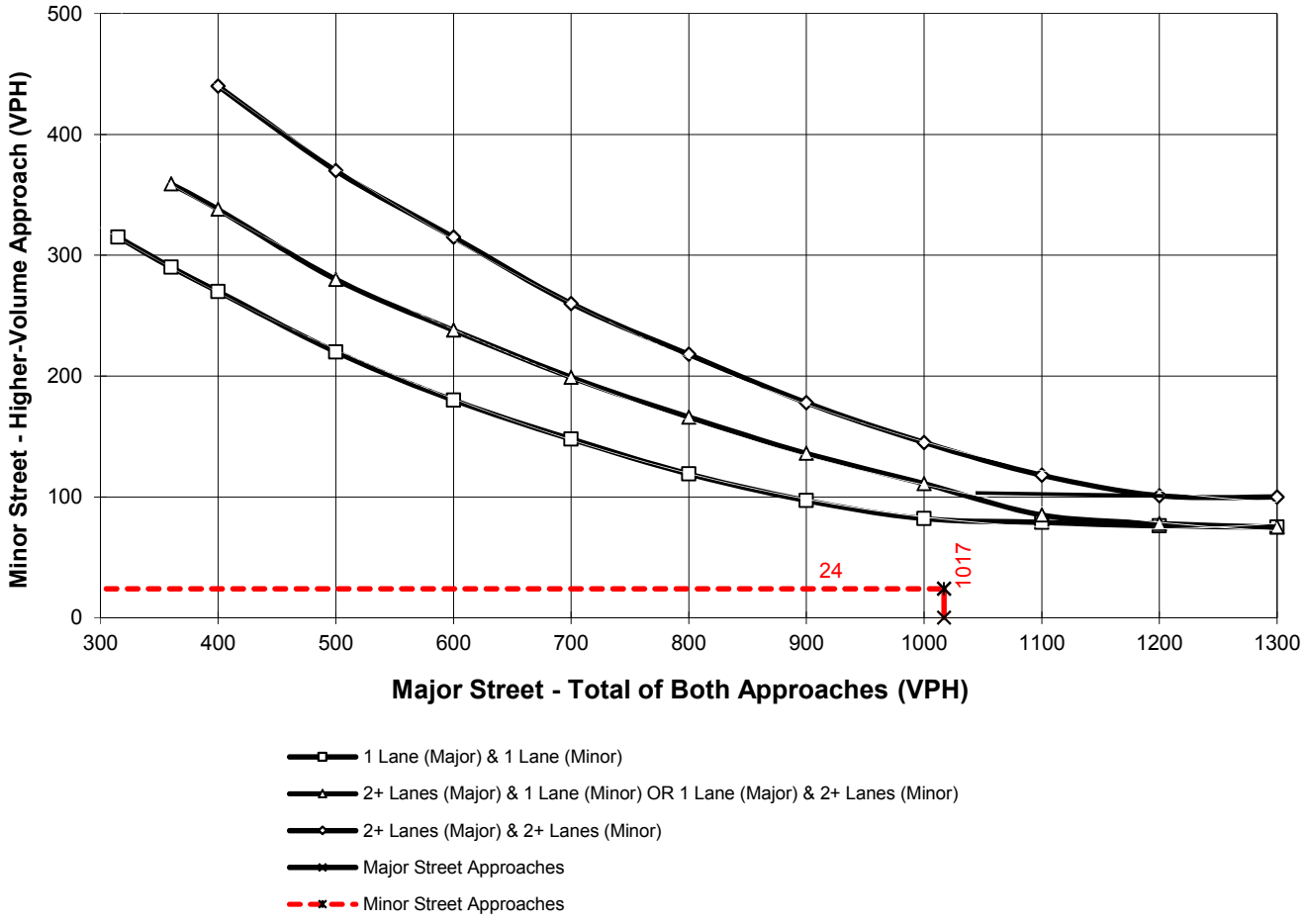
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2021) Conditions - Weekday PM Peak Hour**

Major Street Name = **Lakeshore Dr.**
Total of Both Approaches (VPH) = **1017**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Terra Cotta Rd. (N)**
High Volume Approach (VPH) = **24**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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Appendix N

Vehicle Miles Travelled Screening Analysis

URBAN CROSSROADS

urbanxroads.com

Approved
8/28/2020
Nicholas Lowe

August 26, 2020

Mr. Greg Hann
Empire Design Group, Inc.
P.O. Box 944
Murrieta, CA 92562

SUBJECT: LAKE & MOUNTAIN VEHICLE MILES TRAVELED (VMT) SCREENING ANALYSIS

Dear Mr. Greg Hann:

The following VMT Screening Analysis has been prepared for the Lake & Mountain Shopping Center (**Project**), which is located on the northwest corner of Lake Street and Mountain Street in the City of Lake Elsinore.

PROJECT OVERVIEW

the Project is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel.

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020.

It is our understanding that the City of Lake Elsinore utilizes the Western Riverside Council of Governments (WRCOG) VMT Screening Tool (**Screening Tool**), which was developed by WRCOG to assist local agencies with conducting project level VMT screening assessments. The Screening Tool is based on the Riverside Transportation Analysis Model (RIVTAM) and allows users to select a project via assessor's parcel number to determine if a project's location meets one or more of the screening thresholds for land use projects identified in the City of Lake Elsinore Transportation Impact Analysis Guidelines (**City Guidelines**) (1)

The focus of this memorandum is to evaluate each of the applicable screening thresholds to determine if the proposed Project would be expected to cause a less than significant impact to VMT without requiring a more detailed VMT analysis.

PROJECT SCREENING

The City Guidelines provides details on appropriate "screening thresholds" that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact. City Guidelines list the screening thresholds in the following three steps:

Step 1: Transit Priority Area (TPA) Screening

Step 2: Low VMT Area Screening

Step 3: Project Type Screening

A land use project need only to meet one of the above screening thresholds to result in a less than significant impact.

STEP 1: TPA SCREENING

Consistent with guidance identified in the Technical Advisory and City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[1] or an existing stop along a "high-quality transit corridor"[2]) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

The Project does not appear to be within a TPA nor does it meet the secondary FAR ratio requirement of greater than 0.75 FAR.

The TPA screening threshold is not met.

STEP 2: LOW VMT AREA SCREENING

As noted in the City Guidelines, residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. The Screening Tool uses the sub-regional travel demand model RIVTAM to estimate VMT for individual traffic analysis zones (TAZ's) for areas throughout the WRCOG region. A low VMT area is defined as an individual

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").
[2] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

TAZ where total daily VMT per service population is lower than the City average total daily VMT per service population. The Project's physical location based on parcel number (389030017) was selected in the Screening Tool to determine the VMT per service population for the TAZ containing the Project. Based on the Screening Tool results (see Attachment A), the Project TAZ (TAZ 3,419) is shown to generate 33.08 average daily VMT per service population, while the City of Lake Elsinore average daily VMT per service population is shown to be 36.29. Consistent with City Guidelines, before a final determination can be made based on low VMT area screening, the traffic engineer should also review the underlying land use assumptions and associated socio-economic data (SED) contained in the low VMT generating TAZ to ensure the proposed Project's land use is consistent with that of the low VMT generating TAZ. However, based on a review of the underlying SED contained within TAZ 3,419 there is 2,727 population (i.e., residential uses), 1 retail employee and 121 educational employees contained in the zone. The proposed Project does not appear to be consistent with the underlying land uses contained in the low VMT generating TAZ.

The Low VMT Area screening threshold is not met.

STEP 3: PROJECT TYPE SCREENING

The City Guidelines describe that projects consisting of local-serving retail less than 50,000 square feet may be presumed to cause a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel.[3] The proposed Project consists of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel and is assumed to be local serving.

The Project Type screening threshold is met.

CONCLUSION

Based on our review of applicable VMT screening thresholds, the Project meets the Project Type screening threshold and results in a less than significant VMT impact. The Project was not found to meet the Low VMT Area or TPA screening, however meeting the Project Type screening threshold is sufficient to determine a less than significant impact; no additional VMT analysis is required.

[3] Pg 5 of City of Lake Elsinore Traffic Impact Analysis Preparation Guide May 2020

If you have any questions, please contact me directly at (949) 480-7788.

Respectfully submitted,

URBAN CROSSROADS, INC.

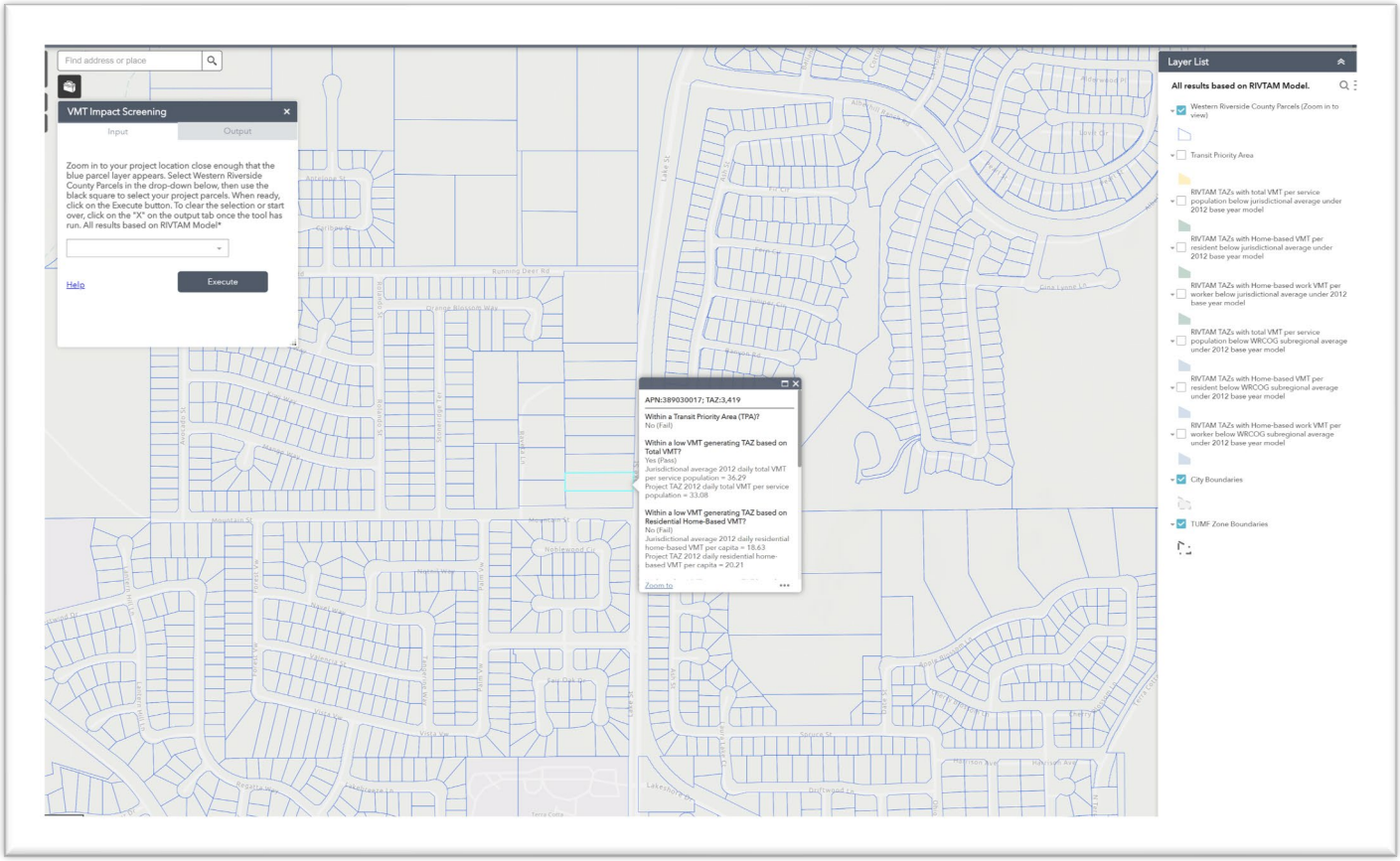
Aric Evatt, PTP
President

Robert Vu, PE
Transportation Engineer

REFERENCES

1. *City of Lake Elsinore Traffic Impact Analysis Preparation Guide.* City of Lake Elsinore : s.n., May 2020.

ATTACHMENT A


Find address or place
VMT Impact Screening
Input
Output
Zoom in to your project location close enough that the blue parcel layer appears. Select Western Riverside County Parcels in the drop-down below, then use the black square to select your project parcels. When ready, click on the Execute button. To clear the selection or start over, click on the "X" on the output tab once the tool has run. All results based on RIVTAM Model*
Help
Execute
APN:389030017; TAZ:3,419
Within a Transit Priority Area (TPA)?
No (Fail)
Within a low VMT generating TAZ based on Total VMT?
Yes (Pass)
Jurisdictional average 2012 daily total VMT per service population = 36.29
Project TAZ 2012 daily total VMT per service population = 33.08
Within a low VMT generating TAZ based on Residential Home-Based VMT?
No (Fail)
Jurisdictional average 2012 daily residential home-based VMT per capita = 18.63
Project TAZ 2012 daily residential home-based VMT per capita = 20.21
Zoom to
Layer List
All results based on RIVTAM Model.
Western Riverside County Parcels (Zoom in to view)
Transit Priority Area
RIVTAM TAZs with total VMT per service population below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below jurisdictional average under 2012 base year model
RIVTAM TAZs with total VMT per service population below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below WRCOG subregional average under 2012 base year model
City Boundaries
TUMF Zone Boundaries

Appendix O

Elsinore Valley Municipal Water District
Service Planning Letter

Elsinore Valley Municipal Water District

Service Planning Letter # 3351-0

August 14, 2020

P.O. Box 3000 ~ 31315 Chaney St ~ Lake Elsinore, CA 92530
Phone: (951) 674-3146 ~ Fax: (951) 674-7554

Description:	COMMERCIAL RETAIL (WO# 19-041)	**Zoning:**	Commercial
Address:	NWC Mountain and Lake Streets	**# of Lots:**	7
City:	Lake Elsinore **State:** CA **Zip:** 92530	**Acreage:**	5.6
APN:	389-030-012, 389-030-013, 389-030-014, 389-030-015, 389-030-016, 389-030-017, 389-030018	**Tract Map:**	N/A
Phone:	951-696-1490	**Pressure Zone:**	1800
Email:	EDGpermitting@empiregr.biz CC: ghann@empiregr.biz		

Empire Design Group, Inc.
PO BOX 94
Murrieta, CA 92564
Attn: Gregory S. Hann

Will Serve Fees Paid: $340.00
Paid Date: 08/06/2020
Check / Receipt #: 470018

DEVELOPER
Lake and Mountain Street Commercial Center, LLC
3017 E. Edinger Ave.
Tustin, CA 92780
Attn: Jogesh Kumar

ENGINEERING
Empire Design Group, Inc.
PO BOX 94
Murrieta, CA 92564
Attn: Gregory S. Hann

Elsinore Valley Municipal Water District ("EVMWD") has determined that water and sewer is available to serve the above referenced project based on the information provided. This determination of water & sewer availability shall remain valid for two years from the date of this letter. If the construction of the project has not commenced within this two year time frame, EVMWD will be under no further obligation to serve the project unless the developer receives an updated letter from EVMWD reconfirming water and sewer availability. EVMWD reserves the right to re-evaluate, revise, and update the Service Planning Letter at any time. EVMWD considers the conditions to have expired, automatically, two years from the date of issuance of the Letter, (Section 3903. C EVMWD Administrative Code).

EVMWD will provide such potable water at such pressure as may be available from time to time as a result of its normal operations. Installation of facilities through developer funding shall be made in accordance with the current EVMWD Standards and Administration Code. In order for us to provide adequate water for domestic use as well as fire service protection, it may be necessary for the developer to fund the cost of special facilities, such as, but not limited to booster pumps, in addition to the cost of mainlines and services. EVMWD will provide more specific information regarding special facilities and fees after submittal of your improvement plans, fire department requirements, and engineering fees for this project.

The following improvements are required per the Due Diligence requirements of the project:

1. The Owner/Developer shall provide a water study analysis the onsite water demand.
2. The Owner/Developer shall provide a sewer study analyzing the onsite sewer discharge.
3. The Owner/Developer shall construct a Zone 1800 12-inch waterline along Lake Street from Mountain Street to the project's northernly boundary.
4. The Owner/Developer shall construct an 8-inch waterline in Mountain Street from Ash Street to the project's westerly boundary and along Lake Street from Mountain Street to the project's northernly boundary.
5. The Owner/Developer shall construct an individual water service with backflow device for each building/suite.
6. The Owner/Developer shall construct an individual water service with backflow device for the car wash.

7. The Owner/Developer shall construct an irrigation water service with backflow device to serve the entire property's landscape area.
8. The Owner/Developer shall construct an individual fire service with double detector check assembly for each building.
9. The Owner/Developer shall construct a sewer lateral to serve the lot.
10. The Owner/Developer shall construct offsite fire hydrants per Fire Department's recommendation. If onsite fire hydrants are required by the Fire Department, a public waterline shall be constructed onsite to serve the onsite fire hydrants.
11. All water and sewer services shall be installed on the frontage of the property address street.
12. The Owner/Developer shall dedicate to the District an easement for all public water and sewer facilities constructed within the private property. A minimum 20-ft wide easement is required for one utility.
13. The Owner/Developer shall record a Water Rights Grant Deed to grant the water rights to the District.
14. The Owner/Developer shall submit a Water and Sewer Improvement Plan to the District. The plan submittal shall include water fixture unit calculation conforming to the current California Plumbing Code to confirm adequate meter size.
15. The Owner/Developer shall submit landscape plans to the District for review prior to City approval of the plans.

An estimate of fees will be quoted during the plan check process. Once plans have been accepted by the District and mylars have been submitted a formal invoice of fees will be prepared.

For all Commercial Development, please contact Keith Martinez at (951) 674-3146, extension 8326 regarding District requirements, Industrial Waste application, fees and inspection.

This letter shall at all times be subject to such changes or modifications by EVMWD.
If you have any questions regarding the above, please contact me at (951) 674-3146 Ext. 8427

mc
Authorized by: Christina Bachinski **Date:** 08/14/2020

WO# 19-041

Elsinore Valley Municipal Water District

COMMERCIAL/INDUSTRIAL
ELSINORE VALLEY MUNICIPAL WATER DISTRICT
WILL SERVE & CONNECTION FEE APPLICATION

GENERAL INFORMATION

Date of Application: 7 8 20

Agency Requesting Letter: C ty o f Lake E sinore

Preferred Delivery Method of Completed Will Serve (Check One):

- ☐ Pickup at District Offices
- ■ Email to (Circle one): Owner/Developer Representative
- ☐ Mail to (Circle one): Owner/Developer Representative

CONTACT INFORMATION

Owner/Developer

Contact Name: Jogesh Kumar

Business Name: Lake and Mountain Street Commercial Center, LLC

Mailing Address: 3017 E. Edinger Ave. City: Tustin State: CA Zip: 92780

Email: Jogesh Kumar Telephone: ( ) Ext.

Representative for Owner/Developer (or) Engineering Firm, if applicable

Contact Name: Greg Hann

Business Name: Empire Design Group, Inc. Business Type: Service / Design

Mailing Address: PO BOX 944 City: Murrieta State: CA Zip: 92564

Email: EDGpermitting@empiregr.biz ; cc: ghann@empiregr.biz Telephone: (951) 696-1490 Ext.

PROJECT INFORMATION

Property Address: NWC Mountain and Lake Streets City: Lake Elsinore, State: CA Zip: 92530

Assessor's Parcel Number(s): 389-030-012, 013, 014, 015, 016, 017, 018

Total Acres: 6.07

Nearest Cross Streets: Mountain Street and Lake Street

Type of Construction: ☑ New Construction** ☐ Tenant Improvement ☐ New Tenant ☐ Change in Ownership ☐ Irrigation Meters

Will Serve Request for: ☑ Water & Sewer ☐ Water Only ☐ Sewer Only

** REQUIRED FOR COMMERCIAL/INDUSTRIAL BUILDINGS:

*Attach a Site Map (8.5" x 11") identifying building/suite numbers, associated square footage(s), and intended uses (i.e. office, warehouse, retail, restaurant, etc.).

*Provide Engineer's domestic & irrigation water demand calculations.

*Provide copy of Landscape Plans

A copy of the City building permit is required for all new development

Elsinore Valley Municipal Water District

PROJECT INFORMATION (*continued*)

Duplicate this page for each building/suite.

Building/Suite # QSR and Convenience store

Square Footage QSR: 1,525 / C-Store: 3,400

OPERATION(S) (*Check all that apply.*)

- ☐ Animal Kennel
- ☐ Auditorium/Amusement
- ☐ Auto Detail/Wash, Type_____
- ☐ Auto Sales/Repair
- ☐ Auto Service/Repair
- ☐ Bar, # Seats_____
- ☐ Beauty/Barber Shop, # Seats_____
- ☐ Bowling/Skating
- ☐ Campsite (Developed) # Sites_____
- ☐ Car Wash-Tunnel Type
- ☐ Car Wash-Wand Type
- ☐ Church
- ☐ Club
- ☐ Dentist Office
- ☐ Doctor Office
- ☐ Drive-In Theater
- ☐ Dry Cleaning
  - ☐ Office Only, # Employees_____
  - ☐ Plant, # Employees_____
- ☐ Dry Manufacturing
- ☐ Financial Institutions
- ☐ Golf Course/Camp/Park
- ☐ Health Spa
- ☐ Hospital
  - ☐ With Showers, # Rooms_____
  - ☐ Without Showers, # Rooms____
- ☐ Hotel/Motel/Rooming House, # Rooms _____
- ☐ Indoor Theater
- ☐ Laundromat, # Machines _____
- ☐ Lumber Yard
- ☐ Mobile Home Park, # Spaces _____
- ☐ Mortuary/Cemetery
- ☐ Night Club
- ☐ Nurseries/Greeneries
- ☐ Nursing Home, # Beds _____
- ☐ Office Building
- ☐ Open Storage
- ☐ Pre-School, # Students _____
- ☐ Professional Building
- ☐ Restaurant, # Fixtures____
- ☑ Retail Sales/Store/Unknown
- ☐ RV Camp With Sewer Hookups, # Sites_____
- ☐ School
  - ☐ With Cafeteria and Showers, # Students_____
  - ☐ Cafeteria without Showers, # Students_____
  - ☐ No Cafeteria, No Showers, # Students_____
- ☐ Service Shop
- ☐ Service Station
- ☐ Shopping Center
- ☐ Special Events Center, # Attendance _____
- ☐ Supermarket
- ☐ Veterinarian
- ☐ Warehousing
- ☐ Wholesale Outlet
- ☑ Other QSR (Quick Serve Restaurant)

Provide a detailed description of the type of manufacturing, business processes, production, or service activities proposed for this site. This information will be used to determine whether the proposed project will require pre-treatment of wastewater. If the project requires a Pre-Treatment Program, you will be required to contact Industrial Waste at (951) 674-3146 Ext. 8326, before a Will Serve will be issued.

Proposed Site includes the following Commercial /Retail uses:

1) Gasoline Canopy 6 MPDs
2) Convenience Store with attached QSR
3) Express Car Wash
4) Retail C & Drive-Thru A
5) Retail D & Drive- Thru B
6) Retail A
7) Retail B

See additional sheets for other buildings information.

Elsinore Valley Municipal Water District

SERVICES REQUESTED

Building/Suite #	SEWER No. of Units	WATER Meter Type Domestic / Irrigation	WATER Meter Size ¾" 1" 1-½" 2" 3" 4"	WATER Backflow Required? Yes / No / Not applicable
QSR & Convenience Store	2	domestic	2"	yes
Express Car Wash	1	domestic	4"	yes
Retail D and Drive-Thru B	2	domestic	2"	yes
Retail C and Drive-Thru A	2	domestic	2"	yes
Retail A	5	domestic	2"	yes
Retail	5	domestic	2"	yes

If you require more information please contact Engineering at (951) 674-3146 Ext. 8427

ENGINEERING FEES (*EVMWD Administrative Code, Section 2600*)

SERVICE AVAILABILITY LETTERS

Tract & Commercial Development $340.00

INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED.

FOR EVMWD USE ONLY

Fees Due: _____ Reviewed by: _____

Reimbursements: ☐ Yes ☐ No Reimbursement #(s) _____

Date Payment Received: _____ Receipt No.: _____ CK: _____

Date Received by Engineering: _____ Division: _____

Will Serve #: _____ WO#: _____ ☐ GIS ☐ Log ☐ CIPAce

Previous Account#: _____ Meter Size: _____ Pressure Zone: _____

Mail application form with appropriate fee to: EVMWD, P.O. Box 3000, Lake Elsinore, CA 92531-3000.

For questions, please contact Engineering at (951) 674-3146 Ext. 8427 or email Development@evmwd.net.

Please allow up to 20 working days for processing once the completed application has been accepted by the District.

Susana Salgado

From: Development Services
Sent: Thursday, August 6, 2020 7:34 AM
To: CSR Mailbox
Cc: Development Services
Subject: FW: EVMWD will Serve Letters Request APN: 389-030-012, 013, 014, 015, 016, 017, 018 -Lake & Mountain Street Commercial Center, LLC (EDG# 4589.01)
Attachments: Cerdicardevmwd.pdf; Commercial Will Serve Application (Fill-In Form) 8-4-20.pdf

Can you Please process this Will Serve and email it to me I am currently working remotely.

Christina Bachinski
Senior Development Services Representative
Elsinore Valley Municipal Water District
951-674-3146 Ext. 8427
31315 Chaney Street, Lake Elsinore, CA 92530





Please tell us how we're doing by completing this 3-minute survey.

From: Valerie Salampessy <admin@empiregr.biz>
Sent: Tuesday, August 4, 2020 3:12 PM
To: Development Services <development@evmwd.net>
Cc: Gregory Hann <GHann@empiregr.biz>; Alex Hann <AHann@empiregr.biz>
Subject: EVMWD will Serve Letters Request APN: 389-030-012, 013, 014, 015, 016, 017, 018 -Lake & Mountain Street Commercial Center, LLC (EDG# 4589.01)

[*External E-mail alert! Use caution before clicking links/attachments*]
Hi Engineering Services/Development,
Attached is application for Will Serve and Credit Card information for the above-mentioned site. Please let us know if we need anything else to obtain the Will Serve.

Valerie Salampessy
Empire Design Group, Inc.
24861 Washington Avenue
Murrieta, CA 92562
Mailing Address:
PO BOX 944

Murrieta, CA 92564
951/696-1490 Office
admin@empiregr.biz
www.EmpireDesignGroup.biz

MERCHANT COPY

ELSINORE VLY MUNI WATE
31315 CHANEY ST
LAKE ELSINORE, CA 92530

08/06/2020 14:42:09

CREDIT CARD

VISA SALE

Card #	XXXXXXXXXXXX3216
SEQ #:	8
Batch #:	94
INVOICE	11
Approval Code:	06290G
Entry Method:	Manual
Mode:	Online
Tax Amount:	$0.00
Avs Code:	YYY

SALE AMOUNT $340.00

CUSTOMER COPY

Elsinore Valley Municipal Water District

31315 Chaney St
PO Box 3000
Lake Elsinore, CA 92531
Office: (951) 674-3146
Fax: (951) 346-3352

August 6, 2020 14:48

Staff ID:	SSAL
Receipt No.	470018
Account:	
Customer:	
Service:	

Tender Methods

Visa	($340.00)
Total	($340.00)
Change	$0.00

Beginning Balance	$340.00
Payments applied	($340.00)

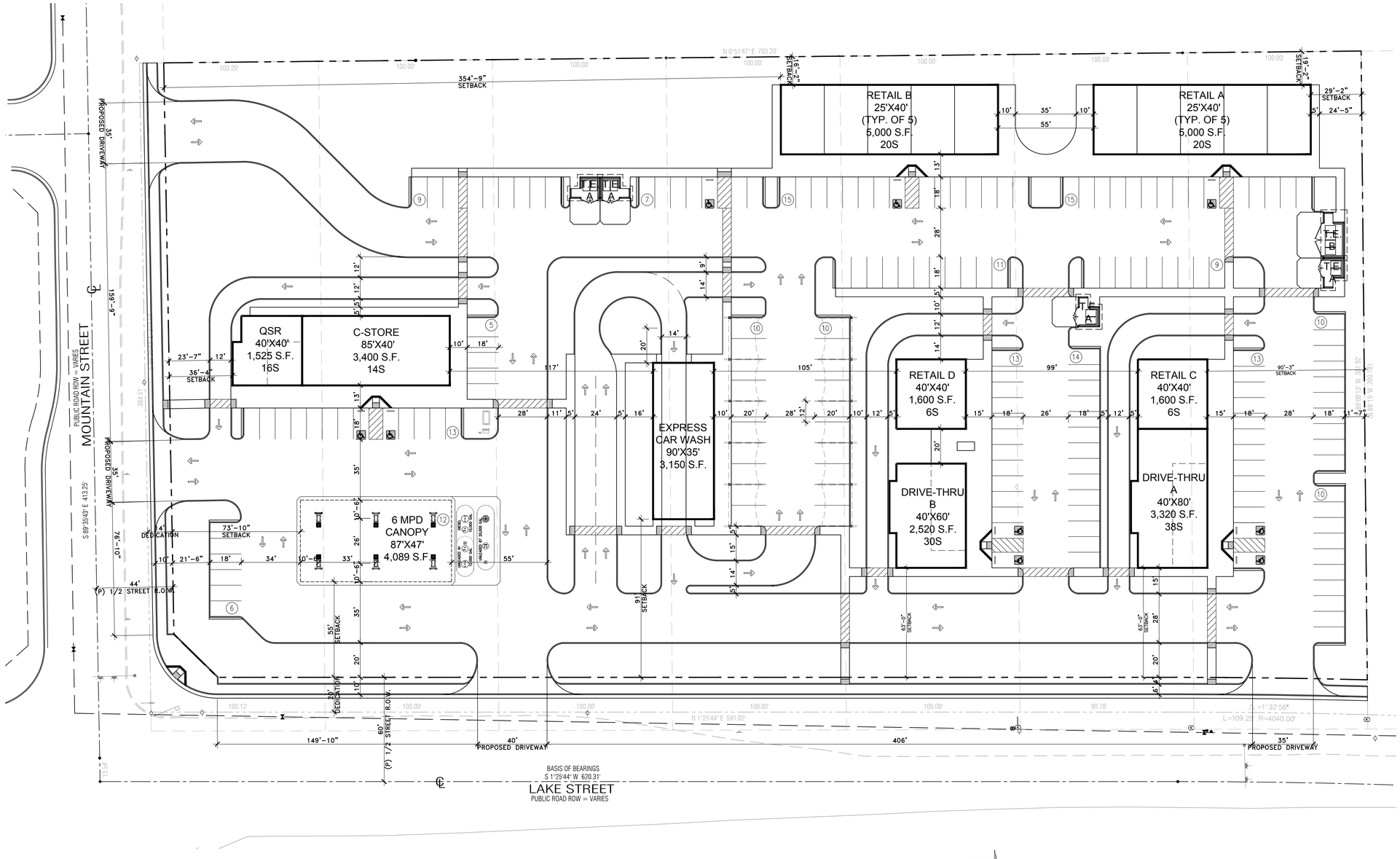
THANK YOU FOR YOUR PAYMENT!

Did you know you can make payments 24/7 using your credit/debit card by calling our main number or accessing your account at www.evmwd.com?

Visit our website at www.evmwd.com to access your account and make payments 24/7 or get valuable conservation information.

USE WATER WISELY!

19-041



CONCEPTUAL SITE PLAN

SCALE: 1" = 30'-0"

0 15 30 60

SITE DATA

ADDRESS:	NWC MOUNTAIN ST. & LAKE ST. LAKE ELSINORE, CA 92530
PERMIT NUMBER:	TBD
APN:	389-030-012, 013, 014, 015, 016, 017, 018
LOT SIZE:	~~5.60 ACRES (243,993 S.F.)~~
BUILDING AREAS:	C-STORE: 3,400 S.F. QSR: 1,525 S.F. CANOPY: 4,089 S.F. EXPRESS CAR WASH: 3,150 S.F. DRIVE-THRU A: 3,320 S.F. DRIVE-THRU B: 2,520 S.F. RETAIL A: 5,000 S.F. RETAIL B: 5,000 S.F. RETAIL C: 1,600 S.F. RETAIL D: 1,600 S.F. TRASH ENCLOSURE A: 176 S.F. (TYP. OF 4) TRASH ENCLOSURE B: 287 S.F. (TYP. OF 1)
BUILDING HEIGHT:	MAX HEIGHT: 45'-0"
COUNTY:	RIVERSIDE
CONSTRUCTION TYPE:	V-B/SPRINKLERED
OCCUPANCYS:	M
SPECIFIC PLAN:	N/A
EXISTING LAND USE:	VACANT
PROPOSED LAND USE:	RETAIL / COMMERCIAL
EXISTING ZONE:	C2 - GENERAL COMMERCIAL
PROPOSED ZONE:	C2 - GENERAL COMMERCIAL
SURROUNDING LAND USE AND ZONING:	NORTH: C2 - GENERAL COMMERCIAL SOUTH: R1 - SINGLE FAMILY RESIDENTIAL EAST: MURDOCK ALBERHILL RANCH SPECIFIC PLAN WEST: R1 - SINGLE FAMILY RESIDENTIAL
PARKING REQUIREMENTS:	RESTAURANT: 1/45 S.F. CUSTOMER & 1/200 S.F. NON RETAIL: 1/250 S.F. (ADEQUATE PARKING PROVIDED, BASED ON THE ABOVE CALCULATION)
LOT COVERAGE:	~~BUILDING: 32,140 S.F. (13%)~~ ~~LANDSCAPING: 65,072 S.F. (27%)~~ ~~IMPERVIOUS: 146,781 S.F. (60%)~~ ~~TOTAL: 243,993 S.F. (100%)~~

UTILITIES

WATER:
EASTERN MUNICIPAL WATER DISTRICT
951-928-3777

SEWER:
EASTERN MUNICIPAL WATER DISTRICT
951-928-3777

GAS:
SOUTHERN CALIFORNIA GAS CO.
1-800-427-2200

ELECTRICAL:
SOUTHERN CALIFORNIA EDISON
1-800-655-4555

TELEPHONE / CABLE:
SPECTRUM
1-833-694-9259

FRONTIER
1-800-921-8101

WASTE:
WASTE MANAGEMENT
1-866-909-4458

APPLICANT

DANNY SINGH
TIGER PETROLEUM, INC.
3017 E. EDINGER AVE.
TUSTIN, CA 92780
CELL PHONE: (949) 630-5345
E-MAIL: dannysingh9@gmail.com

ARCHITECT / EXHIBIT PREPARER

EMPIRE DESIGN GROUP, INC.
PO BOX 944
MURRIETA, CA 92564
PHONE: (951) 696-1490
FAX: (951) 696-1443
CELL PHONE: (951) 809-7601
E-MAIL: ghann@empiregr.biz
CONTACT: GREGORY HANN, ARCHITECT

PHYSICAL ADDRESS:
24861 WASHINGTON AVE.
MURRIETA, CA 92562

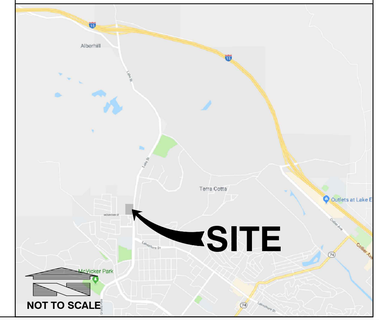
PROJECT DESCRIPTION (SOW)

1. THE PROJECT INVOLVES (7) SEVEN PARCELS TOTALING APPROXIMATELY 5.60 GROSS ACRES. THE PROPERTIES ARE CURRENTLY OWNED BY (3) THREE SEPARATE ENTITIES, WHO ARE IN THE PROCESS OF SELLING THEM TO THE APPLICANT.
2. THE PROJECT CONSISTS OF A 3,825 S.F. C-STORE WITH ATTACHED 1,575 S.F. QSR, AND AN (8) EIGHT MPD 5,643 S.F. FUELING CANOPY, A 3,150 S.F. EXPRESS CONVEYOR BELT CAR WASH WITH ASSOCIATED 19 VACUUM STALLS. A 6,250 S.F. COMMERCIAL RETAIL BUILDING A CONSISTING OF 5 SUITES. A 3,600 S.F. DRIVE-THRU A FAST FOOD RESTAURANT. A 2,400 S.F. DRIVE-THRU B FAST FOOD RESTAURANT WITH ATTACHED 1,000 S.F. RETAIL BUILDING B. A 2,000 S.F. DRIVE-THRU C FAST FOOD RESTAURANT WITH ATTACHED 1,200 S.F. RETAIL BUILDING C.
3. PROJECT ALSO INCLUDES ON-SITE PARKING, WQMP AREAS, SITE CIRCULATION, LANDSCAPING AND OFF-SITE IMPROVEMENTS.

SHEET INDEX

AS 1.0 EXHIBIT A CONCEPTUAL SITE PLAN

VICINITY MAP



NOT TO SCALE

EMPIRE DESIGN GROUP Inc.
24861 Washington Ave.
Murrieta, Calif. 92562
Tel 951-696-1490 Fax 951-696-1443

All ideas, designs and layouts shown on these drawings, including all documents on electronic media are the property of empire design group, and are intended to be used in connection with this specific project only and shall not otherwise be used for any purpose whatsoever without the written consent, and may not be reproduced or used without the written permission of empire design group.
All rights reserved

CLIENT:

TIGER PETROLEUM, INC.

COMMERCIAL RETAIL
APN: 389-030-014, 015, 016, 017, 018
NWC MOUNTAIN ST. & LAKE ST.
LAKE ELSINORE, CA 92530

Architect of Record:
GREGORY S. HANN, AIA
24861 WASHINGTON AVE.
MURRIETA, CA 92562
TEL: 951-696-1490
CEL: 951-809-7601
FAX: 951-696-1443
E-MAIL: ghann@empiregr.biz

SEAL:



Date: MAY 1, 2019

Project Number: EDG#04589

NO.	DATE	REVISION DESCRIPTION

DESIGNED BY: GH
CHECKED BY: GH
DRAWN BY: AH

DRAWING TITLE:

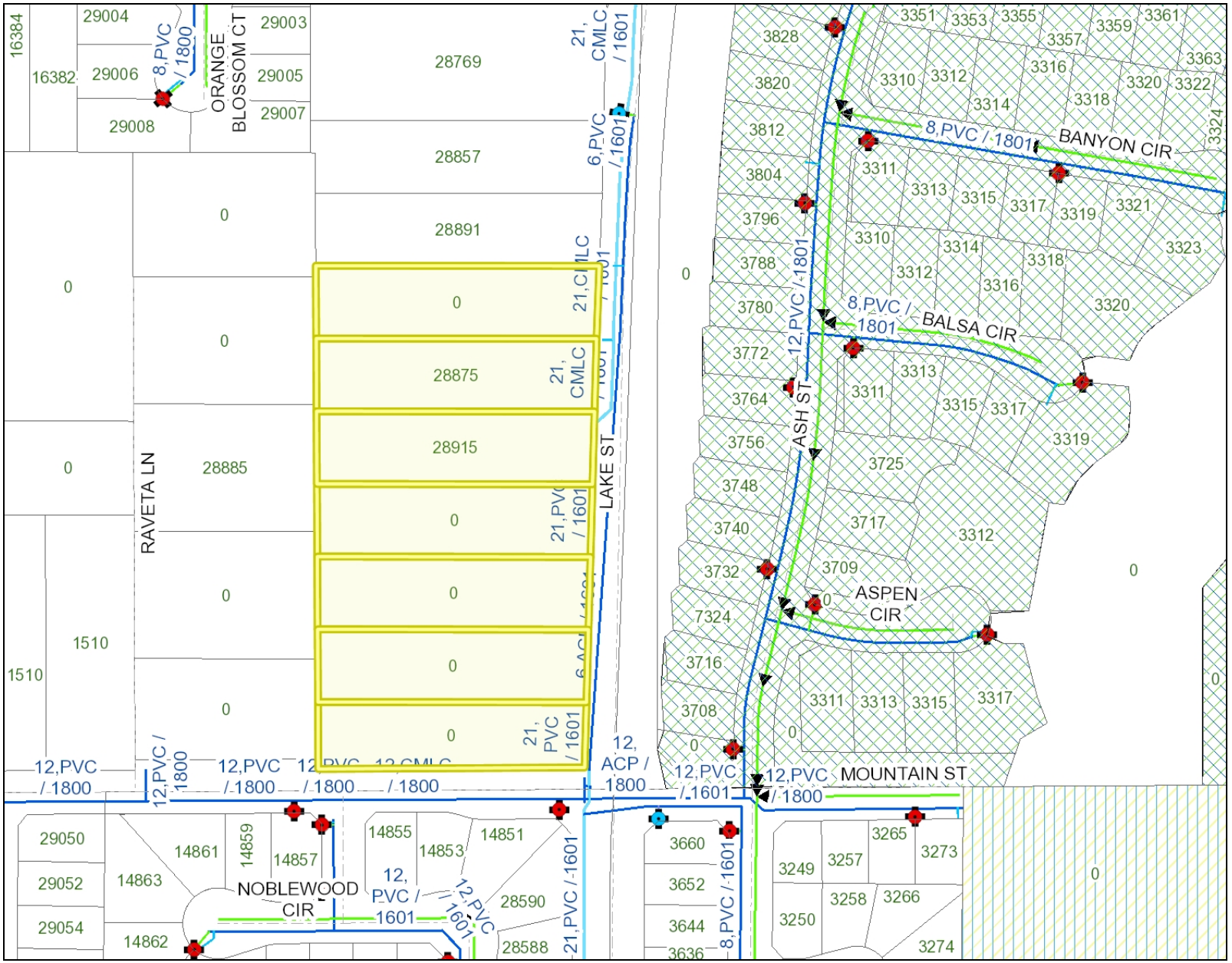
CONCEPTUAL SITE PLAN

SHEET NO:

AS 1.0

Exhibit D - Water and Sewer Map - APN 389-030-12, 013, 014, 015, 016, 017, 018

Elsinore Valley Municipal Water District



Legend

- EVMWD Boundary
- EVMWD Sphere of Influence
- Label House Number
- Highways
- Street Centerlines
- Parcels
- Waterbodies
- Non Potable Valves
  - Butterfly Valve
  - Check Valve
  - Gate Valve
- Non Potable Pressure Mains
  - Air Release
  - Blowoff
  - Distribution Main
  - Hydrant Lateral
  - Sampling Point
  - Transmission Main
  - Drain Line
- On Site Irrigation Lines
- Recycled Air Vac
- Recycled Blowoff
- Recycled Pressure Main
  - Distribution Main
  - Transmission Main
  - Air Release
  - Blowoff

1: 2,430

405.0 0 202.49 405.0 Feet

This application has been provided to give a visual display of District facilities and related geographic information. To be sure of complete accuracy, please check with Engineering staff for the most up to date information.

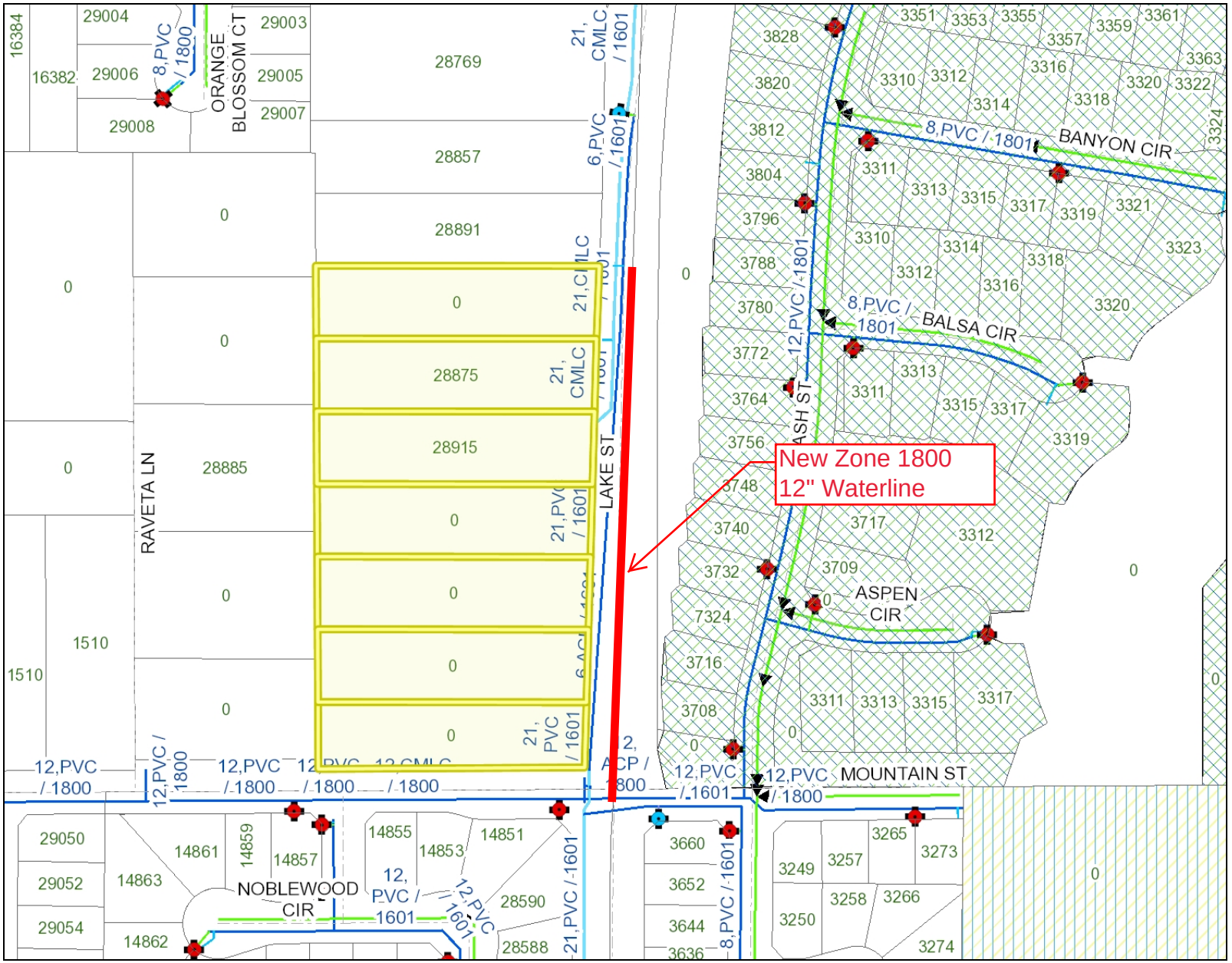
Data Sources: EVMWD, County of Riverside

9/4/2019 5:21:30 PM

Notes

Exhibit E - Waterline Extension - 19-041

Elsinore Valley Municipal Water District



Legend

- EVMWD Boundary
- EVMWD Sphere of Influence
- Label House Number
- Highways
- Street Centerlines
- Parcels
- Waterbodies
- Non Potable Valves
  - Butterfly Valve
  - Check Valve
  - Gate Valve
- Non Potable Pressure Mains
  - Air Release
  - Blowoff
  - Distribution Main
  - Hydrant Lateral
  - Sampling Point
  - Transmission Main
  - Drain Line
- On Site Irrigation Lines
- Recycled Air Vac
- Recycled Blowoff
- Recycled Pressure Main
  - Distribution Main
  - Transmission Main
  - Air Release
  - Blowoff

1: 2,430

405.0 0 202.49 405.0 Feet

This application has been provided to give a visual display of District facilities and related geographic information. To be sure of complete accuracy, please check with Engineering staff for the most up to date information.

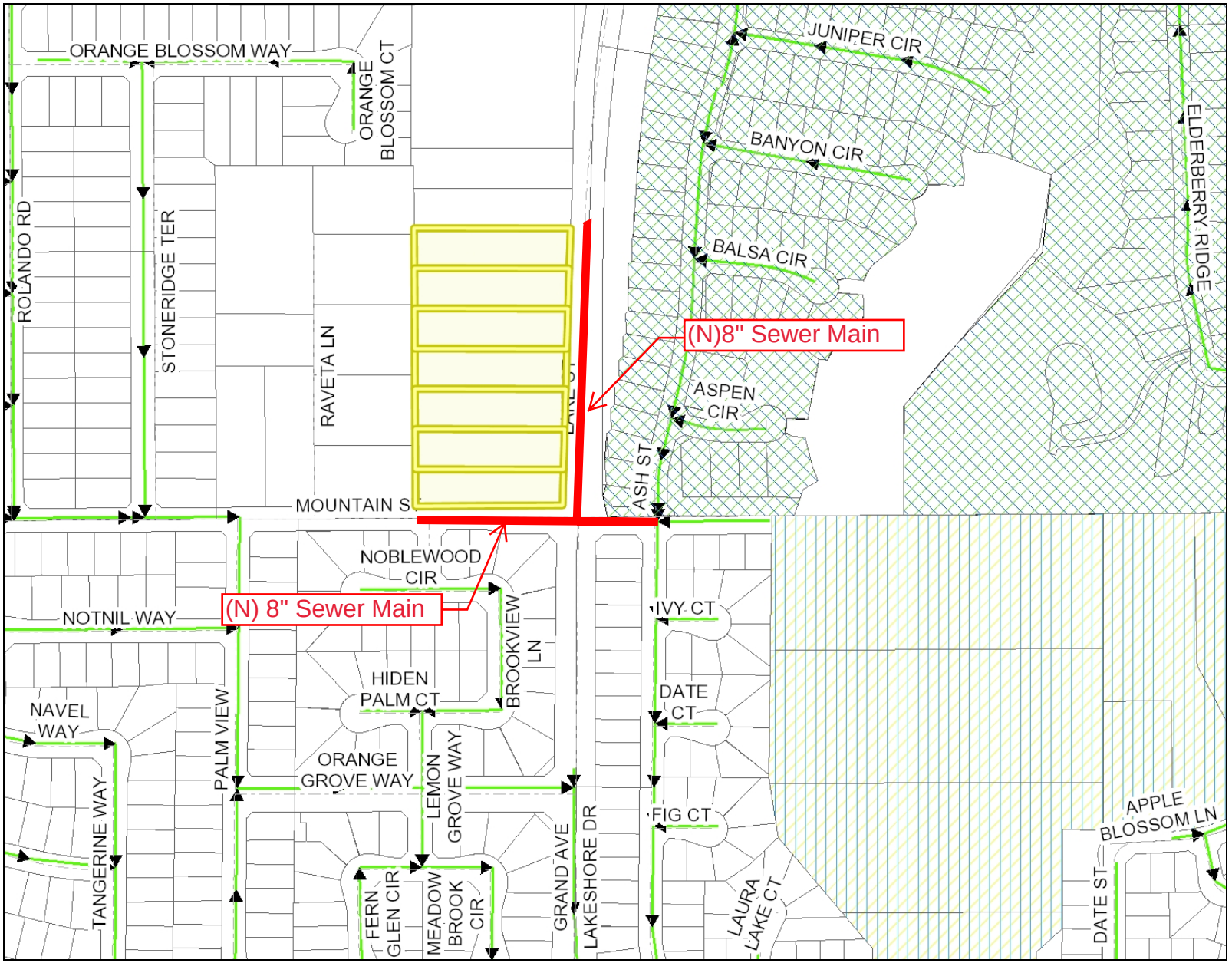
Data Sources: EVMWD, County of Riverside

9/4/2019 5:21:30 PM

Notes

Exhibit F - Sewer Main Extension - 19-041

Elsinore Valley Municipal Water District



Legend

- EVMWD Boundary
- EVMWD Sphere of Influence
- Label House Number
- Highways
- Street Centerlines
- Parcels
- Waterbodies

Non Potable Valves

- Butterfly Valve
- Check Valve
- Gate Valve

Non Potable Pressure Mains

- Air Release
- Blowoff
- Distribution Main
- Hydrant Lateral
- Sampling Point
- Transmission Main
- Drain Line

- On Site Irrigation Lines
- Recycled Air Vac
- Recycled Blowoff

Recycled Pressure Main

- Distribution Main
- Transmission Main
- Air Release
- Blowoff

1: 4,400

733.3 0 366.67 733.3 Feet

This application has been provided to give a visual display of District facilities and related geographic information. To be sure of complete accuracy, please check with Engineering staff for the most up to date information.

Data Sources: EVMWD, County of Riverside

9/17/2019 3:00:05 PM

Notes

Appendix P

Southern California Edison, Will Serve Letter

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

DATE 07/23/2020

TIGER PETROLEUM, INC.

COMMERCIAL RETAIL, NWC MOUNTIAN & LAKE ST, LAKE ELSINORE, CA

Your project is located in Southern California Edison (SCE) service territory. SCE will serve the above subject project's electrical requirements per the California Public Utilities Commission and Federal Energy Regulatory Commission tariffs.

SCE may need to conduct utility studies, where applicable, to assess whether additions or modifications to the existing electric infrastructure are required to serve this project. Where applicable, SCE has attached Appendix (B) which not only describes the study, and permitting, but includes a Project Information Sheet that will need to be completed by you and submitted to SCE if your project is at a point where SCE has to determine the required electrical utility work. This Will-Serve letter does not imply that either: (i) these studies have been completed, or (ii) that any required California Environmental Quality Act (CEQA) analysis of project-related electric utility impacts has been conducted.

I am the SCE Design Representative currently assigned to this project. SCE or Applicant will design and construct all required electrical infrastructure to serve this project provided you enter into the applicable contractual agreements with SCE identify scope of electrical utility work required, and supply the following information:

- Site plans as required
- Required contracts and agreements (fully executed)
- Applicable fees
- Local permits
- Required easement documents

Your project will be scheduled for construction once SCE has all the necessary information for your project and you have submitted or agreed to the applicable requirements as stated above, and paid any necessary fees.

If your project will not require SCE services, please notify us so that we can update our records.

SCE appreciates your business. If you have any questions, please feel free to call me at (909) 276-9645.

Sincerely,

SCE Design Representative

Enclosure: Appendix B, where applicable